

SDWIS/STATE Release 8.0 Design Document

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SDWIS/STATE RELEASE 8.0 DESIGN DOCUMENT

**CONTRACT NO. 68-W-99-002
TASK ORDER NO. 017**

Prepared for:

**United States Environmental Protection Agency
Office of Ground Water and Drinking Water
Drinking Water Protection Division
401 M Street, SW.
Washington, DC 20460**

Task Order Project Officer:

Edward Cottrill

Prepared by:

**Systems Development Center
Science Applications International Corporation
6565 Arlington Boulevard
Falls Church, VA 22042**

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1.0 INTRODUCTION

The United States Environmental Protection Agency (EPA) Office of Ground Water and Drinking Water is responsible for implementing the Public Water System Supervision Program established under the auspices of the Safe Drinking Water Act of 1974 (Public Law 93-523) and the 1996 Amendments to the Act (Public Law 104-183).

EPA developed the Safe Drinking Water Information System (SDWIS)/STATE to enable state primacy agencies to improve implementation of the National Primary Drinking Water Regulations (NPDWR) in their jurisdictions. Requirements for *SDWIS/STATE Release 8.0* were gathered and prioritized primarily during the four-and-one-half-day Joint Requirements Planning (JRP)/Joint Applications Design (JAD) meeting held January 8 through January 12, 2001. This release extends the base of SDWIS/STATE's Compliance Decision Support (CDS) capabilities to the following regulations: the Turbidity Rule, Surface Water Treatment Rule (SWTR), Interim Enhanced Surface Water Treatment Rule (IESWTR), Stage 1 Disinfectant/Disinfection By-Products (D/DBP), Lead & Copper Rule Minor Revisions, and the Public Notification Rule. The initial set of CDS capabilities, which targeted the Phase II/IIb/V, Lead & Copper, and Radionuclide Rules, were released with SDWIS/STATE 7.0, November 30, 2000.

Some Release 8.0 changes have been triggered by changes to EPA's reporting guidance. Another source of changes are functions that SDWIS/STATE users voted their highest priority to change, the majority of which fall into the TCR Scheduling and Noncompliance Determination area. This document contains the design specification for major new functions that EPA has specified for *SDWIS/STATE Release 8.0*. Highlights include the following new functions:

- Modifications to the *CDS Setup* processes in support of the rules mentioned above.
- A new Site Visit and Deficiency Maintenance capability.
- Revision to the way inventory changes trigger changes to TCR schedules.
- A new MDBP Summary Maintenance capability to allow users to enter SWTR and MRDL summaries.
- A new Results Averages Maintenance capability for users who do not wish to record results but want to record monitoring period averages and running annual averages.
- A new microbial removal maintenance capability.
- Sampling Point Subschedules for users who wish to determine M&R compliance at the sampling point level.

- Revised Facility Analyte Level to support the surface water treatment and disinfectant by-products compliance reports.
- Revised Violation function to better support violations under the new rules as well as to support EPA's new method of characterizing the period associated to a violation.
- Revised TCR Scheduling and TCR NCD functions.
- New or Revised Compliance Decision Support Reports as follows:
 - Results Alert Report.
 - Chemical/Radionuclide M&R Compliance Report.
 - Lead & Copper Rule.
 - Surface Water Treatment Compliance Report.
 - D/DBP Compliance Report.
 - User-Defined Summary Report.
 - PN Schedules Compliance Report.
 - Increased Schedules.
 - Decreased Schedules.
- Changes to Migration to SDWIS/FED Inventory, Sampling, and Actions.

Each second level subsection (e.g., 4.1, 7.5, etc.) is presented consistently using one of three approaches:

- *Presentation Type 1: This section documents the design for a function that is new with Release 8.0. As such, normal text means completely new design for Release 8.0. This section contains no redlined text.*
- *Presentation Type 2: The information in this section reflects a Release 8.0 update to an existing documented design. As such, normal text means no change from the current 7.0 release; redline/redline strikeout indicates where the functionality of an existing object (such as a field, button, menu item, etc.) has changed or where new functionality has been added for Release 8.0 .*
- *Presentation Type 3: The information in this section is not a comprehensive design of this function and only reflects Release 8.0 changes/new functionality. As such, normal text means new functionality (e.g., a new button, window, etc. is introduced); redline/redline strikeout indicates where the functionality of an existing object (such as a field, button, menu item, etc.) has changed.*

The matrix shown in Exhibit 1-1 shows which of the three presentation approaches applies to each subsection.

Section Number	Section Title	Presentation Type (1, 2, or 3)
2.0	LEGAL ENTITY	3
3.1	Analyte	3
3.2	Analyte Level	3
3.3	Standard Method and Analyte/Method Pairing	3
3.4	Violation Type	3
3.5	Standard Response	3
3.6	CDS Setup Processes	2
4.1	Site Visit	1
4.2	Treatment Plant Microbial Removal and Water System Facility	3
4.3	Sampling Point	3
4.4	Triggering Automated TCR Schedule Changes due to Inventory Changes	3

Exhibit 1-1. Presentation Approach by Subsection

Section Number	Section Title	Presentation Type (1, 2, or 3)
5.1	MDBP Summary	1
5.2	Results Averages	1
5.3	Sampling	3
6.1	Compliance Schedule	3
6.2	PN Schedule	3
6.3	Enforcement Action	3
7.1	Facility Analyte Level	2
7.2	Non-TCR Sample Schedule/Schedule Group	2
7.3	Monitoring Requirements	2
7.4	TCR Sample Schedule	3
7.5	TCR Noncompliance Determination	3
7.6	Violation	2
7.7	Milestone	3
7.8	Results Alert Report	2
7.9	Chemical/Radionuclide M&R Compliance Report	2
7.10	Lead & Copper Rule Compliance Report	2
7.11	Surface Water Treatment Compliance Report	1
7.12	D/DBP Compliance Report	1
7.13	User-Defined Summary Compliance Report	1
7.14	Public Notification Schedules Compliance Report	1
7.15	Possible Increased Monitoring Assessment Report	2
7.16	Possible Decreased Monitoring Assessment Report	2
7.17	Migrate Candidate CDS Violations	2
7.18	CDS Report Log	2
8.1	Migration to SDWIS/FED: Inventory	3
8.2	Migration to SDWIS/FED: Sampling	2
8.3	Migration to SDWIS/FED: Actions	3

Exhibit 1-1. Presentation Approach by Subsection (continued)

2.0 LEGAL ENTITY

Presentation Type 3: The information in this section is not a comprehensive design of this function and only reflects Release 8.0 changes/new functionality. As such, normal text means new functionality (e.g., a new button, window, etc. is introduced); redline/redline strikeout indicates where the functionality of an existing object (such as a field, button, menu item, etc.) has changed.

Federal reporting guidelines have introduced the ability to report Country Codes and International Postal Codes. If the Country Code is US, the user should report the Zip Code. If the Country Code is not US, the user may optionally report the International Postal Code but may not report the Zip Code. No schema migration changes are proposed that would change any existing data in a Release 7.0 data schema.

Another requirement, the ability for SDWIS/STATE EPA regional users to create, maintain, and report regionally owned violations and enforcement actions using the “E” action types will be supported by the explicit identification of the primacy agency type as either Regional (RG) or State (ST). Defining the Primacy Agency type as either regional or state will enable SDWIS/STATE to know whether the violations and enforcement actions should be considered regionally owned or state-owned. The full implementation of this requirement allows regions to maintain and report violations and enforcement actions for those water systems over which the region has direct implementation (primacy) authority.

2.1 Model/Table Content Changes for Legal Entity

The following new fields have been added to entity LEGAL_ENTITY:

- Country Code—2, text, optional.
- International Postal Code—14, text, optional.

The following new permitted values have been added to attribute TYPE_CODE:

- TP—Treatment Plant.
- OT—Other.

2.2 Legal Entity Maintenance Windows

Country Code and International Postal Code fields have been added to the following four windows in the *Legal Entity* component: Legal Entity Maintenance, Individual Maintenance, Laboratory Maintenance, and Government Agency Maintenance.

2.2.1 Legal Entity Maintenance

The Legal Entity Maintenance window (Exhibit 2-1) illustrates how the edit check should work for all four legal entity maintenance windows with the new fields.

Entry Fields:

Legal Entity Type

The field's prompt will be blue and underlined to indicate that this field is mandatory. Add Treatment Plant and Other to the dropdown list. (2.2.1 A)

Country

The default value will be US. The user may change the country code by entering a two-character value or use the **Go To** button and select from the list. Appendix B-1 (Federally Valid Country Codes shows the list of valid values. If the Country Code is US, disable the International Postal Code field. If the Country Code is other than US, clear the field and disable the Zip Code field. (2.2.1 B)

*(Developer's Note: Pass into action block Validate Text Permitted Value the following value for entity CODE, attribute CODE_NAME:
TINLGENT1.)*

International Postal Code

This optional field will be enabled only when the Country Code is not US. (2.2.1 C)

These codes are presented in Exhibit 2-2. These values will be displayed in online Help for this field. If the value in attribute ADDRESS_STATE_CODE is not one of the valid values, present exit state error message: **For country Canada, State Cd must be a valid province abbrev. See online Help.** Return the cursor to the State field. (2.2.1 E)

(Developer's Note: This will simply be a coded edit check, as these values are unlikely to change.)

- If Legal Entity Type Code is not supplied, present exit state error message: **Legal Entity type must be specified.** Return the cursor to the Legal Entity Type field. (2.2.1 F)

Province Name	Code
Alberta	AL
British Columbia	BC
Manitoba	MB
New Brunswick	NB
Newfoundland	NF
Northwest Territories	NT

Province Name	Code
Nova Scotia	NS
Ontario	ON
Prince Edward Island	PE
Quebec	PQ
Saskatchewan	SK
Yukon Territory	YT

Exhibit 2-2. Canadian Province Codes

2.2.2 Individual Maintenance

Edit checks as previously stated in Subsection 2.2.1 apply with the exception of those for Type Code. (2.2.2 B, 2.2.2 C, 2.2.2 D, 2.2.2 E, 2.2.2 F)

2.2.3 Government Agency Maintenance

As previously noted, it will be necessary to identify that the Government Agency selected as the Primacy Agency has also been defined as either type Regional (RG) or State (ST). (Region 5, for example, would select type RG while Illinois EPA would select type ST.)

- Edit checks as previously stated in Subsection 2.2.1 apply with the exception of those for Type Code. (2.2.3 B, 2.2.3 C, 2.2.3 D, 2.2.3 E, 2.2.3 F)

- If Primacy [Agency] Indicator is “Y” and [Government Agency] Type is either not valued or is valued with other than “RG” or “ST,” invoke exit state error message: **The Primacy Agency must be defined as Regional (RG) or State (ST).** Return the cursor to the [Government Agency] Type field. (2.2.3 G)

2.2.4 Laboratory Maintenance

Edit checks as previously stated in Subsection 2.2.1 apply. In addition, a uniqueness check for laboratory has been added. (2.2.4 A, 2.2.4 B, 2.2.4 C, 2.2.4 D, 2.2.4 E, 2.2.4 F)

OK The following edit checks have been added to the **OK** button and apply for both Add and Change modes.

- The software will check that the [Laboratory] Name entered is unique. If a laboratory with that Name already exists, invoke exit state error message: **Laboratory Name must be unique.** Return the cursor to the [Laboratory] Name field. (2.2.4 G)
- The software will check that the State ID No. (attribute STATE_ASSIGNED_ID_NUMBER) entered is unique. If a laboratory with that State ID No. already exists, invoke exit state error message: **Laboratory State ID No must be unique.** Return the cursor to the laboratory State ID No. field. (2.2.4 H)
- If valued, the software will check that the Federal ID No. (attribute FEDERAL_IDENTIFICATION_NUMBER) entered is unique. If a laboratory with that Federal ID No. already exists, invoke exit state error message: **Laboratory Federal ID No must be unique.** Return the cursor to the Lab Federal ID No. field. (2.2.4 I)

2.3 Legal Entity Maintenance List

Changes in two areas affect the Legal Entity Maintenance List.

2.3.1 Edit/Change on Legal Entity Maintenance List Menu

If a legal entity has been previously entered with no Type Code, when the user selects it for change, the Legal Entity Type Assignment dialog box will be invoked. Two new Type permitted values, Treatment Plant and Other, will be added to the dropdown list. (2.3.1 A)

2.3.2 Edit/Delete on Legal Entity Maintenance List Menu

This option will be enabled only when a legal entity has been selected. The Delete Confirmation dialog box will be displayed for the selected legal entity. If the legal entity

selected for deletion is referenced by a Site Visit, either directly (a Government Agency) or indirectly (an Individual that is linked to a Site Visit through the SITE_VISIT_INDIVIDUAL_ASGMT entity), the software will invoke the Legal Entity Assignment List, which will be modified to include the water systems whose site visits reference the selected legal entity. (2.3.2 A)

In addition, if a legal entity selected for deletion is referenced by an MDBP Summary either as a laboratory or as an individual, the software will invoke the Legal Entity Assignment List, which will be modified to include the Microbial Disinfection By-Products (MDBP) Summaries whose site visits reference the selected legal entity. (2.3.2 B)

3.0 ONLINE SDWIS/STATE SYSTEM ADMINISTRATION

Several changes are being made to functional areas within the *System Administration* component. Subsections 3.1 through 3.5 appear primarily in normal text, as these sections contain new design requirements for their respective functional areas. Where redlining appears in Subsections 3.1 through 3.5, it indicates an explicit change from the way the button, field, or menu item works in *SDWIS/STATE Release 7.0* or prior releases. Subsection 3.6 shows updates and new design areas superimposed over the design that was originally presented in the *SDWIS/STATE Release 7.0 Design Specifications* of June 23, 2000 (SDC-0002-017-SP-2036). In this subsection, normal text means the design has not changed from Release 7.0, and redline and/or redline-strikeout indicate new design areas and/or changed design areas.

3.1 Analyte

Presentation Type 3: The information in this section is not a comprehensive design of this function and only reflects Release 8.0 changes/new functionality. As such, normal text means new functionality (e.g., a new button, window, etc. is introduced); redline/redline strikeout indicates where the functionality of an existing object (such as a field, button, menu item, etc.) has changed.

Several new federally owned analytes will be added to the database for *SDWIS/STATE Release 8.0*. These analytes, which will be added to both the startup data schema, ZZV80, and the schema migration data schema, BASEV80, are listed in Appendix B-2.1. These new analytes will appear in the Analyte table (TSAANLYT) at the conclusion of Schema Migration. Changes to existing Analyte records shown in Appendix B-2.3 will also appear in both the startup data schema, ZZV80, and the schema migration data schema, BASEV80. The records identified as duplicates in Appendix B-2.2 should be noted. These duplicate records will not be removed from the analyte table because of referential integrity issues.

3.2 Analyte Level

Presentation Type 3: The information in this section is not a comprehensive design of this function and only reflects Release 8.0 changes/new functionality. As such, normal text means new functionality (e.g., a new button, window, etc. is introduced); redline/redline strikeout indicates where the functionality of an existing object (such as a field, button, menu item, etc.) has changed.

Entity ANALYTE_LEVEL_RULE_ASGMT (table TMNALRA) has two new Measure Level Type permitted values. These have been added to enable processing for the new *Compliance Decision Support (CDS)* processes needed for the Microbial/Disinfectant By-Products (M/DBP) set of rules (Surface Water Treatment Rule (SWTR), Interim Enhanced SWTR (IESWTR), Long Term 1 SWTR (LT1SWTR), and Stage 1 and 2 Disinfectants/Disinfectant By-Product (D/DBP)).

Current *CDS* processes use analyte levels to calculate Maximum Contaminant Levels (MCL) compliance and to produce the Alert Reports. With *SDWIS/STATE Release 8.0*, users will be able to assess compliance using levels that do not necessarily affect all systems on the same effective date or at the same level. These levels, established for a water system facility, will be stored in the Facility Analyte table (TMNFANL) and can be entered using the Facility Analyte Level windows or by migrating them using the *Migration to SDWIS/STATE* component. Since compliance with levels set in the Facility Analyte Level table will differ from those set in the Analyte Level table, the question arises as to whether levels for those analytes specified in a Facility Analyte Level (specifically MCL) should be allowed in the Analyte Level table. To illustrate the question, if Total Trihalomethanes (TTHM), for example, were allowed to remain in the Analyte Level table and also be in the Facility Analyte Level table, *CDS* processes would be unable to distinguish between schedules and/or violation types for water systems with differing MCLs, resulting in the erroneous absence of or creation of a violation. However, the Analyte Level table will also be used to produce other reports, including the Alert Report, so having TTHMs levels in the Analyte Level table would be helpful.

The following analytes may have levels stored in the Analyte Level table, *but SDWIS/STATE will determine the level compliance for these analytes from the values stored in entity FACILITY_ANALYTE_LEVEL (table TMNFANL):*

- 0100 Turbidity (Treatment Technique).
- 2950 Total Trihalomethanes (MCL compliance).
- 2456 Total Haloacetic Acids (MCL compliance).
- 0999 Chlorine (MRDL compliance).
- 1006 Chloramine (MRDL compliance).

See Subsection 7.1 (Facility Analyte Level) of this document for additional information.

Note that there are analytes such as 2920 (TOC), 1004 (Bromide), and 1067 (Alkalinity) for which no compliance level is specified. For these analytes, analytical results will be used to calculate compliance. Two of them, TOC and Bromide, require the calculation of a running annual average (RAA) in order to determine compliance, a service which *SDWIS/STATE CDS* processes will automatically perform. See Subsection 5.2 (Results Averages) of this document for additional information on entering and maintaining RAAs.

3.2.1 Model/Table Content Changes for Analyte Level

The following new permitted values will be added to attribute MEASURE_LEVEL_TYPE:

- MRDL—Minimum Residual Disinfectant Level.
- MRDG—Minimum Residual Disinfectant Level Goal. (3.2.1 A)

Appendix B-3.1 lists the modified or new Analyte Levels issued by EPA. Effective with *SDWIS/STATE Release 7.0*, the Analyte Level Rule Asgmt (TMNALRA) table came under the

control of the SDWIS/STATE Administrator; therefore, it is not automatically updated by schema migration. SDWIS/STATE Administrators will need to use the Analyte Level Maintenance function to make the modifications and additions (described in Appendix B-3.1) to the Analyte Level Rule Asgmt (TMNALRA) table after installation of Release 8.0 but prior to letting users have access to the new software. These modifications will be necessary in order for *CDS Setup* and the new CDS Reports (that target the new rules) to work correctly. (This means that schema migration will migrate TMNALRA records from the 7.0 to the 8.0 data schema exactly as they exist in the state or region's 7.0 data schema.) Appendix B-3.2 lists records in the Analyte Level Rule Asgmt (TMNALRA) table that are recommended for removal. No regulations currently exist that require these records. Some of these records were used at one time in past releases, but are no longer needed.

Additional rules are shown in Appendix B-8 (List of New Rules). They will appear in the Rule table (TMNRULE) in both the startup data schema, ZZV80, and the schema migration data schema, BASEV80. (3.2.1 B)

The new/changed/and removed TMNALRA records will have been added to the *startup* data schema, ZZV80, which is the data schema with which a first-time user of SDWIS/STATE would start. (3.2.1 C)

3.2.2 Analyte Level Maintenance Window New Detection Level Permitted Values

Users will continue to access the Analyte Level Maintenance function (via the current window flow) from its location in the *System Administration* component. The uniqueness criteria established with *SDWIS/STATE Release 7.0* has not changed; several different levels may be stored for each analyte.

The Detection Level field on the Analyte Level Maintenance window will display the two new dropdown permitted values:

- MRDL—Minimum Residual Disinfectant Level.
- MRDG—Minimum Residual Disinfectant Level Goal. (3.2.2 A)

These values will be displayed in online Help for this field:

The coded value for a type of analyte level measurement. These levels include Regulated Minimum Detection Limits (RMDL), Minimum Residual Disinfectant Levels (MRDL), Minimum Residual Disinfectant Level Goals (MRDLG), etc. (3.2.2 B)

No other changes have been made to the Analyte Level windows.

3.3 Standard Method and Analyte/Method Pairing

Presentation Type 3: The information in this section is not a comprehensive design of this function and only reflects Release 8.0 changes/new functionality. As such, normal text means new functionality (e.g., a new button, window, etc. is introduced); redline/redline strikeout indicates where the functionality of an existing object (such as a field, button, menu item, etc.) has changed.

Several new federally owned standard method numbers and analyte method pairings will be added to the database for *SDWIS/STATE Release 8.0*.

Appendix B-6 (List of New/Changed Standard Methods/Standard Method Numbers) lists the new standard methods and method numbers, which will be added to both the startup data schema, ZZV80, and the schema migration data schema, BASEV80. These new standard methods and standard method numbers will appear in the users' Standard Method (TSASTM) and Standard Method Number tables (TSASMN) at the conclusion of Schema Migration. (3.3.A)

Appendix B-4 (List of New/Changed Analyte Method Pairings) lists the new analyte method pairings that will appear in the user's Standard Method Analyte Asgmt table (TSASMAA). These will be added to both the startup data schema, ZZV80, and the schema migration data schema, BASEV80. (3.3.B)

3.4 Violation Type

Presentation Type 3: The information in this section is not a comprehensive design of this function and only reflects Release 8.0 changes/new functionality. As such, normal text means new functionality (e.g., a new button, window, etc. is introduced); redline/redline strikeout indicates where the functionality of an existing object (such as a field, button, menu item, etc.) has changed.

Modest changes are proposed for the Violation Type function to support the Public Notification (PN) Rule; to ensure that SDWIS/STATE correctly captures, maintains, and reports the appropriate contaminant code (called Analyte Code in SDWIS/STATE) for a violation to SDWIS/FED; and to enable *Migration to SDWIS/FED* to satisfy EPA's changes in how compliance/violation periods are characterized in SDWIS/FED.

SDWIS/FED reporting has recently changed for several violation types. Formerly, the compliance period reported for a violation was the monitoring period in effect at the time the violation occurred. Several of the more recent types of violations do not have monitoring periods or are one-time events (e.g., failure to submit a one-time report to the state—filter performance evaluation, or complete an action—installation of corrosion control treatment, etc.). For these violations, SDWIS Headquarters (SDWIS/FED) requires the reporting of a violation period rather than a compliance period. This period is defined as beginning one day

after the due date of the report or action and ending when the supply returns to compliance (e.g., by submission of the report or completion of the action).

The new Public Notification (PN) changes the Tier Levels for violations, even allowing the primacy agency, in certain instances, to change the Tier Level for violations. A new TIER_LEVEL attribute will be added to VIOLATION. When a violation is created, either with CDS or entered online, this attribute will be defaulted to the value stored in the VIOLATION_TYPE (TMNVTYPE) table. Users may override this value in the VIOLATION table in those instances where the new Public Notice Rule Tier Levels are not appropriate.

3.4.1 Model Changes for Violation Type

The following model changes support the changes to VIOLATION_TYPE (3.4.1 A):

- A new attribute, FED_REPORT_PERIOD_TYPE, has been added to let the software know whether the violation's Compliance Period (Begin and End Dates) or the Violation Period Begin Date should be reported to SDWIS/FED. This new attribute has the following permitted values:
 - CP The Compliance Period Begin and End Date should be reported to SDWIS/FED for any violation using this Violation Type.
 - VP The Violation Period Begin Date should be reported to SDWIS/FED for any violation using this Violation Type.
 - Spaces (for State-Defined Violation Types).
- The following new relationships have been added to entity VIOLATION_TYPE:
 - Each M&R Violation Type may optionally relate to one or more Monitoring Requirement. Each Monitoring Requirement may optionally relate to one M&R Violation Type.
 - Each Violation Type may optionally relate to one rule-type Analyte. Each rule-type Analyte may optionally relate to one or more Violation Type.

This relationship will be used by SDWIS/STATE to determine whether the analyte code recorded with the violation or a different code, the one associated to the violation type, should be reported to SDWIS/FED (e.g., all the Lead & Copper Rule Violation Types except 63 will be associated to rule-type Analyte Code 5000. Violation Type 63 will not be associated to a rule-type Analyte Code, thus indicating that *Migration to SDWIS/FED* should use the Analyte Code stored with the violation.

- Each M&R Violation Type may optionally relate to one or more Facility Analyte Levels (FANL). Each FANL may optionally related to one M&R Violation Type.
- Each Level Violation Type may optionally relate to one or more FANL. Each FANL may optionally relate to one Level Violation Type.
- Four new permitted values have been added to attribute SEVERITY_LEVEL in order to accommodate the need for two new Type 41 violation types and two new Type 11 violation types:
 - MX Single sample exceeds a Maximum Level—for instance, combined filter effluent turbidity level.
 - 95 95% of all samples during the monitoring period should be within a desired level—for instance, combined filter effluent turbidity level.
 - AC Acute MRDL violation.
 - NC Non-acute MRDL violation.

3.4.2 Schema Migration and Table Content Changes

The following attributes for federally owned Violation Type records will be pre-populated at the conclusion of 7.0—8.0 Schema Migration with the values shown in Appendix B-5 (List of New/Changed Violation Types):

- TIER_LEVELS—(In accordance with the PN Rule).
- FED_REPORTING_PERIOD_TYPE.
- TMNVTYPE_TSAANLYT_IS_NUMBER and TSAANLYT_ST_CODE with the correct Rule Type Analytes. (3.4.2 A)

Note that Release 8.0 Schema Migration will not do the following:

- Consolidate old Lead and Copper violations to the new Lead and Copper violation types. SDWIS/STATE Administrators will need to consolidate any existing violations that reference these violation types prior to schema migrating to Release 8.0. The Violation Types listed in Exhibit 3-1 will not appear in the Release 8.0 TMNVTYPE table, so any violations that reference them after schema migrating to Release 8.0 will cause referential integrity errors in the database.
- Add/Pre-populate Tier Levels to violations already in the database.

<u>Existing Violation Type Code and Name</u>		<u>Report as Violation Type Code and Name</u>	
54	Follow-Up & Routine EP WQP M/R	53	WQP M/R
55	Follow-up & Routine Tap WQP M/R	53	WQP M/R
60	WQP Tap Non-Compliance	59	WQP EP Non-Compliance
61	SOWT Recommendation	57	OCCT Study/Recommendation
62	SOWT Installation	58	OCCT Installation/Demonstration

Exhibit 3-1. Existing and Report As Violation Type Codes

3.4.3 Violation Type Maintenance List

Two new columns will be added to the end of the Violation Maintenance List:

- Fed Rptg Per. Type.
- Fed Rptbl Cont. Code (which maps to Analyte Code). (3.4.3 A)

Under **View/Filter**, Fed Rptbl Cont. Code will be added as a field by which the user may filter the list.

Under **View/Sort**, Fed Rptg Per. Type and Fed Rptbl Cont. Code will be added as fields by which the user may sort list. (3.4.3 B)

3.4.4 Violation Type Maintenance

The Violation Type Maintenance window (Exhibit 3-2) will retain its current functionality (including uniqueness criteria) with the following exceptions:

*Fed Reporting
Period Type*

If violation type is state-owned, this entry field will appear as a dropdown list showing the permitted values CP, VP, and spaces (as previously described). (3.4.4 B)

*Fed Reportable
Contaminant Code*

If violation type is state-owned, the user may specify the Fed Reportable Contaminant Code (even though a violation that references one of these is not reported to SDWIS/FED). The user may click the **Go To** button to invoke the Analyte Selection List or may enter a value directly into Analyte Code. The default sort for Analyte Selection List will be Analyte Code in ascending alphabetical order. If the user enters a value in Code, on tabbing off the field, the software will accept the specified Code if it is an exact match (Analyte Code is what the user entered and Analyte type is "RL") and populate the protected [Analyte Name] field. If the value entered is not an exact match, the software will invoke the Analyte Selection List window, sorted by ascending Analyte Code, from where the user may select an analyte. If the user specifies a partial string in this field, display the closest matching analyte code at the top of the list. (Closest matching means a match with the Analyte Code, sorted alphabetically, that starts with the same text string as supplied.) If no match is possible, display the entire list of rule-type analytes (TYPE_CODE = RL). (3.4.4 C)

If a federally owned Violation Type is not linked to a "Fed Reportable Contaminant Code" analyte, the software will display the string "**Use Analyte Code Stored with the Violation**" in the protected Analyte Name field. (3.4.4 D)

(Developer's Note: Use the existing SBS_ANALYTE_SELECT_LIST procedure.)

Buttons:

Fed Reportable
Contaminant Code

Go To

Pressing this button will invoke the Analyte Selection List, sorted by Analyte Code in ascending alphabetical order, showing only analytes of type "RL." (3.4.4 E)

(Developer's Note: Use the existing SBS_ANALYTE_SELECT_LIST procedure.)

OK This button will create/update the Violation Type according to the current design with the exception that if the user specifies a Federal Reportable Contaminant Code for a state-owned violation type, this analyte will be associated with the state-owned violation type. (3.4.4 F)

3.5 Standard Response

Presentation Type 3: The information in this section is not a comprehensive design of this function and only reflects Release 8.0 changes/new functionality. As such, normal text means new functionality (e.g., a new a new button, window, etc. is introduced); redline/redline strikeout indicates where the functionality of an existing object (such as a field, button, menu item, etc.) has changed.

Some changes are proposed for the Standard Response area to support the new Site Visit functionality.

3.5.1 Model Changes for Standard Response

Changes will be made to two entities.

3.5.1.1 Model Changes for entity STANDARD_RESPONSE

The following new attributes will be added to entity STANDARD_RESPONSE (3.5.1.1 A):

- TYPE_CODE—1, text, optional. The purpose of this attribute will be to categorize the Standard Response as one for Violation maintenance or Deficiency maintenance. Permitted Values will be:
 - V—Violation.
 - D—Deficiency.
- TYPE_CODE_CV—4, text, optional—Compliance schedule type code. (This value will be stored in the Code Value and Permitted Value tables maintained in the *System Administration* component.) This value will be used to populate the TYPE_CODE_CV attribute of the Compliance Schedule that is associated to the Site Visit.
- STATUS_CODE—1, text, optional. (This value will be used to populate the Status of the Compliance Schedule that is associated to the Site Visit.) Permitted Values will be:
 - F—Final.
 - P—Proposed.
 - S—Superceded.

- EFFECTIVE_DATE_DAYS—3, number, optional. (Number of days after the first Deficiency WS Notification Date that will be used to calculate the Effective Date of the Compliance Schedule that is associated to the Site Visit.)

3.5.1.2 Model Changes for entity STANDARD_RESPONSE_ACTIVITY_TYPE_ASGMT

Entity STANDARD_RESPONSE_ACTIVITY_TYPE_ASGMT will be changed in the following ways (3.5.1.2 A):

- Attribute PN_REQUIRED_DUE_DAYS will be renamed DUE_DATE_DAYS. (For a Standard Response of type Violation, this will be the number that will be added to the Violation Determination Date to calculate the PN Required Due Date. For a Standard Response of type Deficiency, this will be the number that will be added to the Deficiency Water System Notification Date to calculate the Deficiency Scheduled Activity Due Date.)
- New attribute PROJECTED_DATE_DAYS (3, number, optional) will be added. (This is the number that will be added to the Deficiency Water System Notification Date to calculate the Deficiency Scheduled Activity Projected Date.)

3.5.2 Standard Response Window Flow

Existing standard response windows will be nominally modified, and new windows will be added to accommodate the concept of a Deficiency Standard Response.

A new attribute, STANDARD_RESPONSE_TYPE, will be added to the Standard Response Maintenance List (Exhibit 3-3). (3.5.2 A)

This new attribute will:

- Control which maintenance window to flow to when a user elects to change or add a Standard Response and
- Control which Standard Response records will be displayed when a user clicks on the **Standard Response** button within Site Visit and Violation. (If a user clicks on the **Standard Response** button from the Violation Maintenance area (there will be more than one window from which the user can invoke a Standard Response in the Violation area), the software will display only candidate standard responses of type Violation. If a user clicks on a **Standard Response** button from the Site Visit Maintenance window, the software will display only candidate standard responses of type Deficiency.)

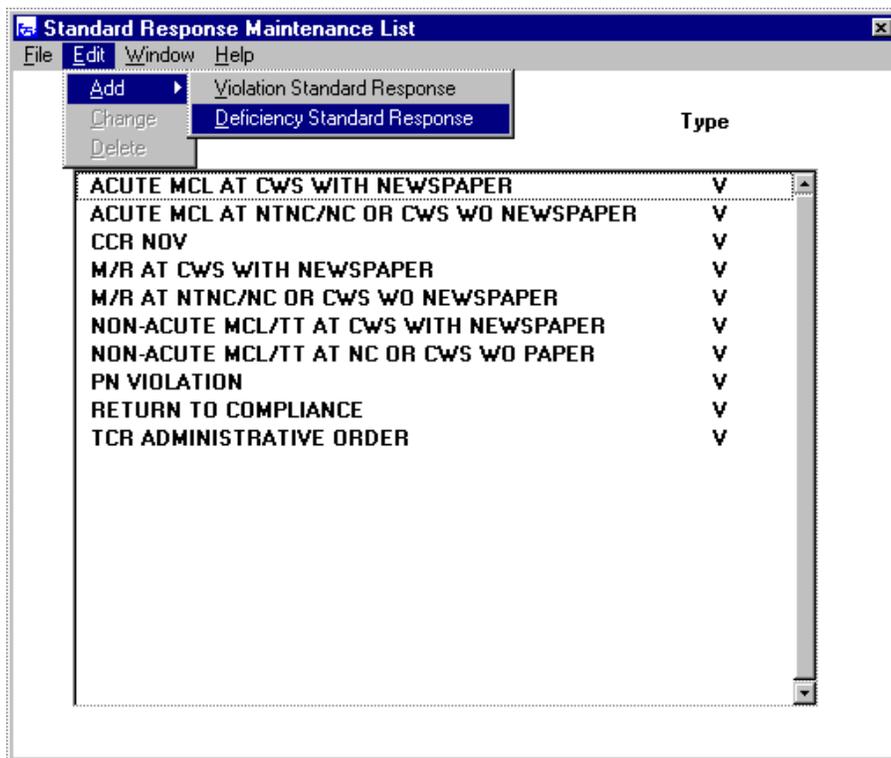


Exhibit 3-3. Standard Response Maintenance List

Menu Items:

Edit

Add

Selecting **Edit/Add** will display the Standard Response Maintenance window in Add mode. This option will be enabled when a standard response has not been selected. The **Edit/Add** menu item will include two new submenu items, needed because the window for adding and changing a Deficiency Standard Response will be different than the one for adding and changing a Violation Standard Response.

- Violation Standard Response—If the user chooses **Edit/Add/Violation Standard Response**, or highlights an existing Violation Standard Response, the software will invoke the Violation Standard Response Maintenance window. This window will be renamed—it was the Standard Response Maintenance window. In addition, if the user chooses to add or change a Standard Response Activity Schedule, the Violation Standard Response PN Schedule Activity Types window will be invoked. This window also will be renamed—it was the Standard Response Activity Types window. (3.5.2 B)

- Deficiency Standard Response—If the user chooses **Edit/Add/Deficiency Standard Response**, or highlights an existing Deficiency Standard Response, the software will invoke the new Deficiency Standard Response Maintenance window (Exhibit 3-4). (3.5.2 C)

3.5.2.1 Standard Response Maintenance

Two new windows will be added to accommodate the concept of a Deficiency Standard Response (see Subsections 3.5.2.1.1 and 3.5.2.1.2). The existing standard response windows will be renamed as noted.

3.5.2.1.1 Deficiency Standard Response Maintenance

Entry Fields:

Standard Response

Name The Name entered must be unique. The field's prompt will be blue and underlined to indicate that this field is mandatory. (3.5.2.1.1 A)

Compliance Schedule Values Group Box:

The values entered in this group box will be used if a Compliance Schedule does not already exist for the Site Visit to which the Standard Response is being applied.

Regulating Agency The user may click the **Go To** button to invoke the Regulating Agency Selection List or may enter a value directly into the Regulating Agency field. The default sort for Regulating Agency Selection List will be Name, in ascending alphabetical order. If the user enters a value in Regulating Agency, on tabbing off the field accept the specified regulating agency if it is an exact match. If the value entered is not an exact match, invoke the Regulating Agency Selection List sorted by ascending Name, from where the user may select a regulating agency. If the user specifies a partial string in this field, display the closest matching regulating agency at the top of the list. (Closest matching means a match with the Regulating Agency Name, sorted alphabetically, that starts with the same text string as supplied.)

(Developer's Note: Use the existing EBS_C_LGL_ENT_SELECT_LIST and EBS_S_COMMON_LEGAL_ENTITY client/server procedures.)

The Regulating Agency field's prompt will be blue and underlined to indicate that this field is mandatory. (3.5.2.1.1 B)

Status This dropdown list will use the same permitted values as exist for the equivalent dropdown list on the existing Compliance Schedule Maintenance window. Permitted values will be:

- F—Final.
- P—Proposed.
- S—Superceded. (3.5.2.1.1 D)

Effective Date Days The user may enter the number of days after the Deficiency WS Notification Date that will be used to calculate the Compliance Schedule Effective Date that is associated to the site visit. If the Site Visit has a WS Notification Date, the software will use that date; otherwise it will use the WS Notification Date from the first selected Deficiency (first by WS Notification Date) even if the Deficiency has a WS Notification Date from an earlier Site Visit. If the user wants to change the calculated date, then the user would need to change the Begin Date in the Compliance Schedule. (3.5.2.1.1 E)

Scheduled Activities Group Box:

The three buttons in the Scheduled Activities list box, [Scheduled Activities] **Add** button, [Scheduled Activities] **Change** button, and [Scheduled Activities] **Delete** button are described below.

Tab Sequence:

Standard Response Name, Regulating Agency, Regulating Agency **Go To** button, Compliance Schedule Type, Compliance Schedule Type **Go To** button, Status, Effective Date Days, [Scheduled Activities] **Add** button, [Scheduled Activities] **Change** button, [Scheduled Activities] **Delete** button, **OK** button, **Cancel** button, **Help** button. (3.5.2.1.1 F)

Buttons:

Regulating Agency

Go To The user may click this button to invoke the Regulating Agency Selection List. The default sort for Regulating Agency Selection List will be Name, in ascending alphabetical order. (3.5.2.1.1 G)

(Developer's Note: Use the existing EBS_C_LGL_ENT_SELECT_LIST and EBS_S_COMMON_LEGAL_ENTITY client/server procedures.)

Compliance Schedule

Go To The user may click this button to invoke a list of valid compliance schedules and select one from this list. The SDWIS/STATE

Administrator may wish to add a new type of Compliance Schedule such as Sanitary Survey. This Compliance Schedule Type **Go To** button will work the same way as the one on the Compliance Schedule Maintenance window.

*(Developer's Note: Pass into action block Validate Text Permitted Value the following value for entity CODE, attribute CODE_NAME:
TENSCHD1. This will display, at a minimum, candidate types Administrative Order and Legal Hearing.) (3.5.2.1.1 H)*

[Scheduled Activities]

Add The user may click on this button in the Scheduled Activities list box to invoke the new Deficiency Standard Response Activity Types window (Exhibit 3-5). (3.5.2.1.1 I)

[Scheduled Activities]

Change This button will be enabled only when a record has been highlighted or double-clicked in the Scheduled Activities list box. The software will invoke the new Deficiency Standard Response Activity Types window with data from the highlighted or double-clicked schedule activity. (3.5.2.1.1 J)

[Scheduled Activities]

Delete This button will be enabled only when a record has been highlighted in the Scheduled Activities list box. When the user clicks on this button, the highlighted activity will be deleted from the list (without a confirmation dialog box, consistent with the design). (3.5.2.1.1 K)

OK When the user clicks on this button, the software will create or modify the Standard Response; the Standard Response Name must be unique. (3.5.2.1.1 L)

Cancel When the user clicks on this button, the software will disregard any data entered and return the user to the Standard Response Maintenance List. (3.5.2.1.1 M)

Help This button will invoke online Help for this window. (3.5.2.1.1 N)

3.5.2.1.2 Deficiency Standard Response Activity Types

Entry Fields:

[Activity] Name The user may click the **Go To** button to invoke the Activity Type Selection List or may enter a value directly into [Activity] Name. The default sort for Activity Type Selection List will be Name, in ascending alphabetical order. If the user enters a value in [Activity] Name, on tabbing off the field accept the specified name if it is an exact match. If the value entered is not an exact match, invoke the Activity Type Selection List sorted by ascending Name, from where the user may select an activity type. If the user specifies a partial string in this field, display the closest matching activity type name at the top of the list. (Closest matching means a match with the Activity Type Name, sorted alphabetically, that starts with the same text string as supplied.) The Name field's prompt will be blue and underlined to indicate that this field is mandatory. (3.5.2.1.2 A)

Due Date Days A number up to 999 may be entered. The field's prompt will be blue and underlined to indicate that this field is mandatory. (3.5.2.1.2 B)

Projected Date Days A number up to 999 may be entered. This field's prompt will be blue and underlined to indicate that this field is mandatory. (3.5.2.1.2 C)

The screenshot shows a dialog box titled "Deficiency Standard Response Activity Types". It features three input fields. The first field is labeled "Name" in blue, underlined text, followed by a text box containing a pattern of 'X's and a button with ">>". The second field is labeled "Due Date Days" in blue, underlined text, followed by a text box containing "ZZ9" and the text "(# of days after WS Notification Date)". The third field is labeled "Projected Date Days" in blue, underlined text, followed by a text box containing "ZZ9" and the text "(# of days after WS Notification Date)". At the bottom of the dialog are three buttons: "OK", "Cancel", and "Help".

Exhibit 3-5. Deficiency Standard Response Activity Types

Tab Sequence:

Name, Name **Go To** button, Due Date Days, Projected Date Days, **OK** button, **Cancel** button, **Help** button. (3.5.2.1.2 D)

Buttons:

Name **Go To** The user may click on this button to invoke a list of Activity Types using current criteria (on the Violation Standard Response PN Schedule Activity Types window). (3.5.2.1.2 E)

OK When the user clicks on this button, a new linkage will be created between Standard Response (Deficiency Type) and Activity Type. The uniqueness for STANDRD_RESP_ACTIVITY_TYPE_ASGMT will be Activity Name (that is one Activity Name per Standard Response.) (3.5.2.1.2 F)

Cancel If the user clicks on this button, the software will disregard any data entered and return the user to the previous window. (3.5.2.1.2 G)

Help This button will invoke online Help for this window. (3.5.2.1.2 H)

3.5.2.1.3 Violation Standard Response Maintenance

The Violation Standard Response Maintenance window (this window will be renamed—it was the Standard Response Maintenance window) operates, other than as identified below, in the same way as the existing Standard Response Maintenance window.

Entry Fields:

Regulating Agency The user may click the **Go To** button to invoke the Regulating Agency Selection List or may enter a value directly into the Regulating Agency field. The default sort for Regulating Agency Selection List will be Name, in ascending alphabetical order. If the user enters a value in Regulating Agency, on tabbing off the field accept the specified regulating agency if it is an exact match. If the value entered is not an exact match, invoke the Regulating Agency Selection List sorted by ascending Name, from where the user may select a regulating agency. If the user specifies a partial string in this field, display the closest matching regulating agency at the top of the list. (Closest matching means a match with the Regulating Agency Name, sorted alphabetically, that starts with the same text string as supplied.)

(Developer's Note: Use the existing EBS_C_LGL_ENT_SELECT_LIST and EBS_S_COMMON_LEGAL_ENTITY client/server procedures.)

The Regulating Agency field's prompt will be blue and underlined to indicate that this field is mandatory. (3.5.2.1.3 A)

Buttons:

Add

[Activity]

A new edit check will be added to allow a user to add PN Schedule Activities if Action Type is EIE (the same as currently exists if Action Type is SIE). (3.5.2.1.3 B)

OK

A new edit check will be added to prevent a user from having a Standard Response with both an SIE and an EIE action type. When the user presses **OK**,

- If the new action type is SIE, the software will check to ensure that the Standard Response is not already linked to an action type of EIE.
- If the new action type is EIE, the software will check to ensure that the Standard Response is not already linked to an action type of SIE.

If either condition is met, invoke exit state error message: **A Standard Response may have action type EIE or SIE but not both.**
(3.5.2.1.3 C)

3.5.2.1.4 Violation Standard Response PN Schedule Activity Types

If the user chooses to add or change a Standard Response Activity Schedule, the software will invoke the Violation Standard Response PN Schedule Activity Types window (this window will be renamed—it was the Standard Response Activity Types window). The Violation Standard Response PN Schedule Activity Types window will operate in the same way as the existing Standard Response Activity Types window.

3.6 CDS Setup Processes

Presentation Type 2: The information in this section reflects a Release 8.0 update to an existing documented design. As such, normal text means no change from the current 7.0 release; redline/redline strikeout indicates where the functionality of an existing object (such as a field, button, menu item, etc.) has changed or where new functionality has been added for Release 8.0.

This subsection contains a detailed discussion of each of the *CDS Setup* processes as described in *SDWIS/STATE Release 7.0 Design Specifications* (June 23, 2000, SDC-0002-017-SP-2036).

3.6.1 Update Sample Schedules Due to Inventory Change

The purpose, description, and detailed design of the *Update Sample Schedules Due to Inventory Change* process remains almost identical to the description provided in *SDWIS/STATE Release 7.0 Design Specifications*. For this reason, only a brief description of the process is provided here.

Prior to setting up associations between Sample Schedules and Monitoring Periods (which is the second process run by *CDS Setup*), this process will search for Water Systems, Water System Facilities, or Sampling Points whose activity status has changed since the last time *CDS Setup* was run. In addition, it will look for water systems whose classification has changed. Several permutations of inventory changes will be possible.

The *Update Sample Schedules Due to Inventory Change* process will execute when changes have been made to water system, water system facility, or sampling point. The process will determine what the change was by comparing the values of these attributes in the actual table (Water System, Water System Facility, Sampling Point) to the values in the history tables. Because more than one significant change could be made to a record between *CDS Setup* runs, the Last Update Timestamp of the History table record closest to but before the *CDS Setup* last execution time will be used to compare against the value in the actual table. If no History record exists for a given Water System, Water System Facility, or Sampling Point, it means that no significant change occurred to any of the fields tracked by the History tables for that entity since the record was added to the database.

Since this process is driven by changes to Water System, Water System Facility, and Sampling Point, it is split into these three sub-processes. The only change to this process will occur in the Sampling Point Subprocess. There, if a Sampling Point's activity status is changed from active to inactive, this process will update the Effective End Date for all non-TCR Sample Schedules associated to a Sampling Point Sub-Schedule (new entity with Release 8.0) that is associated to this Sampling Point. See Appendix D-1 (Update Sample Schedules Due to Inventory Change).

3.6.2 Associate Monitoring Periods to Sample Schedules

SDWIS/STATE records when, where, and what sampling is necessary by relating several pieces of information. For example, the requirement that one routine sample be collected and analyzed for the regulated volatile organic chemicals (VOC) at Water System Facility #1 every 3 years with the next sample to be collected between 1/1/1999 and 12/31/2001 will be stored in *SDWIS/STATE Release 8.0* in six different but related entities (tables):

WATER_SYSEM_FACILITY (TINWSF) Sampling Point (TSASMPPT),
SAMPLE_SCHEDULE_GROUP (TMNSSGRP), MONITORING_REQUIREMENT

(TMNMNR), ANALYTE_GROUP (TSAANGRP), SAMPLE_SCHEDULE_MONITORING_PERIOD_ASSIGNMENT (TMNSSMPA), and MONITORING_PERIOD (TMNMPRD). Some refer to all these pieces of information as a sample schedule. However, in SDWIS/STATE, the term sample schedule includes all these pieces except the period during which the next sample is to be collected. Therefore, in SDWIS/STATE terminology, the above sample schedule is “one routine sample must be collected and analyzed for the regulated volatile organic chemicals at Water System Facility #1 every 3 years.” SDWIS/STATE calls the last piece of information, “with the next sample to be collected between 1/1/1999 and 12/31/2001,” the Sample Schedule Monitoring Period Assignment (SSMPA). The *Associate Monitoring Periods to Sample Schedules* process will create SSMPA whenever *CDS Setup* is run. In *SDWIS/STATE Release 7.0*, a schedule was linked to a water system facility through a sampling point. In *SDWIS/STATE Release 8.0*, a schedule will be linked directly to a water system facility and can optionally be linked to one or more sampling points. As in Release 7.0, compliance determination will continue to be done at the Water System Facility level. While the sampling schedule will apply to the water system facility, in order to enable users to optionally choose to determine compliance at the more detailed sampling point level, a Sampling Point Sub-Schedule will be added to record the requirement to sample at one or more sampling points within a Water System Facility. A Sample Schedule may optionally have one or more Sampling Point Sub-Schedules. The *Associate Monitoring Periods to Sample Schedules* process will be enhanced to create Sub-SSMPAs whenever *CDS Setup* encounters Sampling Point Subschedules.

Most monitoring periods will be created by the *CDS* software. However, users will need to create an initial set of current monitoring periods when first implementing *CDS*. In addition, users may still occasionally create a new monitoring period before the software does after implementing *CDS*. The *Associate Monitoring Periods to Sample Schedules* process will be needed to deal with both of these situations. This process will also be needed to create associations when a Sample Schedule is added or modified. This process will consist of two similar yet distinct actions, one of which will examine candidate new or modified monitoring periods for linkage to sample schedules and one of which will examine new or modified candidate sample schedules for linkage to monitoring periods. A new CDS Setup Processed flag will be added to sample schedule and schedule group to record whether a schedule has been processed by *CDS Setup*. The purpose of this flag will be to indicate to the online non-TCR schedule maintenance software that *CDS Setup* has already processed the schedule/schedule group; therefore, a new Sampling Point Subschedule cannot be added or an existing one changed or deleted. (The programming necessary to allow these to change is complex and considered too expensive to justify). If users need to add, modify, or delete a Sampling Point Subschedule after *CDS Setup* has processed the sample schedule/schedule group, it will be necessary to close out (or delete, if appropriate) the existing sample schedule/schedule group and add a new one that includes the desired changes. However, a user will be able to add a sampling point subschedule if no previous sampling point subschedule exists, regardless of whether *CDS Setup* has processed the schedule or not.

The process will determine appropriate associations between monitoring periods whose End Date is on/after the CDS History Date and sample schedules whose Effective End Date is either null or on/after the CDS History Date by comparing the Monitoring Period Begin Date and Duration to the Sample Schedules' Initial Monitoring Period Begin Date, Effective Period, and Periodicity. Note that whether a Sample Schedule record is added as an "individual" Sample Schedule (the user picked a monitoring requirement for an analyte rather than one for an analyte group) or a "hidden" schedule (the user picked a monitoring requirement for an analyte group), this process will make associations between monitoring periods and sample schedules (not Schedule Groups).

So, for instance, assume a user creates a new annual (YR) monitoring period with a begin date of 7/1/2001 and an end date of 6/30/2002 and that the following Sample Schedules are in the database. When *CDS Setup* is initiated, it will/will not make associations to sample schedules as indicated in the last column of Exhibit 3-6.

Analyte/ Analyte Grp Code	Effective Begin Date	Effective End Date	Sample Count Unit Code	Initial MP Begin Date	Assigned or Not Assigned and (Key Reason(s))
3100	1/1/1993	open	YR	7/1/1993	Not assigned (Analyte Code = 3100)
VOC	7/1/1997	open	YR	7/1/1997	Assigned (7/1/2001 minus 7/1/1997 divided by year = 4 a positive whole number)
VOC	7/1/1997	open	YR	1/1/1998	Not assigned (7/1/2001 minus 1/1/1998 divided by year = 3.5 not a positive whole number)
VOC	7/1/1997	open	QT	7/1/1997	Not assigned (Sample Schedule's Periodicity is not the same as the duration of the Monitoring Period)
HAA5	2/1/2002	open	YR	7/1/2002	Not assigned (7/1/2001 minus 7/1/2002 divided by year = -1 not a positive whole number)
PBCU	7/1/1998	7/1/2001	YR	7/1/1998	Assigned ¹
PBCU	7/1/1998	6/30/2001	YR	7/1/1998	Not assigned (6/30/2001 is not greater than or equal to MP Begin Date)
TTHM	10/1/2001	open	YR	7/1/2001	Assigned ²

Exhibit 3-6. Monitoring Period to Non-TCR Schedule Association Criteria Matrix

Note that the deletion of SSMPAs and Sub-SSMPAs that are no longer appropriate will be done both by the online software when the Sample Schedule is changed or by the first *CDS Setup* process (*Update Sample Schedules When Significant Inventory Changes Occur*), therefore, it will not need to be done here.

¹The user probably would not intend for this Monitoring Period to be applied to this Sample Schedule. However, even if a Sample Schedule is in effect for one day of a Monitoring Period, the *CDS* software will assigned it if all other criteria are met.

²Though it is unlikely that the Effective Begin Date for a Sample Schedule would be later than the Initial Monitoring Period Begin Date, a user could enter such a schedule.

See Appendix D-2 (Associate Monitoring Periods to Sample Schedules) for detailed specification of the logic of this process. This process will run as two subprocesses: *Find New/Changed Monitoring Periods* and *Find New/Changed Schedules*.

3.6.3 Process MCL, ACL, FANL Max or TRL Additions or Modifications

The description of the *Process MCL, ACL, FANL Max or TRL Additions or Modifications* process as well as its detailed design specification will need to be revised to account for:

- The fact that, in Release 8.0, the MCL for TThm and HAA5 will be stored as Facility Analyte Level Max records rather than as MCL records in the ANALYTE_LEVEL_RULE entity; and
- The new permitted value of “X” for the Monitoring Assessment Flag in Sample Scheduled.

If a Maximum Contaminant Level (MCL), Action Level (ACL), or Trigger Level (TRL) is added (using Analyte Level Maintenance in *System Administration*) or a Facility Max Level (using Facility Analyte Level Maintenance in *Monitoring and Noncompliance*), all results for the related analyte that are for samples collected on or after the Analyte Level Effective Begin Date will need to be assessed for MCL compliance and sample schedule assessment purposes. If one of these levels is modified (including a FANL Max), all the results for the related analyte will likewise need to be reevaluated for these same purposes. To accomplish this, *CDS Setup* will do the following:

- If a MCL or a FANL Max is added or modified, set the Last Update Timestamp to the current date and time for every SSMPA record where the Analyte referenced by the SSMPA (through Sample Schedule to Monitoring Requirement) is the same as the Analyte for MCL.
- If a MCL, ACL or TRL record is added or modified, reset the Monitoring Assessment Flag to spaces for every Sample Schedule that references (through its Monitoring Requirement) the same analyte as the ACL or TRL unless the flag is set to “X.”

By updating these values, succeeding *CDS Setup* processes will reevaluate every situation involving the given analyte and level. See Appendix D-3 (Process MCL, ACL, FANL Max or TRL Additions or Modifications) for the detailed specification of the logic of this process.

3.6.4 Disassociate Sample Analytical Results from Sample Schedule Monitoring Period Assignments and **Sampling Point Sub-SSMPAs**

The next process that will run as part of the *CDS Setup* function will be *Disassociate Sample Analytical Results from Sample Schedule Monitoring Period Assignments*. This process will be needed in the event that a user changes some value about a sample, sample result, sample

schedule, or monitoring period that previously qualified the result for association to an SSMPA and one or more **Sampling Point Sub-SSMPAs**, but that now disqualifies it from this association. This process is essentially the reverse of the *Associate Sample Analytical Result to Sample Schedule Monitoring Period Assignments*. See Appendix D-4 (Disassociate Sample Analytical Results from Sample Schedule Monitoring Period Assignments and Sampling Point Sub-SSMPAs) for the detailed specification of the logic of this process.

3.6.5 Calculate Total Trihalomethane, and Total Haloacetic Acid, Combined Nitrate + Nitrite, Individual Nitrate, Individual Nitrite, Combined Radium, and Gross Alpha Excluding Uranium Results

The description of the *Calculate Total Trihalomethane, Total Haloacetic Acid, Combined Nitrate + Nitrite, Individual Nitrate, Individual Nitrite, Combined Radium, and Gross Alpha Excluding Uranium Results* process as well as its detailed design specification from *SDWIS/STATE Release 7.0 Design Specifications* have been revised by specifying how to calculate and create results for combined nitrate and nitrite, individual nitrate, individual nitrite, combined radium, and gross alpha excluding uranium.

The MCL for the trihalomethanes is a single level for the sum of the four trihalomethanes. Similarly, the MCL for the haloacetic acids is a single level for the sum of five haloacetic acids. Sometimes, when results for one set or the other are reported, the sum is not reported. Because *CDS* is designed to determine compliance by matching analyte code to analyte code (the analyte code referenced indirectly by a Sample Schedule must match the analyte code referenced by a result in order for *CDS* to count the result as satisfying the Sample Schedule), and since it is intended that users use analyte codes 2950 (total trihalomethane) and 2456 (total haloacetic acid) when creating sample schedules for these disinfection byproducts, it is necessary to have a process that calculates and creates results for totals when they are not reported.

If there were not already analyte codes that represent these totals (i.e., 2950 for total trihalomethane and 2456 for total haloacetic acids), this process might instead create Sample Summaries and Sample Summary Results for these totals. However, because individual analyte codes already represent these totals, this process will instead create sample analytical result records (table TSASAR) using these two existing analyte codes.

For nitrate and nitrite, there are three MCLs, one for nitrate, one for nitrite, and one for them combined. Because laboratories report these in every conceivable combination, this process will calculate the missing result when the other two results are reported:

- 1038 (nitrate+ nitrite as N) when 1040 and 1041 are reported;
- 1040 (nitrate as N) when 1038 and 1041 are reported; and
- 1041 (nitrite as N) when 1038 and 1040 are reported.

For radium, this process will calculate a result for combined radium 226 and 228 (analyte code 4010) when both individual results have been reported (analyte codes 4020 and 4030). For gross alpha, this process will calculate a result for gross alpha excluding uranium (analyte code 4000) when results for both gross alpha including uranium (analyte code 4002) and combined uranium (analyte code 4006) have been reported.

As with Sample Summaries for Lead and Copper 90th percentiles, this process will create a result only if one does not already exist and will modify an existing result only if the existing result was created by *CDS Setup*. This means that if a user adds a result for one of these analytes (using online *Sampling*, *Sampling via EDI*, or *Migration to SDWIS/STATE: Sampling*), this process will neither check nor replace it. Similarly, if a user modifies a result for one of these analytes, this process will not change it. If a user deletes a result for one of these analytes (3100, 2950, or 2456, 1038, 1040, 1041, 4000, or 4010) that *CDS Setup* created, this process will not recalculate and recreate the total result (this will be accomplished by not updating the Last Update Timestamp of the associated SSMPA prior to deleting the result). A result of less than detection will be treated as zero when used to calculate another result.

To distinguish a trihalomethane result that has been obtained in response to the TThm Rule or the Disinfection By-Products (DBP) Rule from one obtained for the Unregulated Contaminant Monitoring Rule (UCMR), the process will look at the Water System Facility to which the result is associated. If the Water System Facility is a distribution system, *CDS Setup* will assume the result was collected in response to the TThm or DBP Rule, and therefore, will calculate a total trihalomethane result, assuming that a total was not already entered by a user, by *Sampling via EDI* or by *Migration to SDWIS/STATE*. If the related Water System Facility is not a distribution system, *CDS Setup* will assume the trihalomethane results were collected for the UCMR; therefore, it will not calculate a total trihalomethane result.

Since only the DBP Rule calls for haloacetic acid monitoring, *CDS Setup* assumes that a total haloacetic acid result is appropriate whenever there is a result for one or more of the five haloacetic acids that comprise the total haloacetic acid. Accordingly, this process will create a total haloacetic acid result (for analyte code 2456) if:

- A result exists for one or more of the five haloacetic acids AND
- Either
 - A result for total haloacetic acids does not already exist or
 - A total result exists that was created by *CDS Setup*.

Note that ~~this~~ these processes will calculate and create these results for total trihalomethane, and total haloacetic acids, whether there are corresponding sample schedules and monitoring periods in place or not. This means that even if a state has not yet entered all the sample schedules and monitoring periods for full *CDS* functionality, the Results Alert Report will identify a total trihalomethane, or total haloacetic acid, combined nitrate and nitrite, nitrate, nitrite, combined radium, or gross alpha excluding uranium result that exceeds a selected level

(e.g., MCL, trigger level). This process will run before the next process so that these calculated ~~total~~ results will be associated to SSMPA records.

See Appendix D-5 (Calculate Total Trihalomethane, Total Haloacetic Acid, Combined Nitrate = Nitrite, Individual Nitrate, Individual Nitrite, Combined Radium, and Gross Alpha Excluding Uranium Results) for the detailed specification of the logic of this process.

3.6.6 Associate Sample Analytical Results to Sample Schedule Monitoring Period Assignments and Sampling Point Sub-SSMPAs

The next *CDS Setup* process is *Associate Sample Analytical Results to Sample Schedule Monitoring Period Assignments and Sampling Point Sub-SSMPAs*. This process will consist of two independent but overlapping processes. The first will be driven by a change to a Sample or a Sample Analytical Result since the last time *CDS Setup* ran. The second will be driven by a change to a Sample Schedule Monitoring Period Assignment (SSMPA) since the last time *CDS Setup* ran.

In particular, the first sub-process will identify results associated to “for compliance” samples where either the sample or a result has been newly added or modified. For each result that meets this criteria, the process will assess whether that result satisfies a sample schedule for a particular monitoring period, and if so, associates the result to the previously discussed SSMPA record (that links the schedule and monitoring period). If a result is from an entry point sampling point, this process will only associate the result to a Sample Schedule associated to that same sampling point. If, on the other hand, a result is not from an entry point sampling point, the process will associate the result to a sample schedule for the same water system facility. In both cases, the sample schedule and result must be for the same analyte.

Each time this subprocess makes an association between a result and an SSMPA, it will also determine the next appropriate monitoring period for the sample schedule and create an SSMPA between the monitoring period and sample schedule. If the next appropriate monitoring period does not exist, it will create it and then associate it to the sample schedule. By doing this, users will generally not need to create monitoring periods because they will be created by the software at least one monitoring period into the future for each sequence of monitoring periods.

The second subprocess will identify SSMPAs that have a Last Update Timestamp greater than the last time *CDS Setup* ran. For each identified SSMPA, the process will then assess whether there is a result that satisfies the Sample Schedule and Monitoring Period referenced using the same criteria as the first subprocess. If there is a match, it will create the association between the result and the SSMPA and, in the same way, create a SSMPA between the sample schedule and its next appropriate monitoring period.

The only time these subprocesses will not overwrite an existing association between a result and an SSMPA is when a user has created the association using online *Sampling*. So, for

instance, if *CDS Setup* associates the results for a sample collected in early April to the second calendar quarter of the year and the user subsequently changes the associations so that they are now associated to the first calendar quarter of the year, this process will not overwrite the association that the user specified. The fact that the user explicitly designated the associated monitoring period (and indirectly the associated SSMPA) will be recorded (value set to “Y”) in a new attribute in the *Sampling* Sample Analytical Result entity USER_ASSIGNED_SSMPA.

Once results have been associated to their corresponding SSMPA records, determining M&R compliance and calculating MCL values is a relatively straightforward process.

See Appendix D-6 (Associate Sample Analytical Results to Sample Schedule Monitoring Period Assignments and Sampling Point Sub-SSMPAs) for the detailed specification of the logic of this process.

3.6.7 Associate CDS Setup-Created Monitoring Periods to Sample Schedules

The changes discussed in Subsection 3.6.2 apply to this subsection. Otherwise, the *Associate CDS Setup-Created Monitoring Periods to Sample Schedules* process will execute as in Release 7.0.

As previously described in the *Associate Sample Analytical Results to Sample Schedule Monitoring Period Assignments* process subsection, *CDS Setup* may create monitoring periods. Since the *Associate Sample Analytical Results to Sample Schedule Monitoring Period Assignments* process runs after the *Associate Monitoring Periods to Sample Schedules*, it will be necessary to rerun the latter process at this time.

To distinguish this process from the earlier process, it will be called *Associate CDS Setup-Created Monitoring Periods to Sample Schedules*. As indicated, it will simply rerun the previously described process that associates monitoring periods to schedules. The only difference is that it will read only Monitoring Period records whose:

- Last Update Timestamp is greater than the last time *CDS Setup* was run AND
- User ID is equal to CDSSETUP.

3.6.8 Aggregate Lead and Copper 90th Percentile Data

The *Aggregate Lead and Copper 90th Percentile Data* process will work as specified for Release 7.0 with three minor changes:

- The identifying information about a sample result with an improper unit of measure that is written to the CDS Setup Processing Report has been expanded so that the user can easily determine which is the offending result.

- Results whose “Less Than Indicator” is marked “Y” (and whose Unit of Measure field is not valued) are not recorded in the CDS Setup Processing Report.
- Selection of lead and copper tap sample schedules based on the schedule’s monitoring requirement’s association to violation type 51 or 52 not on its Sample Type.

Lead and Copper Tap Water samples (i.e., samples collected to determine compliance with the lead and copper action levels) can be stored in SDWIS/STATE as both individual results (in entities SAMPLE and SAMPLE_ANALYTICAL_RESULT) and summary results (entities SAMPLE_SUMMARY and SAMPLE_SUMMARY_RESULT). Some primacy agencies require that SDWIS/STATE calculate PB90 and CU90 summaries based on individual results while others want to enter 90th percentile summaries that they have calculated. CDS will support both requirements through this process.

This process will calculate and create or modify lead and copper 90th percentile summaries if the following have been entered:

- Lead and copper tap water sample schedules; and
- Monitoring periods; and
- Individual lead and copper samples and results.

and either no sample summary for the water system facility and monitoring period exists or, if one exists, it was created by this process.

These calculations will be done by water system facility and monitoring period. By virtue of being related to the same SSMPA record, the samples used to calculate 90th percentile values will already be related to the same water system facility and same monitoring period (see description for process *Associate Sample Analytical Results to Sample Schedule Monitoring Period Assignments*). Therefore, lead tap sample results associated to the same SSMPA record will be summarized together; copper results associated to the same SSMPA record will also be summarized together.

This process will first identify any changes made to lead or copper samples or results that reference an SSMPA record whose Last Update Timestamp is on/after the last time *CDS Setup* was run. Note that, by virtue of being associated to an SSMPA record, a lead or copper tap sample and result will already satisfy the following conditions: Data Quality Code is Accepted or Validated; Sample Type is Routine; Sample Lead Copper Sample Type Code is blank or First Draw (FSD); and Sample Rejection Reason Code is blank. The existing association also means there is a Sample Schedule in effect for lead or copper Initial, Routine, or Follow-up Tap monitoring for the Water System Facility.

If the process encounters an improper unit of measure for a lead result, thus preventing it from performing the 90th percentile aggregation, it will report this to the CDS Setup Processing Report.

See Appendix D-7 (Aggregate Lead and Copper 90th Percentile Data) for the detailed specification of the logic of this process.

3.6.9 Associate Sample Summaries to Sample Schedule Monitoring Period Assignments

The *Associate Sample Summaries to Sample Schedule Monitoring Period Assignments* process will work as specified for Release 7.0 with one minor change:

The selection of lead and copper tap sample schedules will be based on the schedule's monitoring requirement's association to violation type 51 or 52 and not on its Sample Type.

If all Sample Summaries were created by the *Aggregate Lead and Copper 90th Percentile Data Aggregation* process, this process would not be needed. However, some SDWIS/STATE users wish to enter their own lead and copper 90th percentile sample summary records. In order for the *Lead and Copper Tap M&R Compliance Check* function to work properly and for the Possible Increased and Decreased Monitoring Assessment Report to accurately assess lead and copper tap schedules, these user-entered sample summaries will also need to be related to the appropriate Sample Schedule Monitoring Period Assignment records which they satisfy.

As with the process that associates Sample Analytical Results to SSMPAs, this process will consist of two processes. The first processes will be driven by the Last Update Timestamp of Sample Summary Results. The second will be driven by the Last Update Timestamp of SSMPAs.

See Appendix D-8 (Assign Sample Summaries to Sample Schedule Monitoring Period Assignments) for the detailed specification of the logic of this process.

3.6.10 Calculate Monitoring Period Averages

Sometimes the value that should be checked for MCL compliance will be based on the average for a single monitoring period (e.g., nitrate regardless of the monitoring frequency, VOCs if the monitoring frequency is annual or less frequent). Other times it will be based on a running annual average (e.g., VOCs on quarterly monitoring, total trihalomethanes on quarterly monitoring). For both cases, process *Calculate Monitoring Period Averages* will accomplish the first step, which is to calculate monitoring period averages. Once monitoring period averages are calculated and stored, process *Calculate MCL Values* will run. For Release 8.0, this process will calculate a Monitoring Period Average whether there is an MCL (or FANL Max) or not. When creating a Monitoring Period Average where there is no MCL and no results, it will set the value in UOM Code to the UOM of the first result used to calculate the average.

In addition, the *Calculate Monitoring Period Averages* process will calculate Precursor Achieved Removal Ratios for the Monitoring Period based on the average of raw TOC and Alkalinity results and the average of finished TOC results for schedule packages. Precursor

Achieved Removal Ratios will be stored with Monitoring Period Averages and MCL Values associated to the Finished TOC schedule for each set of packaged, precursor, schedules. The value stored with the Monitoring Period Average will be used to calculate the ratio for the MCL Value (i.e., running annual average).

To calculate monitoring period averages, this process will retrieve SSMPAs for which monitoring period averages may need to be calculated. Candidate SSMPA records are those SSMPA records that are newly created SSMPA or associated to new sample analytical results, modified samples/results, new schedules, etc³. The process will identify these by checking the Last Update Timestamp of SSMPA records whose Last Update Timestamp is on/after the last time *CDS Setup* was run.

~~It then determines if there is a MCL for the analyte referenced by the SSMPA in effect. "In effect" or "current" means the MCL is in effect on the first day of the period to which the average applies. Usually this is equivalent to the Begin Date of the Monitoring Period but it could be the Effective Begin Date or the Seasonal Period Begin Month and Day of the Sample Schedule if either is after Monitoring Period Begin Date.~~

~~(Developer's Note: The process will use SSMPA Applicable Period Begin Date which takes into consideration all three dates.)~~

~~If the analyte has no current MCL, the process stops for that particular SSMPA and moves to the next one. To re-emphasize, this process will calculate only monitoring period averages for analytes that have a current MCL in the database.~~

~~The process then identifies all results already associated to the retrieved SSMPA. For each retrieved result, the process will retrieve all Confirmation sample results that are associated to the result's parent sample. If the sample analytical result is not in the same unit as the analyte's current MCL, the process will convert the result to the MCL's units (these conversions will not actually be made to the data in the Sample Analytical Result (TSASAR) table; the data in this table will remain as originally entered). If there is no MCL and the sample analytical result is not in the same units as the current FANL-MAX for the analyte and facility, the process will convert to the UOM of FANL-MAX. If there is neither a MCL or FANL-MAX, the process will convert to the UOM of the first result for a given SSMPA.~~

The process will calculate an average by adding all the retrieved results and dividing the sum by the number of results. Note that when there is more than one confirmation result or one confirmation result and more than one routine result (both uncommon situations), the average

³These associations have been created by the *Associate Sample Analytical Results to Sample Schedule Monitoring Period Assignments* process. As a result of that process, the results linked to the SSMPA are accepted or validated with a "for compliance" parent sample of type routine or maximum residence time, and whose rejection reason is not valued. This earlier process also takes into consideration whether or not the parent sample was taken at an entry point sampling point, so the Calculate Monitoring Period Averages process does not need to be concerned with these details.

will not be precisely correct but, once rounded in the next process, the calculated average will be the same as the precise average.

Note that this process will create a Monitoring Period Average even when there is no result for a given SSMPA. It will do this so that:

- When calculating MCL Values using the running annual average method, a value will be calculated for a monitoring period during which no result was collected; AND
- When a result for a monitoring period (e.g., a quarter) is added to the database late, and the running annual average method applies, the Calculate MCL Values process will not only know to recalculate the MCL value for that monitoring period but also for any subsequent periods to which that Monitoring Period Average applies.

The results of these calculations will be stored in entity MONITORING_PERIOD_AVERAGE (table TMNMPAVG). Where the software encounters an existing Monitoring Period Average for an SSMPA, it will check whether its USERID is equal to CDSSETUP. If it is, it will continue to delete the Monitoring Period Average business attribute values and then recalculate them to be current. If USERID is other than CDSSETUP, it will do nothing and move on. (This change will prevent the Monitoring Period Average from being recalculated if the user has explicitly created it from Results Averages Maintenance.)

(Developer's Note: This process does not currently set the USER ID to CDSSETUP when creating or modifying a record. This needs to be changed so that it does value USER ID with CDSSETUP whenever this process creates or modifies a record.)

See Appendix A (SDWIS/STATE Release 8.0 Entities of Interest) for the structure of this entity. See Appendix D-9 (Calculate Monitoring Period Averages) for the detailed specification of the logic of this process.

3.6.11 Calculate MCL Values

Once *CDS Setup* has calculated the monitoring period averages, it will next start process *Calculate MCL Values*. This process calculates the values that need to be compared against MCLs to determine whether a Water System Facility/~~Sampling Point~~ is in compliance with the MCL that is in effect during a given Monitoring Period. Two principal questions must be answered for this process to know how to calculate this value.

First, is compliance to be determined at an entry point to the distribution system? Second, is compliance to be determined based on a running annual average or an average for the monitoring period?

The first question is answered by the way the Sample Schedule is stored and is less of an issue in Release 8.0 ~~actually addressed by an earlier process, Associate Sample Analytical Results to~~

~~Sample Schedule Monitoring Period Assignments, which considers as part of its criteria whether or not the parent sample (of the results being assessed) was taken at an entry point sampling point.~~

An MCL Value whose UserID is other than CDSSETUP will not be recalculated in this process, so that user-entered MCL Values will not be overridden when a user has explicitly entered the values (using the Results Averages Maintenance window).

The second question is answered by an additional question: Is this Water System Facility/~~Sampling Point~~ on quarterly or more frequent monitoring (e.g., monthly, weekly) for the given analyte? If the answer is “No,” then the MCL Value will be based on a Monitoring Period Average rather than a Running Annual Average, because the latter will only come into play when the monitoring frequency is quarterly or more frequent. If the answer is “Yes,” a new question emerges: Do the regulations for this analyte call for a running annual average when it is on quarterly or more frequent monitoring? The information to answer this question is maintained as part of the MCL in attribute MCL_COMPLIANCE_METHOD of entity ANALYTE_LEVEL_RULE_ASGMT (table TMNALRA). This attribute will indicate whether the analyte’s MCL should use a running annual average (RAA) or monitoring period average (MPA) when it is on quarterly or more frequent monitoring. This column will be pre-populated in the TMNALRA table in accordance with the NPDWR when users receive SDWIS/STATE for the first time. Right now, the only non-microbiological analytes for which Monitoring Period Average is expected to be calculated, when on quarterly or more frequent monitoring, are nitrate (Analyte Code 1040), nitrite (Analyte Code 1041), and nitrate combined with nitrite (Analyte Code 1038). Each time process *Calculate Monitoring Period Averages* creates a record, it will also store MCL Compliance Method in the MONITORING_PERIOD_AVERAGE entity to improve the performance of process *Calculate MCL Values*.

If the process determines that the MCL Value is to be determined based on a single monitoring period average, it will retrieve the Monitoring Period Average for the given SSMPA and round it to the same number of significant digits as are used with the MCL, then store that value in entity MCL_VALUE. The number of significant digits to be used in rounding will be derived from attribute MEASURE_TEXT in table TMNALRA. If there is no MCL for the analyte, this process will not round the value.

See Appendix A (SDWIS/STATE Release 8.0 Entities of Interest) for the structure of entity MCL_VALUE. See Appendix D-10 (Calculate MCL Values) for the detailed specification of the logic of this process.

3.6.12 Assess Chemical/Radionuclide MCL Compliance

MCL violations will be determined as part of *CDS Setup*, so that compliance officers will know as soon as possible when an MCL violation has occurred, rather than having to remember to run a compliance report. There will be two outcomes of the *Assess*

Chemical/Radionuclide MCL Compliance process: first, a CDS Candidate MCL Violation will be created; second, the CDS Setup Processing Report will state that an MCL violation has been determined.

This process then will create records in four ~~three~~ new CDS reporting entities (described later). The user can review the records and determine the appropriate course of action using the *Migrate CDS Candidate Violations to SDWIS/STATE Violation Table* function (Subsection 7.17). Appropriate courses of action include ordering confirmation samples, contacting the water system owner to confirm the operating status of the treatment plant or sources of water involved, issuing a violation notice, and/or migrating the candidate violation to the SDWIS/STATE database.

This process will be somewhat similar in execution to the Results Alert Report (Subsection 7.8). However, this process will have the following significant differences:

- It will compare calculated MCL Values (rather than individual results) against MCLs in entity ANALYTE_LEVEL_RULE_ASGMT (table TMNALRA), except for analyte code 2950 (TTHM, Total Trihalomethanes) and 2456 (HAA5, Five Haloacetic Acids) where it will compare them with MCLs in entity FACILITY_ANALYTE_LEVEL (table TSAFANL) (MCLs will be stored as Control Level Type MAX).
- It will only compare against MCLs (whereas the Daily Result Alert Report will allow the user to select one or many threshold levels).
- It will create candidate MCL violations in entity CDS_CANDIDATE_VIOLATION (the Daily Results Alert Report does not). It will specify within the candidate CDS violation the Analyte Code for the analyte related to the Calculated MCL Value that exceeds the MCL (located either in entity ANALYTE_LEVEL_RULE_ASGMT (table TMNALRA) or FACILITY_ANALYTE_LEVEL (table TMNFANL)).

This process will involve two distinct action blocks as follows:

- Chemical/Radionuclide MCL Compliance Determination.
- Create Candidate CDS Violations.

This process will be triggered when the Last Update Timestamp for an MCL Value is greater than the date and time this process last ran. This means that anytime a result is added or modified, this process will reevaluate all MCL Values based on the new or modified result.

For each MCL Value selected, the process will compare the MCL Value against the MCL that was in effect on the first day of the monitoring period referenced by the MCL Value for the analyte referenced by the MCL Value (through the SSMPA). Note that, in Release 8.0, there will be MCL Value records that do not have matching MCL records. SDWIS/STATE will change the *Calculate MP Averages* process and the *Calculate MCL Values* process so that they

will calculate even if an MCL does not exist. Therefore, this process will need to bypass a MCL Value if there is no MCL (or MAX in the case of 2950 and 2456).

- If the MCL Value is greater than the MCL (in either table TMNALRA or table TMNFANL), the process will:
 - Delete any existing CDS Candidate Violations that are based on the same MCL Value and then
 - Pass a Candidate MCL Violation (type 01 or 02 as indicated by the MCL Value record) to the **Create Candidate Violation** action block. The Create Candidate Violation action block has been revised so that it values the Data Origin Code based on the Government Agency Type Code of the primacy agency. (If primacy agency type is ST, the software will set Data Origin Code to "S." If primacy agency type is RG, the software will set Data Origin Code to "R").
 - Create a record in the *CDS Setup Processing Report*.
 - For the first candidate MCL violation determined, create a record in the CDS Report Log, populating the following attributes as indicated in Exhibit 3-7:

Attribute	Value
REPORT_RUN_TS	current timestamp
REPORT_RUN_USERID	CDSSETUP
REPORT_TYPE	MCL
TCDSRLOG_IS_NUMBER	One up
TCDSRLOG_ST_CODE	State/EPA Region Code

Exhibit 3-7. Attributes Populated in CDS Report Log for a Candidate MCL Violation

- For other candidate MCL violations determined in the same run of *CDS Setup*, associate them to the CDS Report Log record created when the first candidate MCL violation was determined.
- If the MCL Value is less than or equal to the MCL, the process will determine whether there is an existing Candidate Violation based on the same MCL Value.
 - If there is, the process will create a record in the CDS Setup Processing Report to indicate that a previous candidate MCL violation has been deleted because the Water System Facility no longer exceeds the MCL, and then the process will

delete the CDS Candidate MCL Violation and all its related CDS Reporting records.

- If there is no existing CDS candidate MCL violation, the process will move to the next MCL Value.
- If there is no MCL (or, in the case of 2950 and 2456, no FANL-MAX), the process will move to the next MCL Value.

See Appendix D-11 (Chemical/Radionuclide MCL Compliance Check Process) for the detailed specification of the logic of this process.

3.6.13 Assess Sample Schedule Monitoring

Process *Assess Sample Schedule Monitoring* will support two CDS Reports: Possible Increased Monitoring Assessment Report and Possible Decreased Monitoring Assessment Report. This process will categorize sample schedules as:

- Candidates to be changed to more frequent monitoring.
- Candidates to be changed to less frequent monitoring.
- Candidates where monitoring should not change.
- Schedules for which an assessment is not possible because appropriate trigger levels for the analyte do not exist in the database.

This process will categorize each non-TCR schedule as one of the above based on the data that exists at the time *CDS Setup* runs. When any of the data that affect the categorization of a schedule are changed (e.g., a new sample result, new trigger level, a changed result that no longer exceeds the trigger level, etc.) and the schedule is not marked as one that is not to be reevaluated (a new, user enterable, permitted value), the new or changed data may cause process *Assess Sample Schedule Monitoring* to change the category of a schedule the next time *CDS Setup* runs.

To categorize Sample Schedules, entity SAMPLE_SCHEDULES has an attribute called MONITORING_ASSESSMENT_FLAG (alphanumeric, 1, optional). The permitted values for this attribute will be:

- Space Sample Schedule has never been assessed by the Sample Schedule Monitoring Assessment Process. This will be the value for newly created Sample Schedules and all Sample Schedules prior to the first time *CDS Setup* is run.

- N Sample Schedule cannot be assessed because no TRL, MCL and/or ACL is defined for the analyte referenced by the Sample Schedule.
- S Sample Schedule has been evaluated and does not qualify as a candidate for either increased or decreased monitoring.
- I Sample schedule was evaluated and was determined to be a candidate for increased monitoring.
- D Sample schedule was evaluated and was determined to be a candidate for Decreased monitoring
- A Schedule has been assessed and is a candidate for Increased/Decreased monitoring, but the user has elected for it not to show on future reports. If any circumstances change that trigger reassessment (i.e., modified results, sample schedules, or monitoring periods) ,the schedule will be reassessed the next time that *CDS Setup* is run.
- X Schedule has been assessed and user has elected for it not to show on future reports. If the user has marked the Schedule's Monitoring Assessment Flag with X, the schedule will not be reassessed when *CDS Setup* executes.

Note that the only candidate schedules for increased monitoring that this process will not identify are those where a Sampling Point should be scheduled to monitor for vinyl chloride because a related volatile organic chemical was detected. Assessing the need to increase/decrease monitoring for vinyl chloride cannot be handled in this process because it is possible that no schedule exists for this analyte. Assessing the need to increase/decrease monitoring for vinyl chloride will have to be done as part of the Possible Increased Monitoring Assessment Report.

For Release 8.0, this process will have added checks for evaluating:

- If the user has marked the schedule so that it should not be reassessed once it has been assessed.
- If the schedule has already been assessed by the process to improve performance.
- The need to assess increased/decreased scheduling based on the Running Annual Average (RAA) (stored in entity MCL_VALUE (table TMNCMCLV)) for source water TOC, finished water TOC and source water Bromide.
 - Changes to source water TOC RAA levels indicate the need to evaluate or reevaluate a sample schedule for TTHM/HAA.

- Changes to finished water TOC RAA levels indicate the need to evaluate or reevaluate a sample schedule for DBP precursors.
- Changes to source water Bromide RAA levels indicate the need to evaluate or re-evaluate a sample schedule for Bromate.

The term "Subpart H" is used in Appendix D-12 (Assess Sample Schedule Monitoring). Subpart H water systems were first described in the first Surface Water Treatment Rule as systems using surface water (SW) or groundwater under the influence of surface water (GUI). Since the SWTR is in Subpart H of the CFR, they have since been called Subpart H water systems and are even referred to as such in subsequent rules. For the DBP Stages 1 and 2, the rules apply to seller or purchaser water systems. When using the term SubPart H, this document refers to either seller or purchaser water supplies. When referring to a water system that may be either a seller or purchaser, Subpart H means those water systems where D_FED_PRIM_SRC_CD= "W" or "SWP" or "GU" or "GUP"

Exhibit 3-8, Exhibit 3-9, and Appendix D-12 (Assess Sample Schedule Monitoring) provide the criteria that will be used to mark a Sample Schedule as a candidate for increased or decreased monitoring.

Analyte Referenced by Schedule	PWS Type	Water Type Code For WSF	Periodicity of Current Schedule	Monitoring Results
IOC except Nitrate and Nitrite	CWS or NTNC	Any	> Quarterly (e.g., annual, triennial, once every 9 yrs)	Routine result > TRL for Analyte. If no TRL, then > MCL.
Nitrate	CWS or NTNC	Any	> Quarterly (e.g., annual, triennial, once every 9 yrs, one time)	Routine result > = TRL for Nitrate. If no TRL, then > = 50 % of MCL.
Nitrate	NC	Any	> Quarterly (e.g., annual, triennial, once every 9 yrs, one time)	Routine result > MCL.
Nitrite	CWS NTNC NC	Any	> Quarterly (e.g., annual, triennial, once every 9 yrs, one time)	Routine result > = TRL for Nitrite. If no TRL, then > = 50 % of MCL.
Volatile Organic Chemicals [141.61(a)]	CWS or NTNC	Any	> Quarterly (e.g., annual, triennial, once every 9 yrs, one time)	Routine result > TRL (SDWIS/STATE Team to pre-populate from NPDWR)
Synthetic Organic Chemicals	CWS or NTNC	Any	> Quarterly (e.g., annual, triennial, once every 9 yrs, one time)	Routine result > TRL (SDWIS/STATE Team to pre-populate TRLs from NPDWR)
Lead or Copper	CWS or NTNC	Any	> Semiannually	> Either Action Level
Radioactive Chemicals	CWS or NTNC	Any	> Quarterly (e.g., annual, every 4 years)	> TRL for Analyte. If no TRL, then > MCL (Enter a TRL for gross alpha = 5 pci/liter)

Exhibit 3-8. Criteria for Non-TCR Sample Schedule Increased Monitoring

Analyte Referenced by Schedule	PWS Type	Water Type Code For WSF	Periodicity of Current Schedule	Monitoring Results
Chlorite	CWS, NCNT	Any	Quarterly, Set of 3	Any chlorite sample > 1.0 mg/l during current or last quarter
TTHM / HAA	CWS, NCNT	All Types	less frequent than 4 per quarter: (e.g., 1/QT, x/YR, x/3Y, x/9Y)	RAA TTHM > 0.080 mg/l or RAA HAA > 0.060 mg/l
	CWS, NCNT > = 10,000	Fed Prim Src Cd = SW, SWP, GU, or GUP	Quarterly, 1 sample / qtr	RAA TTHM > 0.060 mg/l or RAA HAA > 0.045 mg/l or RAA Source Water TOC > 4.0 mg/l
	CWS, NCNT > = 500	Fed Prim Src Cd = SW, SWP, GU, or GUP	> Quarterly (i.e. annual, triennial, once every nine years)	RAA TTHM > 0.060 mg/l or RAA HAA > 0.045 mg/l or RAA Source Water TOC > 4.0 mg/l
	CWS, NCNT > = 10,000	Fed Prim Src Cd < > SW, SWP, GU, or GUP	> Quarterly (i.e. annual, triennial, once every nine years)	RAA TTHM > 0.060 mg/l or RAA HAA > 0.040 mg/l
	CWS, NCNT < 10,000	Fed Prim Src Cd < > SW, SWP, GU, or GUP	> Annual (i.e. triennial, once every nine years)	RAA TTHM > 0.060 mg/l or RAA HAA > 0.040 mg/l
Bromate	CWS, NCNT	Any	Quarterly	RAA Source Water Bromide > = 0.05 mg/l
TOC/ Alkalinity	CWS, NCNT	Subpart H (no criteria used)	Quarterly, Paired	RAA Treated Water TOC > = 2.0

Exhibit 3-8. Criteria for Non-TCR Sample Schedule Increased Monitoring (continued)

Analyte Referenced by Schedule	PWS Type	Water Type Code For the WSF	Periodicity Of Current Schedule	Monitoring Results
Type = OC or IOC (except lead, copper, nitrate, TThm, and HAA)	CWS NTNC	SW or GU	Quarterly	4 consecutive quarterly results all < = MCL.
Type = OC or IOC (except lead, copper, nitrate, TThm-2950 and HAA-2435)	CWS			all < = MCL.
Nitrate	CWS, NTNC	SW or GU	Quarterly	4 consecutive quarterly results all < 50 % of MCL (< 5 or 5.0 or 4.5?).
Nitrate	CWS, NTNC	GW or blank	Quarterly	4 consecutive quarterly results all < = MCL.
Nitrate	NC	Any	Quarterly	< MCL.
Type = IOC (except nitrate/lead/copper)	CWS NTNC	Any	Annually	3 consecutive annual results all < = MCL.
Type = OC	CWS NTNC	Any	Annually	3 consecutive annual results all less than detection.
Lead or Copper (1022, 1030 versus PB90, CU90 or 5000)	CWS NTNC	Any	Semi-annually	2 consecutive six month rounds with both lead and copper 90 th % < = Action Level.
Lead or Copper	CWS NTNC	Any	Annual	3 consecutive years with both lead and copper 90 th % < = Action levels (counting samples collected under six month periodicity).
Radioactive Chemicals	CWS or NTNC	Any	Quarterly	4 consecutive quarterly results all < = MCL.
Chlorite	CWS, NCNT	Any	Monthly, Set of 3	Previous twelve months no chlorite > 1.0

Exhibit 3-9. Criteria for non-TCR Sample Schedule Decreased Monitoring

Analyte Referenced by Schedule	PWS Type	Water Type Code For the WSF	Periodicity Of Current Schedule	Monitoring Results
TTHM / HAA	CWS, NCNT	SW or GU	Quarterly, 4 samples / qtr	Results for four consecutive quarters and RAA Source Water TOC < = 4.0 mg/l and RAA TTHM < = 0.040 mg/l and RAA HAA < = 0.030 mg/l
		Not SW or GU	Quarterly, 4 samples / qtr	Results for four consecutive quarters and RAA TTHM < = 0.040 mg/l and RAA HAA < = 0.030 mg/l
		Not SW or GU > = 10,000	Quarterly, 1 sample / qtr	Results for four consecutive quarters and RAA TTHM < = 0.040 mg/l and RAA HAA < = 0.030 mg/l
		Not SW or GU, < 10,000	Annual	Results for one year and RAA TTHM < = 0.020 mg/l and RAA HAA < = 0.015 mg/l Results for two consecutive years and RAA TTHM < = 0.040 mg/l and RAA HAA < = 0.030 mg/l

Exhibit 3-9. Criteria for non-TCR Sample Schedule Decreased Monitoring (continued)

Analyte Referenced by Schedule	PWS Type	Water Type Code For the WSF	Periodicity Of Current Schedule	Monitoring Results
Bromate	CWS, NCNT	Any	Monthly	After twelve consecutive months of Source Water monitoring, RAA Source Water Bromide < 0.05 mg/l
TOC	CWS, NCNT	Subpart H	Monthly, Paired	After twelve consecutive months of Source Water Monitoring, RAA Treated Water TOC < 1.0
				After twenty-four consecutive months of Source Water Monitoring, RAA Treated Water TOC < 2.0

Exhibit 3-9. Criteria for non-TCR Sample Schedule Decreased Monitoring (continued)

See Appendix D-9 (Calculate Monitoring Period Averages) for the detailed specification of the logic of this process.

3.6.14 Identify High Chlorite and Chlorine Dioxide Results

A new *CDS Setup* process, *Identify High Chlorite and Chlorine Dioxide Results* will be added for Release 8.0 that will identify new or modified results (Sample Analytical Results) that exceed either the chlorite MCL or chlorine dioxide MRDL. These are needed because:

- Determining candidate MCL/MRDL violations for these two contaminants is too complex to fully automate and
- Both are associated to acute health effects and so warrant more than the ad hoc, Results Alert Report.

Three distinct subprocesses support this new *CDS Setup* process:

- *Clear Previous CDS Exceedence Records*, that will clear records from the Oracle reporting entities if there is a candidate result for the TSASAR being evaluated.

- *Level Exceedence Check*, that will check Sample Analytical Result records for chlorite and chlorine dioxide (stored in table TSASAR) against the current MCL (chlorite) or MRDL (chlorine dioxide) stored in entity ANALYTE_LEVEL_RULE_ASGMT (table TMNALRA).
- *Create Candidate Exceedences*, that will create records in entities CDS_CANDIDATE_EXCEEDENCES and CDS_RESULT.

Because of differences, only portions of the above processes from the Results Alert Report can be used here. For instance, instead of selecting candidate results based on the Regulating Agency selected, this process will select records based on the Last Update Timestamp of Sample Analytical Results for two analytes, chlorite (analyte code 1009) and chlorine dioxide (analyte code 1008).

3.6.14.1 Clear Previous Candidate Exceedence Records

The output of the *Identify High Chlorite and Chlorine Dioxide Results* process will be the creation of candidate exceedence. To avoid creation of duplicate exceedence records in these reporting entities, this process will look to see if a result being assessed (i.e., a chlorite or chlorine dioxide result that has been added or changed since the last time *CDS Setup* ran) has an equivalent record in entity CDS_SAMPLE_RESULT (i.e., a CDS result that has the same internal system number and state code as one selected for evaluation) and that is associated with a CDS Candidate Exceedence. If so, it will delete it and its parent CDS Candidate Exceedence record. Doing this will also ensure the removal of an exceedence that previously met exceedence criteria but that, due to a changed concentration or unit of measure, no longer exceeds (in case, for example, a user accidentally enters a result in mg/l that was reported in ug/l).

3.6.14.2 Chlorite and Chlorine Dioxide Level Exceedence Check

The *Chlorite and Chlorine Dioxide Level Exceedence Check* subprocess will be based on the logic used in the *Threshold Level Exceedence Check* process. It will work very much like two separate runs of the Threshold Level Exceedence Check against the MCL for chlorite and the MRDL for chlorine dioxide. However, the selection criteria will be hard-coded rather than user-entered. The hard-coded criteria are as follows:

- Analyte is equal to chlorite in the first run and equal to chlorine dioxide in the second run.
- It is not limited to an set of water systems (i.e., it is not based on the selected regulating agency).

- The Period of Time (this phrase is used in the Results Alert Report to define the time criteria selected) is based on the Data Entry Date Range method with the data entry date range being defined as the time from the last time the process ran to the current time.
- The ALRA record to compare against is the chlorite MCL for chlorite results and the MRDL for chlorine dioxide for chlorine dioxide results.

Unlike the *Threshold Level Exceedence Check*, however, this process will only check “for compliance” results. Before checking for level exceedence, the process will first check to see if there is a current MCL/MRDL (Current at this point means the Begin Date of the MCL/MRDL in entity ANALYTE_LEVEL is equal to or less than (earlier than) the current date and the End Date is null or is greater than or equal to the current date.) If there is no MCL for chlorite, it will send a message to the CDS Setup Processing Report. If there is no MRDL for chlorine dioxide, it will send a message to the CDS Setup Processing Report.

Next, this process will select results (stored in entity SAMPLE_ANALYTICAL_RESULTS (table TSASAR)) for chlorine dioxide or chlorite that have been added or modified since the last time *CDS Setup* ran and that are “for compliance” results. For each result identified, the process will first determine whether a candidate exceedence record has already been created for it or not. If one was previously created for the selected result (by this process or the Results Alert Report), it will delete the candidate exceedence record and its related CDS Reporting data. This will both prevent duplicate records from existing in the CDS Reporting tables and enable CDS to remove an exceedence if a changed result no longer exceeds.

3.6.14.3 Create Candidate Exceedence

Finally, the *Chlorite and Chlorine Dioxide Level Exceedence Check* process will compare the selected results against the MCL/MRDL. If a chlorite result exceeds the chlorite MCL or a chlorine dioxide result exceeds the chlorine dioxide MRDL, it will pass data to the *Create Candidate Exceedence* process. If the UOM for a result is different than the UOM for the threshold level and the result is not less than detect (Less Than Indicator is not equal to “Y”—if the Less Than Indicator is equal to “Y,” no conversion will be necessary—use zero as the value), the process will first convert the result to the same UOM as the MCL/MRDL using the conversion table in Exhibit 3-10:

From UOM	To UOM	Multiplier
MG/L	UG/L	1000
MG/L	NG/L	1000000
UG/L	MG/L	0.001
UG/L	NG/L	1000
NG/L	MG/L	0.000001
NG/L	UG/L	0.001

Exhibit 3-10. Conversion Table

If the UOM for a result is not equal to any of the unit of measures in column two, then the process will not be able to compare the result to the threshold level. Instead, it will send a message to the CDS Setup Processing Report identifying the result that could not be converted and stating that its UOM could not be converted.

The detailed design specification for this process is contained in Appendix D-13 (Chlorite and Chlorine Dioxide Level Exceedence Check).

3.6.15 CDS Setup Processing Report

Each time *CDS Setup* executes, it will create a processing report. The following *CDS Setup* processes may provide information for this report:

- Update Sample Schedules Due to Inventory Change.
- Calculate Total Trihalomethane Result.
- Calculate Total Haloacetic Acid Result.
- Calculate Combined Nitrate+ Nitrite Result.
- Calculate Nitrate Result.
- Calculate Nitrite Result.
- Calculate Combined Radium Result.
- Calculate Gross Alpha Excluding Uranium Result.
- Aggregate Lead and Copper 90th Percentile Data.
- Assess Chemical/Radionuclide MCL Compliance.

The user can view the CDS Setup Processing Report at the conclusion of *CDS Setup* by pressing the **Launch Current CDS Setup Processing Report** button on the Start CDS Setup window. The report will be a text file that can be opened by any desktop word processor. The reports will be located under C:\SDWIS\CDS\SETUP\. Each report will use the following naming convention: CDSSETUP_YYYYMMDDHHMMSS.RPT (e.g., CDSSETUP_20011208174324.RPT). The timestamp on the report name indicates when the *CDS Setup* execution began. Users will need to use desktop tools to review and/or remove old CDS Setup Processing reports. Since this process is expected to run on a daily basis, reports will accumulate over time.

4.0 ONLINE INVENTORY

4.1 Site Visit

Presentation Type 1: This section documents the design for a function that is new with Release 8.0. As such, normal text means completely new design for Release 8.0. This section contains no redlined text.

SDWIS/STATE Release 8.0 will introduce the capability to maintain and report to SDWIS/FED information about Site Visits. The primary reason that this capability will become available with this release is because of the federal regulatory requirements⁴ spelled out in the Interim Enhanced Surface Water Treatment Rule (IESWTR), which “requires primacy States to conduct sanitary surveys for all surface water and GWUDI systems regardless of size.”⁵

“Sanitary surveys are required no less frequently than every 3 years for community systems and no less frequently than every 5 years for noncommunity systems. For community systems determined by the State to have outstanding performance based on prior sanitary surveys, subsequent sanitary surveys may be conducted no less frequently than every 5 years. States must have the appropriate rules or other authority to require that public water system (PWS) owners respond in writing to significant deficiencies outlined in a sanitary survey report within at least 45 days, indicating how and on what schedule the system will address significant deficiencies noted in the survey. States must also have the appropriate rules or other authority to assure that facilities take the steps necessary to address significant deficiencies identified in the survey report that are within the control of the PWS and its governing body.”⁶

“A sanitary survey must address each of the following eight elements: Source; treatment; distribution system; finished water storage; pumps, pump facilities, and controls; monitoring and reporting and data verification; system management and operation; and operator compliance with State requirements. In addition, sanitary surveys include a review of disinfection profiles for systems required to comply with the disinfection benchmarking requirements discussed elsewhere in today’s notice.”⁷

⁴The phrase “sanitary survey” is not found in the rule revisions published in the Federal Register on April 14, 2000 and so, it is assumed that no changes were made to the Sanitary Survey provisions in these revisions.

⁵Preamble of the IESWTR found in the Federal Register/Vol. 63, No. 241/Wednesday, December 16, 1998, page 68478.

⁶Ibid, page 69484.

⁷Ibid, page 69494.

The proposed Site Visit design intends to address these requirements. These same requirements, with very little variation, are also included in the Proposed Groundwater Rule (GW). This design may also satisfy these requirements, once they are promulgated.

4.1.1 Model Changes for Site Visit

Although SITE_VISIT has been a table in the SDWIS/STATE database for many years, its attributes have changed in concert with federal reporting guidance as well as the EPA/State Joint Guidance on Sanitary Surveys. (4.1.1 A)

In addition, the following new entities have been added to support SITE_VISIT:

- DEFICIENCY. (4.1.1 B)
- SITE_VISIT_DEFICIENCY_ASGMT. (4.1.1 C)
- DEFICIENCY_SCHEDULE_ACTIVITY_ASGMT. (4.1.1 D)
- SITE_VISIT_INDIVIDUAL_ASGMT. (4.1.1 E)

See Appendix A (SDWIS/STATE Release 8.0 Entities of Interest) for detailed information about these entities. Please see Appendix C for the entity relationship diagram for Site Visits and Deficiency entities

4.1.2 Site Visit Window Flow

Exhibit 4-1 illustrates the enhancements to the *Inventory* main menu to support the maintenance of Site Visits. As shown in Exhibit 4-1, the user may select menu item **Edit/Site Visits**, which provides the option to **Add** or **Maintain**.



Exhibit 4-1. Inventory Main Menu

To add a new Site Visit, the user will select **Edit/Site Visits/Add** to invoke the existing Water System Search dialog box where the user can specify water system number, water system name, principal county served (or nothing). If an exact Water System No. or Water System Name has been entered, clicking the **Search** button will either display the Site Visit Maintenance - Add window (if the entered Water System is part of the user's current Water System Group or Government Agency), or provide an exit state error message: **WS is not part of current group/agency. Change group/agency to access this WS.**, and then display the Site Visit Maintenance List. Entering a partial Water System No. or Water System Name will invoke the Water System Selection List. Entering Principal County Served will retrieve water systems that are linked to the specified Principal County Served. When the user presses **Cancel**, the software will ignore any data entered and return the user to the *Inventory* main menu. These windows are not shown, as they have not changed from previous releases. (4.1.2 A)

(Developer's Note: Use the existing MBS_WS_SEARCH and MBS_WS_SELECTION_LIST procedures for the water system search and water system selection list respectively.)

4.1.2.1 Site Visit Search

Selecting **Edit/Site Visits/Maintain** will invoke the Site Visit Search dialog box (Exhibit 4-2) where users may specify the following search criteria: Water System No. only; Site Visit No. only; Water System No. and Site Visit No.; Primary Reason only; Person Present only; Visit Date Range only; Primary Reason and Visit Date Range; Person Present and Visit Date Range;

Entry Fields:

Search by Water System Group Box:

If any Search by Water System group box field is valued, all Other Criteria group box fields will be protected.

[Water System] No. A standard nine-character Public Water System Number may be entered or left blank. The **Go To** button may be pressed to select a water system from a list. Once a valid water system is entered or picked from a list, the water system name will be displayed on the window. If a valid water system is entered but is not part of the user's current Water System Group or Regulating Agency, display the exit state error message: **WS is not part of current group/agency. Change group/agency to access this WS.** (4.1.2.1 B)

Site Visit No. A five-digit External System Number may be entered or left blank. Entering a specific water system and Site Visit No. can retrieve a unique Site Visit. (4.1.2.1 C)

Other Criteria Group Box:

If any Other Criteria group box field is valued, the Search by Water System group box fields will be protected. (4.1.2.1 D)

Primary Reason This field will specify the reason for a visit to a public water system. This will be a standard dropdown list with the following permitted values:

SNSV	Sanitary Survey.
SSVF	Sanitary Survey Follow-up.
SHAZ	Sanitary Hazards Investigation.
TRTP	Water Treatment Plant Site Visit.
TRNG	Training.
LABC	Laboratory certification.
EMRG	Emergency assistance.
ENGR	Engineering determination/advice/plan review.
INVG	Investigation (complaint/violation/etc.).
LABI	Laboratory inspection.
INFI	Informal system inspection.
OTHR	Other.
PRMT	Permit (qualification/review/compliance).
RSCH	Regularly scheduled.
SMPL	Sample collection.

TECH	Technical assistance (non-specific).
VAEX	Variance/Exemption related.
FENF	Formal Enforcement.
IENF	Informal Enforcement.
CPEV	Comprehensive Performance Evaluation (CPE).
CNST	Construction Inspection.
OM	Operation and Maintenance.
NEED	Needs Survey.
RCDR	Record Review.
SITE	Site Inspection.
SRCE	Source Water Inspection.
LOCD	Locational Data Collection.
WHPP	Wellhead Protection Program.
SRF	State Revolving Fund.
CAPD	Capacity Development Assessment.
WSHD	Watershed Evaluation.
XCON	Cross Connection Inspection/Investigation.
PUBH	Public Hearing.

If the Primary Reason field is valued, the Person Present field will be protected. (4.1.2.1 E)

Person Present

The user may click the **Go To** button to invoke the Individual Selection List or may enter a value directly into the Person Present field. The default sort for Individual Selection List will be Name in ascending alphabetical order. If the user enters a value in the Person Present field, on tabbing off the field the software will accept the specified Person Present, if it is an exact match. If the value entered is not an exact match, the Individual Selection List sorted by ascending Name will be invoked, from where the user may select. If the user specifies a partial string in this field, the software will display the closest matching Person Present Name at the top of the list. (Closest matching means a match with the Individual Name, sorted alphabetically, that starts with the same text string as supplied.)

If the Person Present field is valued, the Primary Reason field will be protected. (4.1.2.1 F)

(Developer's Note: Use existing EBS_C_LGL_ENT_SELECT_LIST and EBS_S_COMMON_LEGAL_ENTITY client/server procedures for display of Individual Selection List.)

Visit Date Range
[Begin Date]

This field will specify the begin date of the Visit Date Range. Edit checks for date will be done later when the user clicks the **Search** button. A calendar function will allow the user to more easily enter dates for this field.

Visit Date Range
[End Date]

This field will specify the end date of the Visit Date Range. Edit checks for date will be done later when the user clicks the **Search** button. A calendar function will allow the user to more easily enter dates for this field.

Tab Sequence:

Water System No., **Go To** button, Site Visit No., Primary Reason, Person Present, **Go To** button, [Visit Date Range] Begin Date, [Visit Date Range] End Date, **Search** button, **Clear** button, **Cancel** button, **Help** button. (4.1.2.1 G)

Buttons:

Water System

Go To

Pressing this button will invoke the Water System Selection List. If the user has typed part of the water system number, it will be used in the search to invoke the Water System Selection List. The user may select a water system from this list. (4.1.2.1 H)

Person Present

Go To

Pressing this button will invoke the Individual Selection List. If the user has typed part of the Person Present name, it will be used in the search to bring up the Individual Selection List. The user may select a Person Present from this list. (4.1.2.1 I)

Search

Pressing this button will retrieve Site Visits based on the specified criteria.

The user's current Water System Group/Regulating Agency will be used as an implied search criteria in all searches for Site Visit records. This means that the software will retrieve only site visits linked to a water system that is linked to the user's current Water System Group/Regulating Agency. If an exact Water System No. is entered, the software will validate that it belongs to the user's current Water System Group/Regulating Agency. The following will be possible search permutations:

- Search by Water System Group Box. (4.1.2.1 J)
 - By Water System No.
 - By Site Visit No.
 - By Water System No. and Site Visit No.

- Other Criteria Group Box. (4.1.2.1 K)
 - Search by Primary Reason.
 - Search by Person Present.
 - Search by Visit Date Range.
 - Search by Visit Date Range with both begin and end dates valued (the software will check for site visit records with Date of Visit between (inclusively) the two specified dates).
 - Search by Visit Date Range Start Date (the software will check for site visit records with Date of Visit later than or same as the entered begin date including null dates).
 - Search by Visit Date Range End Date (the software will check for site visit records with Date of Visit prior to or on the specified end date including null dates).
 - Search by Primary Reason and Visit Date Range.
 - Search by Person Present and Visit Date Range.
 - Search by Primary Reason and Visit Date Range Start Date.
 - Search by Primary Reason and Visit Date Range End Date.
 - Search by Person Present and Visit Date Range Start Date.

- Search by Person Present and Visit Date Range End Date.
- Search with no filtering criteria. If the user opts not to specify anything on the search dialog box, the user's current Water System Group/Regulating Agency will still be used in retrieving records that will be displayed in the Site Visit Maintenance List. (4.1.2.1 L)
- If a search includes Visit Date Range with both begin date and end date valued, then if end date is earlier than begin date, provide an exit state error message: **End Date cannot be earlier than Begin Date.** (4.1.2.1 M)
- If no site visits meet the search criteria, invoke informational exit state message: **No Site Visit exists in the database for this search criteria.** If no search criteria is specified and there are no site visit records in the database, invoke informational exit state message: **No Site Visit exists for the currently selected WS Group/Regulating Agency.** When the user clicks **OK**, the software will still display the Site Visit Maintenance List. (4.1.2.1 N)
- If the search retrieves a single site visit record, the record will be displayed on the Site Visit Maintenance window (so that the user does not have to select/change it). If more than one site visit are retrieved, they will be displayed in the Site Visit Maintenance List. (4.1.2.1 O)

Clear Pressing this button will clear data from all fields on the search dialog box. All fields that may have been protected will be enabled. (4.1.2.1 P)

Cancel When the user presses this button the software will disregard data entered and return the user to the previous window. (4.1.2.1 Q)

Help Pressing this button will invoke online Help for the window. (4.1.2.1 R)

4.1.2.2 Site Visit Maintenance List

The Site Visit Maintenance List (Exhibit 4-3), which will display up to 1,000 records at a time, will list the site visit records retrieved from the search criteria specified. The user will be able to select (double-click) a site visit from the list to view or update, add a new site visit by selecting **Edit/Add**, or delete an existing site visit.

The fields in this list will be: Site Visit No., Status, Water System No., Primary Reason, Date of Visit, Next Due Date, Highest Deficiency Severity, and Water System Name.

Site Visit No.	Status	Water System No.	Primary Reason	Date of Visit	Next Due Date	Highest Deficiency Severity	Water System Name
ZZZZ9	X	XXXXXXXXXXXX	XXXX	MM/DD/YYYY	MM/DD/YYYY	XXX	XXXXXXXX
ZZZZ9	X	XXXXXXXXXXXX	XXXX	MM/DD/YYYY	MM/DD/YYYY	XXX	XXXXXXXX
ZZZZ9	X	XXXXXXXXXXXX	XXXX	MM/DD/YYYY	MM/DD/YYYY	XXX	XXXXXXXX
ZZZZ9	X	XXXXXXXXXXXX	XXXX	MM/DD/YYYY	MM/DD/YYYY	XXX	XXXXXXXX
ZZZZ9	X	XXXXXXXXXXXX	XXXX	MM/DD/YYYY	MM/DD/YYYY	XXX	XXXXXXXX
ZZZZ9	X	XXXXXXXXXXXX	XXXX	MM/DD/YYYY	MM/DD/YYYY	XXX	XXXXXXXX
ZZZZ9	X	XXXXXXXXXXXX	XXXX	MM/DD/YYYY	MM/DD/YYYY	XXX	XXXXXXXX
ZZZZ9	X	XXXXXXXXXXXX	XXXX	MM/DD/YYYY	MM/DD/YYYY	XXX	XXXXXXXX
ZZZZ9	X	XXXXXXXXXXXX	XXXX	MM/DD/YYYY	MM/DD/YYYY	XXX	XXXXXXXX
ZZZZ9	X	XXXXXXXXXXXX	XXXX	MM/DD/YYYY	MM/DD/YYYY	XXX	XXXXXXXX
ZZZZ9	X	XXXXXXXXXXXX	XXXX	MM/DD/YYYY	MM/DD/YYYY	XXX	XXXXXXXX
ZZZZ9	X	XXXXXXXXXXXX	XXXX	MM/DD/YYYY	MM/DD/YYYY	XXX	XXXXXXXX
ZZZZ9	X	XXXXXXXXXXXX	XXXX	MM/DD/YYYY	MM/DD/YYYY	XXX	XXXXXXXX
ZZZZ9	X	XXXXXXXXXXXX	XXXX	MM/DD/YYYY	MM/DD/YYYY	XXX	XXXXXXXX
ZZZZ9	X	XXXXXXXXXXXX	XXXX	MM/DD/YYYY	MM/DD/YYYY	XXX	XXXXXXXX

WS Group Used XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

Number of rows resulting from the search criteria entered: ZZZZZZ9

Number of rows displayed: ZZZZZZ9

Exhibit 4-3. Site Visit Maintenance List

Menu Items:

File

Exit Selecting **File/Exit** will return the user to the *Inventory* main menu. (4.1.2.2 A)

Edit

Add Selecting **Edit/Add** will invoke Water System Search to enable the user to specify a water system prior to displaying the Site Visit Maintenance window in Add mode. This option will be enabled when a record has not been highlighted. (4.1.2.2 B)

Change Selecting **Edit/Change** will display the Site Visit Maintenance window with the selected site visit record available for change. This menu item will be enabled only when a record has been highlighted. (4.1.2.2 C)

Delete The **Edit/Delete** menu item will be enabled only when a record has been highlighted. If the selected Site Visit is associated to a Deficiency, the software will return an exit state error message: **This Site Visit is associated to one or more deficiencies. You must delete/disassociate all Deficiencies in order to delete the Site Visit.** Note that a user must delete/disassociate deficiencies from the Site Visit Maintenance window. (4.1.2.2 D)

Otherwise, the software will display a standard, protected delete confirmation dialog box (Exhibit 4-4) for the selected record (Exhibit 4-5). When a site visit record is deleted, all individual association records (site visit individual association records in table TINSVINA) as well as the association to a Compliance Schedule will be deleted. (4.1.2.2 E)

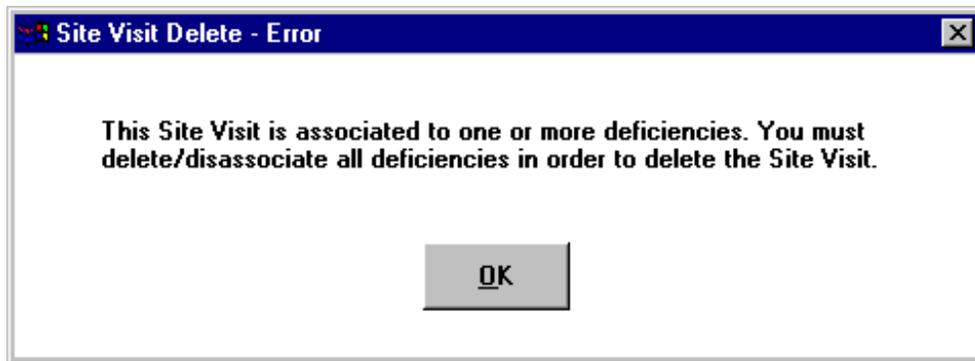


Exhibit 4-4. Site Visit Delete - Error

Menu Icons: (4.1.2.2 J)



Clicking on this icon will invoke the Water System Information window, which will display basic inventory information for the water system associated with the selected site visit record. This icon will be disabled when no site visit record is highlighted.



Clicking on this icon will invoke the Historical Sampling Information window, which will display protected information on samples collected for the site visit water system. This icon will be disabled when no site visit record is highlighted.



Clicking on this icon will invoke the Display Points of Contact window, which will display a protected list of legal entities and individuals (such as operators, engineers, etc.) associated with the water system linked to the selected site visit record. This icon will be disabled when no site visit record is highlighted.



Clicking on this icon will invoke online Help for the window.

Protected Fields: (4.1.2.2 K)

*WS Group/
Regulating Agency
Used*

This protected field will show the Water System Group Name or Regulating Agency Used in the search criteria. The software will dynamically change the prompt depending on whether Water System Group Name or Regulating Agency is current. The prompt will be “WS Group Used” if the user’s current Water System Group is valued, otherwise the prompt will be “Regulating Agency Used.”

*Number of rows
resulting from
search criteria
entered*

This field will show the total number of rows that met the search criteria.

*Number of rows
displayed*

This field will show the total number of rows that are displayed in the list, which may be less than the number of rows that met the search criteria.

4.1.2.3 Site Visit Maintenance

The Site Visit Maintenance window (Exhibit 4-6) will allow the user to add or change site visits and to specify people present during the site visit and deficiencies identified for a

particular water system facility. The title bar will vary depending on the current maintenance action (Site Visit Maintenance - Add or Site Visit Maintenance - Change). (4.1.2.3 A)

Exhibit 4-6. Site Visit Maintenance

Menu Icons: (4.1.2.3 B)



Clicking on this icon will invoke the Water System Information window, which will display basic inventory information for the given water system.



Clicking on this icon will invoke the Historical Sampling Information window, which will display protected information on all samples collected for the given water system.



Clicking on this icon will invoke the Display Points of Contact window, which will display a protected list of legal entities and individuals (such as operators, engineers, etc.) associated with the given water system.



Clicking on this icon will invoke online Help for the window.

Protected Fields:

Water System Group Box:

The Water System group box will contain Water System No. and Name as protected fields.

Site Visit No. A five-digit, system generated field that maps to field External System Number. This protected field will initially be set to zero (0) when the site visit is being added. The Site Visit No. will be incremented per water system and will be the identifier reported to SDWIS/FED. If the maximum number is encountered while incrementing an External System Number, the system will identify the lowest number not already used for the given water system. (4.1.2.3 C)

Highest Deficiency Severity

Specifies the highest deficiency severity associated to the site visit. This protected field will contain one of the following permitted values:

SIG Significant.
MIN Minor.
REC Recommendation.
NON None.

The software will determine the highest deficiency severity by checking the deficiencies associated to the site visit (including any associated from earlier site visits). It will first check for any "SIG" deficiency, and if found, it will set the field value to "SIG." If no SIGs are found, it will then check for a "MIN" deficiency, and if found, will set the field to "MIN." If no MINs are found, it will then check for a "REC" and if found, will set the field to "REC." If no REC is found, the field will be set to "NON." (4.1.2.3 D)

Compliance Schedule No.

Specifies the compliance schedule number. This protected field will be valued with "0" when a site visit is being added. (4.1.2.3 E)

Entry Fields:

Status Permitted values in this field will be as follows:

C Completed.
P Planned.

In Add mode, the default value for this field will be “Completed.” The prompt will be blue and underlined to indicate that this field is mandatory. (4.1.2.3 F)

Date of Visit Specifies the date on which the site visit was performed or is planned to be performed. This field will be conditionally mandatory. If the Status is “Completed,” it must be valued and cannot be a future date. If the Status is “Planned,” it will not have to be valued and can be a future date. A calendar function will allow the user to more easily enter dates for this field. (4.1.2.3 G)

Primary Reason Specifies the reason for a visit to a public water system. This will be a standard dropdown list with the following permitted values:

SNSV	Sanitary Survey.
SSVF	Sanitary Survey Follow-up.
SHAZ	Sanitary Hazards Investigation.
TRTP	Water Treatment Plant Site Visit.
TRNG	Training.
LABC	Laboratory certification.
EMRG	Emergency assistance.
ENGR	Engineering determination/advice/plan review.
INVG	Investigation (complaint/violation/etc.).
LABI	Laboratory inspection.
INFI	Informal system inspection.
OTHR	Other.
PRMT	Permit (qualification/review/compliance).
RSCH	Regularly scheduled.
SMPL	Sample collection.
TECH	Technical assistance (non-specific).
VAEX	Variance/Exemption related.
FENF	Formal Enforcement.
IENF	Informal Enforcement.
CPEV	Comprehensive Performance Evaluation (CPE).
CNST	Construction Inspection.
OM	Operation and Maintenance.
NEED	Needs Survey.

RCDR	Record Review.
SITE	Site Inspection.
SRCE	Source Water Inspection.
LOCD	Locational Data Collection.
WHPP	Wellhead Protection Program.
SRF	State Revolving Fund.
CAPD	Capacity Development Assessment.
WSHD	Watershed Evaluation.
XCON	Cross Connection Inspection/Investigation.
PUBH	Public Hearing.

The prompt will be blue and underlined to indicate that this field is mandatory. (4.1.2.3 H)

Regulating Agency The user may click the **Go To** button to invoke the Regulating Agency Selection List or may enter a value directly into Regulating Agency. The default sort for Regulating Agency Selection List will be Name, in ascending alphabetical order. If the user enters a value in Regulating Agency, on tabbing off the field, the software will accept the specified regulating agency if it is an exact match. If the value entered is not an exact match, it will invoke the Regulating Agency Selection List, sorted by ascending Name, from where the user may select a regulating agency. If the user specifies a partial string in this field, display the closest matching regulating agency at the top of the list. (Closest matching means a match with the Regulating Agency Name, sorted alphabetically, that starts with the same text string as supplied.)

In Add mode, default value for this field (the prompt for which will be blue and underlined to indicate the field is mandatory) will be the primacy agency. (4.1.2.3 I)

Category Evaluation Summary Group Box:

The user can indicate which of the eight elements set out in EPA/State Joint Guidance on Sanitary Surveys were addressed during the Sanitary Survey. A ninth category, "Other," will be a catch-all category. All fields in this group box will be protected if the Status is "Planned." (4.1.2.3 J)

Source The permitted values for this field will be as follows:

S	Significant deficiency(ies).
M	Minor deficiency(ies).
R	Recommendation(s) made.

- N No deficiencies/recommendations.
- X Not evaluated.

The default value will be “Not evaluated.”

Treatment

The permitted values for this field will be as follows:

- S Significant deficiency(ies).
- M Minor deficiency(ies).
- R Recommendation(s) made.
- N No deficiencies/recommendations.
- X Not evaluated.

The default value will be “Not evaluated.”

Distribution System

The permitted values for this field will be as follows:

- S Significant deficiency(ies).
- M Minor deficiency(ies).
- R Recommendation(s) made.
- N No deficiencies/recommendations.
- X Not evaluated.

The default value will be “Not evaluated.”

*Finished Water
Storage*

The permitted values for this field will be as follows:

- S Significant deficiency(ies).
- M Minor deficiency(ies).
- R Recommendation(s) made.
- N No deficiencies/recommendations.
- X Not evaluated.

The default value will be “Not evaluated.”

*Pumps
(fac [facilities],
cntls [controls],
etc.)*

The permitted values for this field will be as follows:

- S Significant deficiency(ies).
- M Minor deficiency(ies).
- R Recommendation(s) made.

- N No deficiencies/recommendations.
- X Not evaluated.

The default value will be “Not evaluated.”

*M&R [Monitoring
& Reporting]
& Data
Verification*

The permitted values for this field will be as follows:

- S Significant deficiency(ies).
- M Minor deficiency(ies).
- R Recommendation(s) made.
- N No deficiencies/recommendations.
- X Not evaluated.

The default value for this field will be “Not evaluated.”

*[Water System]
Management &
Operations*

The permitted values for this field will be as follows:

- S Significant deficiency(ies).
- M Minor deficiency(ies).
- R Recommendation(s) made.
- N No deficiencies/recommendations.
- X Not evaluated.

The default value will be “Not evaluated.”

*Operator
Compliance
[Evaluation]*

The permitted values for this field will be as follows:

- S Significant deficiency(ies).
- M Minor deficiency(ies).
- R Recommendation(s) made.
- N No deficiencies/recommendations.
- X Not evaluated.

The default value will be “Not evaluated.”

Other The permitted values for this field will be as follows:

- S Significant deficiency(ies).
- M Minor deficiency(ies).
- R Recommendation(s) made.
- N No deficiencies/recommendations.
- X Not evaluated.

The default value will be “Not evaluated.”

*WS Notification
Date*

This optional field will be used to enter the date on which the water system was notified about the site visit or plans to make a site visit. An external calendar function will allow the user to more easily enter dates for this field.

*Visit Frequency:
Every*

[Number of Periods] a 3-digit numeric integer. [Period Type], a standard dropdown list, will contain the following permitted values:

- DY Day(s).
- WK Week(s).
- MN Month(s).
- YR Year(s). (4.1.2.3 K)

Next Due Date

This field will specify the next due date of the site visit. If the Site Visit is planned, this field can be used to indicate the date for a second future site visit. An external calendar function will allow the user to more easily enter dates for this field.

List Boxes:

Parties Present Group Box:

The Parties Present group box will consist of individuals designated as present during the Site Visit including both those conducting the Site Visit as well as those representing the water system. Users may **Associate** or **Disassociate** these individuals to the site visit. (4.1.2.3 L)

Parties Present
[List]

The Parties Present list will display a maximum of 25 legal entity records of type individual. It contains the list of individuals that the user has associated to the current site visit. (This association will be stored in table TINSVINA).

Fields included in the Parties Present list will be Name (which displays as “Last Name, First Name”), Organization Name, and Mail Stop Text (to enable the user to select a unique individual in case of a duplicate) sorted by ascending Name.

Deficiency Group Box:

The Deficiency group box will consist of the deficiency list and four buttons: **Add**, **Associate**, **Change**, and **Delete**. (4.1.2.3 M)

Deficiencies [List] The Deficiencies list, which will display a maximum of 500 records, will contain the list of deficiencies (table TINDEFCY) noted during the current site visit. This association will be stored in table TINSVDFA. The user will be able to create new deficiencies or associate existing deficiencies (from a previous Site Visit) by clicking the **Add** button and **Associate** button, respectively. The Deficiency Maintenance window is shown in Exhibit 4-11 and the Deficiency Selection List is shown in Exhibit 4-12. To update a deficiency, the user will highlight the record and click on the **Change** button. To remove a deficiency, the user will highlight the record and click on the **Delete** button.

The fields listed in the Deficiencies list will be No., Severity, Category, Date Identified, WSF State Asgn ID, Description, WS Notification Date, Resolved Date WSF Name, and WSF Activity Status. The two Description fields will be concatenated into one, only displaying the one that is valued. If both are valued, both will be displayed (permitted value first) with a dash between them. Sort will be by Deficiency No.

All fields and buttons in this group box will be protected if the Status is “Planned.”

Scheduled Activities by Deficiency Group Box:

Scheduled Activities

by Deficiency [List] The Schedule Activities by Deficiency list, which will display a maximum of 500 records, will contain the set of activities identified for each of the deficiencies noted for the current site visit. Scheduled activities may be added by pressing the **Standard Response** or **Custom Response** buttons. Note that one or more of these may be activities scheduled to address a deficiency that was noted during a previous site visit.

The fields listed in the scheduled activities list will be Deficiency No., [Activity] Name, Due Date, Achieved Date, Condition (Derived),

Projected Date and Reported Date. The sort will be by Deficiency No.
(4.1.2.3 N)

Tab Sequence:

Status, Date of Visit, Primary Reason, Regulating Agency, Regulating Agency **Go To** button, Source, Treatment, Distribution System, Finished Water Storage, Pumps (fac, cntrls, etc.), M&R & Data Verification, Management & Operations, Operator Compliance, Other, Parties Present **Associate** button, Parties Present **Disassociate** button, WS Notification Date, Visit Frequency [number], Visit Frequency [period], **Calculate Next Due Date** button, Next Due Date, Deficiency **Add** button, Deficiency **Associate** button, Deficiency **Change** button, Deficiency **Delete** button, **Custom Response** button, **Standard Response** button, **Comments** button, **OK** button, **Cancel** button, **Help** button. (4.1.2.3 O)

Buttons:

Regulating Agency
Go To

Pressing this button will invoke the Regulating Agency Selection List. The default sort for Regulating Agency Selection List will be Name, in ascending alphabetical order. If the user has typed part of the regulating agency name, it will be used in the search to bring up the Regulating Agency Selection List. The user may select a regulating agency from this list. (4.1.2.3 P)

Calculate Next Due Date

Pressing on this button will enable the software will calculate the Next Due Date using the formula: Next Due Date = Date of Visit + (Number of x Period).

If either Date of Visit or one/both of the Visit Frequency fields are not valued, invoke exit state error message: **Visit Date and Visit Frequency must be valued to calculate Next Due Date.** (4.1.2.3 Q)

Parties Present
Associate

Pressing this button will invoke the Individual Search dialog box (discussed in Subsection 4.1.2.4). This button will be enabled when no individual record is highlighted in the Parties Present List. (4.1.2.3 R)

Parties Present
Disassociate

Pressing this button will remove the selected individual from the Parties Present list, disassociating it from the site visit. This button will be enabled only when an individual record has been highlighted. Actual deletion of the associative record will occur when the user clicks the **OK**, **Custom Response** or **Standard Response** button. (4.1.2.3 S)

Deficiency Add Pressing this button will invoke the Deficiency Maintenance window (discussed in Subsection 4.1.2.5) in Add mode. Here, the user may add a new deficiency for the current site visit. This button will be enabled when there is no highlighted deficiency record in the list. (4.1.2.3 T)

Note: At this point, nothing has been committed to the database. Deficiencies (and associations to existing deficiencies) will be committed to the database only when the user explicitly clicks on any of the following buttons: **Custom Response**, **Standard Response**, or **OK**.

Deficiency Associate Pressing this button will invoke the Deficiency Selection List (discussed in Subsection 4.1.2.6). This button will be enabled only when there is no highlighted deficiency. (4.1.2.3 U)

Deficiency Change Pressing this button will invoke the Deficiency Maintenance window (discussed in Subsection 4.1.2.5) in Change mode. This button will be enabled only when a deficiency is highlighted. (4.1.2.3 V)

Deficiency Delete If a highlighted deficiency is only associated to the current Site Visit, pressing this button will delete both the deficiency and the associative record between the deficiency and the site visit. If a highlighted deficiency is associated to another site visit, pressing this button will delete only the associative record between the deficiency and the site visit. This button will be enabled when one or more deficiencies are selected. (4.1.2.3 W)

A deficiency that is linked to a scheduled activity cannot be removed unless the scheduled activity is first disassociated from the deficiency. If one or more of the deficiencies selected for removal are linked to a scheduled activity, invoke the following warning message shown in Exhibit 4-7: **One or more of the selected deficiencies is associated to one or more scheduled activities and cannot be deleted. To delete a deficiency that has been associated to a scheduled activity, you must first remove its scheduled activities using the Compliance Schedule Maintenance function in the Enforcement component.** On pressing **OK**, the user will be able to see the deficiencies that were not successfully removed from the list. (4.1.2.3 X)

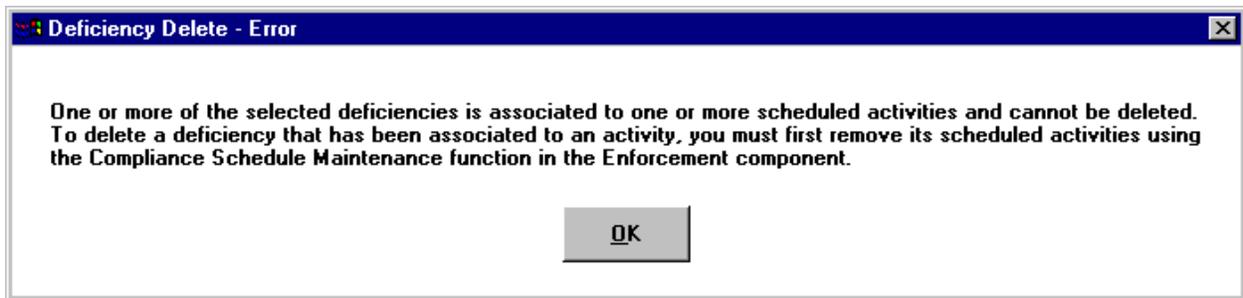


Exhibit 4-7. Deficiency Delete - Error

A deficiency that is linked to a violation cannot be removed unless the violation is first disassociated from the deficiency. If one or more of the deficiencies selected for removal are linked to a violation, invoke the following warning message: **One or more of the selected deficiencies is associated to one or more violations and cannot be deleted. To delete a deficiency that has been associated to a violation, you must first disassociate its violation(s) using the Violation Maintenance function in the *Monitoring* component.** On pressing **OK**, the user will be able to see the deficiencies that were not successfully removed from the list. (4.1.2.3 BA)

OK

Pressing this button will create or update the site visit record and all its associated records. The following actions will apply to the **OK**, **Custom Response**, and **Standard Response** buttons (with the exception of the final window flow action, as specified). If an error message is invoked, after the user presses **OK**, the software will return to the Site Visit Maintenance window with all previously entered data in place. The software will ensure the following:

- If the Status is “Completed,”
 - Date of Visit is valued. If not, invoke exit state error message: **A Date of Visit must be specified for a “Completed” Site Visit.**
 - If Date of Visit is valued, but the date is a future date, invoke exit state error message: **A Date of Visit must not be a future date for a “Completed” Site Visit.**
 - At least one individual has been specified in the Parties Present list. If not, invoke exit state error message: **An Individual must be specified for a “Completed” Site**

Visit. Return the cursor to the Parties Present **Associate** button. (4.1.2.3 Y)

- Primary Reason is valued. If not, invoke exit state error message: **A Primary Reason must be specified for the Site Visit.** Return the cursor to the Primary Reason field. (4.1.2.3 Z)
- Regulating Agency is specified. If it is left blank, display exit state error message: **A Regulating Agency must be specified for the Site Visit.** Return the cursor to the Regulating Agency field. (4.1.2.3 AA)
- A duplicate site visit record does not exist. The uniqueness criteria for Site Visit is the combination of Water System No., Date of Visit and Primary Reason. If a duplicate is found, invoke exit state error message: **A Site Visit for this WS with same Visit Date & Primary Reason already exists.** Return the cursor to the Primary Reason field. (4.1.2.3 AB)

Example #1: Assume the following site visit already exists in the database: A site visit for WS-NE3120544 having Visit Date = NULL, Primary Reason = Sanitary Survey. If the user tries to add a site visit for the same Water System (NE3120544) with the same Primary Reason (Sanitary Survey) with a Visit Date = NULL, the software will treat this as duplicate site visit.

Example #2: Assume the following site visit already exists in the database: A site visit for WS-NE3120545 having Visit Date = NULL, Primary Reason = Training. If the user tries to add a site visit for the same Water System (NE3120545) with the same Primary Reason (Training) with a Visit Date = 5/1/01, the software will NOT treat this as duplicate site visit.

- A duplicate deficiency record does not exist. Deficiency uniqueness criteria is given below. If, in the unlikely scenario, a duplicate deficiency exists, do not create a duplicate record and do not give a message. (4.1.2.3 AC)

—Add Mode

Will create and commit to the database a new Site Visit (table TINVISIT) associated to the Water System and Regulating Agency specified as well as a SITE_VISIT_INDIVIDUAL_ASGMT (table TINSVINA) for any Individual specified in the Parties Present List. Will commit to the database any new Deficiencies (table TINDEFICY) listed in the Deficiencies List and associate them to the Site Visit, Water System, and

Water System Facility specified. Also, will commit to the database a SITE_VISIT_DEFICIENCY_ASGMT (table TINSVDFA) for each existing site visit deficiency that was selected for association with the current site visit. (4.1.2.3 AD)

—Change Mode

Will change and commit to the database any updates to the selected Site Visit (table TINVISIT). In addition,

- If one or more individuals have been added to the Parties Present List, new SITE_VISIT_INDIVIDUAL_ASGMT records (table TINSVINA) will be committed. (4.1.2.3 AE)
- If one or more individuals have been deleted from the Parties Present List, the SITE_VISIT_INDIVIDUAL_ASGMT records (table TINSVINA) associated with the individuals selected for deletion will be committed. (4.1.2.3 AF)
- If one or more deficiencies have been added to the Deficiencies List and/or one or more deficiencies from a previous site visit are associated to the current site visit, the new DEFICIENCY (table TINDEFCY) and/or SITE_VISIT_DEFICIENCY_ASGMT (table TINSVDFA) will be committed. (4.1.2.3 AG)
- If one or more deficiencies have been changed, these changes will be committed. (4.1.2.3 AH)
- If one or more deficiencies have been deleted from the Deficiencies List, delete the SITE_VISIT_DEFICIENCY_ASGMT records from table TINSVDFA for each. In addition, if a deleted deficiency is only associated to the current Site Visit, delete the deficiency record (from table TINDEFCY). (4.1.2.3 AI)
- This action only applies to the **OK** button (and not the **Custom Response** or **Standard Response** buttons). After Site Visit has been added to the database, it will be displayed on the Site Visit Maintenance List. (4.1.2.3 AJ)
- If the Site Visit Maintenance window was invoked in Add mode from the *Inventory* main menu, only the newly added site visit will appear on the list. (4.1.2.3 AK)
- If the Site Visit Maintenance window was invoked in Add mode from the Site Visit Maintenance List (by selecting **Edit/Add**), the

list will display the same site visits originally listed with any filter or sort previously applied plus the newly added site visit highlighted. If sort criteria was previously applied, it will also apply to the new record, but filter criteria will not (so that the new record will not be inadvertently filtered out of the list).
(4.1.2.3 AL)

Custom Response The **Custom Response** button will be available for users who wish to schedule activities to address one or more deficiencies but do not wish to use the Standard Response function for this purpose. Pressing the **Custom Response** button will cause the software to perform the edit checks specified for the **OK** button. This button will be protected until one or more deficiencies have been highlighted.

Once the Site Visit and any associated records have been created or updated as described above, the software will flow to the existing Compliance Schedule Maintenance window, first checking for an existing Compliance Schedule that is associated to the Site Visit.

If one is found, it will be displayed on the window. If one is not found, it will set:

- Regulating Agency to the primacy agency.
- Status to Final.
- Status Date to current date. (4.1.2.3 AM)

Note that the software will not check for any existing compliance schedule that is not associated to the site visit. This means that it will be up to users to ensure that duplicate compliance schedules are not created. (For example, the Compliance Schedule could create a final Compliance Schedule for Water System No. ND5551212 with Scheduled Activities A and B. The person entering the Site Visit could create a second final Compliance Schedule for Water System No. ND5551212 with Scheduled Activities A and B.)

The specific changes to the Compliance Schedule Maintenance window triggered by the Site Visit function are covered in Subsection 6.1.

When the Compliance Schedule Maintenance window closes, the user will be returned to the Site Visit Maintenance window, which will display the newly created schedule activity/activities in the Scheduled Activity List. The Deficiency No. will show in the list so that it is clear to which deficiency the scheduled activity applies. If the Site Visit

Maintenance window was initially invoked in Add mode, at this point, it will appear in Change mode. (4.1.2.3 AN)

Standard Response The **Standard Response** button will be available for users who wish to take advantage of the standard response function, which allows the SDWIS/STATE Administrator to set up a standard response with a consistent set of scheduled activities whenever a particular deficiency is noted during a site visit. Changes to the Standard Response component are described in Subsection 3.5. Pressing the **Standard Response** button will cause the software to perform the edit checks specified for the **OK** button. This button will be protected until one or more deficiencies have been highlighted. (4.1.2.3 AO)

Once the Site Visit and any associated records have been created, the software will check for a value in the a WS Notification Date of each highlighted deficiency. If WS Notification Date is not valued for one of them, the software will invoke the WS Notification Date dialog box (Exhibit 4-8), which will ask the user to specify a WS Notification Date to be used for any highlighted deficiency where this field is not valued. The text is: **What date do you want to use as the date the water system owner was notified about this/these deficiency(ies)?** The dialog box will features the calendar function for the date field, which will default to the current date. The dialog box will also include **OK**, **Cancel**, and **Help** button. When the user clicks on **OK**, the date entered will be recorded as the WS Notification Date for any selected deficiencies which does not have a WS Notification Date. The software will not overwrite a WS Notification Date that has already been entered for a deficiency. If the WS Notification Date is left blank, the software will invoke exit state warning message: **WS Notification Date must be specified or operation canceled.** (4.1.2.3 AP)

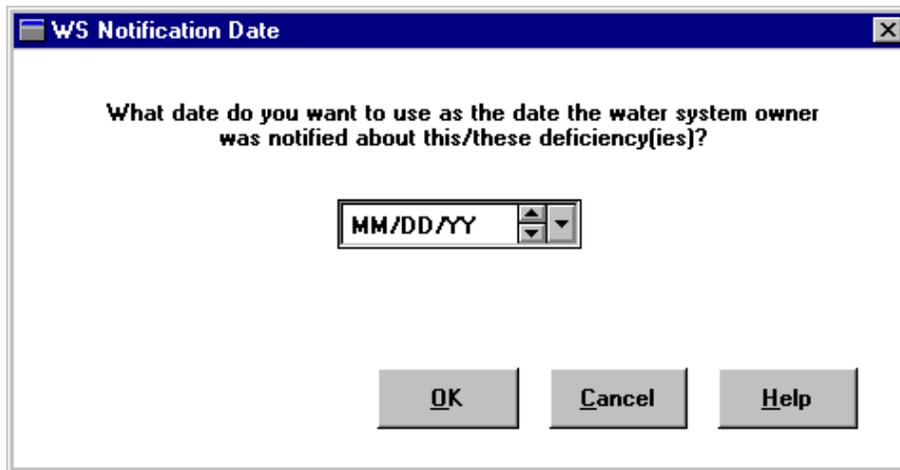


Exhibit 4-8. WS Notification Date

If the user enters a WS Notification Date or all the selected deficiencies already have WS Notification Dates, the software will invoke the Standard Response Selection List (Exhibit 4-9), which will be similar to the one invoked from the Violation part of the *Monitoring* component. However, only standard responses of type "Deficiency" (a new attribute in Standard Response) will appear on the list. (4.1.2.3 AQ)

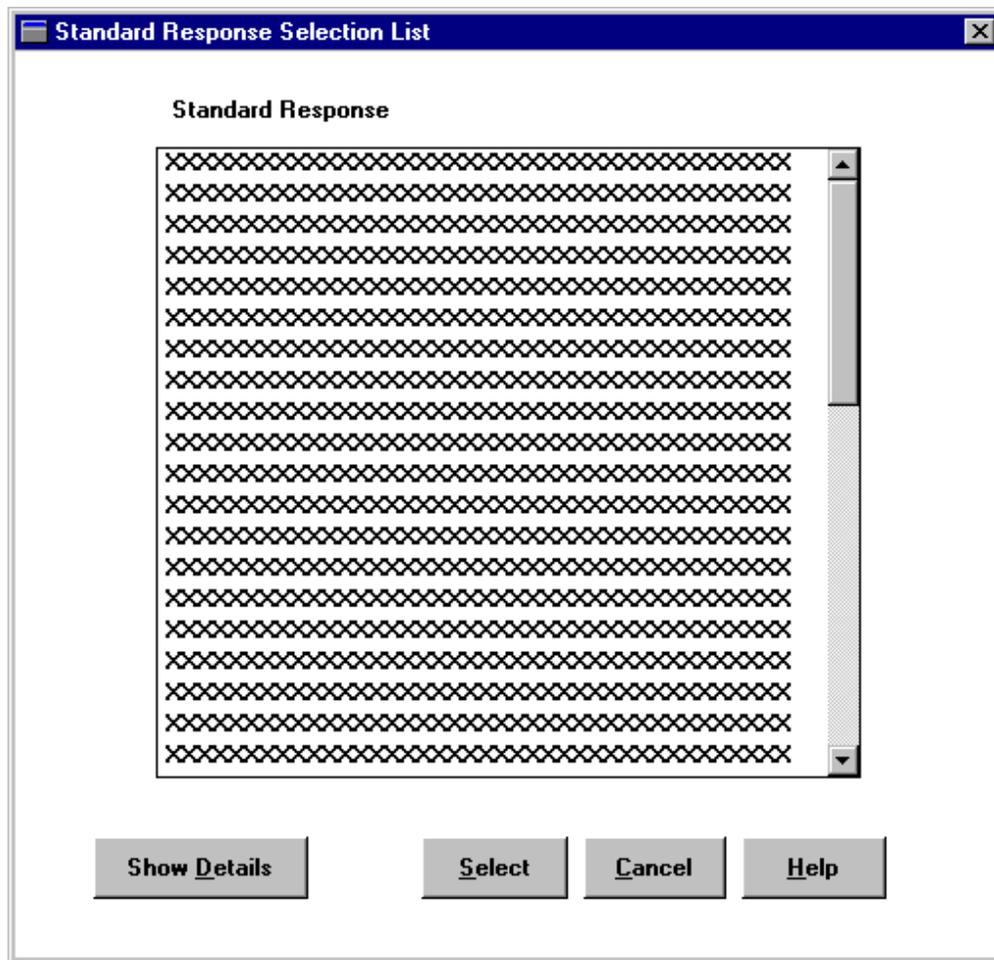


Exhibit 4-9. Standard Response Selection List

When the user highlights a standard response and clicks on the **Select** button, the software will first check to see if a Compliance Schedule exists that is associated to the Site Visit. If a Compliance Schedule already exists, the software will select it. If one is not found, the software will create one, using the defaults indicated in the selected Standard Response, and link it to the current site visit. (4.1.2.3 AR)

Specifically, it will set the compliance schedule's: (4.1.2.3 AS)

- Type Code CV to entity STANDARD_RESPONSE's attribute COMPLIANCE_SCHEDULE_TYPE_CODE_CV.
- Status Code to entity STANDARD_RESPONSE's attribute COMPLIANCE_SCHEDULE_STATUS_CODE.

- Status Date to current date.
- Effective Date to EFFECTIVE_DATE_DAYS plus the entity SITE_VISIT's attribute WS_NOTIFICATION_DATE (if valued). If entity SITE_VISIT's attribute WS_NOTIFICATION_DATE is not valued, set to EFFECTIVE_DATE_DAYS plus the WS_NOTIFICATION_DATE from the first selected deficiency.
- Regulating Agency to the entity STANDARD_RESPONSE's attribute REGULATING_AGENCY.

The software will then: (4.1.2.3 AT)

Check the standard response activity assignments (records in table TENSRACTA) for the selected deficiency standard response to determine the activity types and other pertinent data needed to create a Scheduled Activity (records in table TENACTIV).

For each Activity Type (specified for the deficiency standard response) and highlighted deficiency combination, the software will create a Scheduled Activity record (table TENSCHAT) using the following uniqueness criteria: If the software finds a Scheduled Activity for the same Compliance Schedule and the same Activity Type and the same Due Date and the same Deficiency, the candidate Scheduled Activity would be considered a duplicate.

If there is no duplicate scheduled activity, the software will create the new scheduled activity, associate it to the just created/selected Compliance Schedule, and associate it to the highlighted Deficiency in a DEFICIENCY_SCHEDULE_ACTY_ASGMT (table TINDFSAA). For each Scheduled Activity, the software will set:

- Due Date to highlighted entity DEFICIENCY's attribute WS_NOTIFICATION_DATE + entity STANDRD_RESP_ACTIVITY_TYPE_ASGMT's attribute DUE_DATE_DAYS.
- Projected Date to highlighted entity DEFICIENCY's attribute WS_NOTIFICATION_DATE + entity STANDRD_RESP_ACTIVITY_TYPE_ASGMT's attribute PROJECTED_DATE_DAYS.

If a duplicate is found, a new scheduled activity will not be created. (4.1.2.3 AU)

Note that the WS Notification Date may vary between deficiencies. The action of selecting the deficiency standard response will not only create these records but also commits them to the database. (4.1.2.3 AV)

Finally, the software will close the Standard Response Selection List and return to the Site Visit Maintenance window displaying the newly created schedule activity(ies) in the Scheduled Activity List. The Deficiency No. will show in the list so that it is clear to which deficiency the scheduled activity applies. If the Site Visit Maintenance window was initially invoked in Add mode, at this point, it will appear in Change mode. (4.1.2.3 AW)

(Clicking the **Show Details** button in the Standard Response area will invoke the Deficiency Response Maintenance window in protected display, allowing the user to check that the selected standard response is the one desired.)

The following examples demonstrate what this uniqueness criteria means and when a scheduled activity will be created. Each example assumes a fresh database and that each deficiency has the same due date. Assume the following records already exist:

- A Standard Response “SR-01” that is associated to one Activity Type “AT-01.”
- A Standard Response “SR-02” that is associated to two Activity Types, namely “AT-01” and “AT-02.”
- A Site Visit that has three deficiencies linked to it, namely “D-01,” “D-02,” and “D-03.” This site visit is not associated to a Compliance Schedule.

(1) If the user highlights Deficiency “D-01,” clicks on **Standard Response**, and then selects Standard Response “SR-01” in the Standard Response Selection List, the software will:

- Create a new Compliance Schedule and associate it to current Site Visit.
- Check for an existing Scheduled Activity for the same compliance schedule, the same activity type, the same due

date and the same deficiency (“D-01”). Since no such scheduled activity exists, it will create a scheduled activity (“SA-01”) in TENSCHAT table and link it to the newly created compliance schedule and activity type “AT-01.” It will also create an association record (DEFICIENCY_SCHEDULE_ACTY_ASGMT) in table TINDFSAA linking the newly created scheduled activity to deficiency “D-01.”

If the user repeats the same action for Deficiency “D-02” but selects Standard Response “SR-02,” the software will then do the following for each Activity Type linked to Standard Response “SR-02”:

- For Activity Type “AT-01,” check for an existing Scheduled Activity for the same compliance schedule, the same activity type (“AT-01”), the same due date and the same deficiency (“D-02”). Since no such scheduled activity exists, it will create a scheduled activity (“SA-02” for Activity Type “AT-01” and Deficiency “D-02”).
- For Activity Type “AT-02,” check for an existing Scheduled Activity for the same compliance schedule, the same activity type (“AT-02”), the same due date and the same deficiency (“D-02”). Since no such scheduled activity exists, it will create a scheduled activity (“SA-03” for Activity Type “AT-02” and Deficiency “D-02”).

Now, if the user highlights the three deficiencies and then selects Standard Response “SR-01,” the software will:

- Not create two new scheduled activities because there would already be a scheduled activity “SA-01” for deficiency “D-01” and a scheduled activity “SA-02” for deficiency “D-02.”
- Will create a new scheduled activity “SA-04” and link it to deficiency “D-03.”

(2) If the user highlights Deficiency “D-01,” clicks on **Standard Response**, and then selects Standard Response “SR-01” in the Standard Response Selection List, the software will:

- Create a new Compliance Schedule and associate it to current Site Visit.

- Check for an existing Scheduled Activity for the same compliance schedule, the same activity type, the same due date and the same deficiency (“D-01”). Since no such scheduled activity exists, it will create a scheduled activity (“SA-01” for Activity Type “AT-01” and Deficiency “D-01”).

If, let us say at this point, a compliance officer added two new scheduled activities for the same compliance schedule in the Compliance Schedule Maintenance component: one scheduled activity “SA-02” having the “D-02,” “D-03” for activity type “AT-01”; and another scheduled activity “SA-03” with the same due date for activity type “AT-02.” These scheduled activities are not linked to any deficiency.

Now, if the user highlights deficiency “D-02” and then selects Standard Response “SR-02,” the software will:

- For Activity Type “AT-01,” check for an existing Scheduled Activity for the same compliance schedule, the same activity type (“AT-01”), the same due date and the same deficiency (“D-02”). The software will not treat Scheduled Activity “SA-02” as a duplicate because it is not linked to deficiency “D-02.” It will not use it and instead will create a new scheduled activity “SA-04” (for Activity Type “AT-01” and Deficiency “D-02”).
- For Activity Type “AT-02,” check for an existing Scheduled Activity for the same compliance schedule, the same activity type (“AT-02”), the same due date, and the same deficiency (“D-02”). The software will not treat Scheduled Activity “SA-03” as a duplicate because it is not linked to deficiency “D-02.” It will not use it and instead will create a new scheduled activity “SA-05” (for Activity Type “AT-02” and Deficiency “D-02”).

(3) If the user highlights Deficiency “D-01,” clicks on **Standard Response**, and then selects Standard Response “SR-01” in the Standard Response Selection List, the software will:

- Create a new Compliance Schedule and associate it to the current Site Visit.
- Check for an existing Scheduled Activity for the same compliance schedule, the same activity type, the same due

date, and the same deficiency (“D-01”). Since no such scheduled activity exists, it will create a scheduled activity “SA-01” (for Activity Type “AT-01” and Deficiency “D-01”).

If the user repeats the same action for Deficiency “D-02” and selects the same Standard Response “SR-01,” the software will then:

- Check for an existing Scheduled Activity for the same compliance schedule, the same activity type (“AT-01”), the same due date and the same deficiency (“D-02”). Since no such scheduled activity exists, it will create a scheduled activity “SA-02” (for Activity Type “AT-01” and Deficiency “D-02”).

Now, if the user highlights deficiencies “D-01” and “D-02,” and then selects the same Standard Response “SR-01,” the software will:

- Not create two new scheduled activities because there would already be a scheduled activity “SA-01” for deficiency “D-01” and a scheduled activity “SA-02” for deficiency “D-02.”

(4) If the user highlights both Deficiency “D-01” and deficiency “D-02,” clicks on **Standard Response**, and then selects Standard Response “SR-01” in the Standard Response Selection List, the software will:

- Create a new Compliance Schedule and associate it to the current Site Visit.
- Check for an existing Scheduled Activity for the same compliance schedule, the same activity type, the same due date and the same deficiency (“D-01”). If no such scheduled activity exists, it will create a scheduled activity “SA-01” (for Activity Type “AT-01” and Deficiency “D-01”).
- Check for an existing Scheduled Activity for the same compliance schedule, the same activity type (“AT-01”), the same due date and the same deficiency (“D-02”). If no such scheduled activity exists, it will create a scheduled activity “SA-02” (for Activity Type “AT-01” and Deficiency “D-02”).

It is very important to note that this duplicate check will apply only to a Scheduled Activity that references a Deficiency.

*(Developer's Note: Use the existing
ADM_C_SELECT_STANDARD_RESPONSE procedure - ADM0400E.)*

- Comments** Pressing this button will invoke a dialog box containing an optional scrollable text field in which descriptive information can be entered for the site visit. (4.1.2.3 AX)
- Cancel** Pressing this button will cause the software to disregard any data entered and return the user to the previous window. If the previous window was Site Visit Maintenance List and the list was empty, bypass it and return to the *Inventory* main menu. (This does not apply to already committed data—Compliance Schedule, etc.) (4.1.2.3 AY)
- Help** Pressing this button will invoke online Help for the window. (4.1.2.3 AZ)

4.1.2.4 Individual Search and Selection

As previously noted, pressing the Site Visit Maintenance [Parties Present] **Associate** button will invoke the Individual Search dialog box (Exhibit 4-10).

Entry Fields:

- Name* The user may enter a name and click on **Search** or just click on **Search** and then select an individual from the list. The default sort for Individual Selection List will be Name, in ascending alphabetical order. If the user enters a value in Individual, on tabbing off the field the software will accept the specified individual if it is an exact match. If the value entered is not an exact match, the Individual Selection List will be invoked, sorted by ascending Name, from where the user may select an individual. If the user specifies a partial string in this field, the software will display the closest matching legal entity (individual) at the top of the list. (Closest matching means a match with the Legal Entity Name, sorted alphabetically, that starts with the same text string as supplied.) The individual search window will say "Name (in the form 'Last Name,' 'First Name')". The selection list will be the same as that used in *SDWIS/STATE Release 7.0*. (4.1.2.4 A)

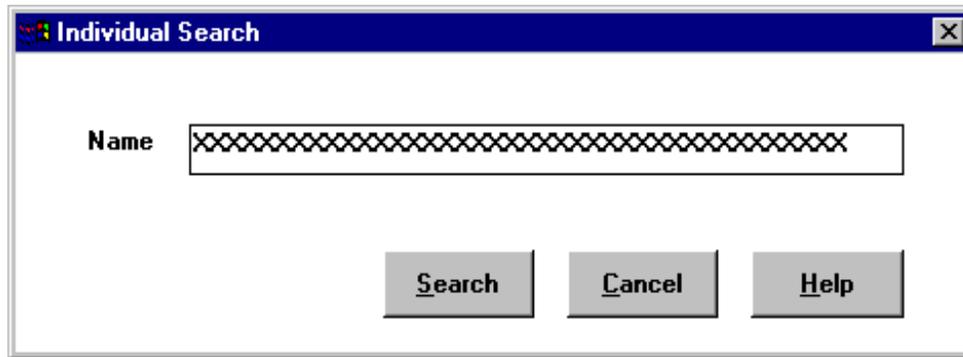


Exhibit 4-10. Individual Search

Buttons:

Search Pressing this button will invoke the Individual Selection List will be displayed. The user may select an individual from among those in the list. (4.1.2.4 B)

Cancel Pressing this button will cause the software to disregard data entered and return the user to the previous window. (4.1.2.4 C)

Help Pressing this button will invoke online Help for the window. (4.1.2.4 D)

The action of selecting an individual from the Individual Selection List will close that window and returns the user to the Site Visit Maintenance window with the selected individual displayed in the Parties Present List. At this point, nothing will be committed to the database. Individuals designated as present during the site visit will be committed to the database only when the user explicitly clicks on **Custom Response**, **Standard Response** or **OK**. If a user selects an individual record more than once, the software will list the individual only once (and create one association to the individual when the records are committed to the database). (4.1.2.4 E)

4.1.2.5 Deficiency Maintenance

As previously noted, pressing the Site Visit Maintenance [Deficiencies] **Add** button or **Change** button will invoke the Deficiency Maintenance window (Exhibit 4-11).

Deficiency

No. A five-digit numeric, system generated field that maps to attribute EXTERNAL_SYSTEM_NUMBER. This will be a protected field. In Add mode, this field will be initially set to zero (0).

*[Description of
Description-Permitted
Value]*

This protected field will specify the Description-Permitted Value text. It will be automatically populated once an exact Description [Permitted Value] is specified.

[WSF Name]

This protected field will specify the water system facility (WSF) name. It will be automatically populated once an exact water system facility is specified.

Entry Fields:

Severity

Four permitted values: Significant, Minor, Recommendation, and spaces (spaces will be included as the default, thereby forcing the user to pick one of the three appropriate severities). The prompt for this field will be blue and underlined to indicate that this field is mandatory. (4.1.2.5 B)

Category

This field will categorize the deficiency into one of the eight, sanitary survey, elements identified by the EPA/State Joint Guidance on Sanitary Surveys: Source; Treatment; Distribution System; Finished Water Storage; Pump/pumping facility and control; M&R and Data Verification; System Management and Operation; and Operator Compliance with State Requirements. A category of "Other," "Unknown," and spaces will also be included. "Unknown" will be included to enable the migration and storage of historical deficiencies as well as new ones that have not been classified yet. Spaces will be included as the default, thereby forcing the user to pick one of the nine appropriate categories. The prompt for this field will be blue and underlined to indicate that this field is mandatory. (4.1.2.5 C)

Description

Two fields will be provided for entering a Description of the deficiency. A given primacy agency would instruct their users to use one, the other, or in some cases, both, based on what works best for them. The prompt for this field will be blue and underlined to indicate that either a permitted value or text description is required.

One primacy agency might elect to not enter any permitted values for deficiency descriptions and so would use the uncontrolled field to enter descriptions whereas another primacy agency may create a list of

permitted values for “significant” deficiencies (e.g., No acrylamide/epichlorohydrin certification, No screened vent, Turbidity profile not conducted, No protected housing, Sanitary seal and casing not watertight, No intercepting ditch, DPD type test kit not used, No flushing program, Chlorine not measured and recorded daily, No emergency response plan) but have users enter “minor” deficiencies and recommendations freehand. Still another primacy agency might enter all deficiencies as permitted values and only use the uncontrolled field for entering recommendations. (4.1.2.5 D)

Description [Permitted Values]

An alphanumeric, four-character field with permitted values controlled by the SDWIS/STATE Administrator using the Permitted Values function. The advantage of having controlled permitted values for deficiency descriptions will be easier generation of letters that use standard descriptions and explanations for deficiencies.

(Developer’s Note: Pass into action block Validate Text Permitted Value the following value for entity CODE, attribute CODE_NAME: TINDEFYC1. Only permitted values for this Code value may be used in this field.)

Description [Text]

A free-text 50-character alphanumeric field.

Date Identified

Date the primacy agency identified the deficiency and typically the same date as the Date of Visit. Default value will be Site Visit Date of Visit. An external calendar function will allow the user to more easily enter dates for this field.

WS Notification Date

Date the primacy agency notified the water system owner about the deficiency, usually the same as the WS Notification Date for the Site Visit. The default value will be Site Visit WS Notification Date. An external calendar function will allow the user to more easily enter dates for this field. (4.1.2.5 E)

WSF State Asgn ID

The user may optionally enter the Water System Facility State Asgn ID to which the deficiency applies. As the user tabs off this field, the software will check that the supplied State Assigned ID is valid for the Water System. If it is not, invoke the Water System Facility Selection List so that the user may select one. The user may also press the **Go To** button next to this field to choose a facility from a list of valid water system facilities for the water system. If the water system facility is not

specified, it will be understood that the deficiency applies to the entire water system. (4.1.2.5 F)

(Developer's Note: Display WSF Name once a valid WSF is entered and use existing MBS_WS_FACILITY_SELECT for the water system facility selection list. The list will include only WSFs for the water system shown in this window)

Resolved Date Specifies the date on which the deficiency was resolved. This will be an optional field. This field will map to table TINDEFY column Resolved Date. An external calendar function will allow the user to more easily enter dates for this field. (4.1.2.5 G)

Comments This standard comment field may be entered or left blank. It will map to table TINDEFY column Comments. (4.1.2.5 H)

Scheduled Activities by Deficiency List Box:

The Scheduled Activities by Deficiency list box will display any activities previously scheduled to address this deficiency. This list will be empty when the deficiency is being added. (4.1.2.5 I)

Tab Sequence:

Severity, Category, Description [permitted values controlled field], Description [uncontrolled field], Description [Permitted Values] **Go To** button, Date Identified, WS Notification Date, WSF State Asgn ID, WSF State Asgn ID **Go To** button, Resolved Date, Comments, **New Deficiency** button, **OK** button, **Cancel** button, **Help** button. (4.1.2.5 J)

Buttons:

Description
[Permitted Values]

Go To Pressing this button will invoke the Code Permitted Value Selection List for the Description (with code name TINDEFY1). The user may select a description permitted value from this list.

WSF State Asgn
ID **Go To**

Pressing this button will invoke the Water System Facility List for the water system shown. The user may select a water system facility from among those in the list. (4.1.2.5 K)

OK Clicking **OK** will either add or update a record in the deficiency list shown in the previous window (Site Visit Maintenance). At this point,

nothing will be committed to the database. All changes will be recorded when the user explicitly clicks on the **OK**, **Custom Response**, or **Standard Response** button in Site Visit Maintenance. (4.1.2.5 L)

The following edit check/actions will occur:

- If a Severity is not valued, display exit state error message: **A Severity must be entered for the Deficiency**. Return the user to the Deficiency Maintenance window with the cursor in the Severity field. (4.1.2.5 M)
- If a Category is not valued, display exit state error message: **The deficiency must be categorized**. Return the user to the Deficiency Maintenance window with the cursor in the Category field. (4.1.2.5 N)
- If neither description field is valued, display exit state error message: **A Description must be entered for the Deficiency**. Return the user to the Deficiency Maintenance window with the cursor in the first Description field. (4.1.2.5 O)
- If both Date Identified and Resolved Date are valued, Resolved Date must be later than or same as the Date Identified. Otherwise, display exit state error message: **Deficiency Resolved Date must be later than or same as the Date Identified**. (4.1.2.5 P)
- Prior to adding/updating a record to the deficiency list, the software will ensure that the new deficiency does not overlap an existing one by checking for an overlapping deficiency first in the database and second in the list of deficiencies that may have been added (but not yet committed) using the following criteria:

There should not be an existing deficiency for the same water system, the same Deficiency Severity, the same Deficiency Category, the same water system facility (if valued), the same Deficiency Description Permitted Value (if valued), with even one day of overlap in the Unresolved Period ([Date Identified] (if valued) to [Date Resolved] (if valued)).

For example: Assume the following deficiency already exists either in the database or in the list of uncommitted deficiencies: A deficiency for WSF-01 for WS-NE3120544

having Severity = Minor, Category = Source, Description Permitted Value = xyz, Date Identified = 4/1/01, Date Resolved = NULL. If the user tries to add a deficiency for the same Water System (NE3120544) and same WSF (WSF-01) with the same Severity (minor) and same Category (Source) and same Description Permitted Value (xyz) with a Date Identified = 5/1/01, Date Resolved = NULL, the software will treat this as a duplicate deficiency.

Note that if the water system facility is not specified, the software will understand that the deficiency applies to the entire water system. If a deficiency already exists for the water system, and the user attempts to add the same deficiency for a specific water system facility within the water system, the software will treat this as an overlapping deficiency until the first deficiency has been associated with a specific water system facility so that it no longer applies to the entire water system.

- If an overlap exists, the software will invoke the Overlapping Deficiency Warning dialog box, which will have the following message: **A deficiency for this Water System, Water System Facility (if supplied), Deficiency Severity, Deficiency Category, Description Permitted Value (if supplied) that at least partially covers the unresolved period (Date Identified to Date Resolved) in the proposed deficiency already exists.** The dialog box will have an **OK** button that, when pressed, will return the cursor to the Severity field. (4.1.2.5 Q)
- The window will close and return the user to the Site Visit Maintenance window with all added deficiencies listed. (4.1.2.5 R)

New Deficiency Pressing this button will cause the software to apply the same edit checks/actions as specified for the **OK** button except for the final action. Instead of closing the window, the Deficiency Maintenance window will remain open with all fields cleared except Date Identified and WS Notification Date, enabling the user to add a new deficiency for the current site visit. (4.1.2.5 S)

Cancel Pressing this button will cause the software to disregard data entered and return the user to the previous window. (4.1.2.5 T)

Help Pressing this button will invoke online Help for the window.

4.1.2.6 Deficiency Selection List

As previously noted, pressing the Site Visit Maintenance [Deficiencies] **Associate** button will invoke the Deficiency Selection List (Exhibit 4-12).

- When invoked from Site Visit Maintenance, the multi-select Deficiency Selection List will display all deficiencies for the same water system (as the Site Visit) except those deficiencies whose Resolved Date is valued and is earlier than the current Site Visit Identification Date. (This will enable users to select still unresolved deficiencies from previous site visits to associate with the current site visit but will filter out deficiencies that have been resolved prior to the current site visit.)
- When invoked from the Compliance Schedule Maintenance window (either directly or through Site Visit Maintenance List), the list will be narrowed to only those deficiencies for the current site visit.
- When invoked from Violation Maintenance (specifically the Violation Deficiency Association), this list will display all deficiencies for the same water system and in descending Determination Date order. (4.1.2.6 A)

TINSVDFA). The software will close the window and return the user to the Site Visit Maintenance window. The selected record will be passed to the invoking routine. At this point, the software will not commit a SITE_VISIT_DEFICIENCY_ASGMT record to the database. The user may select 1-100 records at one time. (4.1.2.6 D1)

If the Deficiency Selection List is called from Violation Maintenance (specifically the Violation Deficiency Association List) selecting **Edit/Select** will associate the selected deficiency(ies) to the Violation. The software will close the window and return the user to the Violation Deficiency Association List. The selected record will be passed to the invoking routine. At this point, the software will not commit any new association to the database. The user may select 1-100 records at one time. (4.1.2.6 D2)

View

- Sort* Selecting **View/Sort** will invoke the standard Sort window with the following fields available for sorting: Description-permitted value, Description-text, Date Identified, [Deficiency] No., Severity, Category, Resolved Date, WSF State Asgn ID, and WSF Name. (4.1.2.6 E)
- Filter by* Selecting **View/Filter** by will let the user filter by the same fields listed for **Sort**. (4.1.2.6 F)
- Refresh* Selecting **View/Refresh** will refresh the original listing. (4.1.2.6 G)

4.2 Treatment Plant Microbial Removal and Water System Facility

Presentation Type 3: The information in this section is not a comprehensive design of this function and only reflects Release 8.0 changes/new functionality. As such, normal text means new functionality (e.g., a new button, window, etc. is introduced); redline/redline strikeout indicates where the functionality of an existing object (such as a field, button, menu item, etc.) has changed.

The Surface Water Treatment Rule, Interim Enhanced Surface Water Treatment Rule, Long Term 1 Surface Water Treatment Rule, and proposed Groundwater Rule require water systems to provide specific levels of microbial removal. The new Treatment Plant Microbial Removal window will provide a place for users to store information on microbial removal needed and/or provided at each specific Treatment Plant.

4.2.1 Model Change for Water System Facility

A new entity, TREATMENT_PLANT, has been added as an additional place to store Treatment Plant-specific (microbial removal) information. A Water System Facility is sometimes a Treatment Plant; a Treatment Plant is always a Water System Facility. The following optional business attributes will be added to this new entity:

- CONTACT_TIME (Text, 6, Optional, Basic).
- CONTACT_TIME_DETERMINATION_DATE (Date, 8, Optional, Basic).
- DISINFECTANT_CONCENTRATION (Text, 6, Optional, Basic).
- CT_VALUE (Text, 6, Optional, Basic).
- DISINFECT_BENCHKMRK_GIARDIA_INACT (Text, 6, Optional, Basic).
- DISINFECTION_BENCHMARK_DTRM_DATE (Date, 8, Optional, Basic).
- GIARDIA_REMOVAL_GRTD_FILTRATION (Text, 6, Optional, Basic).
- GIARDIA_INACTIVATION_NEEDED (Text, 6, Optional, Basic).
- GIARDIA_INACTIVATION_ACHIEVED (Text, 6, Optional, Basic).
- CRYPTOSPORIDIUM_INACT_ACHIEVED (Text, 6, Optional, Basic).
- VIRUS_INACTIVATION_ACHIEVED (Text, 6, Optional, Basic).
- FILTER_TYPE (Text, 2, Optional, Basic).
- CONTACT_TIME_REASON (Text, 1000, Optional, Basic).
- DISINFECTION_BENCHMARK_REASON (Text, 1000, Optional, Basic).

4.2.2 Treatment Plant Microbial Removal Maintenance Window Flow

The existing Treatment Plant Modification eight-button window will be modified to have a ninth button, **Microbial Removal**, as shown in Exhibit 4-13.

Pressing the new **Microbial Removal** button will cause the software to check for the existence of an associated Treatment Plant record.

- If one is not found, the software will invoke the new Treatment Plant Microbial Removal maintenance window (Exhibit 4-14) in Add mode. (4.2.2 A)
- If one is found, the software will invoke the new Treatment Plant Microbial Removal maintenance window (Exhibit 4-14) in Change mode. (4.2.2 B)

Exhibit 4-14. Treatment Plant Microbial Removal

Entry Field:

While the Treatment Plant Microbial Removal maintenance window will have 16 optional entry fields, only one of them, Filter Type, will have a business edit check. (For this reason, it will be the only one explicitly listed under Entry Fields.)

Filter Type

The user may add/change the filter type by entering a two character value or use the **Go To** button and select from the list. If the user enters a value, it must be one of the permitted values listed for entity CODE, attribute CODE_NAME: TINTRPLT1, the permitted values for which are listed below. (4.2.2 C)

*(Developer's Note: Pass into action block Validate Text Permitted Value the following value for entity CODE, attribute CODE_NAME: **TINTRPLT1.**)*

Tab Sequence:

Contact Time, Contact Time Determination Date, Disinfectant Concentration, Contact Value, [Disinfection Benchmark Giardia] Inactivation, [Disinfection Benchmark Giardia] Determination Date, Giardia Removal Filtration, Giardia Removal Achieved, Giardia Inactivation Needed, Cryptosporidium Removal Achieved, Filter Type, Filter Type **Go To** button, Virus Removal Achieved, **Contact Time Reason** button, **Disinfection Benchmark Reason** button, **OK** button, **Cancel** button, **Help** button. (4.2.2 D)

Buttons:

Filter Type **Go To** Displays a list of the following SDWIS/STATE-supplied filter types plus any the SDWIS/STATE System Administrator may have added:

Unfiltered (UF).
Conventional Filtration (CF).
Direct Filtration (DF).
Diatomaecious Earth (DE).
Other(OT). (4.2.2 E)

*(Developer's Note: Pass into action block Validate Text Permitted Value the following value for entity CODE, attribute CODE_NAME: **TINTRPLT1.**)*

Contact Time Reason and Disinfectant Benchmark Reason

Each button will invoke a separate Comments dialog box. (4.2.2 F)

OK

The following edit checks will apply to the **OK** button:

- Contact Time Determination Date and Disinfection Benchmark Determination Date cannot be valued with dates after the date the record is being added to the database. If either field has a date after today, invoke exit state error message: **Determination Dates for Microbial Removal cannot be after today.** Return the cursor to the field. (4.2.2 G)
- On an Add, if the user values any one of the fields on this window, this button will create a Treatment Plant record associated to the currently selected Water System Facility, close the window, and return to the Treatment Plant Modification window with the Microbial Removal checkbox valued. (4.2.2 H)

- On a Change, if the user changes the value in any one of the fields on the window, this button will modify the Treatment Plant record associated to the currently selected Water System Facility, close the window, and return to the Treatment Plant Modification window with the Microbial Removal checkbox valued. (4.2.2 I)
- On a Change, if the user deletes the values in all 14 attributes/fields on the window (including the two Comments fields), this action will delete the Treatment Plant record. If this happens invoke the Delete Treatment Plant Confirmation dialog box with the following text: **Deleting the data from all 14 fields of the Treatment Plant window will delete the Treatment Plant Microbial Removal record. Do you wish to delete the record?** The **Yes** button will delete the record and return the user to the Treatment Plant Modification window with the Microbial Removal checkbox valued. The **No** button will close the dialog box without deleting the record and return the user to the Treatment Plant Microbial Removal maintenance window. (4.2.2 J)

4.2.3 Water System Facility Maintenance List Delete Menu Item Additional Checks

The **Delete** option will continue to be enabled only when a water system facility has been selected. The following referential integrity edit checks will be added to the Water System Facility Delete Confirmation dialog box:

- If the Water System Facility selected for deletion is referenced by a Sample Schedule, the software will invoke the following exit state error message: **This WSF is referenced by a Sample Schedule and cannot be deleted.** (4.2.3 A)
- If the Water System Facility selected for deletion is referenced by a Violation, the software will invoke the following exit state error message: **This WSF is referenced by a Violation and cannot be deleted.** (4.2.3 B)
- If the Water System Facility selected for deletion is referenced by a Deficiency, the software will invoke the following exit state error message: **This WSF is referenced by a Deficiency and cannot be deleted.** (4.2.3 C)
- If the Water System Facility selected for deletion is referenced by a Sample Summary, the software will invoke the following exit state error message: **This WSF is referenced by a Pb/Cu Sample Summary and cannot be deleted.** (4.2.3 D)

- If the Water System Facility selected for deletion is referenced by a Facility Analyte Level, the software will invoke the following exit state error message: **This WSF is referenced by a Facility Analyte Level and cannot be deleted.** (4.2.3 E)

4.3 Sampling Point

Presentation Type 3: The information in this section is not a comprehensive design of this function and only reflects Release 8.0 changes/new functionality. As such, normal text means new functionality (e.g., a new button, window, etc. is introduced); redline/redline strikeout indicates where the functionality of an existing object (such as a field, button, menu item, etc.) has changed.

Minor modifications will be necessary to Sampling Point to support chlorite and chlorine dioxide monitoring.

4.3.1 Model Changes for Sampling Point

To facilitate chlorite and chlorine dioxide monitoring, the following new sampling point type will be added:

| First Customer (FC)—The first customer after the entry point into the distribution system.
| While this site type will be specifically needed for chlorite and chlorine dioxide distribution
| system samples, it may have other uses.

4.3.2 Sampling Point Maintenance List

The **Edit/Delete** menu item will invoke the Delete Confirmation dialog box, where two existing referential integrity checks will need to be modified as follows:

- The software will ensure that a sampling point cannot be deleted if it is associated with a ~~violation~~ SAMPLING_POINT_VIOLATION_ASGMT (table TMNVISPA). If the user selects a sampling point to delete that is associated with a ~~violation~~ SAMPLING_POINT_VIOLATION_ASGMT (table TMNVISPA), invoke exit state error message: **This sampling point is associated with a violation and cannot be deleted.**
- The software will ensure that a sampling point cannot be deleted if it is associated with a ~~Sample Schedule~~ Sampling Point Subschedule. If the user selects a sampling point to delete that is associated to a ~~Sample Schedule~~ Sampling Point Subschedule, invoke exit state error message: **This sampling point is associated with a sample-schedule Sampling Point Subschedule and cannot be deleted.**

4.3.3 Sampling Point Maintenance

Sampling Point Type First Customer (FC) should be implemented in the Type dropdown field on the Sampling Point Maintenance window.

4.4 Triggering Automated TCR Schedule Changes Due to Inventory Changes

Presentation Type 3: The information in this section is not a comprehensive design of this function and only reflects Release 8.0 changes/new functionality. As such, normal text means new functionality (e.g., a new button, window, etc. is introduced); redline/redline strikeout indicates where the functionality of an existing object (such as a field, button, menu item, etc.) has changed.

The changes documented in this subsection have been triggered by the requests of SDWIS/STATE users, who voted as their top three change requests for *SDWIS/STATE Release 8.0*, changes to both to the way TCR schedules are automatically created as well as some enhancements to TCR NCD related components.

The following changes will be made to SDWIS/STATE in Release 8.0 relative to the way it automatically creates and changes routine TCR schedules based on inventory changes.

- When a user inactivates a water system that is classified as a PWS (i.e., is either classified as a Community (C), Non-Transient Non-Community (NTNC), or Transient Non-Community (NC)) or when a user's changes to the PWS causes the software to reclassify it as a non-public water system, instead of automatically closing the current, routine, TCR Sample Schedule with the last day of the current monitoring period, the software will allow the user to choose the desired End Date.
- When the online software creates the initial TCR routine schedule for a water system (that is, when SDWIS/STATE classifies a water system as a PWS), instead of automatically using a Begin Date of 1/1/1991, it will allow the user to enter the desired Begin Date.
- The way SDWIS/STATE automatically closes current and creates new TCR routine schedules when the inventory data for a water system changes will be revised as follows:
 - The software will determine whether the inventory change actually results in a different monitoring requirement (based on the Monitoring Condition records). If the "new" monitoring requirement is the same as the old one, the software will not close the existing TCR schedule (and create a new one referencing the same requirement), which is what it currently does. Instead, it will leave the current schedule in place.

- If the software does determine that a new requirement is appropriate, it will allow the user to confirm the change before making it by presenting to the user both the current schedule and the proposed new schedule and allow the user to pick the desired monitoring requirement for the change as well as the Effective Begin Date for the new Schedule and the Effective End Date for the current schedule.

4.4.1 New TCR Schedule Modification Window

All three situations described above will be accomplished by flowing to the new TCR Sample Schedule Modification window (Exhibit 4-15) where the user can confirm the default proposed changes, modify the default proposed changes, or indicate that no changes should be made.

TCR Sample Schedule Modification

Inventory changes indicate that the current, routine, TCR schedule for this water system should be changed as indicated by the data highlighted in red in the first group box below and that a new routine, TCR schedule should possibly be created (indicated by values proposed in the second group box).

If no changes are desired, click on the Make No Changes button. If changes are desired, enter the desired End date for the current, routine, TCR schedule and, if desired select the monitoring requirement, seasonal period and effective period for a new routine schedule and click on the Make Changes Indicated button.

Current Routine TCR Schedule - Desired Changes

Monitoring Requirement
Samples Required
ZZZ9 [dropdown] per XXX [dropdown]

Seasonal Period
Start Month/Day Z9 / Z9
End Month/Day Z9 / Z9

Effective Period
Begin MM-DD-YYYY
End MM/DD/YY [dropdown]

Desired New TCR Schedule

Monitoring Requirement
Samples Required
ZZZ9 [dropdown] per XXX [dropdown] >>

Seasonal Period
Start Month/Day Z9 / Z9
End Month/Day Z9 / Z9

Effective Period
Begin MM/DD/YY [dropdown]
End MM/DD/YY [dropdown]

Make NO Changes Make Changes Indicated

Exhibit 4-15. TCR Sample Schedule Modification

Current Routine TCR Schedule - Desired Changes Group Box:

When the software flows to this window after a user has inactivated a PWS or a PWS has been reclassified from a PWS to a Non-public or after the user has made sufficient changes that suggest a different monitoring requirement is appropriate, this group box will be populated with the TCR schedule that is current for the water system but will provide a suggested End date for the schedule in accordance with its current logic. All fields in this group box except for Effective Period End date will be protected.

When the software flows to this window after a user has added a new water system or added sufficient inventory to cause a Non-public to be reclassified as a public water system, this group box will probably be empty because there will probably not be a current TCR schedule for the water system. (It is possible that a water system could go from PWS to Non-public and then back to a PWS in a matter of a few days or even on the same day, in which case there may be a current, routine schedule.)

Protected Fields:

Samples Required All four of the Samples Required fields will be protected, displaying the current TCR routine monitoring requirement for the current water system if one exists.

Seasonal Period All four of the Seasonal Period fields will be protected, displaying the seasonal period values for the current TCR, routine schedule for the current water system if one exists.

[Effective Period] Begin The [Effective Period] Begin date field also will be protected, displaying the Begin date for current TCR routine schedule for the current water system if one exists.

[Effective Period] End Optional field for the current, routine, TCR schedule end date. The default for this field will be the End date determined by the current automated process (i.e., the last day of the current monitoring period) highlight in red. If this field is changed, as the user tabs off this field, check that this date is not prior to the Effective Period Begin date for the current schedule. If the Effective Period End date is prior to the Effective Period Begin date, provide exit state error message: **The End date must be the same as or after the Begin date for this same schedule.** (Return the cursor to the [Effective Period] End date field.)

If there is no current, routine, TCR schedule for the water system, protect this field.

Desired New TCR Schedule Group Box:

When the software flows to the TCR Sample Schedule Modification window after a user has inactivated a PWS or a PWS has been reclassified as a Non-Public, no new, routine, TCR schedule is proposed (i.e., all the fields in this group box will be blank). However, a user can optionally enter data to create a new, TCR schedule in the same way a user can create a new schedule from the existing TCR Sample Schedule Maintenance window. If a user desires to create a new schedule, the following fields must be supplied: all four Samples Required fields (i.e., a monitoring requirement record), Start Month/Day, End Month/Day and [Effective Period] Begin.

When the software flows to this window after a user has added a new PWS, this group box will be populated with the TCR schedule that the software currently determines is appropriate except that the proposed [Effective Period] Begin date will be the first day of the following monitoring period rather than 1/1/1991.

When the software flows to this window after the user has made an inventory change that indicates a different monitoring requirement is appropriate, this group box will be populated with the TCR schedule that the software currently determines is appropriate.

Entry Fields:

Samples Required To create a new schedule, the user must supply data in all four fields (two enterable field and two selectable lists) or select a monitoring requirement directly by clicking on the **Go To** button. The fields allow entry of a sample count, sample type, and periodicity (the last two fields together define periodicity). Clicking on the **Go To** button will display the Monitoring Requirement Maintenance List to allow the selection or addition of a total coliform monitoring requirement.

[Sample Count] An enterable numeric field.

[Sample Type] A selectable list with the following permitted values:

RT	Routine.
TR	Temporary Routine.
SP	Special.
OT	Other.

[Number of Periods] An enterable numeric field.

[Periodicity] A selectable list with the following permitted values in the order listed:

MN	Monthly.
QT	Quarterly.
YR	Yearly.

As the user tabs off the last Samples Required field, an exit state error message will indicate if the specified Monitoring Requirement does not exist for total coliform. Clicking **OK** on the exit state error message will display the Monitoring Requirement Maintenance List, which will only display monitoring requirements for total coliform. From this list window, the user can select an existing monitoring requirement for total coliform (do not allow the user to create new monitoring requirements from this window). Total coliform monitoring requirements also can be listed by pressing on the **Go To** button.

Effective Period Group Box:

[Effective Period]

Begin

Specifies the begin date for the new TCR schedule. Edit checks for date will be done later when the user clicks the **Make Changes Indicated** button. A calendar function will allow the user to more easily enter a date for this field.

[Effective Period]

End

Optional field for the Sample Schedule end date. A calendar function will allow the user to more easily enter a date for this field.

This field may be changed. If this field is changed, as the user tabs off this field, check that this date is not prior to the Effective Period Begin date. If the Effective Period Begin date is not valued, provide exit state error message: **The Effective Period Begin date must be specified to create a Schedule.** (Return the cursor to the Effective Period Begin date.) If the Effective Period End date is prior to the Effective Period Begin date, provide this exit state error message: **The Effective Period End date must be the same as or after the Effective Period Begin date.** (Return the cursor to the Effective Period End date.)

Menu Icons:



Clicking on this icon will invoke the Water System Information window, which will display basic inventory information for the water system associated with the selected site visit record, revised to include a list box that will display water system history records, as described in Subsection 4.4.2.



Clicking on this icon will invoke the Display Points of Contact window, which will display a protected list of legal entities and individuals (such as operators, engineers, etc.) associated with the water system.



Clicking on this icon will invoke the Historical Sampling Information window, which will display protected information on samples collected for the current water system.



Clicking on this icon will invoke online Help for this window.



Clicking on this icon will print the current window.

Tab Sequence:

[Sample Count], [Sample Type], [Number of Periods], [Periodicity], Monitoring Requirement **Go To** button, [Start Month], [Start Day], [End Month], [End Day], [Effective Period] Begin, [Effective Period] End, **Make NO Changes** button, **Make Changes Indicated** button.

Buttons:

Monitoring

Requirement Go To Pressing this button will invoke the Monitoring Requirement Maintenance List displaying only monitoring requirements for Analyte Code 3100 and whose Sample Type is "RT."

Make No Changes The software will make no changes to the current, TCR, routine schedule (if one exists) nor will it create the indicated new TCR schedule. It will then flow to the same place it currently flows. The mnemonic for this button will be "N."

Make Changes Indicated

When activated and there is a current, routine schedule displayed as well as a new, routine schedule (routine means Sample Type RT or TR), the software will perform a routine overlap check between the two schedules on the window as well as between the new proposed schedule and other, existing, routine schedules for the water system.

(Developer's Note: routine means Sample Type RT or TR—be sure to omit the existing schedule displayed on the window from this second check.)

If the new, proposed schedule overlaps the displayed, current, schedule, present exit state information message: **The proposed new schedule will overlap the changed current schedule. Either change the End date of the current schedule or the Begin date of the new schedule.** On pressing **OK**, return the cursor to the [Effective Period] Begin date field for the new, proposed schedule.

If the new, proposed schedule overlaps another routine schedule for the same water system, present exit state information message: **The proposed new schedule will overlap another routine schedule for this water system. Use MBS to review the TCR schedules for this water system to determine appropriate actions.** On pressing **OK**, return the cursor to the [Effective Period] Begin date field for the new, proposed schedule. In this situation, the user should either select the **Make No Changes** button and make the necessary changes using the TCR Sample Schedule maintenance component or use this same component to review and modify existing TCR schedules and then return to this window and try the **Make Changes Indicated** button again. The mnemonic for this button will be "C."

4.4.2 Revised Water System Information Window

The Water System Information window, Exhibit 4-16, will be revised to better inform users as to the reason a TCR schedule may have changed. This window will contain the same information as in Release 7.0 (and several releases prior to that) with the following exception:

- | The water system's history of changes will now be included in a History list box, which will contain the following fields from entity WATER_SYSTEM_HISTORY (table TINWASH):
| Name, Activity Status, Activity Date, History Ind Code, Primary Source, Fed Type,
| Population Count, Owner Type.

- | The Water System History records will be presented in descending Internal System Number order so that the most recent change appears first on the list.

5.0 ONLINE SAMPLING

SDWIS/STATE Release 8.0 will enable Compliance Decision Support (CDS) for the existing Turbidity Rule, Surface Water Treatment Rule (SWTR), and the new Interim Enhanced Surface Water Treatment Rule (IESWTR) and Stage 1 Disinfectant/Disinfection By-Products (D/DBP) rules. Under this group of rules, commonly referred to as Microbial Disinfection By-Products (MDBP) rules, primacy agencies must set differing levels for turbidity, disinfectants, and disinfection by-products for a given water source, treatment plant, or distribution system.

Listed below are additions or modifications in *SDWIS/STATE Release 8.0* to enable CDS for these rules. Facility Analyte Level Maintenance will be used to track the federal and state levels with modifications discussed in Subsection 7.1.

- A Surface Water Treatment Compliance Report, discussed in Subsection 7.11, will be developed.
- Monitoring under these rules will generally be conducted onsite with sampling at a high frequency. Therefore, Water Systems will send summarized data to the primacy agency. This summarized data will be entered and maintained in the new MDBP Summary or Results Averages parts of the *Sampling* component.
- To assist in tracking legal entity Individual, the Employer's ID No. will be used as a certification or approval number. To assist in selecting legal entity Individual, the Employer's ID No. will be added to the Legal Entity Maintenance List and an index will be set for Employer's ID No.
- Many primacy agency have existing "state-owned" rules for disinfection levels. The new or modified process will accommodate tracking and compliance determination where possible.

Two new parts, MDBP Summaries and Results Averages, supporting the MDBP rules will be added to the online *Sampling* component. The design for MDBP Summaries is presented in Subsection 5.1 and the design for Results Averages in Subsection 5.2.

5.1 MDBP Summary

Presentation Type 1: This section documents the design for a function that is new with Release 8.0. As such, normal text means completely new design for Release 8.0. This section contains no redlined text.

Monitoring under the Turbidity, SWTR, IESWTR, and Stage 1 D/DBP rules will generally be conducted onsite with sampling at a high frequency. Therefore, Water Systems will send

summarized data to the primacy agency. Much of this summarized data will be entered and maintained in the new MDBP Summaries.

5.1.1 Model Changes for MDBP Summary Maintenance

A new entity, MDBP_SUMMARY, will be developed to support this function. See Appendix A (SDWIS/STATE Release 8.0 Entities of Interest) for a description of this entity. (5.1.1 A)

5.1.2 MDBP Summary Window Flow

The *Sampling* main menu will have a new menu item, **Edit/MDBP Summaries**, which will have three submenu items: **SWTR Summary**, **MRDL Summary**, and **General MDBP Summary** (Exhibit 5-1). New windows will be used for adding and changing SWTR Summaries (Combined Filter Effluent Turbidity, Individual Filter Effluent Turbidity, Entry Point RDC, EP [Entry Point] Chlorine Dioxide/Chlorite, Distribution RDC and MRDL Chlorine/Chloramine), MRDL Summaries, and General/generic MDBP Summaries.

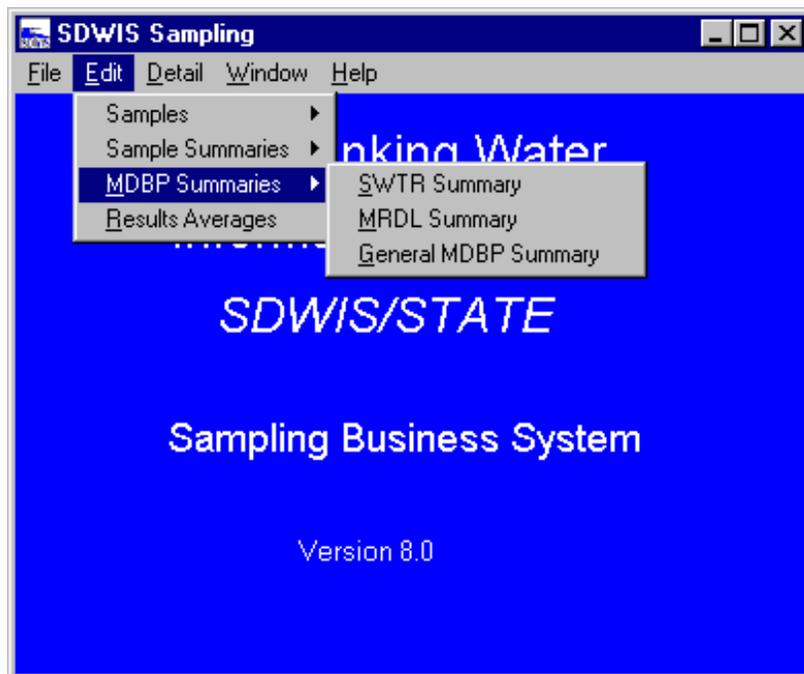


Exhibit 5-1. Sampling Main Menu

The first two window flows will not include maintenance list windows. Instead the software will logically determine whether the user wants to add a new record or change an existing record. The General MDBP Summary window flow should be used if the user wants to change several existing records at once. These new window flows will allow a user to maintain only summaries for Water Systems that are part of their current Regulating Agency or Water System Group.

Protected Field:

Water System Name This protected field will display the name of the selected Water System.

Entry Fields:

Water System No. The Water System No. of the Water System for which the user wishes to create the MDBP Summary. The prompt for the field will be blue and underlined to indicate that this field is mandatory. The user may enter a valid Water System No. or use the **Go To** button to display the Water System Selection List. As the user enters/changes a value and tabs off the Water System No. field, the software will check that the supplied Water System No. is valid, then populate the retrieved Water System's Name value in the protected Water System Name field. If a valid Water System is entered but is not part of the user's current Water System Group or Regulating Agency, display exit state error message: **WS is not part of current group/agency. Change group/agency to access this WS.** (5.1.2.1 A)

If the supplied Water System does not exist in the database, the software will not supply a message but will directly invoke the Water System Selection List from where the user may select a valid Water System. Once a valid Water System is selected, the software will enable the [Monitoring Period] Begin Date and [Monitoring Period] Duration fields and return the cursor to the first Monitoring Period field.
(5.1.2.1 B)

*(Developer's Note: Use the existing
SBS_C_WATER_SYSTEM_SELECT_LIST procedure.)*

Monitoring Period The four Monitoring Period fields will be enabled only after the user values Water System No. The prompt for the fields will be blue and underlined to indicate that Monitoring Period is mandatory. The user may enter a valid monitoring period or Monitoring Period **Go To** button
(5.1.2.1 C)

*[Monitoring Period]
Begin Date*

If Begin Date and either End Date or Duration are valued, on tabbing off, the software will retrieve the monitoring period that matches the criteria and display it in all monitoring period fields. If no monitoring period exists that matches the criteria, it will invoke the Monitoring Period Selection List. The software will take no action if only Begin Date is valued. (5.1.2.1 D)

[Monitoring Period]

End Date

If End Date and either Begin Date or Duration are valued, on tabbing off the software will retrieve the monitoring period that matches the criteria and display it in all monitoring period fields. If no monitoring period exists that matches the criteria, it will invoke the Monitoring Period Selection List. The software will take no action if only End Date is valued. (5.1.2.1 E)

Mon. Period [Name]

If the user enters a valid monitoring period name, on tabbing off the software will retrieve the monitoring period that matches the criteria and display it in all monitoring period fields. If the user enters a partial string or an invalid monitoring period name, the Monitoring Period Selection List will be invoked. (5.1.2.1 F)

[Monitoring Period]

Duration

The user may enter a valid monitoring period Duration. Only durations of monthly (MN) or quarterly (QT) will appear in the dropdown list. The default duration will be monthly. If Duration and either Begin Date or End Date are valued, on tabbing off the software will retrieve the monitoring period that matches the criteria and display it in all monitoring period fields. If no monitoring period exists that matches the criteria, the software will invoke the Monitoring Period Selection List. The software will take no action if only Duration is valued.

*(Developer's Note: Use the existing
SBS_C_MONITORING_PERIOD_SELECT_LIST procedure.)*

Once a valid Water System and Monitoring Period have been selected, the six buttons, **Combined Filter Effluent Turbidity**, **Individual Filter Effluent Turbidity**, **Entry Point RDC**, **EP Chlorine Dioxide/Chlorite**, **Distribution RDC**, and **MRDL Chlorine/Chloramines** will be enabled. (5.1.2.1 G)

Tab Sequence:

Water System No., Water System No. **Go To** button, [Monitoring Period] Begin Date, [Monitoring Period] Duration, [Monitoring Period] End Date, Mon. Period [Name], Monitoring Period **Go To** button, **Combined Filter Effluent Turbidity** button, **Individual Filter Effluent Turbidity** button, **Entry Point RDC** button, **EP Chlorine Dioxide/Chlorite** button, **Distribution RDC** button, **MRDL Chlorine/Chloramines** button, **Next** button, **Cancel** button, **Help** button.

Buttons:

Water System No.

Go To

The user may use the **Go To** button to display the Water System Selection List. As the user selects a Water System, the software will then populate the retrieved Water System's Name value in the protected [Water System] Name field. Return the cursor to the first Monitoring Period field. (5.1.2.1 H)

*(Developer's Note: Use the existing
SBS_C_WATER_SYSTEM_SELECT_LIST procedure.)*

Monitoring Period

Go To

The user may use this **Go To** button to select a valid monitoring period. The **Go To** Button will be enabled only after the user values the Water System No. field. The user will be able to select only Monitoring Periods of monthly or quarterly durations. As the user selects the Monitoring Period, the software will then populate the retrieved Monitoring Period Begin Date and Duration. Return the cursor to the **Next** button. (5.1.2.1 I)

*(Developer's Note: Use the existing
SBS_C_MONITORING_PERIOD_SELECT_LIST procedure.)*

**Combined Filter
Effluent
Turbidity**

The mnemonic for this button will be "F." When the user presses this button, the following actions will occur:

(1) If there is only one treatment plant (active or inactive) for the current Water System, the software will select that treatment plant (Water System Facility of type "TP").

- If a WSF of type "TP" is not found, invoke exit state error message: **Treatment Plant WSF not found for this Water System**. Return the cursor to the **Combined Filter Effluent Turbidity** button. (5.1.2.1 J)
- If more than one is found, the Water System Facility Maintenance List will be invoked, which will display active and inactive treatment plants for the current Water System where the user must choose one. (5.1.2.1 K)

(2) After the WSF has been selected, the software will select each Facility Analyte Level (FANL) that is linked to the current WSF and establish for turbidity (Analyte Code 0100) an average level (under the old Turbidity Rule—Level Type is equal to “AVG”), or a maximum single result level (Level Type is equal to “MAX”), and/or a level that at least 95% of the results must be less than or equal to (Level Type is equal to “95P”). This will result in the selection of one and possibly two FANL records:

- One whose field Summary Type is either “AVGT” or “MAXT.”
- One whose field Summary Type is “95PT.”

If no FANL meeting any one of these criteria is found, invoke exit state error: **FANL of type “AVG,” “MAX,” or “95P” not found for this WSF.** Return the cursor to the **Combined Filter Effluent Turbidity** button. (5.1.2.1 L)

(3) If a FANL meeting these criteria is found, the software will run the selected FANL(s) through the following checks that may let the user know that a FANL exists but still cannot be used. If any of these checks is validated, invoke an exit state error message. After the user presses **OK** on the message, return the cursor to the **Combined Filter Effluent Turbidity** button.

- If one or more FANL is found but none of the FANL found are in effect on the first day of the user-selected monitoring period (FANL Effective Begin Date is on or before the Monitoring Period Begin Date), invoke exit state error message: **No FANL of type “AVG,” “MAX,” or “95P” is in effect during this monitoring period.** (5.1.2.1 M)
- If one or more FANL is found but none of the FANLs found have the field MDBP Summary Check Flag set to Y (Yes), invoke exit state error message: **No FANL of type “AVG,” “MAX,” or “95P” has its MDBP Summary Check Flag set to YES.** (5.1.2.1 N)
- If one or more FANL is found but none of the FANL found indicate a Summary Type of “AVGT,” “MAXT,” or “95PT,” invoke error exit state message: **Facility Analyte Level with MDBP Summary type “AVGT,” “MAXT,” or “95PT” not found.** (5.1.2.1 O)

- If one or more FANL is found that satisfies the above criteria and is in effect on the first day of the user-selected monitoring period, the software will select it and go to step (4). (5.1.2.1 P)

(4) The software will next select: (5.1.2.1 Q)

- One MDBP Summary that is linked to the FANL whose field Summary Type is either “AVGT” or “MAXT” and is linked to the user-specified monitoring period; in addition, it will select
- One MDBP Summary that is linked to the FANL whose field Summary Type is “95PT” and is linked to the user-specified monitoring period.

(5) The software will then flow to the Combined Filter Effluent Turbidity window, displaying the selected Water System No., Water System Name, WSF State Assigned ID., WSF Name, Monitoring Period Begin Date, Monitoring Period Duration, and FANL.

- If it finds one of the first two MDBP Summaries described above, it will also display its data in the window in Change mode with the cursor in the first entry field. (5.1.2.1 R)
- If it finds an MDBP Summary of Type “95PT,” it will display its data in the window in Change mode. (5.1.2.1 S)
- If it does not find any of the three possible MDBP Summaries, this window will appear in Add mode. (5.1.2.1 T)

Individual Filter Effluent Turbidity

The mnemonic for this button will be “I.” When the user presses this button, the following actions will occur:

(1) If there is only one treatment plant (active or inactive) for the current Water System, the software will select it (WSF of type “TP”).

- If WSF of type “TP” is not found, invoke exit state error message: **Treatment Plant WSF not found for this Water System.** Return the cursor to the **Individual Filter Effluent Turbidity** button. (5.1.2.1 U)
- If more than one is found, invoke the Water System Facility Maintenance List, which will display active and inactive

treatment plants for the current Water System where the user must choose one. (5.1.2.1 V)

(2) After the WSF has been selected, the software will select the FANL that establishes a level for turbidity (Analyte Code 0100) that at least 95% of the results must be less than or equal to (LEVEL_TYPE is equal to "95P"), and that requires individual filters to be monitored (INDIV_FILTER_MNTRNG_REQD_FLAG is equal to "Y"), and is linked to the current WSF. This will result in the selection of zero or one FANL record. (5.1.2.1 W)

If a FANL meeting these criteria is not found, invoke exit state error message: **A FANL requiring that individual filters be monitored not found for this WSF.** Return the cursor to the **Individual Effluent Filter Turbidity** button. (5.1.2.1 X)

(3) If a FANL meeting these criteria is found, the software will run the selected FANL through the following checks that would let the user know that a FANL may exist but still cannot be used. If any of these checks is validated, invoke an exit state error message. After the user presses **OK** on the message, return the cursor to the **Individual Filter Effluent Turbidity** button.

- If the FANL found is not in effect on the first day of the user-selected monitoring period (FANL Effective Begin Date is on or before the Monitoring Period Begin Date), invoke exit state error message: **Facility Analyte Level not in effect during this monitoring period.** (5.1.2.1 Y)
- If the FANL found does not have its field MDBP Summary Check Flag set to Y, invoke exit state error message: **Facility Analyte Level with MDBP Summary Check Flag set to YES not found.** (5.1.2.1 Z)
- If the FANL found does not indicate a Summary Type of "95PT," invoke exit state error message: **Facility Analyte Level with MDBP Summary type "95PT" not found.** (5.1.2.1 AA)
- If a FANL is found that satisfies the above criteria and is in effect on the first day of the user-selected monitoring period, the software will select it and go to step (4). (5.1.2.1 AB)

(4) The software will next select an MDBP Summary for Individual Filter Effluent Turbidities (Summary Type is "IFT") that is linked to the

selected FANL and linked to the user-specified monitoring period.
(5.1.2.1 AC)

(5) The software will then flow to the Individual Filter Effluent Turbidity window, displaying the selected Water System No., Water System Name, WSF State Assigned ID., WSF Name, Monitoring Period Begin Date, Monitoring Period Duration, and FANL.

- If it finds an MDBP Summary that satisfies the criteria in Step (4), it will also display its data in the window in Change mode, with the cursor in the first entry field. (5.1.2.1 AD)
- If it does not find an MDBP Summary that satisfies the criteria in Step (4), this window will appear in Add mode. (5.1.2.1 AE)

Entry Point RDC

The mnemonic for this button will be “E.” When the user presses this button, the following actions will occur:

(1) If there is only one entry point sampling point (sampling point of Type “EP,” whether active or inactive) associated to the only treatment plant for the current Water System (WSF of Type “TP,” whether active or inactive), the software will select it.

- If not found, invoke exit state error message: **Entry point sampling point and/or Treatment Plant WSF not found.** Return the cursor to the **Entry Point RDC** button. (5.1.2.1 AF)
- If more than one entry point sampling point is associated to a treatment plant, the software will invoke the Sampling Point Maintenance/Selection List, which will display Sampling Points of type EP for WSFs of type TP for the current Water System, where the user must choose one. (5.1.2.1 AG)

(2) After a treatment plant and entry point sampling point have been selected, the software will select the FANL that establishes a minimum level for either chlorine (Analyte Code 0999) or chloramine (Analyte Code 1006) for the selected treatment plant. This will result in the selection of zero, one, or two FANL records. (5.1.2.1 AH)

If a FANL meeting these criteria is not found, invoke exit state error message: **FANL for chlorine (0999) or chloramine (1006) of type MIN not found for this WSF.** Return the cursor to **Entry Point RDC** button. (5.1.2.1 AI)

(3) If a FANL meeting these criteria is found, the software will run the selected FANL(s) through the following checks that may let the user know that a FANL exists but still cannot be used. If any of these checks is validated, invoke an exit state error message. After the user presses **OK** on the message, return the cursor to the **Entry Point RDC** button.

- If one or more FANL is found but none of the FANL found are in effect on the first day of the user-selected monitoring period (FANL Effective Begin Date is not on or before the Monitoring Period Begin Date), invoke exit state error message: **No FANL of type “MIN” for chlorine or chloramine is in effect during this monitoring period.** (5.1.2.1 AJ)
- If one or more FANL is found but none of the FANL found have its field MDBP Summary Check Flag set to Y, invoke exit state error message: **No FANL of type “MIN” for chlorine or chloramine has its MDBP Summary Check Flag set to YES.** (5.1.2.1 AK)
- If one or more FANL is found but none of the FANL found indicate a Summary Type of “EPRD” (i.e., federal Entry Point Residual Disinfectant Concentration) or “SERD” (state Entry Point Residual Disinfectant Concentration), invoke exit state error message: **Facility Analyte Level with MDBP Summary Type “EPRD” or “SERD” not found.** (5.1.2.1 AL)
- If one or more FANL is found that satisfies the above criteria and is in effect on the first day of the user-selected monitoring period, the software will select it and go to step (4). (5.1.2.1 AM)

(4) The software will next select:

- One MDBP Summary that is linked to the FANL whose field Summary Type is “EPRD” and is linked to the user-specified monitoring period; it will also select (5.1.2.1 AN)
- One MDBP Summary that is linked to the FANL whose field Summary Type is “SERD” and is linked to the user-specified monitoring period. (5.1.2.1 AO)

(5) The software will then flow to the Entry Point RDC window, displaying the selected Water System No., Water System Name, WSF State Assigned ID., WSF Name, Monitoring Period Begin Date, Monitoring Period Duration, and FANL.

- If it finds either one of the MDBP Summaries described above, it will also display its data in the window in Change mode with the cursor in the first entry field. (5.1.2.1 AP)
- If it does not find any of the possible MDBP Summaries, this window will appear in Add mode. (5.1.2.1 AQ)

EP Chlorine Dioxide/ Chlorite

The mnemonic for this button will be “P.” When the user presses this button, the following actions will occur:

(1) If there is only one entry point sampling point (sampling point of Type “EP,” whether active or inactive) associated to the only treatment plant for the current Water System (WSF of Type “TP,” whether active or inactive), the software will select it.

- If not found, invoke exit state error message: **Entry point sampling point and/or Treatment Plant WSF not found.** Return the cursor to the **EP Chlorine Dioxide/Chlorite** button. (5.1.2.1 AR)
- If more than one entry point sampling point is associated to a treatment plant, the software will invoke the Sampling Point Maintenance/Selection List, which displays Sampling Points of type “EP” for WSFs of type “TP” for the current Water System, where the user must choose one. (5.1.2.1 AS)

(2) After the WSF and sampling point have been selected, the software will select the FANL that establishes a maximum level (Level Type is “MAX”) for either chlorine dioxide (Analyte Code 1008) or chlorite (Analyte Code 1009) that is linked to the current WSF. This will result in the selection of zero, one, or two FANL records. (5.1.2.1 AT)

If a FANL meeting these criteria is not found, invoke exit state error message: **FANL for chlorine dioxide (1008) or chlorite (1009) of type MAX not found for this WSF.** Return the cursor to the **EP Chlorine Dioxide/Chlorite** button. (5.1.2.1 AU)

(3) If a FANL meeting these criteria is found, the software will run the selected FANL(s) through the following checks that would let the user know that a FANL exists but still cannot be used. If any of these checks is validated, invoke an exit state error message. After the user presses **OK** on the message, return the cursor to the **EP Chlorine Dioxide/Chlorite** button.

- If one or more FANL is found but none of the FANL found are in effect on the first day of the user-selected monitoring period (FANL Effective Begin Date is not on or before the Monitoring Period Begin Date), invoke exit state error message: **Facility Analyte Level not in effect during this monitoring period.** (5.1.2.1 AV)
- If one or more FANL is found but none of the FANL found have its MDBP Summary Check Flag set to “Y,” invoke exit state error message: **Facility Analyte Level with MDBP Summary Check Flag set to YES not found.** (5.1.2.1 AW)
- If a FANL record is found but does not indicate a Summary Type of “CLO2” or “CLO3,” invoke exit state error message: **Facility Analyte Level with MDBP Summary type “CLO2” or “CLO3” not found.** (5.1.2.1 AX)
- If one or more FANL is found that satisfies the above criteria and is in effect on the first day of the user-selected monitoring period, the software will select it and go to step (4). (5.1.2.1 AY)

(4) The software will next select:

- One MDBP Summary that is linked to the FANL whose field Summary Type is “CLO2” and is linked to the user-specified monitoring period, it will also select (5.1.2.1 AZ)
- One MDBP Summary that is linked to the FANL whose field Summary Type is “CLO3” and is linked to the user-specified monitoring period. (5.1.2.1 BA)

(5) The software will then flow to the to the EP Chlorine Dioxide/Chlorite window, displaying the selected Water System No., Water System Name, WSF State Assigned ID., WSF Name, Monitoring Period Begin Date, Monitoring Period Duration, and FANL. (5.1.2.1 BB)

- If it finds either one of the MDBP Summaries described above, it will also display its data in the window in Change mode with the cursor in the first entry field. (5.1.2.1 BC)
- If it does not find any of the possible MDBP Summaries, this window will appear in Add mode. (5.1.2.1 BD)

Distribution RDC The mnemonic for this button will be “D.” When the user presses this button, the following actions will occur:

(1) If there is only one distribution system (WSF of type “DS”) for the selected Water System, whether active or inactive, the software will select it.

- If a WSF of type “DS” is not found, invoke exit state error message: **Distribution WSF not found for this Water System.** Return the cursor to the **Distribution RDC** button. (5.1.2.1 BE)
- If more than one is found, invoke the Water System Facility Maintenance List displaying WSFs of type “DS” for the current Water System, from which the user must choose one. (5.1.2.1 BF)

(2) After the WSF has been selected, the software will select the FANL that establishes a minimum level (Level Type is “MIN”) for chlorine (Analyte Code 0999) or chloramine (Analyte Code 1006) that is linked to the current WSF. This will result in the selection of zero, one, or two FANL records: (5.1.2.1 BG)

If a FANL meeting these criteria is not found, invoke exit state error message: **FANL for analyte chloramine (1006) or chlorine (0999) of type MIN not found for this WSF or Mon. Period.** Return the cursor to the **Distribution RDC** button. (5.1.2.1 BH)

(3) If a FANL meeting these criteria is found, the software will run the selected FANL through the following checks that would let the user know that a FANL exists but still cannot be used. If any of these checks is validated, invoke an exit state error message. After the user presses **OK** on the message, return the cursor to the **Distribution RDC** button.

- If one or more FANL is found but none of the FANL found are in effect on the first day of the user-selected monitoring period (FANL Effective Begin Date is not on or before the Monitoring Period Begin Date), invoke exit state error message: **Facility Analyte Level not in effect during this monitoring period.** (5.1.2.1 BI)
- If one or more FANL is found but none of the FANL found have its MDBP Summary Check Flag set to “Y,” invoke exit state error message: **Facility Analyte Level with MDBP Summary Check Flag set to YES not found.** (5.1.2.1 BJ)

- If a FANL record is found but does not indicate a Summary Type of “DSRD” or “SRDR,” invoke exit state error message: **Facility Analyte Level with MDBP Summary type “DSRD” or “SRDR” not found.** (5.1.2.1 BK)
- If one or more FANL is found that satisfies the above criteria and is in effect on the first day of the user-selected monitoring period, the software will select it and go to step (4). (5.1.2.1 BL)

(4) The software will next select:

- One MDBP Summary that is linked to the FANL whose field Summary Type is “DSRD” and is linked to the user-specified monitoring period; it will also select (5.1.2.1 BM)
- One MDBP Summary that is linked to the FANL whose field Summary Type is “SRDR” and is linked to the user-specified monitoring period. (5.1.2.1 BN)

(5) The software will then flow to the Distribution RDC window, displaying the selected Water System No., Water System Name, WSF State Assigned ID., WSF Name, Monitoring Period Begin Date, Monitoring Period Duration, and FANL.

- If it finds one of the MDBP Summaries described above, it will also display its data in the window in Change mode, with the cursor in the first entry field. (5.1.2.1 BO)
- If it does not find any of the possible MDBP Summaries, this window will appear in Add mode. (5.1.2.1 BP)

MRDL Chlorine/ Chloramine

The mnemonic for this button will be “M.” When the user presses this button, the following actions will occur:

(1) If there is only one distribution system (WSF of type “DS”) for the selected Water System, whether active or inactive, the software will select it.

- If a WSF of type “DS” is not found, invoke exit state error message: **Distribution WSF not found for this Water System.** Return the cursor to the **MRDL Chlorine/Chloramine** button. (5.1.2.1 BQ)

- If more than one is found, invoke the Water System Facility Maintenance List, which will display WSFs of type “DS” for the current Water System, where the user must choose one. (5.1.2.1 BR)

(2) After the WSF has been selected, the software will select the FANL that establishes a maximum level (Level Type is “MAX”) for chlorine (Analyte Code 0999) or chloramine (Analyte Code 1006) that is linked to the current WSF. This will result in the selection of zero, one, or two FANL records. (5.1.2.1 BS)

If a FANL meeting these criteria is not found, invoke exit state error message: **FANL for analyte chloramine (1006) or chlorine (0999) of type MAX not found for this WSF.** Return the cursor to the **MRDL Chlorine/Chloramine** button. (5.1.2.1 BT)

(3) If a FANL meeting these criteria is found, the software will run the selected FANL through the following checks that would let the user know that a FANL exists but still cannot be used. If any of these checks is validated, invoke an exit state error message. After the user presses **OK** on the message, return the cursor to the **MRDL Chlorine/Chloramine** button.

- If one or more FANL is found but none of the FANL found are in effect on the first day of the user-selected monitoring period (FANL Effective Begin Date is not on or before the Monitoring Period Begin Date), invoke exit state error message: **Facility Analyte Level not in effect during this monitoring period.** (5.1.2.1 BU)
- If one or more FANL is found but none of the FANL found have its MDBP Summary Check Flag set to “Y,” invoke exit state error message: **Facility Analyte Level with MDBP Summary Check Flag set to YES not found.** (5.1.2.1 BV)
- If a FANL record is found but does not indicate a Summary Type of “MRDL,” invoke exit state error message: **Facility Analyte Level with MDBP Summary type “MRDL” not found.** (5.1.2.1 BW)
- If one or more FANL is found that satisfies the above criteria and is in effect on the first day of the user-selected monitoring period, the software will select it and go to step (4). (5.1.2.1 BX)

(4) The software will next select one MDBP Summary whose field Summary Type is MRDL that is linked to the FANL and is linked to the user-specified monitoring period. (5.1.2.1 BY)

(5) The software will then flow to the MRDL Chlorine/Chloramine DS window, displaying the selected Water System No., [Water System] Name, WSF State Assigned ID., [WSF] Name, Analyte Code, [Analyte Code] Name, Monitoring Period Begin Date, Monitoring Period Duration, and FANL.

- If it finds the MDBP Summary described above, it will also displays its data in the window in Change mode, with the cursor in the first entry field. (5.1.2.1 BZ)
- If it does not find the MDBP Summary, this window will appear in Add mode. (5.1.2.1 CA)

Next

This button will not be enabled until a valid Water System and Monitoring Period have been selected. The mnemonic key will be “N,” and this will be the default button. (5.1.2.1 CB)

- This button will sequentially invoke the FANL selection criteria that have previously been specified for each of the six SWTR buttons, in order, stopping at the first FANL that can be selected. From the SWTR Summary Category Selection dialog box, this button will first check for a FANL as specified for the **Combined Filter Effluent Turbidity** button. From any other SWTR window, **Next** will take the user to the next SWTR window, using the following sequence:
 - Combined Filter Effluent Turbidity.
 - Individual Filter Effluent Turbidity.
 - Entry Point RDC.
 - EP Chlorine Dioxide/Chlorite.

 - Distribution RDC.
 - MRDL Chlorine/Chloramine. (5.1.2.1 CC)
- When the “next” SWTR button FANL record is found, the logic will proceed as specified for that particular SWTR button. (5.1.2.1 CD)

- If no FANL records exist that meet any of the search criteria for the six buttons, invoke information exit state message: **No FANL exists for any of the 6 SWTR buttons for this Water System or Mon. Period.** Return the cursor to the Water System No. field. (5.1.2.1 CE)

Cancel When the user clicks on this button, the software will disregard any data and return the user to the previous window. (5.1.2.1 CF)

Help Pressing this button will invoke online Help for this window. (5.1.2.1 CG)

5.1.2.2 SWTR Summary Jump

Each of the six SWTR windows will have a **SWTR Jump** button that will invoke the SWTR Summary Jump dialog box (Exhibit 5-3). The SWTR Summary Jump, which will have seven buttons (one for each SWTR window and one for the SWTR Summary Category Selection dialog box), will allow the user to move freely in any direction among SWTR windows.

When the Summary Jump dialog box is used from a SWTR Summary window and the window to which the user chooses to jump is in Add mode, the software will carry forward the following data from the previous window:

- Date Reported.
- Lab State ID No, Lab Federal No., and Laboratory Name.
- Analyst Name and Employer's ID No. (5.1.2.2 A)

Tab Sequence:

Combined Filter Effluent Turbidity button, **Individual Filter Effluent Turbidity** button, **Entry Point RDC** button, **EP Chlorine Dioxide/Chlorite** button, **Distribution RDC** button, **MRDL Chlorine/Chloramines** button, **SWTR Summary Category Selection** button, **Help** button. (5.1.2.2 B)

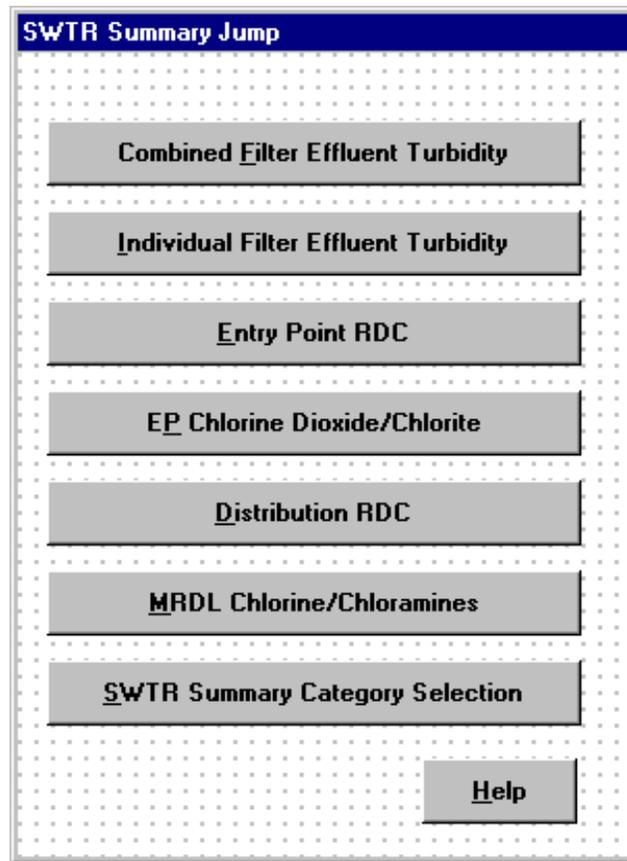


Exhibit 5-3. SWTR Summary Jump

Buttons:

The mnemonics previously specified for these buttons will apply.

**Combined Filter
Effluent Turbidity**

Pressing this button will trigger the same actions as specified for the corresponding button on the SWTR Summary Category Selection dialog box. (5.1.2.2 C see 5.1.2.1 J-T)

**Individual Filter
Effluent Turbidity**

Pressing this button will trigger the same actions as specified for the corresponding button on the SWTR Summary Category Selection dialog box. (5.1.2.2 D see 5.1.2.1 U-AE)

Entry Point RDC

Pressing this button will trigger the same actions as specified for the corresponding button on the SWTR Summary Category Selection dialog box. (5.1.2.2 E see 5.1.2.1 AF-AQ)

- EP Chlorine Dioxide/Chlorite** Pressing this button will trigger the same actions as specified for the corresponding button on the SWTR Summary Category Selection dialog box. (5.1.2.2 F see 5.1.2.1 AR-BD)
- Distribution RDC** Pressing this button will trigger the same actions as specified for the corresponding button on the SWTR Summary Category Selection dialog box. (5.1.2.2 G see 5.1.2.1 BE-BP)
- MRDL Chlorine/Chloramines** Pressing this button will trigger the same actions as specified for the corresponding button on the SWTR Summary Category Selection dialog box. (5.1.2.2 H see 5.1.2.1 BQ-CA)
- SWTR Summary Category Selection** Pressing this button will return the user to the SWTR Summary Category Selection dialog box displaying the Water System and monitoring period data. (5.1.2.2 I)
- Help** Pressing this button will invoke online Help for this window. (5.1.2.2 J)

5.1.2.3 Combined Filter Effluent Turbidity

The Combined Filter Effluent Turbidity window (Exhibit 5-5) will be used to enter summarized data for turbidity samples collected at the combined filter effluent in accordance with the Turbidity Rule, Surface Water Treatment Rule (SWTR), Interim Enhanced Surface Water Treatment Rule (IESWTR), and Long Term 1 Surface Water Treatment Rule (LT1SWTR).

When supporting data is in place, this window will create two MDBP Summaries.

- These data will be associated to the previously selected treatment plant and FANL (i.e., a WSF of type “TP” and a FANL record with an analyte code of “0100” and associated to an MDBP Summary).
- For each treatment plant that must meet the Turbidity Rule requirements, there should be one FANL type “AVG.” Summaries created for this scenario will be of type “AVGT.”
- For each treatment plant that must meet the other surface water treatment rules, there will typically be two FANL records; one of type “MAX” for the single sample maximum turbidity level and one of type “95P” for the turbidity level that 95% of samples must meet. Summaries created for this scenario will be of type “MAXT” and “95PT” respectively.

- To determine which of the rules applies to the treatment plant, the FANL records will be associated with a monitoring and reporting violation and a level type violation. This association will also be used to determine the appropriate violation type to be created by *CDS*. Exhibit 5-4, lists the federal violation types generally associated with the three turbidity rules.

The Combined Filter Effluent Turbidity window is shown in Exhibit 5-5.

Federal Rule	FANL Level	Level Violation	Monitoring and Reporting Violation	
Turbidity	AVG	01 or 02	03-Major	
SWTR	MAX	41	Unfiltered WTP	31-Major
	95P		Filtered WTP	36-Major
IESWTR	MAX	44	38-Major	
	95P	46		

Exhibit 5-4. Violation Types for Three Turbidity Rules

Exhibit 5-5. Combined Filter Effluent Turbidity

Protected Fields:

Prior to the window being opened, several protected fields will be automatically populated as described below.

Water System/WSF/Analyte/Monitoring Period Display Box:

Water System No. User-specified Water System No. for which the MDBP summary is reported.

[Water System] Name Name of the selected Water System.

WSF State Asgn ID State Asgn ID of the WSF for which the MDBP summary is reported.

[WSF] Name Name of the selected Water System Facility.

Analyte Code The Analyte Code specified in the associated Facility Analyte Level record.

[Analyte] Name The analyte name associated with the analyte code.

[Monitoring Period] Begin Date Begin Date of the user-specified monitoring period.

[Monitoring Period] Duration Duration of the user-specified monitoring period. (5.1.2.3 A)

Entry Fields:

Date Reported If the previous window is the SWTR Summary Category window, this field will default to today's date, otherwise it will default to Date Reported in the previous window.

Date may not be after today. If it is, invoke exit state error message: **A future date cannot be used.** Return the cursor to the Date Reported field.

Data entered in this field will be stored as REPORTED_DATE in both summaries. (5.1.2.3 B)

Number of Samples Required This field will default to the value calculated using the Number of Samples Per Day and Number of Days to Monitoring Per Month from the associated FANL.

In particular, it will default to z, calculated as follows:

$$z = x * y$$

Where: x = FANL Number of Samples Per Day.
y = FANL Number of Days to Monitor per Month or the number of days in the monitoring period, whichever is less.

If the user changes the default, set the changed value to Number of Samples Taken field. (5.1.2.3 C)

This field will be stored as attribute SAMPLES_REQUIRED in both summaries.

Number of Samples Taken

Defaults to the value in attribute SAMPLES_REQUIRED as calculated above.

Stored as attribute SAMPLES_COLLECTED with both summary records. (5.1.2.3 D)

Turbidity M&R Complied?

Permitted Values: Y= YES; NMJ= No-Major; NMN= No-Minor.

Use the following calculation to set the default value for this field:

$$x = (\text{Number of Samples Taken}/\text{Number of Samples Required}) * 100$$

If $x \geq 100$, default to "Y."

If $x < 89.9$, default to NMJ.

Otherwise, default to NMN. (5.1.2.3 E)

Store as attribute MR_COMPLIANCE_INDICATOR with both summary records.

First Protected Prompt/Label

*[Number of
XXXXXXXXXXXXX*

Exceeded 999 NTU]

If FANL of Control Level Type MAX or AVG is not found,

- Hide First Protected Prompt/Label.
- Hide attribute TOTAL_SAMPLES_BEYOND_MSR_LVL's entry field.
- Hide **Avg/Max Comments** button.

Otherwise if found,

- If FANL Control Level Type = MAX.
Set XXXXXXXXXXXXXXXX to "Number of Samples Exceeded 999 NTU."
- If FANL Control Level Type = AVG

Set XXXXXXXXXXXXX to “Number of Days Average Exceeded 999 NTU.”

- Set 999 to value in FANL CONTROL_LEVEL_TEXT.
- Enable attribute TOTAL_SAMPLES_BEYOND_MSR_LVL’s entry field and default to 0.
- Display/enable **Avg/Max Comments** button. (5.1.2.3 F)
- The number value will be stored in attribute TOTAL_SAMPLES_BEYOND_MSR_LVL for the MAXT/AVGT summary.

*Highest Single
Turbidity Reading*

If FANL of Control Level Type MAX or AVG is not found,

- Hide Highest Single Turbidity Reading prompt.
- Hide attribute HIGHEST_MEASURE’s entry field.

Otherwise if found,

- Display Highest Single Turbidity Reading prompt.
- Display/enable attribute HIGHEST_MEASURE’s entry field. (5.1.2.3 G)
- This value will be needed for CCR and will not be used by *CDS* processes. The value will be stored in attribute HIGHEST_MEASURE.

Second Protected
Prompt/Label
*[Number of Samples
Exceeded 999 NTU]*

If FANL of Control Level Type 95P is not found,

- Hide Second Protected Prompt/Label.
- Hide attribute TOTAL_SAMPLES_BEYOND_MSR_LVL’s entry field.
- Hide **95P Comments** button.

Otherwise if found,

- Set XXXXXXXXXXXXX to “Number of Samples Exceeded 999 NTU.”
- Set 999 to value in FANL CONTROL_LEVEL_TEXT.
- Enable attribute TOTAL_SAMPLES_BEYOND_MSR_LVL’s entry field and default to 0.
- Display/enable **95P Comments** button. (5.1.2.3 H)
- The number value will be stored in attribute TOTAL_SAMPLES_BEYOND_MSR_LVL for the 95PT summary.

Third Protected
Prompt/Label
[% of Samples

Exceeding 999 NTU] If FANL of Control Level Type 95P is not found,

- Hide Third Protected Prompt/Label.
- Hide attribute PERCENT_SAMPS_BYND_MSR_LVL_TXT’s entry field.

Otherwise if found,

- Set XXXXXXXXXXXXX to “% of Samples Exceeding 999 NTU.”
- Set 999 to value in FANL CONTROL_LEVEL_TEXT.
- Enable attribute PERCENT_SAMPLES_BEYOND_MSR_LVL’s entry field and default value according to following calculation:
value = (number of samples exceeding level/number of samples taken) * 100, with two significant digits after the decimal point.
(5.1.2.3 I)

Store as attributes PERCENT_SAMPLES_BEYOND_MSR_LVL and PERCENT_SAMPS_BYND_MSR_LVL_TXT with 95PT summary.

Laboratory/Analyst Group Boxes:

If the previous window was the SWTR Summary Category dialog box, all fields in the Laboratory/Analyst group boxes will default to spaces; otherwise they will default to whatever laboratory and analyst selection was made (including none) for the previous window.

Lab State ID No. The Lab State ID Number that the user wishes to associate to the MDBP Summary. This field will be optional.

The user may enter a valid Lab State ID or use the **Go To** button to display the Lab Selection List. As the user enters/changes a value and tabs off the Lab State ID Number field, the software will check that the supplied Lab State ID is valid, then populate the retrieved Lab Federal ID Number and Name fields.

If the supplied Lab State ID Number does not exist in the database, the software will not supply a message but will directly invoke the Lab Selection List from where the user may select a valid Laboratory. After selection return the cursor to [Laboratory] Name. (5.1.2.3 J)

(Developer's Note: Use the existing SBS_C_LAB_SELECT_LIST procedure.)

Lab Federal ID No. The Lab Federal ID Number that the user wishes to associate to the MDBP Summary. This field will be optional.

The user may enter a valid Lab Federal ID or use the **Go To** button to display the Lab Selection List. As the user enters/changes a value and tabs off the Lab Federal ID Number field, the software will check that the supplied Lab Federal ID is valid, then populate the retrieved Lab State ID No. and Laboratory Name fields.

If the supplied Lab Federal ID Number does not exist in the database, the software will not supply a message but will directly invoke the Lab Selection List from where the user may select a valid Laboratory. Return the cursor to [Laboratory] Name. (5.1.2.3 K)

(Developer's Note: Use the existing SBS_C_LAB_SELECT_LIST procedure.)

Laboratory Name The laboratory name which the user wishes to associate to the MDBP Summary. This field will be optional.

The user may enter a valid laboratory name or use the **Go To** button to display the Lab Selection List. As the user enters/changes a value and tabs off the Laboratory Name field, the software will check that the supplied Laboratory Name is valid, then populate the retrieved Lab State ID Number and Lab Federal ID Number fields.

If the supplied Laboratory Name does not exist in the database, the software will not supply a message but will directly invoke the Lab Selection List from where the user may select a valid Laboratory. After selection return the cursor to [Laboratory] Name. (5.1.2.3 L)

(Developer's Note: Use the existing SBS_C_ANALYST_SELECT_LIST procedure.)

Employer ID No. The Employer's ID No. for the analyst that the user wishes to associate the MDBP Summary. This field will be optional.

The user may enter a valid Employer's ID No. or use the **Go To** button to display the Legal Entity Maintenance List with only individuals listed. As the user enters/changes a value and tabs off the Employer's ID No. field, the software will check that the supplied Analyst's Employer's ID No. is a valid Legal Entity individual, then populate the retrieved [Analyst] Name field.

If the supplied analyst's Employer's ID Number does not exist in the database, the software will not supply a message but will directly invoke the Individual Selection List (showing legal entities of type Individual from where the user may select a valid Analyst.) After selection return cursor to [Analyst] Name. (5.1.2.3 M)

(Developer's Note: Use the existing SBS_C_ANALYST_SELECT_LIST procedure.)

The Employer's ID No. will be added to the Legal Entity Maintenance List window.

[Analyst] Name The analyst's name that the user wishes to associate to the MDBP Summary. This field will be optional.

The user may enter a valid individual's name or use the **Go To** button to display the Legal Entity Maintenance List with only individuals listed. As the user enters/changes a value and tabs off the [Analyst] Name field, the software will check that the supplied [Analyst] Name is a valid Legal Entity individual, then populate the retrieved Employer's ID No. field.

If the supplied analyst's name does not exist in the database, the software will not supply a message but will directly invoke the Individual Selection List (showing legal entities of type individual) from where the user may select a valid analyst. After selection return cursor to [Analyst] Name. (5.1.2.3 N)

(Developer's Note: Use the existing SBS_C_ANALYST_SELECT_LIST procedure.)

Tab Sequence:

Date Reported, Number of Samples Required, Number of Samples Taken, Turbidity M&R Complied?, [Number of XXXXXXXXXXXX Exceeding 999 NTU], Highest Single Turbidity Reading, [Number of Samples Exceeding 999 NTU], [Percent of Samples Exceeding 999 NTU], Lab State ID No., Lab **Go To** button, Lab Federal ID No., Laboratory Name, Employer ID No., Analyst **Go To** button, [Analyst] Name, **Avg/Max Comments** button, **95P Comments** button, **SWTR Jump** button, **Next** button, **Cancel** Button, **Help** button.
(5.1.2.3 O)

Buttons:

Lab Go To The user may use the **Go To** button to display the Lab Selection List. As the user makes a selection, the software will then populate the retrieved Lab State ID Number and Lab Federal ID Number fields. Return the cursor to Laboratory Name.

(Developer's Note: Use the existing SBS_C_ANALYST_SELECT_LIST procedure.) (5.1.2.3 P)

Analyst Go To The user may use the **Go To** button to display the Individual Selection List with only individuals listed. As the user makes a selection, the software will then populate the retrieved [Analyst] Name and Employer ID No. fields. Return cursor to Employer's ID Number.

(Developer's Note: Use the existing SBS_C_ANALYST_SELECT_LIST procedure.) (5.1.2.3 Q)

**Avg/Max
Comments**

The mnemonic for this button will be "A." It will invoke a dialog box where the user can record any additional information about the average or single maximum sample summary data. Stores value as COMMENT_TEXT with MAXT/AVGT summary. (5.1.2.3 R)

95P Comments The mnemonic for this button will be “P.” Invokes a dialog box where the user can record any additional information about the sample summary data associated with the NTU level that 95 percent of samples must meet. Stores value as COMMENT_TEXT with 95PT summary. (5.1.2.3 S)

SWTR Jump The mnemonic for this button will be “J.” When the user presses this button, the software will:

- Check that Reported Date is not after today. If it is, it will invoke exit state error message: **A future date cannot be used.** Return the cursor to the Reported Date field. (5.1.2.3 T)

- Set LEVEL_COMPLIANCE_INDICATOR according to the following algorithm:

For AVGT or MAXT summaries if
TOTAL_SAMPLES_BEYOND_MSR_LVL is greater than zero,
value with NO, else value with YES.

For 95P summaries if
PERCENT_SAMPLES_BEYOND_MSR_LVL rounded to a
whole number is greater than 5, value with NO, else value with
YES. For example, 5.4% is in compliance, 5.5% is not.

- Create or update the MAXT/AVGT and or 95P summary(ies). (5.1.2.3 U)
- Invoke the SWTR Jump dialog box. (5.1.2.3 V)

Next The mnemonic for this button will be “N.” When the user presses this button, the following actions will occur:

- The software will check that Reported Date is not after today. If it is, it will invoke exit state error message: **A future date cannot be used.** Return the cursor to the Reported Date field. (5.1.2.3 W)

- Set LEVEL_COMPLIANCE_INDICATOR according to the following algorithm.

For AVGT or MAXT summaries if
TOTAL_SAMPLES_BEYOND_MSR_LVL is greater than zero,
value with NO, else value with YES.

For 95P summaries if PERCENT_SAMPLES_BEYOND_MSR_LVL rounded to a whole number is greater than 5, value with NO, else value with YES. For example, 5.4% is in compliance, 5.5% is not.

- Create or update the MDBP summary(ies) and associate it with the selected FANL and user-specified monitoring period. (5.1.2.3 X)
- The software will then apply the same actions for this button as previously specified in Subsection 5.1.2.1. (5.1.2.3 Y See 5.1.2.1 CB-CE)

Cancel When the user presses this button, the software will disregard any data and return the user to the previous window. (5.1.2.3. Z)

Help Pressing this button will invoke online Help for this window. (5.1.2.3 AA)

5.1.2.4 Individual Filter Effluent Turbidity

The Individual Filter Effluent Turbidity window (Exhibit 5-6), will be used to enter summarized data for turbidity samples collected at the individual filter effluent in accordance with the Interim Enhanced Surface Water Treatment Rule (IESWTR) and Long Term 1 Surface Water Treatment Rule (LT1SWTR). When supporting data is in place, this window will create one MDBP Summary.

- This data will be associated to a WSF of type "TP" and a Facility Analyte Level (FANL) record with an analyte code of "0100" and an MDBP Summary type of "95PT."
- For each treatment plant that must meet individual filter monitoring requirements, there should be one FANL type "95P" with the Individual Filter Monitoring Indicator valued.
- Due to the complexity of individual filter monitoring, the data stored will be answers to seven questions about the monitoring performed during the monitoring period. Each question which may be answered with "Yes," "No," or Blank will be defaulted to the appropriate answer.
- There are no level violations for individual filter monitoring. If a filter exceeds a set limit, the operator must provide the primacy agency with one of three types of reports on the filter within a specified time frame. If the report is not provided within the time frame, the Water System will have a type "29" reporting violation. CDS will not

Protected Fields:

Prior to the window being opened, several protected fields will be automatically populated.

Water System/WSF/Analyte/Monitoring Period Display Box:

The protected fields in this display box will be the same as previously described for the Combined Filter Effluent Turbidity window. (5.1.2.4 A)

Entry Fields:

The default settings listed with each data entry field are to be calculated prior to opening the Individual Filter Effluent Turbidity window.

Date Reported This field will be the same as the Date Reported field in the Combined Filter Effluent Turbidity window. (5.1.2.4 B)

Question #1 Label will read “Was Each Filter Monitored continuously?”

Permitted Values: Y= Yes; N= No; Blank.

Default to “Yes.” (5.1.2.4 C)

Value will be stored as Q1_IFT_MONITORED_INDICATOR in the IFT summary.

Question #2 Label will read “Were Measurements Recorded Every 15 minutes?”

Permitted Values: Y= Yes; N= No; Blank.

Default to “Yes.” (5.1.2.4 D)

Value will be stored as Q2_IFT_RECORED_INDICATOR in the IFT summary.

Question #3 Label will read “Was there a Failure of the continuously monitoring equipment?”

Permitted Values: Y= Yes; N= No; Blank.

Default to “No.” (5.1.2.4 E)

Value will be stored as Q3_IFT_EQUIPMENT_INDICATOR in the IFT summary.

Question #4 Label will read “Was individual filter level greater than 1.0 NTU in two consecutive measurements?”

Permitted Values: Y= Yes; N= No; Blank.

Default to “No.” (5.1.2.4 F)

Value will be stored as Q4_IFT_GREATER_1_0_INDICATOR in the IFT summary.

Question #5 Label will read “Was individual filter level greater than 0.5 NTU in two consecutive measurements after on line for more than four hours?”

Permitted Values: Y= Yes; N= No; Blank.

Default to “No.” (5.1.2.4 G)

Value will be stored as Q5_IFT_GREATER_0_5_INDICATOR in the IFT summary.

Question #6 Label will read “Was individual filter level greater than 1.0 NTU in two consecutive measurements in three consecutive months?”

Permitted Values: Y= Yes; N= No; Blank.

Default to “No.” (5.1.2.4 H)

Value will be stored as Q6_IFT_GREATER_1_DUR_3_MON_IND.

Question #7 Label will read “Was individual filter level greater than 2.0 NTU in two consecutive measurements in two consecutive months?”

Permitted Values: Y= Yes; N= No; Blank.

Default to “No.” (5.1.2.4 I)

Value will be stored as Q7_IFT_GREATER_2_DUR_2_MON_IND in the IFT summary.

Laboratory/Analyst Information Box:

Lab State ID No. This field will be the same as the Lab State ID No. in the Combined Filter Effluent Turbidity window. The same design specifications will apply. (5.1.2.4 J See 5.1.2.3 J)

- Lab Federal ID No.* This field will be the same as the Lab Federal ID No. in the Combined Filter Effluent Turbidity window. The same design specifications will apply. (5.1.2.4 K See 5.1.2.3 K)
- Laboratory Name* This field will be the same as the Laboratory Name in the Combined Filter Effluent Turbidity window. The same design specifications will apply. (5.1.2.4 L See 5.1.2.3 L)
- Employer ID No.* This field will be the same as the Employer's ID No. in the Combined Filter Effluent Turbidity window. The same design specifications will apply. (5.1.2.4 M See 5.1.2.3 M)
- [Analyst] Name* This field will be the same as the [Analyst] Name in the Combined Filter Effluent Turbidity window. The same design specifications will apply. (5.1.2.4 N See 5.1.2.3 N)

Tab Sequence:

Date Reported, Question #1, Question #2, Question #3, Question #4, Question #5, Question #6, Question #7, Lab State ID No., Lab **Go To** button, Lab Federal ID No., Laboratory Name, Employer ID No., Analyst **Go To** button, [Analyst] Name, **Comments** button, **SWTR Jump** button, **Next** button, **Cancel** button, **Help** button. (5.1.2.4 O)

Buttons:

- Lab Go To** The design specifications for this button previously described on the Combined Filter Effluent Turbidity window will apply here. (5.1.2.4 P)
- Analyst Go To** The design specifications for this button previously described on the Combined Filter Effluent Turbidity window will apply here. (5.1.2.4 Q)
- Comments** The mnemonic key will be "T."

Pressing this button will invoke a dialog box where the user can record any additional information about the sample summary data. (5.1.2.4 R)

Store as COMMENT_TEXT with summary.
- SWTR Jump** The design specifications for this button previously described on the Combined Filter Effluent Turbidity window will apply here with one exception. For the Individual Filter Turbidity window only, just prior to creating/updating the IFT summary, set LEVEL_COMPLIANCE_INDICATOR according to the following algorithm, if Question #4, 5, 6, or 7 equals No, value NO, else value

YES. Set MR_COMPLIANCE_INDICATOR according to the following algorithm, if Question #1, 2, 3 equals Null or if Question #1 or 2 equals NO or Question #3 equals YES; value NMJ-No Major, else value YES. (5.1.2.4 S)

Next The design specifications for this button previously described on the Combined Filter Effluent Turbidity window will apply here, with one exception. For the Individual Filter Turbidity window only, just prior to creating/updating the IFT summary, set LEVEL_COMPLIANCE_INDICATOR according to the following algorithm, if Question #4, 5, 6, or 7 equals No, value NO, else value YES. Set MR_COMPLIANCE_INDICATOR according to the following algorithm, if Question #1, 2, 3 equals Null or if Question #1 or 2 equals NO or Question #3 equals YES, value NO, else value YES. (5.1.2.4 T)

Cancel When the user presses this button, the software will disregard any data and return the user to the previous window. (5.1.2.4 U)

Help Pressing this button will invoke online Help for this window. (5.1.2.4 V)

5.1.2.5 Entry Point RDC

The **Entry Point RDC** window (Exhibit 5-7) will be used to enter summarized data for residual disinfectant concentration (RDC) samples collected at the entry point to the distribution system for SWTR. When supporting data is in place, this window will create two MDBP Summaries.

This data will be associated to the previously selected treatment plant (WSF of type “TP”) and Facility Analyte Level (FANL) record (i.e, FANL with an analyte code of “0999”—Chlorine or “1006”—Chloramine and a level type of “MIN”). Uniqueness criteria will not allow FANL records for both chlorine and chloramine to be created with overlapping effective periods. If a treatment plant uses both disinfectants intermittently, the primacy agency must chose one to monitor.

For each treatment plant that must monitor the entry point for a federal or state RDC level, a FANL must be created. The federal level will be associated to an MDBP Summary of type “EPRD,” the state level to a summary of type “SERD.” Both FANLs must be associated to the same analyte.

To determine which rules apply to the treatment plant, the FANL records will be associated with a monitoring and reporting violation and a level type violation. This association will also be used to determine the appropriate violation type to be created by *CDS*. Generally, the

Protected Fields:

Prior to the window being opened, several protected fields will be automatically populated.

Water System/WSF/Sampling Point/Analyte/Monitoring Period Display Box:

The protected fields in this display box will be the same as previously described for the Combined Filter Effluent Turbidity window, except that two sampling point fields will have been added.

Sampling Point The state assigned ID of the selected sampling point.

[Sampling] Location The name/location of the selected sampling point. (5.1.2.5 A)

Entry Fields:

The default settings listed beside each data entry field are to be calculated prior to opening the Entry Point RDC window.

Date Reported The design specifications for this field previously described on the Combined Filter Effluent Turbidity window will apply here. (5.1.2.5 B)

Number of Samples Required The design specifications for this field previously described on the Combined Filter Effluent Turbidity window will apply here. (5.1.2.5 C)

Number of Samples Taken The design specifications for this field previously described on the Combined Filter Effluent Turbidity window will apply here. (5.1.2.5 D)

Entry Point RDC M&R Complied? The design specifications for this field previously described on the Combined Filter Effluent Turbidity window will apply here. (5.1.2.5 E)

First Protected Prompt/Label
[Number of Samples Under 999 mg/l Federal Level]

If FANL indicating a Summary Type of "EPRD" is not found,

- Hide First Protected Prompt/Label.
- Hide TOTAL_SAMPLES_BEYOND_MSR_LVL.

- Hide **Fed RDC** button. (5.1.2.5 F)

If FANL indicating a Summary Type of “EPRD” is found,

- Display “Number of Samples Under 999 mg/l Federal Level” in the First Protected Prompt/Label.
- Set 999 to the value in the FANL CONTROL_LEVEL_TEXT.
- Default the field to zero. (5.1.2.5 G)
- Store the value in the field as TOTAL_SAMPLES_BEYOND_MSR_LVL with EPRD summary.

Second Protected
Prompt/Label
*[Number of Sample
Under 999 mg/l
State Level]*

If FANL indicating a Summary Type of “SERD” is not found,

- Hide Second Protected Prompt/Label.
- Hide TOTAL_SAMPLES_BEYOND_MSR_LVL.
- Hide **State RDC** button. (5.1.2.5 H)

If FANL indicating a Summary Type of “SERD” is found,

- Display “Number of Samples Under 999 mg/l State Level” in the Second Protected Prompt/Label.
- Set 999 to the value in the FANL CONTROL_LEVEL_TEXT.
- Default the field to zero. (5.1.2.5 I)

Store the value in the field as
TOTAL_SAMPLES_BEYOND_MSR_LVL with SERD summary.

Laboratory/Analyst Information Box:

- Lab State ID No.* This field will be the same as the Lab State ID No. in the Combined Filter Effluent Turbidity window. The same design specifications will apply. (5.1.2.5 J See 5.1.2.3 J)
- Lab Federal ID No.* This field will be the same as the Lab Federal ID No. in the Combined Filter Effluent Turbidity window. The same design specifications will apply. (5.1.2.5 K See 5.1.2.3 K)
- Laboratory Name* This field will be the same as the Laboratory Name in the Combined Filter Effluent Turbidity window. The same design specifications will apply. (5.1.2.5 L See 5.1.2.3 L)
- Employer ID No.* This field will be the same as the Employer ID No. in the Combined Filter Effluent Turbidity window. The same design specifications will apply. (5.1.2.5 M See 5.1.2.3 M)
- [Analyst] Name* This field will be the same as the [Analyst] Name in the Combined Filter Effluent Turbidity window. The same design specifications will apply. (5.1.2.5 N See 5.1.2.3 N)

Tab Sequence:

Date Reported, Number of Samples Required, Number of Samples Taken, Entry Point RDC M&R Complied?, [Number of Samples Under 999 mg/l Federal Level], [Number of Samples Under 999 mg/l State Level], Lab State ID No., Lab **Go To** button, Lab Federal ID No., Laboratory Name, Employer ID No., Analyst **Go To** button, [Analyst] Name, **Fed RDC** [Comments] button, **State RDC** [Comments] button, **SWTR Jump** button, **Next** button, **Cancel** Button, **Help** button. (5.1.2.5 O)

Buttons:

- Lab Go To** This button will be the same as the Lab **Go To** in the Combined Filter Effluent Turbidity window. The same design specifications will apply. (5.1.2.5 P)
- Analyst Go To** This button will be the same as the Analyst **Go To** in the Combined Filter Effluent Turbidity window. The same design specifications will apply. (5.1.2.5 Q)
- Fed RDC**
[Comments] This button will be hidden if the FANL of Summary Type “EPRD” is not found. The mnemonic key will be “F.” Clicking on it will invoke a

dialog box where the user can record any additional information about the federal RDC level summary data. (5.1.2.5 R)

Store as COMMENT_TEXT with EPRD summary.

State RDC
[Comments]

This button will be hidden if a FANL of Summary Type “SERD” is not found. The mnemonic key will be “T.” Clicking on this button will invoke a dialog box where the user can record additional information about the sample summary data associated with the state RDC level summary data. (5.1.2.5 S)

Store as COMMENT_TEXT with SERD summary.

SWTR Jump

The design specifications for this button previously described on the Combined Filter Effluent Turbidity window will apply here, with one exception. For the Entry Point RDC window only, just prior to creating/updating the EPRD and/or SERD summary(ies), set LEVEL_COMPLIANCE_INDICATOR according to the following algorithm, if TOTAL_SAMPLES_BEYOND_MSR_LVL is greater than zero, value with NO, else value with YES. (5.1.2.5 T)

Next

The design specifications for this button previously described on the Combined Filter Effluent Turbidity window will apply here, with one exception. For the Entry Point RDC window only, just prior to creating/updating the EPRD and/or SERD summary(ies), set LEVEL_COMPLIANCE_INDICATOR according to the following algorithm, if TOTAL_SAMPLES_BEYOND_MSR_LVL is greater than zero, value with NO, else value with YES. (5.1.2.5 U)

Cancel

When the user clicks on this button, the software will disregard any data and return the user to the previous window. (5.1.2.5 V)

Help

Pressing on this button will invoke online Help for this window. (5.1.2.5 W)

5.1.2.6 Entry Point Chlorine Dioxide/Chlorite

The Entry Point Chlorine Dioxide/Chlorite window (Exhibit 5-8), will be used to enter summarized data for daily chlorine dioxide and chlorite samples collected at the entry point to the distribution system for the Stage1 Disinfectant/Disinfection By-Products Rule (D/DBP). The D/DBP rule requires monitoring at the entry point for both analytes each day that chlorine dioxide is used as a disinfectant. When supporting data is in place, this window will create two MDBP Summaries.

This data will be associated to a WSF of type “TP” and a Facility Analyte Level (FANL) record with an analyte code of “1008”—Chlorine Dioxide or “1009”—Chlorite and a level type of “MAX,” both of which will have already been selected and will be displayed on this window. The summaries created will be of type “CLO2” for chlorine dioxide and “CLO3” for chlorite.

The FANL records will be associated with a monitoring and reporting violation and a level type violation. This association will also be used to determine the appropriate violation type to be created by *CDS*. Generally, the federal violation will be type “27—Major” for monitoring and reporting both analytes. For level violations, the type will be “11” for chlorine dioxide and “02” for chlorite.

Monitoring for these analytes at the entry point must be conducted by a person approved by the state and may be stored as a summary. Monitoring for these analytes at the distribution system level must be conducted by a certified laboratory and should be stored individually. Therefore, distribution system sample results will not be stored in MDBP Summary but with samples and analytical results.

Monitoring at the entry point for chlorine dioxide and chlorite does not directly result in level violations. If entry point sample results exceed specified levels, additional monitoring must be conducted in the distribution system. Therefore, *CDS* will not generate level violations, but will give compliance officers a warning on the report that levels have been exceeded. The compliance officer will then need to ensure that the additional samples were collected

Since a treatment plant may have more than one entry point, the summary will be associated with an entry point sampling point.

Exhibit 5-8. Entry Point Chlorine Dioxide/Chlorite

Protected Fields:

Prior to the window being opened, several protected fields will be automatically populated.

Water System/WSF/Analyte/Monitoring Period/Sampling Point Display Box:

The protected fields in this display box will be the same as previously described for the Entry Point RDC window except that the Analyte Code and [Analyte] Name fields have been omitted. (5.1.2.6 A See 5.1.2.5 A)

Entry Fields:

The default settings listed beside each data entry field will be calculated prior to opening the Entry Point Chlorine Dioxide/Chlorite window.

Date Reported The design specifications for this field previously described on the Combined Filter Effluent Turbidity window will apply here. (5.1.2.6 B See 5.1.2.3 B)

Chlorine Dioxide Entry Point Monitoring Group:

All prompts and fields located under the “Chlorine Dioxide Entry Point Monitoring” label should be hidden if FANL of Summary Type “CLO2” is not found, including the **Chlorine Dioxide Comments** button. All should be displayed/enabled when FANL of Summary Type “CLO2” is found. (5.1.2.6 C)

Number of [Chlorine Dioxide] Samples Required The design specifications for this field previously described on the Combined Filter Effluent Turbidity window will apply here. Store as SAMPLES_REQUIRED in “CLO2” summary record. (5.1.2.6 D See 5.1.2.3 C)

Number of [Chlorine Dioxide] Samples Taken Default to number of chlorine dioxide samples required. When the user tabs off this field, populate the EP Chlorine Dioxide M&R Complied field. Store as SAMPLES_COLLECTED with “CLO2” summary record. (5.1.2.6 E)

EP Chlorine Dioxide M&R Complied? The design specifications for this field previously described on the Combined Filter Effluent Turbidity window apply here. Store as MR_COMPLIANCE_INDICATOR with “CLO2” summary record. (5.1.2.6 F See 5.1.2.3 E)

Number of Chlorine [Dioxide] Samples Exceeded [999 mg/l] Set xxxxx to value in FANL CONTROL_LEVEL_TEXT concatenated with mg/l. Enable TOTAL_SAMPLES_BEYOND_MSR_LVL entry field and default to 0. The number value will be stored in TOTAL_SAMPLES_BEYOND_MSR_LVL for the CLO2 summary. (5.1.2.6 G)

Chlorite Entry Point Monitoring Group:

All prompts and fields located under the “Chlorite Entry Point Monitoring” label should be hidden if FANL of Summary Type “CLO3” is not found, including the **Chlorite Comments** button. All should be displayed/enabled when FANL of Summary Type “CLO3” is found. (5.1.2.6 H)

*Number of [Chlorite]
Samples Required*

The design specifications for this field previously described on the Combined Filter Effluent Turbidity window will apply here. Stored as SAMPLES_REQUIRED in “CLO3” summary record. (5.1.2.6 I See 5.1.2.3 C)

*Number of [Chlorite]
Samples Taken*

Default to number of chlorite samples required. When the user tabs off this field, populate the EP Chlorite M&R Complied field. Store as SAMPLES_COLLECTED with “CLO3” summary record. (5.1.2.6 J)

*EP Chlorite M&R
Complied?*

The design specifications for this field previously described on the Combined Filter Effluent Turbidity window will apply here. Store as MR_COMPLIANCE_INDICATOR with “CLO3” summary record. (5.1.2.6 K See 5.1.2.3 E)

*Number of Chlorite
Samples Exceeded
[999 mg/l]*

Set xxxxx to value in FANL CONTROL_LEVEL_TEXT concatenated with mg/l. Enable TOTAL_SAMPLES_BEYOND_MSR_LVL entry field and default to 0. The number value will be stored in TOTAL_SAMPLES_BEYOND_MSR_LVL for the CLO3 summary. (5.1.2.6 L)

Laboratory/Analyst Information Group Boxes:

Lab State ID No. This field will be the same as the Lab State ID Number in the Combined Filter Effluent Turbidity window. The same design specifications will apply. (5.1.2.6 M See 5.1.2.3 J)

Lab Federal ID No. This field will be the same as the Lab Federal ID Number in the Combined Filter Effluent Turbidity window. The same design specifications will apply. (5.1.2.6 N See 5.1.2.3 K)

- Laboratory Name* This field will be the same as the Laboratory Name in the Combined Filter Effluent Turbidity window. The same design specifications will apply. (5.1.2.6 O See 5.1.2.3 L)
- Employer's ID No.* This field will be the same as the Employer's ID No. in the Combined Filter Effluent Turbidity window. The same design specifications will apply. (5.1.2.6 P See 5.1.2.3 M)
- [Analyst] Name* This field will be the same as the [Analyst Name] in the Combined Filter Effluent Turbidity window. The same design specifications will apply. (5.1.2.6 Q See 5.1.2.3 N)

Tab Sequence:

Date Reported, Number of [Chlorine Dioxide] Samples Required, Number of [Chlorine Dioxide] Samples Taken, EP Chlorine Dioxide M&R Complied?, Number of Chlorine [Dioxide] Samples Exceeded [999 mg/l], Number of [Chlorite] Samples Required, Number of [Chlorite] Samples Taken, EP Chlorite M&R Complied?, Number of Chlorite Samples Exceeded [999 mg/l], Lab State ID No., Lab **Go To** button, Lab Federal ID No., Laboratory Name, Employer ID No., Analyst **Go To** button, [Analyst] Name, **Chlorine Dioxide Comments** button, **Chlorite Comments** button, **SWTR Jump** button, **Next** button, **Cancel** button, **Help** button. (5.1.2.6 R)

Buttons:

- Lab Go To** This button will be the same as the Lab **Go To** in the Combined Filter Effluent Turbidity window. The same design specifications will apply. (5.1.2.6 S)
- Analyst Go To** This field will be the same as the Analyst **Go To** in the Combined Filter Effluent Turbidity window. The same design specifications will apply. (5.1.2.6 T)

Chlorine Dioxide
Comments

This button will be hidden if FANL of Summary Type CLO2 is not found and otherwise displayed. The mnemonic key will be "D." This button will invoke a dialog box where the user can record any additional information about the Chlorine Dioxide summary data. (5.1.2.6 U)

Store as COMMENT_TEXT with "CLO2" summary.

- Chlorite Comments** This button will be hidden if FANL of Summary Type CLO3 is not found and otherwise displayed. The mnemonic key will be "t." This

button will invoke a dialog box where the user can record any additional information about the Chlorite summary data. (5.1.2.6 V)

Store as COMMENT_TEXT with “CLO3” summary.

- SWTR Jump** The design specifications for this button previously described on the Combined Filter Effluent Turbidity window will apply here, with one exception. For the Entry Point Chlorine Dioxide/Chlorite window only, just prior to creating/updating the CLO2 and/or CLO3 summary(ies), set LEVEL_COMPLIANCE_INDICATOR according to the following algorithm, if TOTAL_SAMPLES_BEYOND_MSR_LVL is greater than zero, value with NO, else value with YES. (5.1.2.6 W)
- Next** The design specifications for this button previously described on the Combined Filter Effluent Turbidity window will apply here, with one exception. For the Entry Point Chlorine Dioxide/Chlorite window only, just prior to creating/updating the CLO2 and/or CLO3 summary(ies), set LEVEL_COMPLIANCE_INDICATOR according to the following algorithm, if TOTAL_SAMPLES_BEYOND_MSR_LVL is greater than zero, value with NO, else value with YES. (5.1.2.6 X)
- Cancel** When the user clicks on this button, the software will disregard any data and return the user to the previous window. (5.1.2.6 Y)
- Help** Pressing this button will invoke online Help for this window. (5.1.2.6 Z)

5.1.2.7 Distribution RDC

The Distribution RDC window (Exhibit 5-9) will be used to enter summarized data for residual disinfectant concentration (RDC) samples collected in the distribution system for the Surface Water Treatment Rule. When supporting data is in place, this window will create one or two MDBP Summaries.

This data will be associated to a WSF of type “DS” and a Facility Analyte Level (FANL) record with an analyte code of “0999”—Chlorine or “1006”—Chloramine and a level type of “MIN.” Uniqueness criteria will not allow FANL records for both chlorine and chloramine to be created with overlapping effective periods. If a Water System uses both disinfectants intermittently, the primacy agency must choose one to monitor.

One or two FANLs can be set for disinfectant residual: one that establishes a federal minimum level and a second that establishes a state minimum level. For the first, the FANL should indicate an MDBP Summary Type of “DSRD.” For a state minimum level, the FANL should indicate an MDBP Summary Type of “SDRD.” Both FANLs must be associated to the same analyte (i.e., either chlorine or chloramine). The number of required samples will be the same

for both the federal and state levels and will be derived from the Total Coliform Rule (TCR) schedules, not from the FANL information.

To determine which rules apply to the treatment plant, the FANL records will be associated with an M&R (monitoring and reporting) violation type and a level violation type. This association will also be used to determine the appropriate violation type to be created by *CDS*. Generally, the federal M&R violation types will be “31—Major” for unfiltered treatment plants, “36—Major” for filtered treatment plants, and type “41—No severity” as the level violation type. (Release 8.0 will support three sorts of violation type 41: Single CFE exceedence, Monthly CFE exceedence, and no severity.) FANLs for distribution RDC should be connected to the latter.

If the state wishes to track state levels, a state level type violation must be created and associated to the FANL. Since samples required and taken will be the same for both the federal and state levels, a monitoring and reporting violation type should not be associated to the state FANL.

Date Reported This field will be the same as the Date Reported in the Combined Filter Effluent Turbidity window. (5.1.2.7 B See 5.1.2.3 B)

Number of Samples Required This field will default to the current TCR, routine schedule (read the current RT—Routine or TR—Temporary Routine schedule). It will not include Repeat schedules when calculating the default. The user, however, can override the supplied default value (read and display the sample count for the RT/TR schedule in effect on the first day of the monitoring period). (5.1.2.7 C)

This value entered in this field will be stored as SAMPLES_REQUIRED in both summary records.

Number of Samples Taken Default to Number of Samples Required unless window has been invoked from TCR Sample Summary Maintenance, in which case default to the value in TCR Sample Summary Result Number of Routine Negatives. If the user changes the value in Number of Samples Required, default Number of Samples Taken to that value. Allow the user to override. When the user tabs off this field, populate the Distribution RDC M&R Complied? field based on a comparison of the Number of Samples Taken against the Number of Sample Required as indicated below. (5.1.2.7 D)

Store as SAMPLES_COLLECTED with both summary records.

Distribution RDC M&R Complied Permitted Values: Y= Yes; NMJ= No-Major; NMN= No-Minor.

Default this field to the value calculated as follows: If the Number of Samples Taken/Number of Samples Required times 100,

- Is greater than or equal to 100, default to “Yes.”
- Is less than 89.9, default to “NMJ” (No—Major M&R Violation).
- Otherwise, default to “NMN” (No—Minor M&R Violation).

The user can override the calculated value. If the user overrides the calculated value and then changes either Number of Samples Required or Number of Samples Taken, recalculate and override the user’s value. (5.1.2.7 E)

Store as MR_COMPLIANCE_INDICATOR with both summary records.

First Protected
Prompt/Label
*[Number of Samples
Under 999 mg/l
Federal Level]*

If FANL indicating a Summary Type of “DSRD” is not found,

- Hide First Protected Prompt/Label.
- Hide TOTAL_SAMPLES_BEYOND_MSR_LVL field.
- Hide **Fed RDC** button. (5.1.2.7 F)

If FANL indicating a Summary Type of “DSRD” is found,

- Display “Number of Samples Under 999 mg/l Federal Level” in the First Protected Prompt/Label.
- Set 999 to the value in the FANL_CONTROL_LEVEL_TEXT.
- Default the field to zero. (5.1.2.7 G)
- Store the value in the field as TOTAL_SAMPLES_BEYOND_MSR_LVL with DSRD summary.

*% of Samples without
a Detectable Federal
Level*

If FANL of Summary Type DSRD is not found,

- Hide % of Samples without a Detectable Federal Level prompt.
- Hide PERCENT_SAMPS_BYND_MSR_LVL_TXT entry field. (5.1.2.7 H)

Otherwise if found,

- Enable PERCENT_SAMPLES_BEYOND_MSR_LVL_TXT entry field and default value according to the following calculation: $\text{value} = (\text{number of samples exceeding level} / \text{number of samples taken}) * 100$, with two significant digits after the decimal point. (5.1.2.7 I)

- Store as PERCENT_SAMPLES_BEYOND_MSR_LVL and PERCENT_SAMPS_BYND_MSR_LVL_TXT with DSRD summary.

Second Protected
Prompt/Label
*[Number of Sample
Under 999 mg/l State
Level]*

If FANL indicating a Summary Type of “SDRD” is not found,

- Hide Second Protected Prompt/Label.
- Hide TOTAL_SAMPLES_BEYOND_MSR_LVL.
- Hide **State RDC** button. (5.1.2.7 J)

If FANL indicating a Summary Type of “SDRD” is found,

- Display “Number of Samples Under 999 mg/l State Level” in the Second Protected Prompt/Label.
- Set 999 to the value in the FANL CONTROL_LEVEL_TEXT.
- Default the field to zero. (5.1.2.7 K)
- Store the value in the field as TOTAL_SAMPLES_BEYOND_MSR_LVL with DSRD summary.

*% of Samples without
a Detectable State
Level*

If FANL of Summary Type SDRD is not found,

- Hide % of Samples without a Detectable State Level prompt.
- Hide PERCENT_SAMPS_BYND_MSR_LVL_TXT entry field. (5.1.2.7 L)

Otherwise if found,

- Enable PERCENT_SAMPLES_BEYOND_MSR_LVL_TXT entry field and default value according to following calculation:
value = (number of samples exceeding level/number of samples

taken) * 100, with two significant digits after the decimal point.
(5.1.2.7 M)

Store as PERCENT_SAMPLES_BEYOND_MSR_LVL and
PERCENT_SAMPS_BYND_MSR_LVL_TXT with SDRD summary.

Laboratory/Analyst Information Box:

Lab State ID No. This field will be the same as the Lab State ID Number in the Combined Filter Effluent Turbidity window. The same design specifications will apply. (5.1.2.7 N See 5.1.2.3 J)

Lab Federal ID No. This field will be the same as the Lab Federal ID Number in the Combined Filter Effluent Turbidity window. The same design specifications will apply. (5.1.2.7 O See 5.1.2.3 K)

Laboratory Name This field will be the same as the Laboratory Name in the Combined Filter Effluent Turbidity window. The same design specifications will apply. (5.1.2.7 P See 5.1.2.3 L)

Employer ID No. This field will be the same as the Employer's ID No. in the Combined Filter Effluent Turbidity window. The same design specifications will apply. (5.1.2.7 Q See 5.1.2.3 M)

[Analyst] Name This field will be the same as the Analyst Name in the Combined Filter Effluent Turbidity window. The same design specifications will apply. (5.1.2.7 R See 5.1.2.3 N)

Tab Sequence:

Date Reported, Number of Samples Required, Number of Samples Taken, Distribution RDC M&R Complied?, [Number of Samples Under 999 mg/l Federal Level], % of Samples without a Detectable Federal Level, [Number of Samples Under 999 mg/l State Level], % of Samples without a Detectable State Level, Lab State ID No., Lab **Go To** button, Lab Federal ID No., Laboratory Name, Employer ID No., Analyst **Go To** button, [Analyst] Name, **Fed RDC** [Comments] button, **State RDC** [Comments] button, **SWTR Jump** button, **Next** button, **Cancel** Button, **Help** button. (5.1.2.7 S)

Buttons:

Lab Go To This button will be the same as the Lab **Go To** in the Combined Filter Effluent Turbidity window. The same design specifications will apply. (5.1.2.7 T See 5.1.2.3 P)

Analyst Go To This button will be the same as the Analyst **Go To** in the Combined Filter Effluent Turbidity window. The same design specifications will apply. (5.1.2.7 U See 5.1.2.3 Q)

The following buttons are visible as long as the window has been invoked from SWTR Category Selection window.

Fed RDC

Comments

This button will be hidden if FANL of Summary Type DSRD is not found and otherwise will be displayed. The mnemonic key will be “F.” Clicking on this button will invoke a dialog box where the user can record any additional information about the Chlorine Dioxide summary data. (5.1.2.7 V)

Store as COMMENT_TEXT with “DSRD” summary.

State RDC

Comments

This button will be hidden if FANL of Summary Type SDRD is not found and otherwise displayed. The mnemonic key will be “t.” Clicking on this button will invoke a dialog box where the user can record any additional information about the Chlorite summary data. (5.1.2.7 W)

Store as COMMENT_TEXT with “SDRD” summary.

SWTR Jump

The design specifications for this button previously described on the Combined Filter Effluent Turbidity window will apply here, with one exception. For the Distribution RDC window only, just prior to creating/updating the DSRD summary, set LEVEL_COMPLIANCE_INDICATOR according to the following algorithm, if PERCENT_SAMPLES_BEYOND_MSR_LVL rounded to a whole number is greater than 5 in this summary and the summary for the previous monitoring period, value with No, else value with Yes. For example, 5.4% is equal to 5, 5.5% is greater than 5. Just prior to creating/updating the SDRD summary, set LEVEL_COMPLIANCE_INDICATOR according to the following algorithm, if TOTAL_SAMPLES_BEYOND_MSR_LVL is greater than zero, value with NO, else value with Yes. (5.1.2.7 X See 5.1.2.3 T-V)

Next

The design specifications for this button previously described on the Combined Filter Effluent Turbidity window will apply here, with one exception. For the Distribution RDC window only, just prior to creating/updating the DSRD summary, set LEVEL_COMPLIANCE_INDICATOR according to the following

algorithm, if PERCENT_SAMPLES_BEYOND_MSR_LVL rounded to a whole number is greater than 5 in this summary and the summary for the previous monitoring period, value with NO, else value with YES. For example, 5.4% is equal to 5, 5.5% is greater than 5. Just prior to creating/updating the SDRD summary, set LEVEL_COMPLIANCE_INDICATOR according to the following algorithm, if TOTAL_SAMPLES_BEYOND_MSR_LVL is greater than zero, value with NO, else value with YES. (5.1.2.7 Y See 5.1.2.3 W-Y)

- Cancel** When the user clicks on this button, the software will disregard any data and return the user to the previous window. (5.1.2.7 Z)
- Help** Pressing this button will invoke online Help for this window. (5.1.2.7 AA)
- OK** Pressing **OK** will create/update the MDBP Summary, close the window, and return user to the TCR Sample Summary Maintenance window in Change mode. (At this point, the user may view the TCR Sample Summary on the Maintenance List by pressing **OK** on that window.)

If the window has been invoked from TCR Sample Summary Maintenance, the **SWTR Jump** button will not be visible and the **Next** button will be replaced by the **OK** button.

5.1.2.8 MRDL Chlorine/Chloramines DS

The MRDL Chlorine/Chloramines DS window (Exhibit 5-10) will be used to enter summarized data for maximum residual disinfectant level (MRDL) samples collected in the distribution system for the Stage 1 Disinfectant/Disinfection By-Products (D/DBP) Rule. All supplies that use either chlorine or chloramine as a disinfectant are required to be monitored at the same time and location that TCR samples are collected. When supporting data is in place, this window will create one MDBP Summary.

This data will be associated to a WSF of type “DS” and a Facility Analyte Level (FANL) record with an analyte code of “0999”—Chlorine or “1006”—Chloramine and a level type of “MAX.” Uniqueness criteria will not allow FANL records for both chlorine and chloramine to be created with overlapping effective periods. If a Water System uses both disinfectants intermittently, the primacy agency must choose one to monitor.

For each distribution system that must monitor for maximum residual disinfectant levels, a FANL must be created and associated to an MDBP Summary type of “MRDL.”

The number of required samples will be derived from the TCR schedules, not from the FANL information. The FANL records will be associated with a monitoring and reporting violation

Water System/WSF/Analyte/Monitoring Period Display Box:

The protected fields in this display box will be the same as previously described for the Combined Filter Effluent Turbidity window. (5.1.2.8 A See 5.1.2.3 A)

Entry Fields:

The default settings listed beside each data entry field will be calculated prior to opening the MRDL Chlorine/Chloramine DS window.

Date Reported The specifications for this field will be the same as for the Date Reported field in the Combined Filter Effluent Turbidity window. (5.1.2.8 B See 5.1.2.3 B)

Number of Samples Required The specifications for this field will be the same as for the Number of Samples Required field in the Distribution RDC window. (5.1.2.8 C See 5.1.2.3 C)

Number of Samples Taken Default to Number of Samples Required unless the window has been invoked from TCR Sample Summary Maintenance, in which case default to the value in TCR Sample Summary Result Number of Routine Negatives. If the user changes the value in Number of Samples Required, default Number of Samples Taken to that value. When the user tabs off this field, populate the Chlorine/Chloramine MRDL M&R Complied? field. Store as SAMPLES_COLLECTED with summary record. (5.1.2.8 D)

Chlorine/Chloramine MRDL M&R Complied? The design specifications for this field previously described on the Combined Filter Effluent Turbidity window will apply here. Store as MR_COMPLIANCE_INDICATOR with both summary records. (5.1.2.8 E See 5.1.2.3 E)

Monitoring Period Average Will default to zero. Store as MONITORING_PERIOD_AVG_MEASURE and MONITORING_PERIOD_AVG_MSR_TXT with summary. (5.1.2.8 F)

Running Annual Average Will default to zero. Store as RUNNING_ANNUAL_AVERAGE_MEASURE and

RUNNING_ANNUAL_AVERAGE_MSR_TXT with summary.
(5.1.2.8 G)

Laboratory/Analyst Information Box:

- Lab State ID No.* This field will be the same as the Lab State ID Number field in the Combined Filter Effluent Turbidity window. The same design specifications will apply. (5.1.2.8 H See 5.1.2.3 J)
- Lab Federal ID No.* This field will be the same as the Lab Federal ID Number field in the Combined Filter Effluent Turbidity window. The same design specifications will apply. (5.1.2.8 I See 5.1.2.3 K)
- Laboratory Name* This field will be the same as the Laboratory Name field in the Combined Filter Effluent Turbidity window. The same design specifications will apply. (5.1.2.8 J See 5.1.2.3 L)
- Employer's ID No.* This field will be the same as the Employer's ID No. field in the Combined Filter Effluent Turbidity window. The same design specifications will apply. (5.1.2.8 K See 5.1.2.3 M)
- [Analyst] Name* This field will be the same as the [Analyst] Name field in the Combined Filter Effluent Turbidity window. The same design specifications will apply. (5.1.2.8 L See 5.1.2.3 N)

Tab Sequence:

Date Reported, Number of Samples Required, Number of Samples Taken, Chlorine/Chloramine MRDL M&R Complied?, Monitoring Period Average, Running Annual Average, Lab State ID No., Lab **Go To** button, Lab Federal ID No., Laboratory Name, Employer ID No., Analyst **Go To** button, [Analyst] Name, **Comments** button, **SWTR Jump** button, **Next** button, **Cancel** button, **Help** button. (5.1.2.8 M)

Buttons:

- Lab Go To** This button will be the same as the Lab **Go To** button in the Combined Filter Effluent Turbidity window. The same design specifications will apply. (5.1.2.8 N See 5.1.2.3 P)
- Analyst Go To** This field will be the same as the Analyst **Go To** button in the Combined Filter Effluent Turbidity window. The same design specifications will apply. (5.1.2.8 O See 5.1.2.3 Q)

Comments The mnemonic key will be “t.” Store as COMMENT_TEXT summary. Pressing this button will invoke a dialog box where the user can record any additional information about the summary data. (5.1.2.8 P)

The following buttons will be visible as long as the window has been invoked from the SWTR Category Selection window.

SWTR Jump The design specifications for this button previously described on the Combined Filter Effluent Turbidity window will apply here with one exception. For the Chlorine/Chloramine MRDL window only, just prior to creating/updating the MRDL summary, if RUNNING_ANNUAL_AVERAGE_MEASURE is greater than 0, set LEVEL_COMPLIANCE_INDICATOR according to the following algorithm, if RUNNING_ANNUAL_AVERAGE_MEASURE rounded to one place after the decimal is greater than 4.0, value with NO, else value with YES. For example, 4.04 is in compliance, 4.05 is not in compliance. (5.1.2.8 Q See 5.1.2.3 T-V)

Next The design specifications for this button previously described on the Combined Filter Effluent Turbidity window will apply here, with one exception. For the Chlorine/Chloramine MRDL window only, just prior to creating/updating the MRDL summary, if RUNNING_ANNUAL_AVERAGE_MEASURE is greater than 0, set LEVEL_COMPLIANCE_INDICATOR according to the following algorithm, if RUNNING_ANNUAL_AVERAGE_MEASURE rounded to one place after the decimal is greater than 4.0, value with NO, else value with YES. For example, 4.04 is in compliance, 4.05 is not in compliance. (5.1.2.8 K See 5.1.2.3 W-Y)

Cancel When the user clicks on this button, the software will disregard any data and return the user to the previous window. (5.1.2.8 S)

Help Pressing on this button will invoke online Help for this window. (5.1.2.8 T)

If the window has been invoked from TCR Sample Summary Maintenance or the MRDL Maintenance List, the **SWTR Jump** button will not be visible and the **Next** button will be replaced by an **OK** button.

OK Pressing the **OK** button will create/update the MDBP Summary, close the window, and

- If invoked from the TCR Sample Summary Maintenance window, return the user to that window in Change mode. (At this point,

the user may view the TCR Sample Summary on the Maintenance List by pressing **OK** on that window.)

- If invoked from MRDL Maintenance List, return the user to that list.

5.1.3 Chlorine/Chloramine MRDL Summary

Up to this point, only one of three new submenu items from the *Sampling* main menu under **Edit/MDBP Summaries** has been presented. The second submenu item under **Edit/MDBP Summaries** will be **MRDL Summary**. These new window flows will allow a user to maintain summaries only for Water Systems that are part of their current Regulating Agency or Water System Group.

This series of windows is intended to be used to enter summarized data for tracking compliance with the Maximum Residual Disinfectant Level (MRDL) for chlorine and chloramine required in accordance with the MDBP rules. Users may access MRDL Summaries using the SWTR windows. However, because other than Subpart H systems must monitor and report MRDL data, a second set of window flows will be needed. This series of windows will be used for Water Systems that are not required to report the additional turbidity and disinfectant level data required for the SWTR windows.

5.1.3.1 Chlorine/Chloramine MRDL Summary Search/Add

Selecting **Edit/MDBP Summaries/MRDL Summary** will invoke the Chlorine/Chloramine MRDL Summary Search dialog box (Exhibit 5-11), where the user can specify Water System information, Monitoring Period information, both, or neither. Pressing **Search** will retrieve records that satisfy the search criteria and either display them on the Chlorine/Chloramine MRDL Summary Maintenance List or, if only one record satisfies the criteria, display it on the Chlorine/Chloramine Maintenance window. If no records are found to meet the selected criteria, the software will flow to the MRDL Summary Maintenance List window, displaying no records.

This dialog box will also be used when a user selects **Edit/Add** on the Chlorine/Chloramine MRDL Maintenance List window. When the software flows to this dialog box from this list window:

- Its name will dynamically change to Chlorine/Chloramine MRDL Summary Add.
- The following prompts will dynamically change to blue and underlined, indicating that they are now mandatory:
 - Water System No.
 - All the Monitoring Period prompts.

The **Go To** button may be pressed to select a Water System from a list. Once a valid Water System is entered or picked from a list, the Water System name will be displayed on the window. If a valid Water System is entered but is not part of the user's current Water System Group or Regulating Agency, invoke exit state error message: **WS is not part of current group/agency. Change group/agency to access this WS.**
(5.1.3.1 C)

*(Developer's Note: Use the existing
SBS_C_WATER_SYSTEM_SELECT_LIST procedure.)*

Monitoring Period Group Box:

Selecting a Monitoring Period will be optional when the software flows to this window from the *Sampling* main menu or when the user selects **View/Search** on the Chlorine/Chloramine Maintenance List. Selecting a Monitoring Period will be mandatory when the user selects **Edit/Add** on the Chlorine/Chloramine Maintenance List.

[Monitoring Period]

Begin Date

If Begin Date and either End Date or Duration are valued, on tabbing off the software will retrieve the monitoring period that matches the criteria and display it in all monitoring period fields. If no monitoring period exists that matches the criteria, it will invoke the Monitoring Period Selection List. The software will take no action if only Begin Date is valued. (5.1.3.1 D)

[Monitoring Period]

End Date

If End Date and either Begin Date or Duration are valued, on tabbing off the software will retrieve the monitoring period that matches the criteria and display it in all monitoring period fields. If no monitoring period exists that matches the criteria, it will invoke the Monitoring Period Selection List. The software will take no action if only End Date is valued. (5.1.3.1 E)

[Monitoring Period]

Duration

The user may enter a valid Monitoring Period Duration or use the **Go To** button to select a valid monitoring period. Only durations of monthly (MN) or quarterly (QT) will appear in the dropdown list. The default duration will be monthly. If Duration and either Begin Date or End Date are valued, on tabbing off, the software will retrieve the monitoring period that matches the criteria and display it in all monitoring period fields. If no monitoring period exists that matches the criteria, it will invoke the Monitoring Period Selection List. The software will take no action if only Duration is valued. (5.1.3.1 F)

*(Developer's Note: Use the existing
SBS_C_MONITORING_PERIOD_SELECT_LIST procedure.)*

Mon. Period

[Name]

If the user enters a valid monitoring period name, on tabbing off, the software will retrieve the monitoring period that matches the criteria and display it in all monitoring period fields. If the user enters a partial string or an invalid monitoring period name, the software will invoke the Monitoring Period Selection List. (5.1.3.1 G)

Tab Sequence:

Water System No., Water System **Go To** button, [Monitoring Period] Begin Date, [Monitoring Period] Duration, [Monitoring Period] End Date, Mon. Period [Name], Monitoring Period **Go To** button, **Search/Continue** button, **OK** button, **Cancel** button, **Help** button. (5.1.3.1 H)

Buttons:

Water System

Go To

The user may use the **Go To** button to display the Water System Selection List. As the user selects a Water System, the software will then populate the retrieved Water System's Name value in the protected Water System Name field. Return the cursor to the first Monitoring Period field. (5.1.3.1 I)

*(Developer's Note: Use the existing
SBS_C_WATER_SYSTEM_SELECT_LIST procedure.)*

Monitoring Period

Go To

The user may use the **Go To** button to select a valid monitoring period. The user will be able to select only Monitoring Periods of duration monthly or quarterly. As the user selects the Monitoring Period, the software will then populate the retrieved Monitoring Period fields. Return the cursor to the **Search/Continue** button. ((5.1.3.1 J)

*(Developer's Note: Use the existing
SBS_C_MONITORING_PERIOD_SELECT_LIST procedure.)*

Search

or **Continue**

This button will dynamically change to **Search** or **Continue** depending on how the software flows to it. When the software flows to this dialog box from the *Sampling* main menu or when the user selects **View/Search** on the Chlorine/Chloramine Maintenance List it will read as **Search** and the dialog box will be in Search mode. When the software flows to this

dialog box after the user has selected **Edit/Add** on the Chlorine/Chloramine Maintenance List, it will read as **Continue** and the dialog box will be in Add mode. (5.1.3.1 K)

—Search Mode

This button will read **Search** and the mnemonic key will be “S.” When selected, the software will retrieve MDBP summaries of type “MRDL” for analytes chlorine and chloramine for the selected Water System and/or monitoring period based on the specified criteria. The user’s current Water System Group/Regulating Agency will be used as an implied search criteria in all searches. This means that the software will only retrieve summaries linked to a Water System that is linked to the user’s current Water System Group/Regulating Agency. If an exact Water System No. is entered, the software will validate that it belongs to the user’s current Water System Group/Regulating Agency. The following will be possible search permutations:

- Search by Water System No. (5.1.3.1 L)
- Search by Monitoring Period. (5.1.3.1 M)
- Search by Water System No. and Monitoring Period. (5.1.3.1 N)
- Search with no filtering criteria. If the user opts not to specify anything on the search dialog box, the user’s current Water System Group/Regulating Agency will still be used in retrieving records that will be displayed. (5.1.3.1 O)
- If the Water System and monitoring period are both selected and no MDBP summaries meet the search criteria, invoke informational exit state message: **No MRDL Summaries exist for the specified criteria.** When the user clicks **OK**, the software will flow to Chlorine/Chloramine MRDL Summary Maintenance through the Chlorine/Chloramine MRDL Summary Maintenance List, invoking the Add menu item edit checks. (5.1.3.1 P)
- If under any other situation, no MDBP summaries meet the search criteria, invoke informational exit state message: **No MRDL Summaries exist for the specified criteria.** When the user clicks **OK**, the software will display the maintenance list with no records listed. (5.1.3.1 Q)

- If the search retrieves a single MRDL summary record, the software will flow to the Chlorine/Chloramine MRDL Maintenance window and display the single MRDL summary record (so that the user does not have to select/change it). (5.1.3.1 R)
- If the search retrieves more than one summary, the software will flow to the Chlorine/Chloramine MRDL Summary Maintenance List and display them. (5.1.3.1 S)

—Add Mode

The button will read **Continue** and the mnemonic key will be “n.”
When selected:

(1) If either a valid water system or a valid monitoring period have not been selected, invoke exit state error message: **To add a summary, you must specify Water System and Monitoring Period.** When the user selects **OK**, close the message and return to the Chlorine/Chloramine MRDL Summary Search/Add Dialog Box in Add mode. (5.1.3.1 T)

(2) Once a valid Water System and monitoring period have been selected, the software will select the distribution system facility for the Water System, whether active or inactive (i.e., a Water System Facility (WSF) of type “DS”).

- If a WSF of type “DS” is not found, the software will invoke exit state error message: **Distribution WSF not found for this Water System.** When the user selects **OK**, close the message and return to the Chlorine/Chloramine MRDL Summary Search/Add Dialog Box in Add mode with all the previously selected values entered. (5.1.3.1 U)
- If more than one distribution system is found, the software will invoke the Water System Facility Maintenance List (that will display WSFs for the current Water System and of type DS) where the user must choose one. (5.1.3.1 V)

(3) After a distribution system has been selected, the software will select the FANL that is linked to the current WSF and that establishes a maximum level (Level Type is “MAX”) for either chlorine or chloramine (Analyte Code 0999 or 1006 respectively).

- If no FANL meeting these criteria is found, invoke exit state error message: **FANL for analyte chloramine (1006) or chlorine (0999) of type MAX not found for this WSF.** When

the user selects **OK**, close the message and return to the Chlorine/Chloramine MRDL Summary Search/Add Dialog Box in Add mode with all the previously entered values entered.
(5.1.3.1 W)

(4) If a FANL meeting these criteria is found, the software will run the selected FANL through the following checks that may let the user know that a FANL exists but still cannot be used. If any of these checks is validated, invoke an exit state error message. After the user presses **OK** on the message, close the message and return to the Chlorine/Chloramine MRDL Summary Search/Add dialog box in Add mode with all the previously selected values entered.

- If the FANL is not in effect during monitoring period (FANL Effective Begin Date is not on or before the Monitoring Period Begin Date), invoke exit state error message: **Facility Analyte Level not in effect during this monitoring period.** (5.1.3.1 X)
- If the MDBP Summary Check Flag is not set to “Yes” for the FANL, invoke exit state error message: **Facility Analyte Level with MDBP Summary Check Flag set to YES not found.** (5.1.3.1 Y)
- If the Summary type for the FANL is not “MRDL,” invoke exit state error message: **Facility Analyte Level with MDBP Summary type “MRDL” not found.** (5.1.3.1 Z)

(5) If the selected FANL passes all of the above checks, the software will flow to the to the Chlorine/Chloramine MRDL Summary Maintenance window displaying the Water System No., Water System Name, WSF State Assigned ID, WSF Name, Monitoring Period Begin Date, and Monitoring Period Duration with the cursor is in the first entry field.
(5.1.3.1 AA)

Cancel When the user presses this button, the software will disregard any data and return the user to the previous window. (5.1.3.1 AB)

Help Pressing this button will invoke online Help for this window.
(5.1.3.1 AC)

5.1.3.2 Chlorine/Chloramine MRDL Maintenance List

The Chlorine/Chloramine MRDL Maintenance List (Exhibit 5-12), which displays up to 1,000 records at a time, lists the MRDL summaries for chlorine and chloramine retrieved from the

search criteria specified. The user will be able to select (double-click) a MRDL summary from the list to view or update, add a new MRDL summary by selecting **Edit/Add**, or delete an existing MRDL summary.

List Columns:

Water System No., WSF State Asgn ID, Monitoring Period Name, M&R Comp?, Level Comp?, Monitoring Per. Avg., [Monitoring Per. Avg. UOM], Running Annual Avg., [Running Annual Avg. UOM], Samples Required, Sample Taken, Samples Exceeded Level, %Samples Beyond Level, Date Reported, Mon Per Begin Date, Water System Name, and WSF Name.

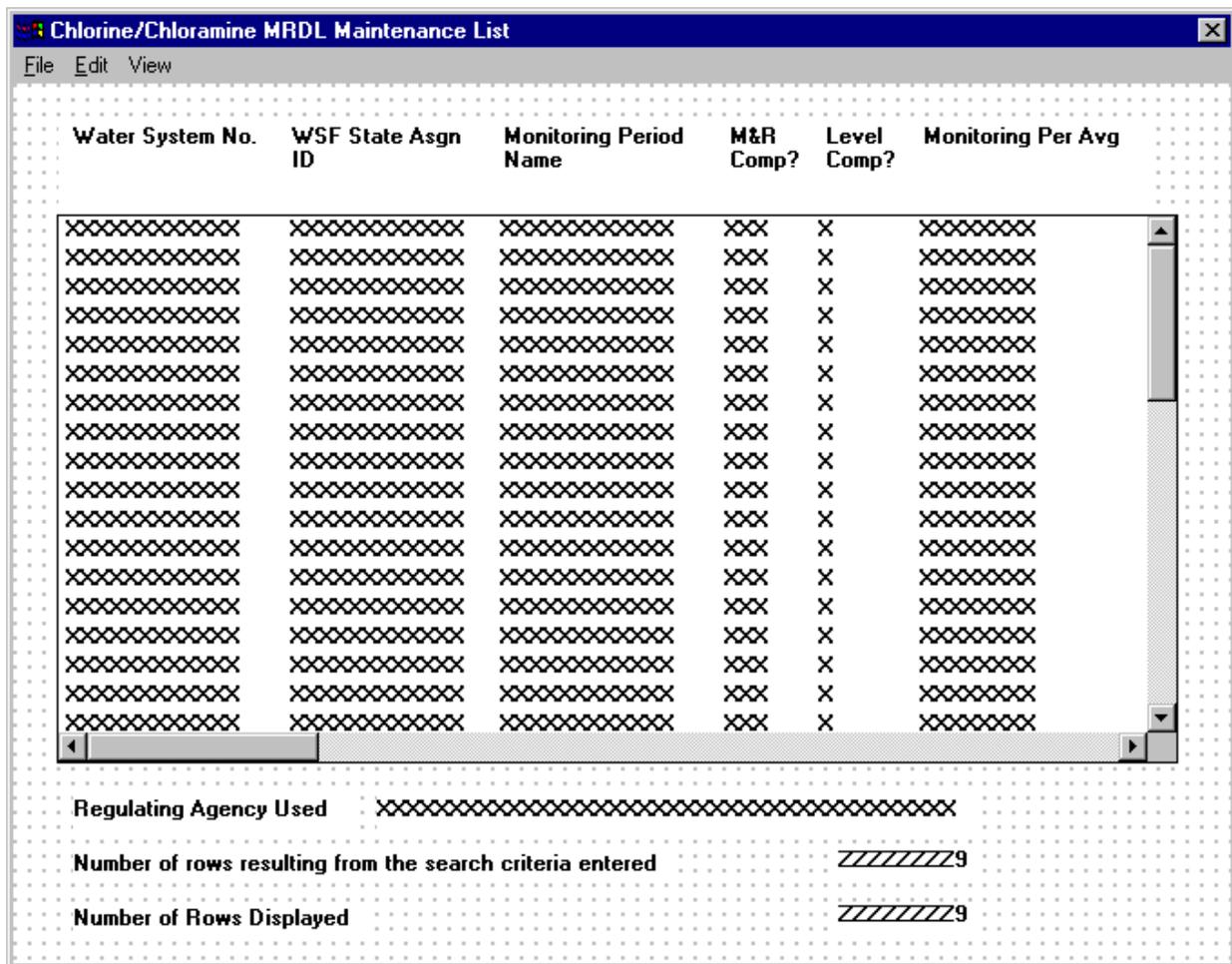


Exhibit 5-12. Chlorine/Chloramine MRDL Maintenance List

Menu Items:**File**

Exit Selecting **File/Exit** will return the user to the *Sampling* main menu. (5.1.3.2 A)

Edit

Add The **Edit/Add** option will be enabled when a record has not been highlighted. When the user selects **Edit/Add**, flow to the Chlorine/Chloramine MRDL Summary Search/Add dialog box in Add mode with the same values that were previously entered in this dialog box. (5.1.3.2 B)

Change Selecting **Edit/Change** will invoke the MRDL Maintenance window with the selected record. This option will be enabled only when a record has been highlighted. (5.1.3.2 C)

Delete Selecting **Edit/Delete** will display a delete confirmation dialog box for the selected record. This option will be enabled only when a record has been highlighted. (5.1.3.2 D)

If the MRDL Summary selected for deletion is linked to a validated or preliminary violation (i.e., a violation with status of “V” or “P”), the software will invoke exit state error message: **This MRDL Summary is linked to a violation and cannot be deleted.** (5.1.3.2 E)

View

Search Selecting **View/Search** will invoke the Chlorine/Chloramine MRDL Summary Search dialog box in Search mode and value the fields on the dialog box with the same values entered previously. (5.1.3.2 F)

Sort Selecting **View/Sort** will invoke the standard Sort window. (5.1.3.2 G)

Filter by Water System No., WSF State Asgn ID, Monitoring Period Begin Date, M&R Compliance Indicator, Level Compliance Indicator, Water System Name, or WSF Name. (5.1.3.2 H)

Refresh Selecting **View/Refresh** will retrieve the unfiltered list (original search criteria). (5.1.3.2 I)

Protected Field: (5.1.3.2 J)

*WS Group Used/
Regulating
Agency Used*

This protected field will show the user's current Water System Group Name or Regulating Agency depending on which the user has made current. The software will dynamically change the prompt depending on whether Water System Group Name or Regulating Agency is current. The prompt will be "WS Group Used" if the user's current Water System Group is valued, otherwise the prompt will be "Regulating Agency Used."

*Number of rows
resulting from search
criteria entered*

Shows the total number of rows that met the search criteria.

*Number of rows
displayed*

Shows the total number of rows that are displayed in the list, which may be less than the number of rows that met the search criteria.

5.1.3.3 Chlorine/Chloramine MRDL Summary Maintenance

The Chlorine/Chloramine MRDL Summary Maintenance window (Exhibit 5-13) will be used to add and maintain Chlorine/Chloramine MRDL Summaries.

If an error message is invoked, after the user closes the message, the software will return to the Chlorine/Chloramine MRDL Summary Maintenance window with all previously entered data in place. The software will ensure the following:

- That the Reported Date is not a future date. If it is, it will invoke exit state error message: **A future Reported Date is invalid** and return the cursor to the Reported Date field when the user closes the message. (5.1.3.3 B)
- If the MRDL Summary selected for modification is associated to one or more violations and one or more values have been changed, invoke the MRDL Summary Advisory dialog box (Exhibit 5-14) with the following message, **This MRDL Summary is linked to one or more violations and care should be taken before modifying. Do you wish to proceed?** (5.1.3.3 C)

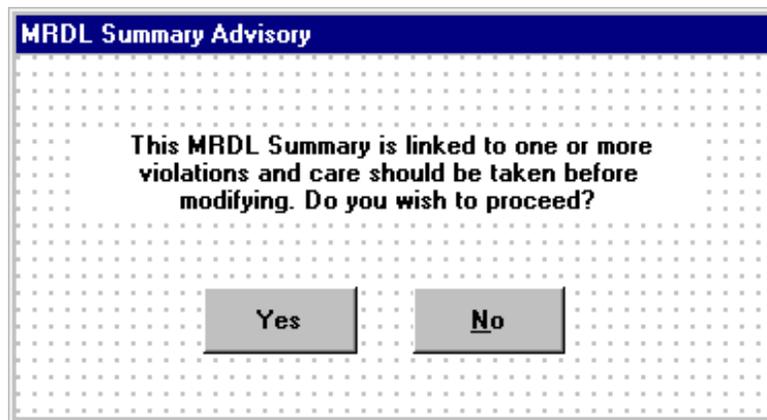


Exhibit 5-14. MRDL Summary Advisory

- If the user selects **OK** (or **Yes** on the MRDL Summary Advisory dialog box), the data will be committed to the database and the software will flow to the Chlorine/Chloramine MRDL Summary List window, displaying all the Chlorine/Chloramine MRDL Summaries for the current Water System with a default sort order of Monitoring Period Begin Date descending. (5.1.3.3 D)
- If the user selects **Add Another Summary**, the data will be committed to the database and the software will flow to the Chlorine/Chloramine MRDL Summary Search/Add dialog box in Add mode, displaying the values entered in the equivalent fields on the current maintenance window (i.e., all the fields on the

dialog box should be valued), allowing the user to change the one or two values desired before entering another summary.
(5.1.3.3 E)

- Cancel** When the user clicks on this button, the software will disregard any data and return the user to the previous window. (5.1.3.3 F)
- Help** Pressing this button will invoke online Help for this window.
(5.1.3.3 G)

5.1.4 General MDBP Summary

This is the last of the three new submenu items under **Edit/MDBP Summaries**, called **General MDBP Summary**, which will be accessible from the *Sampling* main menu. This new window flow, like the other two, will allow a user to only maintain summaries for Water Systems that are part of their current Regulating Agency or Water System Group.

The main purpose of this window will be to allow users to add and maintain data in the MDBP Summary records that are not maintained in the SWTR or MRDL window flows. Users may have or develop other uses for the MDBP summary tables to store data. An example would be summaries received from systems that fluoridate. Even though fluoridation is not under the MDBP rules, the reporting required for it may fit within the model developed for the MDBP rules.

To maintain MDBP summaries for “other” rules, users would need to create a new MDBP Summary Type, create new M&R and Level Violation Types (all three of which would be done in *System Administration*), and add appropriate FANL records. With these records in place, the new SWTR Compliance Report will compare summaries against FANL to determine compliance.

5.1.4.1 MDBP Summary Search/Add Dialog Box

From the *Sampling* main menu, if the user selects **Edit/MDBP Summaries/General MDBP Summary**, the MDBP Summary Search dialog box (Exhibit 5-15) will be invoked where the user may specify the desired search criteria. Users can specify MDBP Summary Type Information, Water System Information, and/or Monitoring Period Information.

This dialog box will also be used when a user selects **Edit/Add** on the MDBP Summary Maintenance List window. When the software flows to this dialog box from this list window:

- Its name will dynamically change to **MDBP Summary Add**.
- The following prompts will dynamically change to blue and underlined, indicating that they are now mandatory:

- Water System No.
 - WSF State Asgn ID.
 - All the Monitoring Period labels.
 - Summary Type.
- The **Search** button will dynamically change to **Continue**.

The screenshot shows a dialog box titled "MDBP Summary Search". It contains several sections for data entry:

- Regulating Agency Used:** A text field containing a series of 'X' characters for masking.
- Water System and Facility:** A section containing:
 - Water System:** A text field with 'X' characters, followed by a '>>' button, and a **Name** field with 'X' characters.
 - WSF State Asgn ID:** A text field with 'X' characters, followed by a '>>' button, and a **Name** field with 'X' characters.
- Monitoring Period:** A section containing:
 - Begin Date:** A date field with a 'MM/DD/YY' format and a dropdown arrow.
 - End Date:** A date field with a 'MM/DD/YY' format and a dropdown arrow.
 - Duration:** A dropdown menu.
 - Mon. Period:** A text field with 'X' characters and a '>>' button.
- MDBP Summary Type:** A section containing:
 - Summary Type:** A text field with 'XXX' characters, followed by a '>>' button, and a long text field with 'X' characters.

At the bottom of the dialog are three buttons: **Continue**, **Cancel**, and **Help**.

Exhibit 5-15. MDBP Summary Search/Add

Protected Field:

*WS Group Used/
Regulating Agency
Used*

This protected field will show the user's current Water System Group Name or Regulating Agency depending on which the user has made current. The software will dynamically change the prompt depending on whether Water System Group Name or Regulating Agency is current. The prompt will be "WS Group Used" if the user's current Water System Group is valued, otherwise the prompt will be "Regulating Agency Used." (5.1.4.1 A)

Entry Fields:

Water System No. A standard nine-character Public Water System Number. It will be optional when the software flows to this window from the *Sampling* main menu or when the user selects **View/Search** on the MDBP Summary Maintenance List. It will be mandatory when the user selects **Edit/Add** on the MDBP Summary Maintenance List. (5.1.4.1 B)

The **Go To** button may be pressed to select a Water System from a list. Once a valid Water System is entered or picked from a list, the Water System name will be displayed on the window. If a valid Water System is entered but is not part of the user's current Water System Group or Regulating Agency, invoke exit state error message: **WS is not part of current group/agency. Change group/agency to access this WS.** (5.1.4.1 C)

(Developer's Note: Use the existing SBS_C_WATER_SYSTEM_SELECT_LIST procedure.)

WSF State Asgn ID The State Assigned ID of the Water System Facility. The user may enter a valid WSF or use the **Go To** button to select a valid Water System facility from a list. This field will be enabled only if the user has first picked a valid Water System. A WSF is valid if it is for the selected Water System. (5.1.4.1 D)

(Developer's Note: Use the existing SBS_C_WSF_LIST procedure.)

Monitoring Period Group Box:

Selecting a Monitoring Period will be optional when the software flows to this window from the *Sampling* main menu or when the user selects **View/Search** on the MDBP Summary Maintenance List. Selecting a Monitoring Period will be mandatory when the user selects **Edit/Add** on the MDBP Summary Maintenance List.

*[Monitoring Period]**Begin Date*

If Begin Date and either End Date or Duration are valued, on tabbing off the software will retrieve the monitoring period that matches the criteria and display it in all monitoring period fields. If no monitoring period exists that matches the criteria, it will invoke the Monitoring Period Selection List. The software will take no action if only Begin Date is valued. (5.1.4.1 E)

[Monitoring Period]
End Date

If End Date and either Begin Date or Duration are valued, on tabbing off the software will retrieve the monitoring period that matches the criteria and display it in all monitoring period fields. If no monitoring period exists that matches the criteria, it will invoke the Monitoring Period Selection List. The software will take no action if only End Date is valued. (5.1.4.1 F)

[Monitoring Period]
Duration

The user may enter a valid Monitoring Period Duration or use the **Go To** button to select a valid monitoring period. Only durations of monthly (MN) or quarterly (QT) will appear in the dropdown list. The default duration will be monthly. If Duration and either Begin Date or End Date are valued, on tabbing off, the software will retrieve the monitoring period that matches the criteria and display it in all monitoring period fields. If no monitoring period exists that matches the criteria, it will invoke the Monitoring Period Selection List. The software will take no action if only Duration is valued. (5.1.4.1 G)

Mon. Period
[Name]

If the user enters a valid monitoring period name, on tabbing off, the software will retrieve the monitoring period that matches the criteria and display it in all monitoring period fields. If the user enters a partial string or an invalid monitoring period name, invoke the Monitoring Period Selection List. (5.1.4.1 H)

*(Developer's Note: Use the existing
SBS_C_MONITORING_PERIOD_SELECT_LIST procedure.)*

MDBP Summary Type Group Box:

Summary Type

The MDBP Summary Type for which the user wishes to search for MDBP Summaries. The user may enter the summary type by entering a 4-character value or use the **Go To** button and select from the list. As the user enters/changes a value and tabs off the Summary Type field, the software will check that the supplied MDBP Summary Type is valid, then populate the retrieved MDBP Summary Type Name value in the protected MDBP Summary Type Name field. (5.1.4.1 I)

*(Developer's Note: Pass into action block Validate Text Permitted Value the following value for entity CODE, attribute CODE_NAME:
TSAMDBPS1.)*

If the MDBP Summary Type entered does not exist in the permitted values list, the software will not supply a message but will directly invoke the Permitted Values List from where the user may select a valid MDBP Summary Type Code. Upon selection of an MDBP Summary Type, populate the MDBP Summary Type Name field and return the cursor to the **Search** button. (5.1.4.1 J)

This field will be optional when the dialog box is in Search mode and mandatory when it is in Add mode.

Tab Sequence:

Water System No., Water System **Go To** button, WSF State Asgn ID, WSF **Go To** button, [Monitoring Period] Begin Date, [Monitoring Period] Duration, [Monitoring Period] End Date, [Monitoring Period] Name, Monitoring Period **Go To** button, [MDBP] Summary Type, [MDBP] Summary Type **Go To** button, **Search/Continue** button, **Cancel** Button, **Help** button. (5.1.4.1 K)

Buttons:

Water System Go To The user may use the **Go To** button to display the Water System Selection List. As the user selects a Water System, the software will then populate the retrieved Water System's Name value in the protected [Water System] Name field. Return the cursor to the first WSF State Asgn ID field. (5.1.4.1 L)

(Developer's Note: Use the existing SBS_C_WATER_SYSTEM_SELECT_LIST procedure.)

WSF Go To The user may use the **Go To** button to display the Water System Facility Selection List showing WSFs for the selected Water System. As the user selects a WSF, the software will then populate the retrieved WSF's Name value in the protected WSF Name field. Return the cursor to the first Monitoring Period field. (5.1.4.1 M)

(Developer's Note: Use the existing SBS_C_WSF_SELECT_LIST procedure.)

Monitoring Period Go To

The user may use the **Go To** button to select a valid monitoring period of any duration. As the user selects the Monitoring Period, the software will then populate the retrieved Monitoring Period Begin Date and Duration. Return the cursor to the [MDBP] Summary Type field. (5.1.4.1 N)

*(Developer's Note: Use the existing
SBS_C_MONITORING_PERIOD_SELECT_LIST procedure.)*

MDBP Summary Type **Go To**

The user may use the **Go To** button to invoke the Permitted Values List from where the user may select a valid MDBP Summary Type. Upon selection of an MDBP Summary Type, the software will populate the MDBP Summary Type Name field and return the cursor to the **Search** button. The list will have the following SDWIS/STATE supplied summary types plus any the SDWIS/STATE Administrator may have added:

AVGT	CFE Average Turbidity.
MAXT	CFE Maximum Turbidity.
95PT	CFE 95% Turbidity.
IFT	Individual Filter Effluent Turbidity.
EPRD	Entry Point RDC.
SERD	State EP RDC.
CLO2	EP Chlorine Dioxide.
CLO3	EP Chlorite.
DSRD	Distribution RDC.
SDRD	State Distribution RDC.
MRDL	Chlorine/Chloramine MRDL.
OTHR	Other. (5.1.4.1 O)

*(Developer's Note: Pass into action block Validate Text Permitted Value the following value for entity CODE, attribute CODE_NAME:
TSAMDBPS1)*

Search or **Continue**

This button will dynamically change to **Search** or **Continue** depending on how the software flows to it. When the software flows to this dialog box from the *Sampling* main menu or when the user selects **View/Search** on the MDBP Summary Maintenance List it will read as **Search** and the dialog box will be in Search mode. When the software flows to this dialog box after the user has selected **Edit/Add** on the MDBP Summary Maintenance List, it will read as **Continue** and the dialog box will be in Add mode. (5.1.4.1 P)

—Search Mode

The mnemonic key will be "S." When selected, the software will retrieve MDBP summaries for selected Water System and/or monitoring period and/or summary type based on the specified criteria. The following are possible search permutations:

- Search by Water System No. and WSF.
- Search by Monitoring Period.
- Search by MDBP Summary Type.
- Search by Water System No. and WSF and Monitoring Period.
- Search by Water System No. and WSF and MDBP Summary Type.
- Search by Monitoring Period and MDBP Summary Type.
- Search by Water System No. and WSF and Monitoring Period and MDBP Summary Type.
- No criteria. (5.1.4.1 Q)

If Water System No. is specified but WSF State Asgn ID is not, invoke exit state error message: **Must specify WSF when specifying water system.** When the user clicks **OK**, return the user to the Search dialog box. Place the cursor in the WSF State Asgn ID field. (5.1.4.1 R)

- If the Water System/WSF, monitoring period, and summary type are all specified and no MDBP summaries meet the search criteria, invoke informational exit state message: **No MDBP Summaries exist for the specified criteria.** When the user clicks **OK**, the software will flow to the MDBP Summary Maintenance window, invoking the Add Mode specifications given below. (5.1.4.1 S)
 - If under any other combination of search criteria, no MDBP summaries meet the search criteria, invoke informational exit state message: **No MDBP Summaries exist for the specified criteria.** When the user clicks **OK**, display the maintenance list with no records listed. (5.1.4.1 T)
 - If the search retrieves a single MDBP summary record, the software flows directly to the MDBP Summary Maintenance window, displaying the selected MDBP Summary so that the user does not have to select/change it. (5.1.4.1 U)
 - If the search retrieves more than one summary, they will be displayed in the MDBP Summary Maintenance List. (5.1.4.1 V)

—Add Mode

The button will read **Continue** and the mnemonic key will be “n.”
When selected:

(1) If either a valid Water System, water system facility, monitoring period, or summary type have not been selected, invoke exit state error message: **To add a summary, you must specify Water System, WSF, Monitoring Period and Summary Type.** When the user selects **OK**, close the message and return to the MDBP Summary Search/Add dialog box in Add mode. (5.1.4.1 W)

(2) If a valid Water System, water system facility, monitoring period, and summary type have been selected, the software will select the FANL that is linked to the current Water System, WSF, and that indicates the user-specified, summary type. This may result in the selection of zero, one, or more FANL.

- If no FANL meeting these criteria is found, invoke exit state error message: **FANL for the selected Water System, WSF and Summary Type not found.** When the user selects **OK**, close the message and return to the MDBP Summary Search/Add dialog box in Add mode with all the previously entered values entered. (5.1.4.1 X)

(3) If one or more FANL meeting these criteria is found, the software will run each of the selected FANL through the following checks that may let the user know that a FANL exists but still cannot be used. If any of these checks is validated, invoke an exit state error message. After the user presses **OK** on the message, close the message and return to the MDBP Summary Search/Add dialog box in Add mode with all the previously entered values entered.

- If none of the selected FANLs is in effect during the user-specified monitoring period (FANL Effective Begin Date is not on or before the Monitoring Period Begin Date), invoke exit state error message: **No FANL with this Summary Type is in effect during this monitoring period.** (5.1.4.1 Y)
- If one of the selected FANL is in effect during the user-specified monitoring period but its MDBP Summary Check Flag is not set to "Yes," invoke exit state error message: **FANL with MDBP Summary Check Flag set to YES not found.** (5.1.4.1 Z)

(4) If the selected FANL passes all of the above checks, the software will flow to the to the MDBP Summary Maintenance window displaying the Water System No., Water System Name, WSF State Assigned ID, WSF Name, Analyte Code, Analyte Name, Monitoring Period Begin Date,

Monitoring Period Duration and Summary Type with the cursor in the first entry field. (5.1.4.1 AA)

Cancel When the user clicks on this button, the software will disregard any data and return the user to the previous window. (5.1.4.1 AB)

Help Pressing this button will invoke online Help for this window. (5.1.4.1 AC)

5.1.4.2 MDBP Summary Maintenance List

The MDBP Summary Maintenance List (Exhibit 5-16), which will display up to 1,000 records at a time, will list the MDBP summaries retrieved from the search criteria specified. The user will be able to select (double-click) an MDBP summary from the list to view or update, add a new MDBP summary by selecting **Edit/Add**, or delete an existing MDBP summary.

List Columns:

Water System No., WSF State Asgn ID, Analyte Code, Summary Type, Monitoring Period Name, M&R Comp?, Level Comp?, Highest Reading, Sampling Point [ID], Samples Exceeded Level, %Samples Beyond Level, Monitoring Per. Avg. and UOM concatenated, Running Annual Avg. and UOM concatenated, Date Reported, Samples Required, Sample Taken, Mon Per Begin Date, Water System Name, and WSF Name.

Change Selecting **Edit/Change** will display the MDBP Maintenance window with the selected record. This option will be enabled only when a record has been highlighted. (5.1.4.2 C)

If the MDBP Summary selected for modification is associated to one or more violations, invoke advisory dialog box with the following message: **This MDBP Summary is linked to one or more violations and care should be taken before modifying. Do you wish to proceed?** This dialog box is shown in Exhibit 5-18. (5.1.4.2 D)

Select The **Edit/Select** menu item will be enabled only when the software flows to this window from Violation Maintenance (specifically, from Violation MDBP Summary Association). (When invoked from Violation Maintenance, **Select** will be the only **Edit** menu item available.) (5.1.4.2 E)

Delete Selecting **Edit/Delete** will display a delete confirmation dialog box for the selected record. This option will be enabled only when a record has been highlighted. (5.1.4.2 F)

If the MDBP Summary selected for deletion is linked to a validated or preliminary violation (i.e., a violation with status of V or P), the software will invoke exit state error message: **This MDBP Summary is linked to a violation and cannot be deleted.** (5.1.4.2 G)

View

Search Selecting **View/Search** will invoke the MDBP Summary Search dialog box in Search mode and value the fields on the dialog box with the same values entered previously. (5.1.4.2 H)

Sort Selecting **View/Sort** will invoke the standard Sort window. (5.1.4.2 I)

Filter by Water System No., Water System Name, WSF State Asgn ID, WSF Name, Summary Type, Analyte Code, Analyte Name, Monitoring Period Name, Monitoring Period Begin Date, M&R Compliance Indicator, Level Compliance Indicator, or Date Reported. (5.1.4.2 J)

Refresh Selecting **View/Refresh** will retrieve the unfiltered list (original search criteria). (5.1.4.2 K)

Protected Fields: (5.1.4.2 L)

*WS Group Used/
Regulating Agency
Used*

This protected field will show the user's current Water System Group Name or Regulating Agency depending on which the user has made current. The software will dynamically change the prompt depending on whether Water System Group Name or Regulating Agency is current. The prompt will be "WS Group Used" if the user's current Water System Group is valued, otherwise the prompt will be "Regulating Agency Used."

*Number of rows
resulting from search
criteria entered*

Will show the total number of rows that met the search criteria.

*Number of rows
displayed*

Will show the total number of rows that are displayed in the list, which may be less than the number of rows that met the search criteria.

5.1.4.3 MDBP Summary Maintenance

The MDBP Summary Maintenance window, Exhibit 5-17, will be used to add or maintain general MDBP Summaries. All attributes of the MDBP summary will be available on the window. This window will have less automation and more generic labels than the SWTR or MRDL windows. Users may create types of MDBP Summaries through the System Administrator permitted values function. If a FANL of the same MDBP Summary type is in effect during the selected monitoring period, for the selected WSF, the software will read the FANL record for some default values.

the user makes a selection, the software will then populate the retrieved Sampling Point State Asgn ID and Location. (5.1.4.3 B)

Date Reported This field will operate the same as the Date Reported field on the Combined Filter Effluent Turbidity window. (5.1.4.3 C See 5.1.2.3 B)

Number of Samples Required This field will operate the same as the Samples Required field on the Combined Filter Effluent Turbidity window. (5.1.4.3 D See 5.1.2.3 C)

Number of Samples Taken This field will operate the same as the Number of Samples Taken field on the Combined Filter Effluent Turbidity window. (5.1.4.3 E See 5.1.2.3 D)

M&R Complied? This field will operate the same as the M&R Complied field on the Combined Filter Effluent Turbidity window. (5.1.4.3 F See 5.1.2.3 E)

Highest Reading Store as HIGHEST_MEASURE with summary. (5.1.4.3 G)

*First Protected Prompt/
Label [Number of
Samples Exceeded
999 XXX]*

- Display “Number of Samples Exceeded 999” in the *First Protected Prompt/Label*.
- Set 999 to the value in FANL CONTROL_LEVEL_TEXT.
- Default the field to zero. (5.1.4.3 H)

Store the value in the field as MDBP Summary
TOTAL_SAMPLES_BEYOND_MSR_LVL.

*Second Protected Prompt
/Label [%of Samples
Exceeding 999 YYY]*

Set XXXXXXXXXXXXX to “% of Samples Exceeding 999 YYY.”

- Set 999 to value in FANL CONTROL_LEVEL_TEXT.
- Set YYY to FANL CONTROL_LEVEL_TEXT_UOM.
- Enable PERCENT_SAMPLES_BEYOND_MSR_LVL entry field and default value according to the following calculation: value =

(number of samples exceeding level/number of samples taken) *
100, with two significant digits after the decimal point.
(5.1.4.3 I)

Store as PERCENT_SAMPLES_BEYOND_MSR_LVL and
PERCENT_SAMPS_BYND_MSR_LVL_TXT with 95PT summary.

*[MDBP Summary]
Level Complied?*

Permitted Value: Y= Yes; N= No.

If MDBP Summary Number of Samples Exceeded Level
(TOTAL_SAMPLES_BEYOND_MSR_LVL) equals 0, default to Y
(Yes).

Else if > 0, default to N (No). (5.1.4.3 J)

Store as MR_COMPLIANCE_INDICATOR with summary record.

*Monitoring Period
Average*

Default to zero and store as
MONITORING_PERIOD_AVG_MEASURE and
MONITORING_PERIOD_AVG_MSR_TXT with summary.
(5.1.4.3 K)

*[Monitoring Period
Average UOM]*

Default to the UOM for the selected FANL. (5.1.4.3 L)

*Running Annual
Average*

Default to zero and store as
RUNNING_ANNUAL_AVERAGE_MEASURE and
RUNNING_ANNUAL_AVERAGE_MSR_TXT with summary.
(5.1.4.3 M)

*[Running Annual
Average UOM]*

Default to the UOM for the selected FANL. (5.1.4.3 N)

Question Group Box:

Question #1

Label will read "Q1."

Permitted Values: Y= Yes; N= No; Blank.

Default to blank. (5.1.4.3 O)

This field will be stored as Q1_IFT_MONITORED_INDICATOR in the summary.

Question #2

Label will read "Q2."

Permitted Values: Y= Yes; N= No; Blank.

Default to blank. (5.1.4.3 P)

This field will be stored as Q2_IFT_RECORED_INDICATOR in the summary.

Question #3

Label will read "Q3."

Permitted Values: Y= Yes; N= No; Blank.

Default to blank. (5.1.4.3 Q)

This field will be stored as Q3_IFT_EQUIPMENT_INDICATOR in the summary.

Question #4

Label will read "Q4."

Permitted Values: Y= Yes; N= No; Blank.

Default to blank. (5.1.4.3 R)

This field will be stored as Q4_IFT_GREATER_1_0_INDICATOR in the summary.

Question #5

Label will read "Q5."

Permitted Values: Y= Yes; N= No; Blank.

Default to blank. (5.1.4.3 S)

This field will be stored as Q5_IFT_GREATER_0_5_INDICATOR in the summary.

Question #6

Label will read "Q6."

Permitted Values: Y= Yes; N= No; Blank.

Default to blank. (5.1.4.3 T)

This field will be stored as Q6_IFT_GREATER_1_DUR_3_MON_IND in the summary.

Question #7

Label will read “Q7.”

Permitted Values: Y= Yes; N= No; Blank.

Default to blank. (5.1.4.3 U)

This field will be stored as Q7_IFT_GREATER_2_DUR_2_MON_IND in the summary.

Tab Sequence:

Sampling Point, Sampling Point **Go To** button, Date Reported, Number of Samples Required, Number of Samples Taken, M&R Complied/, Highest Reading, No. of Samples Exceeded Limit, Percentage of Samples Exceeded Limit, Level Complied/, Monitoring Period Average concatenated with MP Avg. UOM, Running Annual Average concatenated with RAA UOM, Q1, Q2, Q3, Q4, Q5, Q6, Q7, **Laboratory/Analyst** button, **Comments** button, **Add Another Summary** button, **OK** button, **Cancel** button, **Help** button. (5.1.4.3 V)

Buttons:

Sampling Point Go To The user may use the **Go To** button to display the Sampling Point Selection List. As the user makes a selection, the software will then populate the retrieved Sampling Point State Assigned ID and Location. Return the cursor to the Sampling Point Location field. (5.1.4.3 W)

Laboratory/Analyst The mnemonic key will be “L.” When selected, the software will flow to the Laboratory/Analyst dialog box where the user can optionally enter either or both a laboratory and analyst responsible for the analyses done to make the MDBP summary. This dialog box will have the following specifications:

Entry Fields:

Lab State ID Number This field will be the same as the Lab State ID No. field in the Combined Filter Effluent Turbidity window. The same design specifications will apply. (5.1.4.3 X See 5.1.2.3 J)

*Lab Federal ID
Number*

This field will be the same as the Lab Federal ID No. field in the Combined Filter Effluent Turbidity window. The same design specifications will apply. (5.1.4.3 Y See 5.1.2.3 K)

Laboratory Name

This field will be the same as the Laboratory Name field in the Combined Filter Effluent Turbidity window. The same design specifications will apply. (5.1.4.3 Z See 5.1.2.3 L)

Employer's ID No.

This field will be the same as the Employer's ID No. field in the Combined Filter Effluent Turbidity window. The same design specifications will apply. (5.1.4.3 AA See 5.1.2.3 M)

Analyst Name

This field will be the same as the [Analyst] Name field in the Combined Filter Effluent Turbidity window. The same design specifications will apply. (5.1.4.3 AB See 5.1.2.3 N)

Tab Sequence:

Lab State ID No., Lab **Go To** button, Lab Federal ID No., Lab Name, Employer ID No., Analyst **Go To** button, [Analyst] Name. (5.1.4.3 AC)

Buttons:**Lab Go To**

This button will be the same as the Lab **Go To** in the Combined Filter Effluent Turbidity window. (5.1.4.3 AD See 5.1.2.3 P)

Analyst Go To

This button will be the same as the Analyst **Go To** in the Combined Filter Effluent Turbidity window. (5.1.4.3 AE See 5.1.2.3 Q)

Comments

The mnemonic key will be “T.” When the user clicks on this button, the software will invoke a dialog box where the user can record any additional information about the sample summary data. (5.1.4.3 AF)

Store as COMMENT_TEXT with summary.

**Add Another
Summary and OK**

Both buttons will create or update the summary record. The following actions will apply to the **Add Another Summary** and **OK** buttons unless otherwise specified.

If an error message is invoked, after the user closes the message, the software will return to the MDBP Summary Maintenance window with all previously entered data in place. The software will ensure the following:

- That the Reported Date is not a future date. If it is, it will invoke exit state error message: **A future Reported Date is invalid** and return the cursor to the Reported Date field when the user closes the message. (5.1.4.3 AG)
- That the Sampling Point is valid for the selected WSF. If it is not, the software will invoke the existing exit state error message: **Sampling Point not valid for selected WSF** and return the cursor to the Sampling Point field when the user closes the message. (5.1.4.3 AH)
- If the MDBP Summary selected for modification is associated to one or more violations and one or more values have been changed, invoke advisory dialog box with the following message: **This MDBP Summary is linked to one or more violations and care should be taken before modifying. Do you wish to proceed?** This dialog box is shown in Exhibit 5-18. (5.1.4.3 AI)

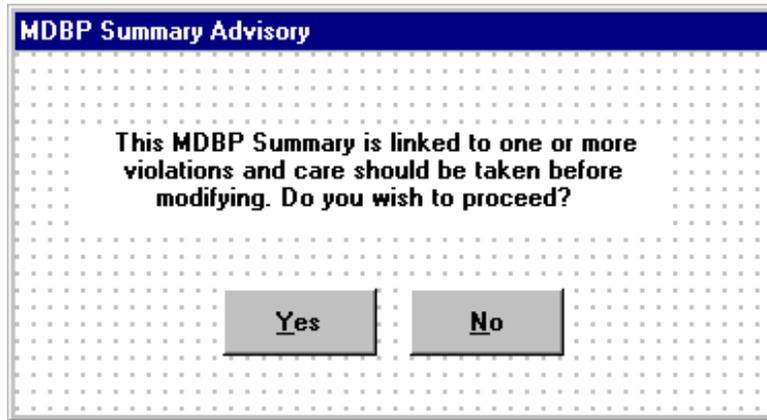


Exhibit 5-18. MDBP Summary Advisory

- If the user selects **OK** (or **Yes** on the MDBP Summary Advisory dialog box), the data will be committed to the database and the software will flow to the MDBP Summary List window, displaying all the MDBP Summaries of the current summary type for the current Water System with a default sort order of Monitoring Period Begin Date descending, WSF State Asgn ID ascending. (5.1.4.3 AJ)
- If the user selects **Add Another Summary**, the data will be committed to the database and the software will flow to the MDBP Summary Search/Add dialog box in Add mode, displaying the values entered in the equivalent fields on the current maintenance window (i.e., all the fields on the dialog box should be valued), allowing the user to change the one or two values desired before entering another summary. (5.1.4.3 AK)

Cancel When the user clicks on this button, the software will disregard any data and return the user to the previous window. (5.1.4.3 AL)

Help Pressing on this button will invoke online Help for this window. (5.1.4.3 AM)

5.2 Results Averages

Presentation Type 1: This section documents the design for a function that is new with Release 8.0. As such, normal text means completely new design for Release 8.0. This section contains no redlined text.

The purpose of the Results Averages function is to enable users to add and maintain averages of chemical results for compliance determination. Some users have expressed the desire to

enter averages rather than individual analytical results. Other users may wish to change the averages that SDWIS/STATE's *CDS Setup* component has calculated. Users may maintain both Monitoring Period Averages (MPA) and Running Annual Averages (RAA) for any analyte, as long as a corresponding sample schedule and monitoring period exist, and *CDS Setup* has been run. *CDS Setup* creates the necessary Sample Schedule Monitoring Period Asgmt (SSMPA) records to which MPAs and RAAs are linked. *CDS Setup* creates an MPA record even when no sample analytical results exist; in this case, it will simply value the Measure fields with 0.0 and the Number of Results Used fields with 0. Users who do not plan to enter individual sample results, and instead, plan to enter the MPA and RAA values will actually be entering a Measure value into an MPA and/or RAA record that *CDS Setup* has already created. Where sample results do exist and have been used by *CDS Setup* to calculate the MPA and RAA values, users will be able to override those values. *CDS Setup* will not recalculate any MPA or RAA values that users have entered using the Results Averages Maintenance windows.

5.2.1 Results Averages Model Changes

The data created using the Results averages windows will be stored in entities MONITORING_PERIOD_AVERAGE (TMNMPAVG) and MCL_VALUE (TMNCMCLV), two entities that were created for *SDWIS/STATE Release 7.0*. Three new attributes have been added to each of these entities for Release 8.0:

- A new attribute, DATE_REPORTED, has been added to both entities to record the date the Water System reports the average to the primacy agency.
- A new attribute, PRECURSOR_ACHIEVED_REMOVAL_RATIO_NUMBER, has been added to both entities to record, respectively, the value which *CDS Setup* process *Calculate MCL Value* should use to determine the RAA for Precursor Achieved Removal Ratio and the ratio used by the *Precursor Compliance Check Process* (in the SWTR or D/DBP Compliance Reports) to determine whether or not to assess a violation. Both attributes will be defined as optional, numeric, size 4(2).
- A new attribute, PRECURSOR_ACHIEVED_REMOVAL_RATIO_TEXT, has been added to both entities to record, respectively, the text value to which Precursor Achieved Removal Ratio Number converts. (A value of "0" in attribute Precursor Achieved Removal Ratio Number converts to "0.0" in the text field.) The text field will be the value displayed on the Results Averages Maintenance window.

See Appendix A (SDWIS/STATE Release 8.0 Entities of Interest) for the structure of these entities.

Protected Field: (5.2.2.1 A)*Regulating Agency**Used/WS Group**Used*

This protected field will show the user's current Water System Group Name or Regulating Agency depending on which the user has made current. The software will dynamically change the prompt depending on whether Water System Group Name or Regulating Agency is current. The prompt will be "Current WS Group" if the user's current Water System Group is valued, otherwise the prompt will be "Regulating Agency Used."

Entry Fields:

Schedule Selection Criteria Group Box:

[Water System] No. Standard nine-character Public Water System No. for whose results averages are sought. The **Go To** button may be pressed to select a Water System from a list. Once a valid Water System is entered or picked from a list, the Water System name will be displayed on the window in the protected *[Water System] Name* field. If a valid Water System is entered but is not part of the user's current Water System Group or Regulating Agency, invoke exit state error message: **WS is not part of current group/agency. Change group/agency to access this WS.** (5.2.2.1 B)

If the Water System entered does not exist in the database, the software will not supply a message but will directly invoke the Water System Selection List from where the user may select a valid Water System. Return the cursor to the WSF State Asgn ID entry field. (5.2.2.1 C)

(Developer's Note: Use the procedure used in Site Visit that ensures that the Water System is part of the WSG or Regulating Agency.)

WSF State Asgn ID The State Assigned ID of the Water System facility for whose results averages are sought. This field will be protected until a Water System has been entered. The user may enter a valid WSF State Asgn ID or use the **Go To** button to select one from the Water System Facility Selection List. (5.2.2.1 D)

As the user tabs off this field, the software will check that the supplied State Assigned ID is valid for the selected Water System. If it is not associated with the selected Water System, the software will not supply a message but will directly invoke the Water System Facility Selection List from where the user may select a valid water system facility. Once a

valid water system facility is entered or picked from a list, the water system facility name will be displayed on the window in the protected [WSF] Name field. Return the cursor to the Analyte Code entry field. (5.2.2.1 E)

(Developer's Note: Use existing MBS WS Facility Select procedure.)

Analyte Code

The code for the analyte for which the user wishes to add or maintain an average. The user may enter a valid Analyte Code or use the **Go To** button to select a valid Analyte. (5.2.2.1 F)

As the user enters/changes a value and tabs off the Analyte Code field, the software will check that the supplied Analyte Code is valid. Once a valid analyte is entered or picked from a list, the analyte name will be displayed on the window in the protected [Analyte] Name field. If the supplied Analyte Code does not exist in the database, the software will not supply a message but will directly invoke the Analyte Selection List from where the user may select a valid Analyte. The Analyte Selection List will not include analyte codes 3100, CU90, PB90, or any analytes of type "GC," "OT," or "RL."

(Developer's Note: Use existing MBS_C_SCHEDULE_MAINTENANCE_LIST procedure.) (5.2.2.1 G)

Monitoring Period Group Box:

[Monitoring Period]

Begin Date

If Begin Date and either End Date or Duration are valued, on tabbing off the software will retrieve the monitoring period that matches the criteria and displays it in all monitoring period fields. If no monitoring period exists that matches the criteria, the Monitoring Period Selection List will be invoked. The software will take no action if only Begin Date is valued. (5.2.2.1 H)

[Monitoring Period]

Duration

The user may enter a valid Monitoring Period Duration or use the **Go To** button to select a valid monitoring period. All durations should appear on the dropdown list, including spaces. If Duration and either Begin Date or End Date are valued, on tabbing off the software will retrieve the monitoring period that matches the criteria and display it in all monitoring period fields. If no monitoring period exists that matches the criteria, it will invoke the Monitoring Period Selection List. The software will take no action if only Duration is valued. (5.2.2.1 I)

*(Developer's Note: Use the existing
SBS_C_MONITORING_PERIOD_SELECT_LIST procedure.)*

[Monitoring Period]

End Date

If End Date and either Begin Date or Duration are valued, on tabbing off the software will retrieve the monitoring period that matches the criteria and displays it in all monitoring period fields. If no monitoring period exists that matches the criteria, the Monitoring Period Selection List will be invoked. The software will take no action if only End Date is valued. (5.2.2.1 J)

[Monitoring Period]

Name

If the user enters a valid monitoring period name, on tabbing off, the software will retrieve the monitoring period that matches the criteria and displays it in all monitoring period fields. If the user enters a partial string or an invalid monitoring period name, invoke the Monitoring Period Selection List. (5.2.2.1 K)

If a monitoring period that meets the user's criteria does not exist in the database, the software will directly invoke the Monitoring Period Selection List.

Tab Sequence:

Water System No., Water System **Go To** button, WSF State Asgn ID., WSF State Asgn ID **Go To** button, Analyte Code, Analyte Code **Go To** button, Sample Schedule **Go To** button, [Monitoring Period] Begin Date, [Monitoring Period]Duration, [Monitoring Period] End Date, [Monitoring Period] Name, Monitoring Period **Go To** button, **Search** button, **Clear** button, **Cancel** button, **Help** button. (5.2.2.1 L)

Buttons:

Water System Go To Pressing this button will invoke the Water System Selection List. If the user has typed part of the Water System number, it will be used in the search to invoke the Water System Selection List. The user may select a Water System from this list. (5.2.2.1 M)

WSF State Asgn
ID **Go To**

Pressing this button will invoke the Water System Facility Selection List showing WSFs that are valid for the specified Water System. If the user has typed part of the WSF State Asgn ID, it will be used in the search. The user may select a water system facility from this list. This button will be protected until a water system has been entered. (5.2.2.1 N)

Analyte Code

Go To

Pressing this button will invoke the Analyte Selection List. The Analyte Selection List should not include analyte codes 3100, CU90, PB90, or any analytes of type "GC," "OT," or "RL." The user may select an Analyte from this list. (5.2.2.1 O)

Monitoring Period

Go To

Pressing this button will invoke the Monitoring Period Selection list. The user may select a Monitoring Period from this list. (5.2.2.1 P)

Sample Schedule

Go To

Pressing this **Go To** button will initiate the following actions:

- If a valid Water System, WSF, and Analyte have been specified/retrieved, pressing this button will cause the software to search for all (past, present, and future) non-TCR sample schedules that are associated with the specified Water System and WSF and whose Monitoring Requirement's Analyte is the same as the user-specified analyte. (5.2.2.1 Q)
- If a valid Water System and WSF have been specified (and not an analyte), pressing this button will cause the software to search for all (past, present, and future) non-TCR sample schedules that are associated with the specified Water System and WSF. (5.2.2.1 R)

Any schedules found will then be displayed in the Non-TCR Schedule Maintenance List, from where the user may select a schedule.

*(Developer Note: Use the existing
MBS_C_NONTCR_SCHED_MAINT_LIST procedure.)*

The proposed default sort is:

WSF State Asgn ID Asc.
Analyte Code Asc.
Sample Type Asc.
Sample Sched Effective Begin Dt Asc.

Selecting the schedule will close the Non-TCR Schedule Maintenance List and returns the user to the Results Averages Search dialog box with the cursor at the **Search** button. (5.2.2.1 S)

- If neither a valid Water System nor WSF have been specified/retrieved, invoke exit state error message: **Must specify PWS and WSF to retrieve non-TCR schedules.** (5.2.2.1 T)
- If no current or future schedules are found, invoke exit state information message: **No current or future Non-TCR Sample Schedules exist for the selected criteria.** When the user clicks on **OK**, the Results Averages Search dialog box will be displayed. (5.2.2.1 U)

Search

Pressing **Search** will initiate the following actions:

- If neither a Sample Schedule nor a Monitoring Period were selected/retrieved, invoke exit state error message: **Must specify a Schedule or Monitoring Period to list Results Averages.** Return cursor to first field in whichever group box was specified. If both were specified, return the cursor to the first field in Schedule Selection Criteria group box. (5.2.2.1 V)
- If only a Sample Schedule was specified/retrieved, the software will select each SSMPA that is valid for the specified Sample Schedule, then select the Monitoring Period Average and RAA (MCL Value) that is valid for each selected SSMPA and display them on the Results Averages Maintenance List. The default sort order will be Water System No., WSF State Asgn ID, and Analyte Code. (5.2.2.1 W)
- If only a Monitoring Period was specified/retrieved, the software will select each SSMPA that is valid for the specified Monitoring Period, then select each Monitoring Period Average and RAA (MCL Value) that is valid for each selected SSMPA and display them on the Results Averages Maintenance List. The default sort order will be Water System No., WSF State Asgn ID, and Analyte Code. (5.2.2.1 X)
- If the user selects/retrieves a Sample Schedule and a Monitoring Period, the software will select the single SSMPA that is valid for both, then select the Monitoring Period Average that is associated with the one SSMPA and select the RAA (MCL Value) that is associated with the one SSMPA and display them on the Results Averages Maintenance window. If no SSMPA is found, invoke exit state error message: **No SSMPA exists in the database for this Schedule and Mon Per. Run CDS Setup.** (5.2.2.1 Y)

- If no results averages meet the search criteria, invoke informational exit state message: **No Results Averages exist in the database for this search criteria.** When the user clicks **OK**, the software will still display the Results Averages Search dialog box with the cursor on the Sample Schedule **Go To** button, so that the user may select a different schedule. All data entered/retrieved in all Search dialog box fields should be retained. (The user can press **Clear** if any of this information needs to be cleared out.) (5.2.2.1 Z)

Clear Pressing this button will clear data from all fields on the search dialog box. (5.2.2.1 AA)

Cancel Pressing this button will cause the software to disregard any data entered and return the user to the previous window. (5.2.2.1 AB)

Help Pressing this button will invoke online Help for this window. (5.2.2.1 AC)

5.2.2.2 Results Averages Maintenance List

The Results Averages Maintenance List (Exhibit 5-20) will display up to 1,000 records at a time, listing the results averages records retrieved from the search criteria specified. The user will be able to select (double-click) a results average from the list to view or update, including one that *CDS Setup* has created (and whose Measure fields will appear with text value 0.0). Even though a user may be “adding in” new information, this will actually be an update to an existing record. Likewise, after having mistakenly changed a value in either an MPA or RAA, a user may wish to delete that record. A user may effectively “delete” a record by resetting the Measure field(s) to 0. (For these reasons, neither **Edit/Add** nor **Edit/Delete** will be available for selection on the menu.)

List Columns:

Water System No., WSF State Asgn ID, Analyte Code (from the Monitoring Period Averages entity), Monitoring Period Name, Monitoring Period Average Measure concatenated with Monitoring Period Average UOM Code, MCL Value Measure concatenated with MCL Value UOM Code (with label “Running Annual Avg.”), Water System Name, Analyte Name, Monitoring Period Average Total Results, Monitoring Period Average Total Days, MCL Value Total Results, Monitoring Period Average Applicable Period Begin Date, Monitoring Period Average Applicable Period End Date, WSF Name.

Menu Items:**File**

Exit Selecting **File/Exit** will return the user to the *Sampling* main menu. (5.2.2.2 A)

Edit

Change Selecting **Edit/Change** will display the Results Averages Maintenance window in Change mode with the selected monitoring record. This option will be enabled only when a record has been highlighted. When the user selects a record, the data from the Schedule and Monitoring Period that are associated with the SSMPA, which is associated with the selected MPA, should be forwarded to the Results Averages Maintenance window. (5.2.2.2 B)

View

Search Selecting **View/Search** will invoke the Results Averages Search dialog box and carry forward the information previously entered on the Results Averages Search dialog box. (5.2.2.2 C)

Sort Selecting **View/Sort** will invoke the standard Sort window will all columns on the list sortable. (5.2.2.2 D)

Filter by Selecting **View/Filter** by will allow the user to filter by Water System Number, WSF Assigned ID, Analyte Code, Monitoring Period Begin Date, Water System Name, WSF Name, or Analyte Name. (5.2.2.2 E)

Refresh Selecting **View/Refresh** will retrieve the unfiltered list (original search criteria). (5.2.2.2 F)

5.2.2.3 Results Averages Maintenance

The Results Averages Maintenance window (Exhibit 5-21) will allow the user to maintain results averages.

Menu Icons: (5.2.2.3 A)



Clicking on this icon will invoke the Water System Information window, which will display basic inventory information for the given Water System.



Clicking on this icon will invoke the Historical Sampling Information window, which will display protected information on results for the analyte selected on the maintenance window for the given Water System.



Clicking on this icon will invoke the Display Points of Contact window, which will display a protected list of legal entities and individuals (such as operators, engineers, etc.) associated with the given Water System.



Clicking on this icon will invoke online Help for this window.

Exhibit 5-21. Results Averages Maintenance

Protected Fields:

Water System/Facility Group Box: (5.2.2.3 B)

Water System No. Standard nine-character No. of Water System associated with the MPA/RAA (through SSMPA and Schedule) selected by user in Results Averages Maintenance List.

[Water System] Name Name of selected Water System.

WSF State Asgn ID State Asgn ID of the selected water system facility.

[WSF] Name Name of selected water system facility.

Sample Schedule Monitoring Requirement Group Box: (5.2.2.3 C)

Analyte Code Standard four-character Code of selected analyte.

[Analyte] Name Name of selected analyte.

Samples Required There are three protected fields under Samples Required, [Sample Count], [Sample Type], and [Periodicity].

[Sample Count] Sample Count (from schedule's monitoring requirement).

[Sample Type] Sample Type (from schedule's monitoring requirement).

[Periodicity] Periodicity (from schedule's monitoring requirement).

Effective Period Group Box:

Effective Period Begin Effective Begin Date (from sample schedule).

Effective Period End Effective End Date (from sample schedule).

Seasonal Collection Period Group Box:

Start Month Sample Schedule Start Month. Value between 1 and 12.

Start Day Sample Schedule Start Day. Value between 1 and 31.

End Month Sample Schedule End Month. Value between 1 and 12.

End Day Sample Schedule End Day. Value between 1 and 31.

Monitoring Period Group Box: (5.2.2.3 D)

Begin Date Begin Date of selected monitoring period.

[Monitoring Period] Name Name of selected monitoring period.

[Monitoring Period] End Date End Date of selected monitoring period.

[Monitoring Period]

Duration Duration [maps to TYPE_CODE] of selected monitoring period.

Entry Fields:

Monitoring Period Averages Group Box:

CDS Setup will calculate a value (including 0 for number fields and 0.0 for text fields) for all fields in this group box. However, the user may change the value in all but the MCL Compliance Method field.

Measure The Measure field indicates the measure of the Monitoring Period Average (MPA) and maps to attribute CALCULATED_VALUE_TEXT. The value entered on the window will be stored both in this text attribute and also be converted to a number that will be stored in the CALCULATED_VALUE attribute. This field's prompt will be blue and underlined to indicate that this field is mandatory. (5.2.2.3 E)

[UOM] This is the unit of measure associated with the measure. (5.2.2.3 F)

No. of Results Used This is the number of analytical results used to calculate the average. It will generally be one for typical quarterly monitoring. It includes all routine and confirmation samples used in the calculation of the average. (5.2.2.3 G)

Total Days If the user changes this value from the value that *CDS Setup* has calculated, invoke an advisory dialog box with following message: **Total Days is used to calculate the Running Annual Average (if appropriate). Are you sure you want to change this?** Pressing **Yes** will close the dialog box and returns the user to the field with the changed value in place. Pressing **No** will close the dialog box and return them to the field with the *CDS Setup* value in place. (5.2.2.3 H)

MCL Compliance Method

The dropdown list in this field will show either MPA—Monitoring Period Average or RAA—Running Annual Average. This field will be displayed so that users may see why the Running Annual Average group box fields are protected. (5.2.2.3 I)

Date Reported

This field will be used to store the date the water system reports the average(s) to the primacy agency. *CDS Setup* will not value this field. This field will default to today's date, which the user may change. When the user tabs off this field, Running Annual Average Date Reported will default to the date specified here. (5.2.2.3 J)

*Precursor Achieved
Removal Ratio*

This field will map to Monitoring Period Average attribute PRECURSOR_ACHVD_REMOVAL_RATIO_TX. The value entered on the window will be stored both in this text attribute and also be converted to a number that is stored in the ACHVD_REMOVAL_RATIO_NO attribute. (5.2.2.3 K)

Running Annual Average Group Box:

If the MCL Compliance Method is MPA: (5.2.2.3 L)

- All fields in this group box will be protected.
- All fields will be defaulted to the values entered for the equivalent Monitoring Period fields.

Measure

This is the measure of the Running Annual Average (RAA) and will map to attribute CALCULATED_VALUE_TEXT. The value entered on the window will be stored both in this text attribute and also be converted to a number that will be stored in the CALCULATED_VALUE attribute. This field's prompt will be blue and underlined to indicate that this field is mandatory. (5.2.2.3 M)

[UOM]

This is the unit of measure associated with the measure. (5.2.2.3 N)

*Number of Results
Used*

This is the number of analytical results used to calculate the average. It should include all routine and confirmation samples used in the calculation of the average. (5.2.2.3 O)

Date Reported

This field will be used to store the date the water system reports the average(s) to the primacy agency. *CDS Setup* will not value this field. This field will default to today's date, which the user may change. The value will default to the date in MPA Date Reported, but the user may change it. (5.2.2.3 P)

*Precursor Achieved
Removal Ratio*

This field will map to Running Annual Average (entity MCL_VALUE) attribute PRECURSOR_ACHVD_REMOVAL_RATIO_TX. The value entered on the window will be stored both in this text attribute and will also be converted to a number that will be stored in the ACHVD_REMOVAL_RATIO_NO attribute. (5.2.2.3 Q)

Tab Sequence:

[Monitoring Period Average] Measure, [Monitoring Period Average UOM], Number of Results Used, MCL Compliance Method, [MPA] Total Days, Date Reported, Precursor Achieved Removal Ratio, Running Annual Average Measure, [Running Annual Average UOM], Number of Results Used, Date Reported, Precursor Achieved Removal Ratio, **Comments** button, **OK** button, **Cancel** button, **Help** button. (5.2.2.3 R)

Buttons:

Comments Pressing this button will invoke a dialog box, where the user can record any additional information. The mnemonic key will be “T.”
(5.2.2.3 S)

OK The following actions will apply to the **OK** button:

- If the user changes a value in either Monitoring Period Average Measure or MCL Value Measure, it must convert to a valid number, which includes 0. (5.2.2.3 T)
 - If the user enters a value that does not convert to a valid number within the size 15(9) range (and 0 is a valid number), invoke existing exit state error message: **Value too large. SDWIS can support up to 6 digits to the left of the decimal.** Return the cursor to whichever Measure field could not be converted.

(Developer Note: Use existing Exit State “Larger Value Than Allowed” in SBS.)
 - If the value entered converts to a number within the size 15(9) range, the software will set MPA or RAA (or both) Calculated Value to the converted number.
- The number in Monitoring Period Average Total Days must be a value that is greater than or equal to 0 and less than or equal to the number of days difference between the Monitoring Period’s Begin Date and End Date (End Date—Begin Date). If the user enters a value that is not, invoke exit state error message: **Total Days cannot exceed days between Mon. Period Start and End dates.** Return the cursor to the Total Days field. (5.2.2.3 U)
- If the user changes the value in either Monitoring Period Average Measure or MCL Value Measure to 0, the software will invoke a

CDS Setup Recalculate? dialog box with the following question: **You have just reset a Results Average Measure to 0. Do you want CDS Setup to recalculate the Monitoring Period Average and Running Annual Average?** Pressing **Yes** will close the dialog box and set the value in field D_USERID_CODE to CDSSETUP, then continue with the other **OK** button checks. Pressing **No** will close the dialog box, continue with the other **OK** button checks (and allow the value in field D_USERID_CODE to be set to the user's ID as is normal). (5.2.2.3 V)

- If the user changes a value in either Monitoring Period Average PRECURSOR_ACHVD_REMOVAL_RATIO_TX or MCL_VALUE_PRECURSOR_ACHIEVED_REMOVAL_RATIO_TX, it must convert to a valid number, which includes 0. (5.2.2.3 W)
 - If the user enters a value that does not convert to a valid number within the size 4(2) range (and 0 is a valid number), invoke exit state error message: **Value too large. SDWIS can support up to 2 digits to the left of the decimal.** Return cursor to whichever Precursor Achieved Removal Ratio field could not be converted.
 - If the value entered converts to a number within the size 4(2) range, the software will set MPA or RAA (or both) Precursor Achieved Removal Ratio No value to the converted number.
- If Monitoring Period Measure is greater than 0, the number in Monitoring Period Average Total Days must be greater than 0. If the user changes the Monitoring Period Measure but leaves Total Days as 0, invoke exit state error message: **Total Days cannot be 0 when MPA Measure is over 0.0.** Return the cursor to Total Days field. (5.2.2.3 X)
- If the user has changed either the Monitoring Period Average UOM or the Running Annual Average UOM,

If there is a current Analyte Level Rule Asgt MCL or Facility Analyte Level MAX value (in that order of priority) for the current analyte, the software will ensure the UOM for both MP Avg and RAA are not different from the UOM of the MCL. If the software encounters an

Analyte Level Rule Asgt MCL or Facility Analyte Level MAX value that is different, invoke error message: **Result Averages must be recorded in the same unit of measure as its corresponding MCL.** If no Analyte Level Rule Asgt MCL or Facility Analyte Level MAX value exists, the software will accept what the user specifies. On pressing **OK**, return the cursor to the first Measure field that has the inappropriate UOM Code. To check the MCL in Analyte Level Rule Asgmt, the software will use the following logic: (5.2.2.3 Y)

Identify the Analyte linked to the Monitoring Period Average or MCL Value, through a SSMPA record, to a Sample Schedule, then to a Monitoring Requirement. Then identify the Analyte Level Rule Asgt (TMNALRA) where:

- The Code for the Analyte referenced by the Analyte Level Rule Asgt is the same as the Code for the Analyte referenced by current (Monitoring Period Average or MCL Value) AND
- The Threshold Type Code of the Analyte Level Rule Asgt is equal to "MCL" AND
- Analyte Level Rule Asgt BEGIN_DATE is less than or equal to the SSMPA (referenced by the Monitoring Period Average or MCL Value) Applicable Period Begin Date AND
- (Analyte Level Rule Asgt END_DATE is greater than or equal to the SSMPA (referenced by the Monitoring Period Average or MCL Value) Applicable Period Begin Date or Analyte Level Rule Asgt END_DATE is NULL/Blank).

To check the Facility Analyte Level, the software will use the following logic.

Identify the Analyte linked to the Monitoring Period Average or MCL Value, through a SSMPA record, to a Sample Schedule, then to a Monitoring Requirement. Then identify the Facility Analyte Level (TSAFANL) where:

- The Code for the Analyte referenced by the Facility Analyte Level is the same as the Code for the Analyte referenced by current Monitoring Period Average or MCL Value AND
 - The Water System Facility referenced by the Facility Analyte Level is the same as the Water System Facility related to the current Monitoring Period Average or MCL Value through the Sample Schedule, through the SSMPA related to the Calculated MCL Value AND
 - The Control Level Type of the Facility Analyte Level is equal to "MAX" AND
 - Facility Analyte Level's Effective Begin Date is less than or equal to the SSMPA (referenced by the Monitoring Period Average or MCL Value) Applicable Period Begin Date AND
 - (Facility Analyte Level's Effective End Date is greater than or equal to the SSMPA (referenced by the Monitoring Period Average or MCL Value) Applicable Period Begin Date Or Facility Analyte Level's Effective End Date is NULL/Blank).
- If there is a current MCL for the current analyte, make sure the MCL Compliance Method Code value is not different from the one recorded with the MCL (if there is one). If no Analyte Level Rule Asgt MCL exists, the software will accept what the user specifies. If the UOM is different, return exit state error message: **MCL Compliance Method must be the same as analyte's MCL record.** Return the cursor to the MCL Compliance Method field.

(Developer's Note: This uses the same logic to find the Analyte Level Rule Asgmt, except in this case, the check is on field MCL Compliance Method.) (5.2.2.3 Z)
 - If either an MPA or an MCL Value is updated, the software will update the SSMPA (to which it is related) to current timestamp. (5.2.2.3 AA)

- SDWIS/STATE always values the D Userid Code field of any entity/table with the first 8 characters of the user's USERID, and this practice applies to the two MPA or an MCL Value entities that are updated in this window. This is noted because *CDS Setup* will not override any MPA or an RAA values where D Userid Code is other than "CDSSETUP." (5.2.2.3 AB)

Cancel When the user presses this button, the software will disregard any data entered and return the user to the previous window. (5.2.2.3 AC)

Help Pressing this button will invoke online Help for this window. (5.2.2.3 AD)

5.3 Sampling

Presentation Type 3: The information in this section is not a comprehensive design of this function and only reflects Release 8.0 changes/new functionality. As such, normal text means new functionality (e.g., a new button, window, etc. is introduced); redline/redline strikeout indicates where the functionality of an existing object (such as a field, button, menu item, etc.) has changed.

In some cases, relatively minor, and in other cases, significant changes are proposed to the existing online Sample Summary windows. The necessary changes are triggered by Lead and Copper Rule as well as the M/DBP and IESWTR rules.

5.3.1 PBCU Sample Summary

On the PBCU Sample Summary Maintenance window, currently, if the user enters a "CU90" summary result of 1.35 mg/l or greater or a "PB90" summary result of 0.0155 mg/l or greater, SDWIS/STATE will ask the user the following: **This result exceeds an action level. Do you want SDWIS/STATE to create an equivalent Milestone Event record?** The software should no longer do this. Ensure that if the user enters a "CU90" summary result of 1.35 mg/l or greater or a "PB90" summary result of 0.0155 mg/l or greater, the user will no longer be asked this question.

5.3.2 TCR Sample Summary Modifications

Users have expressed a need to be able to create an MDBP summary for Chlorine/Chloramine during the same time when they are creating a TCR Sample Summary. See the TCR Sample Summary Maintenance window (Exhibit 5-22).

Entry Field:

Water System No. When the user selects a Water System, the software will also select the Distribution System Water System Facility (type “DS”) that belongs to the selected Water System and will populate the WSF State Asgn ID and WSF Name fields. If the Water System has more than one DS WSF, the software will not populate these fields. (5.3.2 A)

Buttons:

**SWTR RDC or
CL2 MRDL**

When the user presses either button, the following actions will occur:

- The software will create or update the TCR Sample Summary and Result using existing edit checks (that invoke existing exit state error messages) on the **OK** button. (5.3.2 B)
- If the user has not selected a DS WSF, invoke exit state error message: **Must select a DS WSF to proceed to the Distribution RDC window.** When user presses **OK**, invoke the existing WSF Selection List. (5.3.2 C)

SWTR RDC

(1) After the WSF has been selected, the software will select the FANL that establishes a minimum level (Level Type is “MIN”) for chlorine (Analyte Code 0999) or chloramine (Analyte Code 1006) that is linked to the current WSF. This will result in the selection of zero, one, or two FANL records. (5.3.2 D)

If a FANL meeting these criteria is not found, invoke exit state error message: **FANL for analyte chloramine (1006) or chlorine (0999) of type MIN not found for this WSF or Mon. Period.** Return the cursor to the WSF State Asgn ID field. (5.3.2 E)

(2) If a FANL meeting these criteria is found, the software will run the selected FANL through the following checks that would let the user know that a FANL exists but still cannot be used. If any of these checks is validated, invoke an exit state error message. After the user presses **OK** on the message, return the cursor to the WSF State Asgn ID field.

- If one or more FANL is found but none of the FANL found are in effect on the first day of the user-selected monitoring period (FANL Effective Begin Date is not on or before the Monitoring Period Begin Date), invoke exit state error message: **Facility**

Analyte Level not in effect during this monitoring period.
(5.3.2 F)

- If one or more FANL is found but none of the FANL found has its MDBP Summary Check Flag set to “Yes,” invoke exit state error message: **Facility Analyte Level with MDBP Summary Check Flag set to YES not found.** (5.3.2 G)
- If a FANL record is found but does not indicate a Summary Type of “DSRD” or “SRDR,” invoke exit state error message: **Facility Analyte Level with MDBP Summary type “DSRD” or “SRDR” not found.** (5.3.2 H)
- If one or more FANL is found that satisfies the above criteria and is in effect on the first day of the user-selected monitoring period, the software will select it and go to step (4). (5.3.2 I)

(3) The software will next select:

- One MDBP Summary that is linked to the FANL whose field Summary Type is DSRD and is linked to the user-specified monitoring period; it will also select (5.3.2 J)
- One MDBP Summary that is linked to the FANL whose field Summary Type is “SRDR” and is linked to the user-specified monitoring period. (5.3.2 K)

(4) The software will then flow to the Distribution RDC window (described in Subsection 5.1), displaying the selected Water System No., Water System Name, WSF State Assigned ID., WSF Name, Monitoring Period Begin Date, Monitoring Period Duration, and FANL.

- If it finds one of the MDBP Summaries described above, it will also display its data in the window in Change mode, with the cursor in the first entry field. (5.3.2 L)
- If it does not find any of the possible MDBP Summaries, this window will appear in Add mode. (5.3.2 M)

OK on the message, return the cursor to the WSF State Asgn ID field.
(5.3.2 P)

- If one or more FANL is found but none of the FANL found are in effect on the first day of the user-selected monitoring period (FANL Effective Begin Date is not on or before the Monitoring Period Begin Date), invoke exit state error message: **Facility Analyte Level not in effect during this monitoring period.**
(5.3.2 Q)
- If one or more FANL is found but none of the FANL found have its MDBP Summary Check Flag set to “Yes,” invoke exit state error message: **Facility Analyte Level with MDBP Summary Check Flag set to YES not found.** (5.3.2 R)
- If a FANL record is found but does not indicate a Summary Type of “MRDL,” invoke exit state error message: **Facility Analyte Level with MDBP Summary type “MRDL” not found.**
(5.3.2 S)
- If one or more FANL is found that satisfies the above criteria and is in effect on the first day of the user-selected monitoring period, the software will select it and go to step (4). (5.3.2 T)

(3) The software will next select one MDBP Summary whose field Summary Type is MRDL that is linked to the FANL and is linked to the user-specified monitoring period. (5.3.2 U)

(4) The software will then flow to the MRDL Chlorine/Chloramine DS window, displaying the selected Water System No., [Water System] Name, WSF State Assigned ID., [WSF] Name, Analyte Code, [Analyte Code] Name, Monitoring Period Begin Date, Monitoring Period Duration, and FANL.

- If it finds the MDBP Summary described above, it will also displays its data in the window in Change mode, with the cursor in the first entry field. (5.3.2 V)
- If it does not find the MDBP Summary, this window will appear in Add mode. (5.3.2 W)

5.3.3 General Sample Summary Maintenance

The General Sample Summary Maintenance window will be retired and will no longer be available from online *Sampling*. Sample Summaries for other than TCR and PBCU will be stored as MDBP Summaries.

- On the Sample Summary Search dialog box Summary Type dropdown list, remove the value “Other.”
- On the Specify Sample Summary dialog box Summary Type dropdown list, remove the value “Other.”

5.3.4 Sample Lists and Non-TCR Sample Result Lists

The following change will apply to the design requirement originally established with Release 7.0. (5.3.4 A)

On all Sample Maintenance Lists and all non-TCR Sample Result Lists, when the user presses the **Yes** button on the Delete Confirmation dialog box and the object to be deleted is a sample or sample result that is not for Analyte 3100, 2950, or 2456, 1038, 1040, 1041, 4000, or 4010, where USERID = “CDSSETUP,” do the following:

- Update the Last Update Timestamp field (to current date/time) of the SSMPA record that is associated to the to-be-deleted sample result, or update the Last Update Timestamp field of each SSMPA associated to the to-be-deleted sample result(s) of a to-be-deleted sample.
- Delete the result or delete the sample and results.

6.0 ONLINE ENFORCEMENT

Changes to the *Enforcement* component triggered by *SDWIS/STATE Release 8.0* fall within the Compliance Schedule, the PN Schedule, and the Enforcement functions. While these changes are essential, none of them radically change the design or operation of these functions as they exist in Release 7.0. Therefore, the design documented in the following subsections focus on enhancements and/or changes to the function rather than a comprehensive design specification for each. Redlining in this section indicates a change to Release 7.0 functionality triggered by Release 8.0 functionality.

6.1 Compliance Schedule

Presentation Type 3: The information in this section is not a comprehensive design of this function and only reflects Release 8.0 changes/new functionality. As such, normal text means new functionality (e.g., a new button, window, etc. is introduced); redline/redline strikeout indicates where the functionality of an existing object (such as a field, button, menu item, etc.) has changed.

The Compliance Schedule windows in the *Enforcement* component, which have changed very little since *SDWIS/STATE Release 6.0*, will be changed in *SDWIS/STATE Release 8.0* to support the new Site Visit function. Compliance officers will be able to change/delete linkages between Compliance Scheduled Activities and Deficiencies.

6.1.1 Model Changes for Compliance Schedule

No model changes have been necessary to the COMPLIANCE_SCHEDULE entity other than as already discussed in Subsection 4.1 (Site Visit), except for enlarging the COMMENTS attribute to 2000 characters.

6.1.2 Compliance Schedule Search

The Compliance Schedule Search dialog box (Exhibit 6-1) will be invoked as in Release 7.0, but it will be revised to enable a user to more efficiently find and maintain a Compliance Schedule that is associated to a Site Visit or a Deficiency.

Compliance Schedule Search

Please use any one search option

WS Group Used XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

Search by Water System

No. XXXXXXXXXXXX >> XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

Site Visit No. ZZZZ9

Deficiency No. ZZZZ9

Search by Officer/Agency

Compliance Officer XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX >>

Regulating Agency XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX >>

Search by Combination of

Schedule Status []

Effective Date Range MM/DD/YY To MM/DD/YY

Schedule Type XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX >>

Search Clear Cancel Help

Exhibit 6-1. Compliance Schedule Search

Protected Field: (6.1.2 A)

*WS Group Used/
Regulating Agency
Used*

This protected field will show the user's current Water System Group Name or Regulating Agency depending on which the user has made current. The software will dynamically change the prompt depending on whether Water System Group Name or Regulating Agency is current. The prompt will be "WS Group Used" if the user's current Water System Group is valued, otherwise the prompt will be "Regulating Agency Used."

Entry Fields:

Search by Water System Group Box:

If any Search by Water System group box field is valued, all fields in the Search by Officer/Agency group box and Search by Combination of group box will be protected, i.e., read-only.

[Water System] No. Standard nine-character Public Water System Number may be entered or left blank. The **Go To** button may be pressed to select a water system from a list. Once a valid water system has been entered or picked from a list, the water system name will be displayed on the window

If a valid water system is entered but is not part of the user's current Water System Group or Regulating Agency, invoke exit state error message: **WS is not part of current group/agency. Change group/agency to access this WS.** (6.1.2 B)

Site Visit No. Five-digit External System Number may be entered or left blank. Entering a specific water system and Site Visit No. can retrieve a unique Compliance Schedule.

If the Site Visit No. is valued, the Deficiency No. field will be protected. (6.1.2 C)

Deficiency No. Five-digit External System Number may be entered or left blank.

If the Deficiency No. is valued, the Site Visit No. field will be protected. (6.1.2 D)

Search by Officer/Agency Group Box:

If any Search by Officer/Agency group box field is valued, the Search by Water System group box fields and the Search by Combination of group box fields will be protected (i.e., read-only).

Compliance Officer The user may click the **Go To** button to invoke the Compliance Officer Selection List or may enter a value directly into the Compliance Officer field. The default sort for Compliance Officer Selection List is Name in ascending alphabetical order. If the user enters a value in the Compliance Officer field, on tabbing off the field the software will accept the specified compliance officer, if it is an exact match. If the value entered is not an exact match, the Compliance Officer Selection

List, sorted by ascending Name will be invoked, from where the user may select. If the user specifies a partial string in this field, the software will display the closest matching Compliance Officer Name at the top of the list. (Closest matching means a match with the Compliance Officer Name, sorted alphabetically, that starts with the same text string as supplied.) (6.1.2 E)

Regulating Agency The user may click the **Go To** button to invoke the Regulating Agency Selection List or may enter a value directly into the Regulating Agency field. The default sort for Regulating Agency Selection List will be Name, in ascending alphabetical order. If the user enters a value in the Regulating Agency field, on tabbing off the field, the software will accept the specified regulating agency if it is an exact match. If the value entered is not an exact match, it will invoke the Regulating Agency Selection List, sorted by ascending Name, from where the user may select a regulating agency. If the user specifies a partial string in this field, display the closest matching regulating agency at the top of the list. (Closest matching means a match with the Regulating Agency Name, sorted alphabetically, that starts with the same text string as supplied.) (6.1.2 F)

Search by Combination of Group Box:

If any Search by Combination of group box field is valued, the Search by Water System group box fields and the Search by Officer/Agency group box fields will be protected (i.e., read-only).

Schedule Status Permitted values in this field will be as follows:

< spaces>
 F Final.
 P Proposed.
 S Superseded. (6.1.2 G)

Effective Date Range
[Begin Date]

This field will specify the begin date of the Effective Date range. Edit checks for date will be done later when the user clicks the **Search** button. A calendar function will allow the user to more easily enter dates for this field.

The default value for this field will be the date one year prior to the current date. (CURRENT DATE – 1 Year) (6.1.2 H)

*Effective Date Range**[End Date]*

This field will specify the end date of the Effective Date range. Edit checks for date will be done later when the user clicks the **Search** button. A calendar function will allow the user to more easily enter dates for this field. (6.1.2 I)

Schedule Type

Alphanumeric, four-character field with permitted values controlled by the SDWIS/STATE Administrator using the Permitted Values function. An example of when this field might be useful is if a primacy agency introduces a new Schedule Type of "Deficiency Remedy" (using the Permitted Values component in *System Administration*) and consistently uses it for Compliance Schedules that address deficiencies.

Once a valid Schedule Type Permitted Value is entered or picked from a list, the corresponding text description for this Schedule Type Permitted Value will be displayed on this field instead of the actual permitted value. (6.1.2 J)

(Developer's Note: Pass into action block Validate Text Permitted Value the following value for entity CODE, attribute CODE_NAME: TENSCHD1. Only permitted values for this Code value may be used in this field.)

Tab Sequence:

[Water System] No., [Water System] No. **Go To** button, Site Visit No., Deficiency No., Compliance Officer, Compliance Officer **Go To** button, Regulating Agency, Regulating Agency **Go To** button, Schedule Status, [Effective Date Range] Begin Date, [Effective Date Range] End Date, Schedule Type, Schedule Type **Go To** button, **Search** button, **Clear** button, **Cancel** button, **Help** button. (6.1.2 K)

Buttons:

Water System No.

Go To

Pressing this button will invoke the Water System Selection List. If the user has typed part of the water system number, it will be used in the search to invoke the Water System Selection List. The user may select a water system from this list. (6.1.2 L)

Compliance Officer

Go To

Pressing this button will invoke the Compliance Officer Selection List. The default sort for Compliance Officer Selection List will be Name (Last Name, First Name), in ascending alphabetical order. If the user has

typed part of the Compliance Officer name, it will be used in the search to invoke the Compliance Officer Selection List. The user may select a compliance officer from this list. (6.1.2 M)

Regulating Agency

Go To

Pressing this button will invoke the Regulating Agency Selection List. The default sort for Regulating Agency Selection List will be Name, in ascending alphabetical order. If the user has typed part of the Regulating Agency name, it will be used in the search to bring up the Regulating Agency Selection List. The user may select a regulating agency from this list. (6.1.2 N)

Schedule Type

Go To

Pressing this button will invoke the Code Permitted Value Selection List for the Schedule Type (with code name TENSCHD1). The user may select a schedule type from this list. (6.1.2 O)

Search

Pressing this button will retrieve Compliance Schedules based on the specified criteria.

The user's current Water System Group/Regulating Agency will be used as an implied search criteria in all searches for Compliance Schedule records. This means that the software will retrieve only compliance schedules linked to a water system that is linked to the user's current Water System Group/Regulating Agency. If an exact Water System No. is entered, the software will validate that it belongs to the user's current Water System Group/Regulating Agency. The following are possible search permutations:

- Search by Water System Group Box. (6.1.2 P)
 - By Water System No.
 - By Water System No. and Site Visit No.
 - By Water System No. and Deficiency No.
- Search by Officer/Agency Group Box. (6.1.2 Q)
 - By Compliance Officer.
 - By Regulating Agency.

- By Compliance Officer and Regulating Agency.
- Search by Combination of Group Box. (6.1.2 R)
 - By Schedule Status.
 - By Effective Date Range.
 - By Effective Date Range with both begin and end dates valued (the software will check for compliance schedule records with Effective Date between (inclusively) the two specified dates).
 - By Effective Date Range Start Date (the software will check for compliance schedule records with Effective Date later than or same as the entered begin date including null dates).
 - By Effective Date Range End Date (the software will check for compliance schedule records with Effective Date prior to or on the specified end date including null dates).
 - By Schedule Type.
 - By Schedule Status and Effective Date Range.
 - By Schedule Type and Effective Date Range.
 - By Schedule Status and Effective Date Range Start Date.
 - By Schedule Status and Effective Date Range End Date.
 - By Schedule Type and Effective Date Range Start Date.
 - By Schedule Type and Effective Date Range End Date.
 - By Schedule Type, Schedule Status, and Effective Date Range (either Start Date, End Date, or both).
- If either Site Visit No. or Deficiency No. is valued, provide an exit state error message: **Water System Number must not be blank.** (6.1.2 S)

- If a search includes Effective Date Range with both begin date and end date valued, then if end date is earlier than begin date, invoke exit state error message: **End Date cannot be earlier than Begin Date.** (6.1.2 T)
- If no compliance schedule meets the search criteria, invoke informational exit state message: **No Compliance Schedule exists in the database for this search criteria.** When the user clicks **OK**, the software will still display the Compliance Schedule Maintenance List. (6.1.2 U)

Clear Pressing this button will clear data from all fields on the search dialog box. All fields that may have been protected will be enabled. (6.1.2 V)

Cancel When the user presses this button the software will disregard data entered and return the user to the previous window. (6.1.2 W)

Help Pressing this button will invoke online Help for the window. (6.1.2 X)

6.1.3 Compliance Schedule Maintenance List

To better facilitate the maintenance of Compliance Schedules that reference Site Visits, the Compliance Schedule Maintenance List window (Exhibit 6-2) will be revised by adding Site Visit No. to the list window (between Schedule No. and Closed Date). In addition, the software will display the User's current Water System Group/Regulating Agency that will be included in the search criteria used to produce the list.

Protected Field: (6.1.3 A)

*WS Group Used/
Regulating Agency
Used*

This protected field will show the user's current Water System Group Name or Regulating Agency depending on which the user has made current. The software will dynamically change the prompt depending on whether Water System Group Name or Regulating Agency is current. The prompt will be "WS Group Used" if the user's current Water System Group is valued, otherwise the prompt will be "Regulating Agency Used."

Compliance Schedule confirmation dialog box for the selected record. The text question on the dialog box will be changed from **Do you want to delete this compliance schedule activity?** to **Are you sure you want to delete this Compliance Schedule?** (6.1.3 C)

If the user confirms the deletion by clicking on **Yes**, check if the scheduled activity(ies) associated to the selected compliance schedule is referenced by a Deficiency. If it is, display an advisory message shown in Exhibit 6-3, Disassociate Deficiencies Confirmation dialog box. Clicking **Yes** on this dialog box will delete the compliance schedule and all associated schedule activities, and will disassociate all the site visit deficiencies linked to scheduled activities. In addition, if this compliance schedule is associated to a Site Visit, this association will also be deleted. Clicking **No** will cancel the whole deletion process and will return the user to the Compliance Schedule Maintenance List with the record previously selected still highlighted. (6.1.3 D)

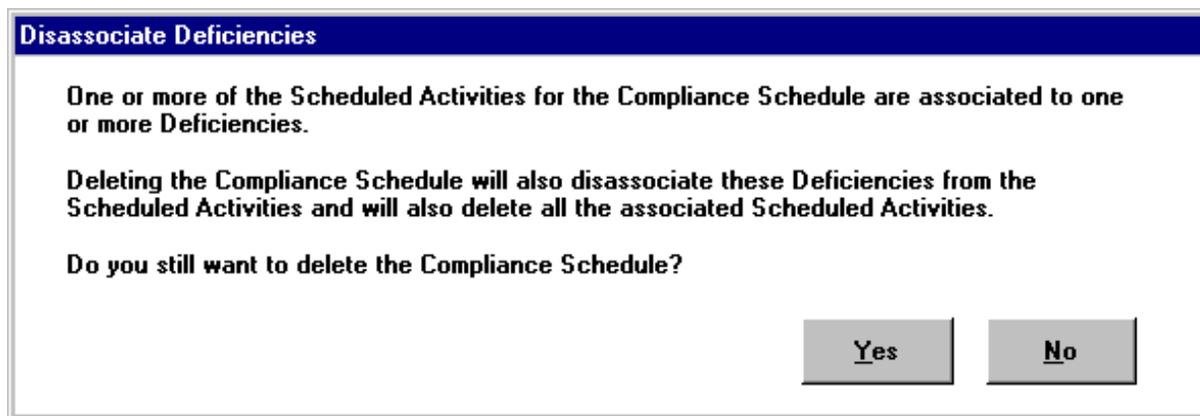


Exhibit 6-3. Disassociate Deficiencies

6.1.4 Compliance Schedule Maintenance

Exhibit 6-4 shows the proposed changes to Compliance Schedule Maintenance window. A new group box for the Associated Deficiencies list has been added. This list, which maps to entity DEFICIENCY_SCHEDULE_ACTY_ASGMT (table TINDFSAA), shows the records currently associated to the highlighted Compliance Schedule Activity. The user will be able to associate a new deficiency record by clicking the **Associate** button. To disassociate an existing record, the user may highlight the record and click on the **Disassociate** button. When the user opens the Compliance Schedule Maintenance window, the Associated Deficiencies list will be empty; to display records in this list, the user must first highlight a record in the Compliance Scheduled Activities list. (6.1.4 A)

Compliance Schedule Maintenance

Water System
 No. XXXXXXXXXXXX Name XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

Compliance Schedule
 No. ZZZZ9 Description
 State Asgn ID No. XXXXXXXX
 Regulating Agency XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX >>
 Compliance Officer XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX >>
 Schedule Type XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX >>
 Effective Date MM/DD/YY Status
 Closed Date MM/DD/YY Status Date MM/DD/YY

Compliance Schedule Activities

Name	Due Date	Achieved Date	Condition (Derived)
XX	MM/DD/YYYY	MM/DD/YYYY	XXXXXXXXXX
XX	MM/DD/YYYY	MM/DD/YYYY	XXXXXXXXXX
XX	MM/DD/YYYY	MM/DD/YYYY	XXXXXXXXXX

Add Change Delete

Associated Deficiencies

No.	Severity	Category	Date Identified	WSF State Asgn ID	Description
ZZZZ9	XXX	XX	MM/DD/YYYY	XXXXXXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
ZZZZ9	XXX	XX	MM/DD/YYYY	XXXXXXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
ZZZZ9	XXX	XX	MM/DD/YYYY	XXXXXXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

Associate Disassociate

Enf. Actions Copy OK Cancel

Exhibit 6-4. Compliance Schedule Maintenance

When invoked from Site Visit Maintenance, users will not be able to maintain or delete compliance schedule activities, associate or disassociate deficiencies to a compliance schedule activity. Users will be able only to maintain/add a compliance schedule and add schedule activities to it. This means that the following buttons will be protected when Compliance Schedule Maintenance is invoked from Site Visit Maintenance (via the **Custom Response** button):

- [Compliance Schedule Activities] **Change**.
- [Compliance Schedule Activities] **Delete**.
- [Associated Deficiencies] **Associate**.
- [Associated Deficiencies] **Disassociate**.
- [Compliance Schedule] **Enf. Actions**
- [Compliance Schedule] **Copy**. (6.1.4 B)

Compliance Schedule Activities Group Box:

When the user highlights a schedule activity, all the deficiencies associated to this selected schedule activity will be shown in the Associated Deficiencies list. (6.1.4 C)

Associated Deficiencies Group Box:

The fields listed in Associated Deficiencies Group Box will be [Deficiency] No., Severity, Category, Date Identified, WSF State Asgn ID, Description, WS Notification Date, Resolved Date, WSF Name, and WSF Activity Status. The two Description fields will be concatenated into one, only displaying the one that is valued. If both are valued, both will be displayed (permitted value first) with a dash between them. Sort will be by Deficiency No. (6.1.4 D)

Buttons:

[Compliance
Schedule Activities]

Delete

This button will be enabled only when a Scheduled Activity has been highlighted. If the user presses this button and the Compliance Schedule Activity has already been associated to a violation, the software will return an error message: **This Scheduled Activity is associated to a violation and cannot be deleted. You must first disassociate this scheduled activity from the violation using the Violation Maintenance function in the Monitoring Component.** On pressing **OK**, the user will be able to see the scheduled activity that was not successfully removed from the list. Otherwise, if the current compliance schedule activity is not linked to any violation, the software will continue to display the current Delete Compliance Schedule Activity confirmation window. (6.1.4 E)

[Associated
Deficiencies]

Associate

This button will be enabled only when a Scheduled Activity has been highlighted. (The Compliance Scheduled Activities list will be a single-select list). If the user presses this button and the Compliance Schedule has already been associated to a Site Visit, the Deficiency Selection List

(as described in Subsection 4.1.2.6) will be displayed showing all deficiencies associated to the site visit (linked to the current compliance schedule). If the current compliance schedule has no site visit, the software will display the Site Visit Maintenance List, displaying all the site visits for the water system referenced by the Compliance Schedule and that are not yet linked to any compliance schedule. A Site Visit must already exist before a user can associate Compliance Schedule Activities to Deficiencies from the Compliance Schedule Maintenance window. As described in Subsection 4.1.2.2, the user must select the site visit that has the Visit Deficiency(ies) the user wants to associate to the Compliance Schedule. Once the user highlights a Site Visit record and selects **Edit/Select** (this will be the only **Edit** function available when flowing to the Site Visit Maintenance List from here), the Deficiency Selection List will be displayed as described above.

(6.1.4 F)

From the multi-select Deficiency Selection List, pressing **Select** will associate the Site Visit to the Compliance Schedule (if this has not yet occurred). The software will then check the highlighted compliance schedule activity and apply the following uniqueness criteria: If a Scheduled Activity for the same Compliance Schedule and the same Activity Type and the same Due Date and linked to the same Deficiency exists, the candidate Scheduled Activity would be considered a duplicate and will not be created. But, if there is a Scheduled Activity for the same Compliance Schedule and the same Activity Type and the same Due Date but not the same Deficiency, the software will link it to the selected deficiency. (6.1.4 G)

(To make it consistent with the current Compliance Schedule, this change will be committed to the database at this point.) The maximum number of Deficiency records that can be assigned at once will be 100.

[Associated
Deficiencies]
Disassociate

This button will be enabled only when one or more records from the Associated Deficiencies List has been highlighted. Pressing this button will remove (disassociate) the selected deficiency(ies) from the scheduled activity highlighted in the Compliance Scheduled Activities List. No disassociate confirmation dialog box will be displayed. (To make this disassociation consistent with the current Compliance Schedule, this change will be committed to the database at this point.) (6.1.4 H)

OK

Pressing this button will continue to create and update a Compliance Schedule according to current functionality. The following functionality is proposed. (In addition, if the user presses **OK** and the Compliance Schedule has been invoked from Site Visit Maintenance, and if the user has selected a scheduled activity, for each highlighted deficiency, the software will create a DEFICIENCY_SCHEDULE_ACTIVITY_ASSIGNMENT (table TINDFSAA) record.) Prior to creating the record, the following uniqueness criteria will be applied: If the software finds a Scheduled Activity for the same Compliance Schedule, the same Activity Type, the same Due Date, and the same Deficiency, the candidate Scheduled Activity would be considered a duplicate. (If the software encounters an existing scheduled activity that meets the criteria, the software will not create a new linkage; it will ignore the highlighted deficiency, because it already exists.) The software will then close the Compliance Schedule Maintenance window and return the user to the Site Visit Maintenance window. If a new Compliance Schedule is created, the software will associate it to the Site Visit prior to returning to the Site Visit Maintenance window. (6.1.4 I)

Copy

Clicking on the **Copy** button will not make a copy of the Compliance Schedule's association to a Site Visit or a copy of the associations between the Scheduled Activities and Deficiencies. (6.1.4 J)

In addition, the software will ensure that the target water system for the copy is part of the user's current Water System Group or Regulating Agency. If not, provide an exit state error message: **WS is not part of current group/agency. Change group/agency to access this WS.** (6.1.4 K)

6.1.5 Compliance Schedule Activity Maintenance

The appearance of the Compliance Schedule Activity Maintenance window will not change. However, some new functionality will be introduced to support Site Visit.

Button:**OK**

Prior to creating the new/changed scheduled activity, the following uniqueness criteria will be applied to the creation of a Scheduled Activity (when created at this point without a deficiency being specified).

- Criteria 1 (C1): If the software finds a Scheduled Activity for the same Compliance Schedule and the same Activity Type and the same Due Date that also is not associated to a deficiency, the

candidate Scheduled Activity would be considered a duplicate. The software will invoke exit state error message: **A scheduled activity for this Compliance Schedule, Activity Type, and Due Date already exists.** (Note: This criteria will be applied when the user is either adding a new scheduled activity or changing an existing scheduled activity that is not linked to a deficiency.) (6.1.5 A)

- Criteria 2 (C2): If the software will find a Scheduled Activity for the same Compliance Schedule and the same Activity Type and the same Due Date and the same Deficiency, the candidate Scheduled Activity would be considered a duplicate. The software will invoke exit state error message: **A scheduled activity for this Compliance Schedule, Activity Type, and Due Date already exists.** (Note: This criteria will be applied when the user is changing an existing scheduled activity that is already linked to a deficiency.) (6.1.5 B)

When a user enters an Achieved Date for a Compliance Schedule Activity and that activity is associated to a deficiency (with open Resolved Date) and there are no other scheduled activities associated to the deficiency that have an open Achieved Date, the software will invoke an advisory dialog box which has the following message: **All scheduled activities for this deficiency have been achieved. Do you want to resolve the deficiency with this Date?** The dialog box will feature a Resolved Date field that the user may change, but which will default to the Achieved Date just entered for the scheduled activity. The dialog box will also include protected pertinent information about the related deficiency. (6.1.5 C)

- If the user presses **No**, the dialog box will close and return the user to the Compliance Schedule Maintenance window, without updating the deficiency record. (6.1.5 D)
- If the user presses **Yes**, the software will value the Deficiency Resolved Date with the date supplied on this dialog box. If there are other deficiencies associated to the achieved scheduled activity that also satisfy the above criteria, this same dialog box will reappear. Otherwise, the dialog box will close and return the user to the Compliance Schedule Maintenance window. The software will apply the deficiency overlap check (as described in Subsection 4.1.2.5), when updating a deficiency. (There should not be an existing deficiency for the same water system, the same

Deficiency Severity, the same Deficiency Category, the same water system facility (if valued), the same Deficiency Description Permitted Value (if valued), with even one day of overlap in the Unresolved Period ([Date Identified] (if valued) to [Date Resolved] (if valued).) It will also apply an edit check for the Resolved Date. (6.1.5 E)

- If the user overwrites the default date with NULL or a blank date, the software will invoke the following exit state error message: **Resolved Date must not be blank.** (6.1.5 F)
- If the deficiency's Achieved Date is valued and the entered date (for deficiency's Resolved Date) is less than the Achieved Date, the software will invoke an exit state error message: **End Date cannot be earlier than Begin Date.** (6.1.5 G)
- If an overlap exists, the software will invoke the Overlapping Deficiency Warning dialog box, which will have the following message: **A deficiency for this Water System, Water System Facility (if supplied), Deficiency Severity, Deficiency Category, Description Permitted Value (if supplied) that at least partially covers the unresolved period (Date Identified to Date Resolved) in the proposed deficiency already exists.** The dialog box will have an **OK** button that, when pressed, will close the dialog box and return the cursor to the Achieved Date field. (6.1.5 H)

6.2 PN Schedule

Presentation Type 3: The information in this section is not a comprehensive design of this function and only reflects Release 8.0 changes/new functionality. As such, normal text means new functionality (e.g., a new button, window, etc. is introduced); redline/redline strikeout indicates where the functionality of an existing object (such as a field, button, menu item, etc.) has changed.

Minor changes have been made to the PN Schedules function to handle the fact that a violation may now be linked to a PN Schedule as well as the fact that regional users wish to link regionally owned EIE enforcement actions to PN violations.

6.2.1 Model Changes

Add a relationship between entities VIOLATION and PN_SCHEDULE_ACTIVITY where:

One Violation sometimes IS_THE_FAILURE_TO_COMPLY_WITH one or more Schedule Activities and

One PN Schedule Activity sometimes TRIGGERS one Violation.

6.2.2 PN Schedule Window Flow

Modest changes have been made to the PN Schedule windows to accommodate the PN Rule changes as well as the need for regions to associate EIE enforcement actions with PN violations.

6.2.2.1 PN Schedule Search

Protected Fields:

A new, protected field and group box has been added to show the Water System Group Name or Regulating Agency the user selected.

*WS Group Used/
Regulating Agency
Used*

This protected field will show the user's current Water System Group Name or Regulating Agency depending on which the user has made current. The software will dynamically change the prompt depending on whether Water System Group Name or Regulating Agency is current. The prompt will be "WS Group Used" if the user's current Water System Group is valued, otherwise the prompt will be "Regulating Agency Used." (6.2.2.1 A)

Entry Fields:

Water System No.

This works as it did in Release 7.0 except that if a valid water system is entered but is not part of the user's current Water System Group or Regulating Agency, invoke exit state error message: **WS is not part of current group/agency. Change group/agency to access this WS.** (6.2.2.1 B)

~~*SIE/SIE/EIE*~~
*Enforcement Action
Status Date Range*

Change name of existing prompt. (6.2.2.1 C)

Buttons:

Search

This button will operate as it does in Release 7.0 with two changes:

- The logic on the **Search** button has been modified to check that the user's current Water System Group/Regulating Agency is used as an implied search criteria in all searches for PN Activity records. This means that the software will retrieve only PN Activity records linked to a water system that is linked to the user's current Water System Group/Regulating Agency (note that the relationship to water system for a PN Activity is through its associated Enforcement Action). If an exact Water System No. is entered, the software will validate that it belongs to the user's current Water System Group/Regulating Agency. (6.2.2.1 D)
- When the user is searching by enforcement action, searches for both SIE and EIE enforcement action records. (6.2.2.1 E)

6.2.2.2 PN Schedule Maintenance List

Protected Fields:

The following field has been placed directly above the standard "Number of records retrieved" fields to display the user-specified current Water System Group/Regulating Agency that was used in the search to produce the list.

*WS Group Used/
Regulating Agency
Used*

This protected field will show the user's current Water System Group Name or Regulating Agency depending on which the user has made current. The software will dynamically change the prompt depending on whether Water System Group Name or Regulating Agency is current. The prompt will be "WS Group Used" if the user's current Water System Group is valued, otherwise the prompt will be "Regulating Agency Used." (6.2.2.2 A)

6.2.2.3 PN Schedule Activity Maintenance List

Buttons:

[PN Schedule
Activities **Delete**]

This button will be enabled only when a PN Scheduled Activity has been highlighted. If the user presses this button and the PN Schedule Activity

has already been associated to a violation, the software will return an error message: **This PN Schedule Activity is associated to a violation. You must first disassociate this PN schedule activity from the violation using the Violation Maintenance function in the Monitoring Component.** On pressing **OK**, the user will be able to see the PN schedule activity that was not successfully removed from the list. Otherwise, if the current PN schedule activity is not linked to any violation, the software will continue to display the current Delete PN Schedule Activity confirmation window. (6.2.2.2 B)

[PN Schedule
Activities **Select**]

This button will be enabled only when a PN Scheduled Activity has been highlighted and when the window has been invoked from the Violation Maintenance window, specifically from the Violation PN Activity Association List. (6.2.2.2 C)

6.2.2.4 PN Schedule Activity Maintenance

Protected Fields:

*Status of Associated
PN Violation*

Add this protected field below the Condition field and above the **Previous** and **Next** buttons. Display the `D_CURRENT_STATUS_TYPE_CODE` from the PN violation to which the PN Activity may be directly related (note that this is not the violation to which the PN Activity is related through its parent enforcement action record but rather through the new, direct relationship between PN Activity and Violation specified above.)

6.3 Enforcement Action

Presentation Type 3: The information in this section is not a comprehensive design of this function and only reflects Release 8.0 changes/new functionality. As such, normal text means new functionality (e.g., a new button, window, etc. is introduced); redline/redline strikeout indicates where the functionality of an existing object (such as a field, button, menu item, etc.) has changed.

The changes in Enforcement Action are triggered by the new Public Notification Rule, by the need to be able to link a public notification activities to an EIE or SIE enforcement action and EPA's change in the way violation period is characterized for some violation which involves the return to compliance action (SOX or EOX enforcement actions). In addition, EPA Regions would like to be able to create regionally-owned enforcement actions using the "E" action types and use SDWIS/STATE's Migration to SDWIS/FED component to report these

regionally-owned violations and enforcement actions. These enforcement actions apply to those water systems over which the region has direct implementation (primacy) authority.

6.3.1 Enforcement Action Search

The Enforcement Action Search dialog box will be invoked as in Release 7.0, but it will be revised to always apply and display the users current Regulating Agency or Water System Group. To accomplish this, the following changes will be needed.

Protected Fields:

A new protected field and group box has been added to show the to the Water System Group Name or Regulating Agency the user selected.

*WS Group Used/
Regulating Agency
Used*

This protected field will show the user's current Water System Group Name or Regulating Agency depending on which the user has made current. The software will dynamically change the prompt depending on whether Water System Group Name or Regulating Agency is current. The prompt will be "WS Group Used" if the user's current Water System Group is valued, otherwise the prompt will be "Regulating Agency Used."

Entry Fields:

Water System No.

This field will work as it did in Release 7.0, except that if a valid water system is entered but is not part of the user's current Water System Group or Regulating Agency, invoke exit state error message: **WS is not part of current group/agency. Change group/agency to access this WS.**

Buttons:

Search

The logic on the **Search** button will be modified to check that the user's current Water System Group/Regulating Agency is used as an implied search criteria in all searches for Enforcement Action records. This means that the software will retrieve only enforcement actions linked to a water system that is linked to the user's current Water System Group/Regulating Agency. If an exact Water System No. is entered, the software will validate that it belongs to the user's current Water System Group/Regulating Agency.

6.3.2 Enforcement Action Maintenance List

The following changes will be made to the Enforcement Action Maintenance List.

Edit

Select The **Edit/Select** menu item will not be new with Release 8.0. However, this item is included in this design document to ensure that it is fully tested with the Violation Maintenance function, which will experience several changes with this release. Selecting **Edit/Select** will associate the selected enforcement actions to the violation by creating a new VIOLATION_ENFORCEMENT_ACTION_ASGMT record (table TMNVIEAA) for each highlighted enforcement action. The software will close the window and return the user to the Violation Enforcement Actions Association List with the selected enforcement actions showing on the list. The selected records will be passed to the invoking routine. At this point, the software will not commit any VIOLATION_ENFORCEMENT_ACTION_ASGMT record to the database. (This will occur when user presses **OK** on the Violations Maintenance window.) The user may select between 1 and 100 records to associate at one time.

PN Schedule On the Enforcement Action Maintenance List, when a user highlights either an SIE or EIE record, the software should enable the **Edit/PN Schedule** menu item. (Currently, users can only enter PN schedules from the Enforcement Action Maintenance if the Action Type = "SIE." Because this is so, regional offices are not able to enter PN schedules.)

List Boxes:

The name of the existing "Associated Schedules" group box will be changed to "Associated Compliance Schedules" to reflect that associated PN schedule activities will not be displayed here.

Protected Fields:

The following field has been placed directly above the standard "Number of records retrieved" fields to display the user-specified current Water System Group/Regulating Agency that was used in the search to produce the list.

*WS Group Used/
Regulating Agency
Used*

This protected field will show the user's current Water System Group Name or Regulating Agency depending on which the user has made current. The software will dynamically change the prompt depending on whether Water System Group Name or Regulating Agency is current. The prompt will be "WS Group Used" if the user's current Water System Group is valued, otherwise the prompt will be "Regulating Agency Used."

6.3.3 Enforcement Action Maintenance

The following changes will be made to the Enforcement Action Maintenance window.

Entry Fields:

The name of the "Associated Schedules" group box will be changed to the "Associated Compliance Schedules" group box to reflect that associated PN scheduled activities are not displayed here.

Action Type

Users will continue to be able to create enforcement actions of type "E" as they may currently do. (When pressing the **Go To** button from the Enforcement Action Maintenance , The Action Type List would still default to showing only the "S" types, but the user would just need to press the **Show All Types** button to see all available E and S types. Typically, users know the action type they want to use and just enter it without using the **Go To** button.)

Data Origin Code

If the Primacy Agency (Government Agency where Primacy Indicator is Y) is defined as type Regional (RG), the DATA_ORIGIN_CODE should default to "R," if the Primacy Agency is defined as type State (ST), the DATA_ORIGIN_CODE will continue to default to "S."

Buttons:

Schedule

When the user presses this button, if the Action Type is SIE or EIE, the software will invoke the PN Schedule Activity Maintenance list; otherwise, it will invoke the Enforcement Action Compliance Schedule Association List.

OK

Apply all existing actions on this button. In addition, if

- The Action Type referenced by the enforcement action is SOX, EOX, SO6, or EO6 and
- Its Status is “Taken” and
- The enforcement action is associated to a violation who’s status is “V” and Violation Period End Date is blank.

Invoke the new Violation Period End Date Advisory dialog box. This dialog box will present following question (shown as literal):
Do you want any associated, validated violations that have no date in Violation Period End Date to be valued with the date in this Enforcement Action’s Status Date field?

The dialog box will have two buttons: **Yes** and **No**.

Pressing **Yes** will close the dialog box and value any null valued Violation Period End Date fields of any associated, validated Violations with the Status Date of the Enforcement and continue **OK** button processing. Any associated violation whose Violation Period End Date has changed will be updated. (The software will not overwrite a non-null date.)

Pressing **No** will close the dialog box and continue **OK** button processing.

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7.0 ONLINE MONITORING AND NONCOMPLIANCE DETERMINATION

Many changes throughout SDWIS/STATE components have been identified to enable Compliance Decision Support (CDS) for the existing Turbidity Rule, Surface Water Treatment Rule (SWTR), the new Interim Enhanced Surface Water Treatment Rule (IESWTR) and Stage 1 Disinfectant/Disinfection By-Products (D/DBP) rules, as well as changes to the Lead and Copper Rule and Public Notification Rule. This section includes changes that enable compliance determination for these rules as well as the logic and criteria that SDWIS/STATE uses to actually implement compliance decision support for these rules.

7.1 Facility Analyte Level

Presentation Type 2: The information in this section reflects a Release 8.0 update to an existing documented design. As such, normal text means no change from the current 7.0 release; redline/redline strikeout indicates where the functionality of an existing object (such as a field, button, menu item, etc.) has changed or where new functionality has been added for Release 8.0.

Several changes have been made to entity FACILITY_ANALYTE_LEVEL (table ~~TSAFANL~~-TMNFANL) to support the D/DBP and Lead and Copper Rule Minor Revisions (LCRMR) rules.

7.1.1 Model Changes for Facility Analyte Level

New permitted values have been added to the following two attributes:

- LEVEL_TYPE—new Permitted Value for “95P” (95th Percentile) and “AVG” (Average).
- UOM_CODE—new Permitted Value for “Ratio” to indicate Total Organic Carbon (TOC) Removal Ratio.

Several new attributes have been added to entity FACILITY_ANALYTE_LEVEL:

- INDIV_FILTER_MON_REQ_FLAG—Text, 1, optional (Individual Filter Monitoring Required Flag). Permitted values will be: Y, N. This field is meant to be used with the INDIVIDUAL_FILTERS_TYPE_MDBP_SUMMARY entity and can only be entered for a Level Type of “95P.”
- DAYS_TO_MONITOR_PER_MONTH—2-digit number, optional. Permitted values: 1 to 31. Will store the default value that comes up in the MDBP Sample Summary window to indicate number of days to monitor in a month for a particular analyte at a particular water system facility. A value of 31 means “every day of the month.”

- NUM_SAMPLES_PER_DAY—5-digit number, optional Permitted values will be: 1 to 24. Will store the default value that comes up in the MDBP Sample Summary windows to indicate the number of times per day to monitor for a particular analyte at a particular water system facility. A value of 24 means “continuous.”
- SUMMARY_TYPE—Text, 4, optional. Will store the type of MDBP Summary used in calculation to determine compliance with both M&R and level. The following permitted values will be supplied (and stored in table TINPVALS), but SDWIS/STATE Administrators may add new ones.

-	AVGT	CFE Average Turbidity.
-	MAXT	CFE Maximum Turbidity.
-	95PT	CFE 95% Turbidity.
-	IFT	Individual Filter Effluent Turbidity.
-	EPRD	Entry Point RDC.
-	SERD	State EP RDC.
-	CLO2	EP Chlorine Dioxide.
-	CLO3	EP Chlorite.
-	DSRD	Distribution RDC.
-	SDRD	State Distribution RDC.
-	MRDL	Chlorine/Chloramine MRDL.
-	OTHR	Other.
- MDBP_SUMMARY_CHECK_FLAG—Text, 1, optional. Permitted values will be: spaces, Y (Yes), N (No). It will indicate whether MDBP Summaries will be used in checking for compliance at the Facility Analyte Level.

Several new relationships will be added to entity FACILITY_ANALYTE_LEVEL:

- Each FACILITY_ANALYTE_LEVEL will sometimes relate to one VIOLATION_TYPE (M&R). Each VIOLATION_TYPE (M&R) will relate to one or more FACILITY_ANALYTE_LEVEL.
- Each FACILITY_ANALYTE_LEVEL will sometimes relate to one VIOLATION_TYPE (Level). Each VIOLATION_TYPE (Level) will relate to one or more FACILITY_ANALYTE_LEVEL.
- Each FACILITY_ANALYTE_LEVEL will sometimes relate to one or more MDBP_SUMMARY. Each MDBP_SUMMARY will relate to one FACILITY_ANALYTE_LEVEL.

Edit

- Add* Selecting **Edit/Add** will display the Facility Analyte Level Maintenance window in Add mode. This option will be enabled when a record has not been highlighted.
- Change* Selecting **Edit/Change** will display the Facility Analyte Level Maintenance window with the selected monitoring record. This option will be enabled only when a record has been highlighted.
- Delete* Selecting **Edit/Delete** will display a delete confirmation dialog box for the selected record. This option will be enabled only when a record has been highlighted.

If the Facility Analyte Level selected for deletion is referenced by an MDBP Summary, the software will invoke exit state error message: **This Facility Analyte Level is referenced by an MDBP Summary and cannot be deleted.**

If the Facility Analyte Level selected for deletion is referenced by a validated or preliminary violation, the software will invoke exit state error message: **This Facility Analyte Level is referenced by one or more preliminary or validated violations and cannot be deleted.**
(7.1.2.2 A)

- Select* The **Edit/Select** menu item will be enabled only when the list is invoked from Violation Maintenance (specifically, from the Violation Facility Analyte Level Association List). Selecting **Edit/Select** will trigger the creation of an association between Violation and one or more FANLs. Once the user has highlighted the FANL and presses **Select**, the window will close and return the user to the Violation Facility Analyte Level Association window with the selected FANL showing on the list. Note that at this point, the software will not commit any association between a Violation and a FANL record to the database. This will occur when the user presses **OK** on Violation Maintenance. (7.1.2.2 B)

View

- Search* Selecting **View/Search** will invoke the Facility Analyte Level Search dialog box.
- Sort* Selecting **View/Sort** will invoke the standard Sort window.

Filter by The user may filter by Water System Number, WSF Assigned ID, Analyte Code, Effective Begin Date Range, Effective End Date Range, Control Level Type, Level and UOM, M&R Violation Type, Level Violation Type, Water System Name, Facility Name, or Analyte Name. (7.1.2.2 C)

Refresh Selecting **View/Refresh** will retrieve the unfiltered list (original search criteria).

List Columns:

Water System No., WSF State Asgn ID, Analyte Code, Control Level Type, Level, UOM, Begin Date, Effective End Date, Days to Monitor Per Month, No. of Samples per Day, Individual Filter Monitoring Flag, M&R Violation Type, Level Violation Type, Water System Name, Water System Facility Name, Analyte Name, M&R Violation Name, and Level Violation Name. (7.1.2.2 D)

Protected Fields:

Number of rows resulting from search criteria entered Will show the total number of rows that met the search criteria.

Number of rows displayed Will show the total number of rows that are displayed in the list, which may be less than the number of rows that met the search criteria.

Exhibit 7-3 presents the proposed Facility Analyte Level Maintenance window.

7.1.2.3 Facility Analyte Level Maintenance

Water System Facility Group Box:

The Water System Facility group box contains Water System No. and Name as protected fields.

WSF State Asgn ID The user will provide the State Assigned ID of the Water System Facility for which the user wishes to create the facility analyte level. The field's prompt will be blue and underlined to indicate that this field is mandatory. The **Go To** button can be used to select a valid water system facility from a list.

The field's prompt will be blue and underlined to indicate that this field is mandatory.

If the supplied Analyte does not exist in the database, the software will not supply a message but will directly invoke the Analyte Selection List from where the user may select a valid analyte.

(Developer's Note: Use the existing SBS_ANALYTE_SELECT_LIST procedure.)

If the user enters Analyte Code 2920 (Total Organic Carbon) or selects it from the Analyte Selection List, the software should default the following values:

- Field Control Level Type—Min.
- Field Control Level—1.0.
- Field Level UOM—Ratio. (7.1.2.3 C)

Begin Date

The first date for which the facility analyte level is effective. The field's prompt will be blue and underlined to indicate that this field is mandatory.

End Date

The user may optionally enter the last date that the facility analyte level is effective.

Control Level Type

Permitted values will be MAX (Maximum), MIN (Minimum), **AVG (Average), and 95P (95 Percent)**. The field's prompt will be blue and underlined to indicate that this field is mandatory. This field will be defaulted to MAX. **This field will be protected if the Facility Analyte Level record is associated with one or more MDBP Summary records. (7.1.2.3 D)**

*Level and [Level
Unit of Measure]*

Text value that captures the measure and the unit of measure. The field's prompt will be blue and underlined to indicate that this field is mandatory. The new permitted value "Ratio" will be displayed in the dropdown list. These fields will be protected if the Facility Analyte Level record is associated with one or more MDBP Summary records (7.1.2.3 E)

Monitoring Parameters Group Box:

*Days to monitor
per month*

The user may optionally enter a numeric value (1 to 31) that specifies the default number of days (to monitor) per month to be displayed in the MDBP Summary Maintenance windows. A value of "31" would be interpreted by the software to mean everyday. (7.1.2.3 F)

*Samples required
per day*

The user may optionally enter a numeric value that specifies the default number of required samples per day to be displayed in the MDBP Summary Maintenance windows. A value of "24" would be interpreted by the software to mean continuous or every hour. (7.1.2.3 G)

*Individual filter
monitoring required*

Permitted values will be "Yes," "No," or spaces. This field applies to 95th percentile levels and is enabled for entry only if the Control Level Type selected is "95P."

Note: While this field is optional, it must be valued for CDS processes to determine individual filter monitoring violations. (7.1.2.3 H)

Violation Types for Compliance Check Group Box:

Level Violation Type The user may enter a valid Level Violation Type or use the **Go To** button to display the Violation Type Selection List which will be sorted by ascending type. Only violations of violation category Maximum Contaminant Level (MCL) or Treatment Technique (TT) will be listed. As the user enters/changes a value and tabs off the Level Violation Type field, the software will check that the supplied Violation Type is valid, then populate the retrieved Violation Type's Name value in the corresponding protected field. If the supplied Level Violation Type does not exist in the database, the software will not supply a message but will directly invoke the Violation Type Selection List from which the user may select a valid Level Violation Type. (7.1.2.3 I)

*(Developer's Note: Use the existing MBS_C_VIOL_TYPE_SELECTION_LIST for both M&R and Level Violation Type **Go To** buttons.)*

Note: While this field is optional, it must be valued for CDS processes to determine monitoring compliance.

M&R Violation Type The user may enter a valid M&R Violation Type or use the **Go To** button to display the Violation Type Selection List which will be sorted by ascending type. Only violations types whose Category is (Monitoring (Mon) or Reporting (Rpt)) and whose Severity Level is either (null or Major (MJ)) will be listed. As the user enters/changes a value and tabs off the M&R Violation Type field, the software will check that the supplied Violation Type is valid, then populate the retrieved Violation Type's Name value in the corresponding protected fields.

If the supplied M&R Violation Type does not exist in the database, the software will not supply a message but will directly invoke the Violation Type Selection List from which the user may select a valid M&R Violation Type. (7.1.2.3 J)

Note: While this field is optional, it must be valued for CDS processes to determine monitoring compliance.

Check MDBP Summaries

Permitted values will be "Yes," "No," or spaces. The user may optionally indicate that CDS processes should check MDBP Summary records to determine compliance at the Facility Analyte Level. (7.1.2.3 K)

MDBP Summary Type

This field will be enabled when the Check MDBP Summaries flag is set to "Yes." The user may optionally specify which type of MDBP Summary to check during compliance determination. This field will map to attribute SUMMARY_TYPE_CODE_CV (of entity FACILITY_ANALYTE_LEVEL). When the user tabs off this field, the software will display the description that matches this value in the protected Description field (which maps to attribute DESCRIPTION in entity PERMITTED_VALUES). If the user enters a value that is not in the database, the software will directly invoke the Permitted Values Selection List showing these values (in the Text Value and Description columns, respectively):

- AVGT CFE Average Turbidity.
- MAXT CFE Maximum Turbidity.
- 95PT CFE95% Turbidity.
- IFT Individual Filter Effluent Turbidity.
- EPRD Entry Point RDC.
- SERD State EP RDC.
- CLO2 EP Chlorine Dioxide.

- CLO3 EP Chlorite.
- DSRD Distribution RDC.
- SDRD State Distribution RDC.
- MRDL Chlorine/Chloramine MRDL..
- OTHR Other.

(Developer's Note: Pass into action block Validate Text Permitted Value the following value for entity CODE, attribute CODE_NAME:

TSAMDBPS1. Only permitted values for this code value may be used in this field.) (7.1.2.3 L)

Tab Sequence:

WSF State Asgn ID, WSF State Asgn ID **Go To** button, Analyte Code, Analyte Code **Go To** button, Begin Date, End Date, Control Level Type, Level, Level Unit of Measure, Days to Monitor per Month, Samples Required per Day, Individual filter monitoring required, Level Violation Type, Level Violation Type **Go To** button, M&R Violation Type, **Go To** button, Check MDBP Summaries, MDBP Summary Type, MDBP Summary Type **Go To** button, **OK** button, **Cancel** button, **Help** button. (7.1.2.3 M)

Buttons:

Level Violation

Type **Go To**

Pressing this button will invoke the Violation Type Selection List, sorted by ascending type. Only violations of Violation Category Maximum Contaminant Level (MCL) or Treatment Technique (TT) will be listed. The selected Violation Type populates the Level Violation Type fields. (7.1.2.3 O)

M&R Violation

Type **Go To**

Pressing this button will invoke the Violation Type Selection List, sorted by ascending type. Only violation types whose Category is (Monitoring (Mon) or Reporting (Rpt)) and whose Severity Level is either (null or Major (MJ)) will be listed. The selected Violation Type populates the M&R Violation Type fields. (7.1.2.3 P)

MDBP Summary

Type **Go To**

This button will be enabled when the Check MDBP Summaries flag is set to "Yes." When the user presses this button, list invoke the Permitted Values Selection List showing these values (in the Text Value and Description columns, respectively):

- AVGT CFE Average Turbidity.
- MAXT CFE Maximum Turbidity.

- 95PT CFE 95% Turbidity.
- IFT Individual Filter Effluent Turbidity.
- EPRD Entry Point RDC.
- SERD State EP RDC.
- CLO2 EP Chlorine Dioxide.
- CLO3 EP Chlorite.
- DSRD Distribution RDC.
- SDRD State Distribution RDC.
- MRDL Chlorine/Chloramine MRDL..
- OTHR Other.

*(Developer's Note: Pass into action block Validate Text Permitted Value the following value for entity CODE, attribute CODE_NAME: **TSAMDBPS1.**)*

All permitted values for this code value should be listed including any beyond those listed above that the administrator may have added.
(7.1.2.3 N)

OK

When the user presses this button,

- If WSF State Asgn ID is not supplied, invoke existing exit state error message: **WSF State Asgn ID is a required field.** Return cursor to WSF State Asgn ID. (7.1.2.3 Q)
- If Analyte Code is not supplied, invoke existing exit state error message: **Analyte is a required field.** Return cursor to Analyte Code. (7.1.2.3 R)
- If Begin Date is not supplied, invoke existing ~~new~~ exit state error message: **Facility Analyte Level Begin Date is a required field.** Return cursor to Facility Analyte Level Begin Date. (7.1.2.3 S)
- If Control Level Type is not supplied, invoke existing ~~new~~ exit state error message: **Facility Analyte Control Level Type is a required field.** Return cursor to Control Level Type. (7.1.2.3 T)
- If Level and Level Unit of Measure are not supplied, invoke ~~existing new~~ exit state error message: **Facility Analyte Level and Unit of Measure are required fields.** Return cursor to Control Level. (7.1.2.3 U)

- **If Level Violation Type or M&R Violation Type is not supplied,** invoke new Violation Type Association Advisory warning dialog box with the following dynamically changing message:
 - If Level Violation Type not supplied, message (literal) should say: **A level violation type was not specified. Generally, level compliance determination will not be performed if you do not specify a level violation type. Would you like to associate a level type violation?**
 - If M&R Violation Type is not supplied, message (literal) should say: **A M&R violation type was not specified. Generally, M&R compliance determination will not be performed if you do not specify a level violation type. Would you like to associate a level type violation?**

The dialog box will have two buttons. Yes will close the dialog box and return the cursor to either the Level or M&R Violation Type field. No will close the dialog box and continue OK button processing. (7.1.2.3 V)

- If Analyte Code is 0100 (turbidity) and level type is MAX, and M&R Violation Type is valued, invoke new dialog box with exit state error message: **Facility Analyte Level for Analyte Code 0100 (turbidity) and level type MAX may not be associated with a M&R type violation. M&R violations are calculated using the Facility Analyte Level with level type of 95P or AVG.** Return the cursor to Violation Type. (7.1.2.3 W)
- Invoke the following uniqueness overlapping edit checks in both Add and Change modes:
 - Check for a facility analyte level already existing for the same Water System Facility, same Analyte, same level type, the same federally owned M&R or level violation type (state code is HQ) and with at least a day of overlap in the Effective Period. If a Facility Analyte Level record meeting this uniqueness criteria exists, present exit state error message: *Effective dates of this analyte level overlaps with another Facility Level Analyte.* **FANL for the same WSF, analyte, level type, effective per and HQ vio type already exists.** (7.1.2.3 X)

-- For purposes of the overlap check, Analyte Codes 0999 (chlorine) and 1006 (chloramine) should be considered the same. (7.1.2.3 Y)

-- For purposes of the overlap check, Violation Types 31 and 36 should be considered the same. (7.1.2.3 Z)

All fields can be modified in Change mode (except where previously specified protections apply where the Facility Analyte Level is associated with one or more MDBP summaries.

Cancel Pressing this button will cause the software to disregard any data entered and return the user to the previous window. (7.1.2.3 AA)

Help Pressing this button will invoke online Help for the window. (7.1.2.3 AB)

7.2 Non-TCR Sample Schedule/Schedule Group

Presentation Type 2: The information in this section reflects a Release 8.0 update to an existing documented design. As such, normal text means no change from the current 7.0 release; redline/redline strikeout indicates where the functionality of an existing object (such as a field, button, menu item, etc.) has changed or where new functionality has been added for Release 8.0.

SDWIS/STATE will record when, where, and what sampling is necessary by relating several pieces of information. For example, the requirement that one routine sample be collected and analyzed for the regulated volatile organic chemicals (VOC) at Water System Facility #1 every 3 years with the next sample to be collected between 1/1/1999 and 12/31/2001 will be stored in SDWIS/STATE Release 8.0 in six different but related entities (tables):

WATER_SYSTEM_FACILITY (TINWSF) **SAMPLING_POINT (TSASMPPT)**, **SAMPLE_SCHEDULE_GROUP (TMNSSGRP)**, **MONITORING_REQUIREMENT (TMNMNR)**, **ANALYTE_GROUP (TSAANGRP)**, **SAMP_SCHEDULE_MNTRG_PERIOD_ASGMT (TMNSSMPA)**, and **MONITORING_PERIOD (TMNMPRD)**. Some refer to all these pieces of information as a sample schedule. However, in SDWIS/STATE, the term sample schedule includes all these pieces except the period during which the next sample will be collected. Therefore, in SDWIS/STATE terminology, the above sample schedule is “one routine sample must be collected and analyzed for the regulated volatile organic chemicals at Water System Facility #1 every 3 years.” SDWIS/STATE calls the last piece of information, “with the next sample to be collected between 1/1/1999 and 12/31/2001,” the Sample Schedule Monitoring Period Assignment (SSMPA).

As suggested in this example, a Schedule Group will be a schedule associated with an analyte group to which a “hidden schedule” for each analyte in the group will be associated. (Schedule Groups are conceptually similar to Violation Groups and will be maintained in the Non-TCR Schedule Maintenance window in the same way that Violation Groups are maintained on the Violation Maintenance window.) When a user decides to create a “schedule” and selects an Analyte Group, this action will trigger the creation of a Schedule Group as well as the creation of as many “hidden” schedules as there are analytes in the Analyte Group. Hidden schedules will be “hidden” in the sense that they will not be displayed on the Non-TCR Schedule Maintenance List, nor will they be maintained in the Non-TCR Schedule Maintenance window. Only Schedule Groups and individual non-TCR schedules may be maintained. However, hidden schedules are important, because they will be used by *CDS* processes to determine compliance. When first created, each hidden schedule in the Schedule Group will be identical to every other hidden schedule in the group except for its analyte.

Periodically, the monitoring requirement for one or more of the analytes in a Schedule Group may change. When this happens, the user may specify one or more “exception analytes;” that is, analytes that are exceptions to the monitoring requirement associated with the rest of the hidden schedules in the group. Specifying an exception analyte will trigger the closure of its hidden schedule within the Schedule Group. The exception analyte will be permanently associated with the Schedule Group, so that a record exists that the user elected to specify that the analyte is no longer part of the Schedule Group (even though the analyte may still be part of the Analyte Group). It will then be necessary to create a new individual non-TCR schedule for the exception analyte.

While the previously mentioned SSMPA associations are important to overall *CDS* processing, users do not have to create them, and they are not even created automatically during online non-TCR schedule maintenance. For these reasons, this subsection does not contain further details explaining how SSMPA records will be created and used (see the *CDS Setup* chapter of the SDWIS/STATE System Administration Guide for this information).

There will be several significant changes to non-TCR schedules in Release 8.0. First will be the introduction of Sampling Point Subschedules for both non-TCR schedules and schedule groups. In Release 7.0, a schedule was linked to a water system facility through a sampling point. In Release 8.0, a schedule will be linked directly to a water system facility and can optionally be linked to one or more sampling points. As in Release 7.0, compliance determination will continue to be done at the water system facility level. While the sampling schedule will apply to the water system facility, in order to enable users to optionally choose to determine compliance at the more detailed sampling point level, a Sampling Point Subschedule will be added to record the requirement to the sample at one or more sampling points within a Water System Facility. A Sample Schedule may optionally have one or more Sampling Point Subschedules.

Another proposed change to the way non-TCR schedules work for Release 8.0 will be the introduction of Schedule Packages. This proposed change will address a very specific and unique situation specified in the new Interim Enhanced Surface Water Rule (IESWTR), namely the precursor monitoring requirements (i.e., total organic carbon monitoring to determine precursor removal). This change will enable a user to associate a raw water schedule with its appropriate finished water schedule, thereby enabling SDWIS/STATE to not only determine M&R compliance but also treatment technique compliance with the precursor requirements. While users will also be able to package other schedules, other types of packages will not be recognized and analyzed by any compliance determination support processes.

A third significant change will be that the appropriate Violation Type for a given Non-TCR Schedule will be indicated by associating its Monitoring Requirement to a Violation Type. This new relationship will be used in two ways. First, it will be used by the *CDS* compliance processes to determine which schedules should be assessed by a given process. Second, the associated Violation Type will be used when creating candidate M&R violations. This relationship will also be used by *Migration to SDWIS/FED* to determine the appropriate code that should be reported to SDWIS/FED as the contaminant code if a violation is determined.

The fourth significant change will be that users will be able to override the *CDS* assessed status of a Non-TCR schedule. In Release 7.0, *CDS Setup* assesses whether a schedule is a candidate for increased or decreased monitoring or should stay the same. This field will now be maintainable on the maintenance window.

7.2.1 Model Changes for Non-TCR Schedule

The following model changes have been made to support non-TCR scheduling for Release 8.0:

- SAMPLE_SCHEDULE and SAMPLE_SCHEDULE_GROUP. (7.2.1 A)
 - The existing Monitoring Assessment flag has new permitted values as follows to be used by *CDS Setup* in addition to the existing values that specify whether the schedule has been assessed for increased, decreased, or same level monitoring.
 - X - Schedule has been assessed and the user has elected for it not to show on future reports. If the user has marked the Schedule's Monitoring Assessment Flag with X, the schedule will not be reassessed when *CDS Setup* executes.
 - A - Schedule has been assessed and is a candidate for Increased/Decreased monitoring, but the user has elected for it not to show on future reports. If any circumstances change that trigger reassessment, (i.e., modified results, sample schedules, or monitoring periods) the schedule will be reassessed the next time that *CDS Setup* is run.

- A new CDS Setup Processed flag will be added to Sample Schedule and Schedule Group for use by one of the *CDS* functions to record whether a schedule has been processed by *CDS Setup*.
- A new Schedule Assessed Timestamp will be added to Sample Schedule to record the last date/time that CDS Setup Increased/Decreased Assessment processes evaluated the schedule.
- The existing relationship between Sample Schedule/Schedule Group and Sampling Point has been removed. A new relationship between Sample Schedule/Schedule Group and Water System Facility has been established.
- A new entity, `SAMPLING_POINT_SUBSCHEDULE`, will be added to record the specification of one or more sampling locations within a Water System Facility. A Sample Schedule may optionally have one or more Sampling Point Subschedules. (7.2.1 B)
- A `SAMPLING_POINT_SUB-SSMPA` (`SAMPLE_SCHEDULE_MONITORING_PERIOD_ASGMT`) entity will be added to link a specific Monitoring Period to a specific Sampling Point Subschedule, so that a Sample Result may be shown to have been taken in direct compliance with that Sampling Point Subschedule. (7.2.1 C)
- New `SCHEDULE_PACKAGE` and `SCHEDULE_GROUP_PACKAGE` entities will be added with relationships to `SAMPLE_SCHEDULE` and `SCHEDULE_GROUP`, respectively, to support the concept of Schedule Packaging, that is, to record that either a finished/principal water schedule or schedule group may optionally be linked to (or packaged with) one or more raw/supporting water system schedules. (7.2.1 D)

Additional information about these entities is contained in Appendix A (SDWIS/STATE Release 8.0 Entities of Interest).

7.2.2 Non-TCR Schedule Window Flow

Exhibit 7-4 illustrates the enhancements to the *Monitoring and Noncompliance* main menu to support maintenance of TCR and Non-TCR Sample Schedules. As shown in Exhibit 7-4, menu options **Edit/TCR Schedules** and **Edit/Non-TCR Schedules** will take the user to the appropriate schedule maintenance areas.

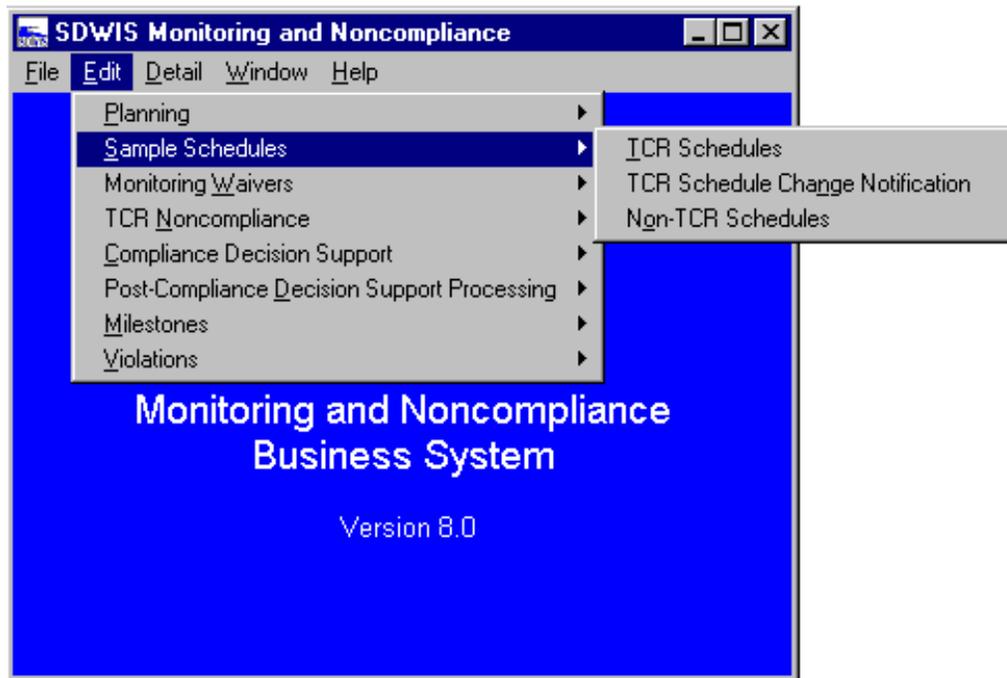


Exhibit 7-4. Monitoring and Noncompliance Main Menu

7.2.2.1 Non-TCR Sample Schedule Search

Selecting **Non-TCR Schedules** will invoke the Non-TCR Sample Schedule Search dialog box (Exhibit 7-5). The user must specify a water system and may optionally specify a water system facility for the specific water system. The additional search by water system facility will be required to limit the search to 1,000 schedules for large water systems.

WSF State Asgn ID Water system facility state assigned ID field may be entered or the user may choose a facility from a list by pressing the **Go To** button next to this field. This will be an optional field. This field will be protected until a water system number is entered.

Tab Sequence:

Water System No., Water System No. **Go To** button, Water System Name, WSF State Asgn ID, WSF State Asgn ID **Go To** button, **Search** button, **Cancel** button, **Help** button.

Buttons:

Water System No.

Go To

If the user presses this button, the water system selection list will be displayed; if the user has typed part of the water system number or part of the water system name it will be used in the search to bring up the water system selection list. The user may select a water system from this list.

WSF State Asgn

ID Go To

If the user presses this button, the water system facility list for the water system in the water system field will be displayed. The user may select a water system facility from among those in the list to look at Schedules for that specific facility. If the user presses this button without entering a valid water system, then there will be an error message requiring the user to select a valid water system first.

Search

The user's current Water System Group/Regulating Agency will be used as an implied search criteria in all searches for sample schedule records. This means that the software will retrieve only sample schedules linked to a water system that is linked to the user's current Water System Group/Regulating Agency. If an exact Water System No. is entered, the software will validate that it belongs to the user's current Water System Group/Regulating Agency. If it does not belong, invoke exit state error message: **WS is not part of current group/agency. Change group/agency to access this WS.**

If the Non-TCR Sample Schedule Search dialog box was invoked from either the *Monitoring and Noncompliance* main menu or the Non-TCR Sample Schedule Maintenance List and if an exact Water System No. or Water System Name has been entered, clicking the **Search** button will display the Non-TCR Sample Schedule Maintenance List with all the active current and future schedules listed. If a water system facility is

also entered, the Non-TCR Sample Schedule Maintenance List will list only the active current and future schedules for the selected water system facility. If a partial Water System No. or Water System Name has been entered, an error message will be displayed instructing the user to type in an appropriate Water System No. or select one from the list. (7.2.2.1 A)

If the Non-TCR Sample Schedule Search dialog box was invoked from **the Schedule Package Association List, the software retains the finished/principal schedule and retrieves schedules for the specified** water system and if supplied, water system facility, and displays them as candidate raw/supporting sample schedules in the Schedule Package Association List according to the following criteria:

For TOC Packages, this list will display candidate raw TOC schedules that have not already been assigned to the Finished Schedule and that meet the following criteria: The schedule or schedule group's

- Water System (and water system facility if specified) will be the same as that specified on the Non-TCR Sample Schedule Search dialog box and
- Monitoring Requirement's Analyte Code will be either 2920, 1067, or 1927 (or a schedule group containing schedules of these analytes) and
- Water System Facility's type will not be either Distribution System "DS" or Treatment Plant "TP."

For schedule packages of other types, candidate schedules for this list should be of the water system (and water system facility if specified) as that specified on the Non-TCR Sample Schedule Search dialog box and should not already be assigned to the Principal Schedule. (7.2.2.1 B)

Subsection 7.2.2.4, Schedule Package Association List, has more information about this list.

Regardless of from where the search dialog box is invoked, if no current or future schedules are found, invoke exit state information message: **No current or future Non-TCR Sample Schedules exist for the selected criteria.** When the user clicks on **OK**, the Non-TCR Sample Schedule Maintenance List will be displayed. (7.2.2.1 C)

Cancel If the user clicks on this button, the software will disregard any data entered and return the user to the previous window. (7.2.2.1 D)

Help Pressing this button will invoke online Help for the window. (7.2.2.1 E)

7.2.2.2 Non-TCR Sample Schedule Maintenance List

The Non-TCR Sample Schedule Maintenance List will display all non-TCR sample schedules for the current water system or water system and water system facility (if a water system facility has been entered in the search). The user will be able to select a non-TCR sample schedule from the list to view or update the record using the Non-TCR Sample Schedule Maintenance List as shown in Exhibit 7-6. The user also will be able to add new schedules by selecting the **Edit/Add** menu item from this window. This list *will not display the hidden schedules* that are associated with each schedule group, but it will display individual schedules that are not part of any Schedule Group as well as Sample Schedule Groups (the only difference in appearance between an individual Sample Schedule and a Sample Schedule Group is that the former references a single analyte whereas the latter references an analyte group).

Edit

- Add* Selecting **Edit/Add** will display the Non-TCR Sample Schedule Maintenance window in Add mode. This option will be enabled when a sample schedule has not been selected.
- Change* Selecting **Edit/Change** will display the Non-TCR Sample Schedule Maintenance window with the selected sample schedule available for change. This option will be enabled only when a sample schedule has been selected.
- Delete* Selecting **Edit/Delete** will display the Non-TCR Sample Schedule Delete Confirmation dialog box (Exhibit 7-7) for the selected schedule. The **Edit/Delete** option will be enabled only when a sample schedule has been selected. If the selection is an individual sample schedule that is associated with a violation that has a status of V (validated) or P (preliminary), the sample schedule may not be deleted. If the software encounters this situation, invoke exit state error message: **Cannot delete this sample schedule because it is referenced by a violation.** If the selection is a Sample Schedule Group that is associated with a Violation Group, and the first hidden violation (that belongs to the Violation Group) has a status of V (validated) or P (preliminary), the Sample Schedule Group may not be deleted. If the software encounters this situation, invoke exit state error message: **Cannot delete this sample schedule because it is referenced by a violation.** When a Sample Schedule is deleted, all associated SSMPAs will be deleted. Note that when an SSMPA is deleted, any Sub-SSMPA records that reference it are automatically (cascade) deleted. Prior to deleting each SSMPA and Sub-SSMPA, the Last Update Timestamp field of each Sample Analytical Result and Monitoring Period that is associated with the SSMPA or Sub-SSMPA will be set to the current timestamp (so that these will be re-assessed by *CDS Setup* the next time it runs).
- Select* The **Edit/Select** menu item will be enabled only when this window is invoked from either the Violation Maintenance window or the Results Averages Search dialog box. Selecting **Edit/Select** will close the window and return the user to either the Violation Sample Schedule Association dialog box with the selected schedule populating the dialog box's fields or the Results Averages Search dialog box with the selected schedule current (so that it may be used to further select one or more SSMPAs). (Note that at this point, the software will not have committed the association between sample schedule and violation to the database.

This will occur when the user presses **OK** on the Violation Maintenance window.

Non-TCR Sample Schedule Delete Confirmation

Do you want to delete this sample schedule?

Water System Facility

WSF State Asgn ID XXXXXXXXXXXX Name XXXXXXXXXXXXXXXXXXXX

Sample Schedule

Analyte/Analyte Group XXX XXXXXXXXXXXXXXXXXXXX

Samples Required ZZZ9 XX per XXX

Begin Date MM/DD/YYYY End Date MM/DD/YYYY

Yes No

Exhibit 7-7. Non-TCR Sample Schedule Delete Confirmation

Package Schedules

Selecting **Edit/Package Schedules** will invoke the Schedule Package Maintenance List (Exhibit 7-8) and will enable the user to package a finished TOC schedule with one or more raw TOC schedules or package any other schedule(s). This menu item will be enabled only if a schedule is highlighted. (7.2.2.2 B)

View

Show All Schedules

Selecting **View/Show All Schedules** will display all (past, present, and future) non-TCR sample schedules for the water system (or water system facility if previously selected during the search). The proposed default sort is:

- WSF State Asgn ID Asc.
- ~~Sampling Point Asc.~~
- Analyte Code Asc.

Sample Type Asc.
Sample Sched Effective Begin Dt Asc.

*Show Current
and Future
Schedules*

Selecting **View/Show Current and Future Schedules** will display the default view. Current and future non-TCR schedules for the water system (or water system facility if previously selected during the search) will be displayed.

(1) Show all schedules for the water system or water system facility whose Effective Begin Date is \leq current date and whose Effective End Date is (null or \geq current date)

AND

(2) Show all schedules for the water system or water system facility whose Effective Begin Date is $>$ current date.

The proposed default sort is:

WSF State Asgn ID Asc.
~~Sampling Point Asc.~~
Analyte Code Asc.
Sample Type Asc.
Sample Sched Effective Begin Dt Asc.

If no current or future schedules are found, invoke exit state information message: **No current or future Non-TCR Sample Schedules exist for the selected criteria.** When the user clicks on **OK**, the Non-TCR Sample Schedule Maintenance List will be displayed (Exhibit 7-6).
[\(7.2.2.2 C\)](#)

Search Selecting **View/Search** will invoke the Non-TCR Sample Schedule Search window.

Sort Selecting **View/Sort** will display the standard Sort window.

Filter by WSF State Asgn ID, ~~Sampling Point~~, Sample Type, Sample Per., Analyte Code, Analyte Group Code, Initial Monitoring Period Begin Date, Water Type Code, FED Reportable Contaminant Code, Vio. Type, Monitoring Assessment

Refresh Selecting **View/Refresh** will retrieve the unfiltered list (original search criteria).

Protected Fields: (7.1.2.2 K)

*WS Group Used/
Regulating Agency
Used*

This protected field will show the Water System Group Name or Regulating Agency used in the search criteria. The software will dynamically change the prompt depending on whether Water System Group Name or Regulating Agency is current. The prompt will be “WS Group Used” if the user’s current Water System Group is valued, otherwise the prompt will be “Regulating Agency Used.”

*Number of rows
resulting from
search criteria
entered*

This field will show the total number of rows that met the search criteria.

*Number of rows
displayed*

This field will show the total number of rows that are displayed in the list, which may be less than the number of rows that met the search criteria.

7.2.2.3 Schedule Package Maintenance List

The Schedule Package Maintenance List (Exhibit 7-8) will display the principal sample schedule or schedule group (selected from the Non-TCR Sample Schedule Maintenance List) and the list of supporting schedules/schedule groups that are assigned to the principal sample schedule/schedule group. The Schedule Package Maintenance List will support either schedules or schedule groups. Users will know the difference by the presence of either an Analyte Code or Analyte Group Code prompt on the window. The text throughout this subsection uses the term schedules to mean schedules or schedule groups, unless otherwise stated.

Users will be able to select one or more supporting schedules to which to associate or from which to disassociate this principal schedule using the Schedule Package Association List window, Exhibit 7-10. Selecting **Edit/Disassociate** will disassociate the Supporting Schedule from the Principal Schedule. If the selected Principal Schedule has been associated to a Violation of status V or P, the user will not be able to associate or disassociate any supporting schedules, although the Schedule Association List will show the schedules.

Prior to displaying the Schedule Package Maintenance List, the software will check the following:

- If the user has selected a TOC schedule (Analyte Code 2920) then the Principal Schedule group box will dynamically display as the Finished Schedule group box and the Supporting Schedule group box will dynamically display as the Raw Schedule group box. The Package Type will be set to "T- TOC Precursor Package" (7.2.2.3 A)

If the user has selected any other type of schedule (Analyte Code other than 2920) then the Principal Schedule group box keeps that title, the Supporting Schedules group box keeps that title, and Package Type will be set to "O-Other Package Type" (7.2.2.3 B)

- If the user has selected a schedule, the prompt for Analyte will be Analyte Code and the Analyte Code will display as shown in Exhibit 7-8. Otherwise, if the user has selected a schedule group, the prompt for Analyte will be Analyte Group and the Analyte Group Code will display. The presence on the window of either Analyte Code or Analyte Group Code will indicate whether a schedule or schedule group is being used. (7.2.2.3 C)

The fields in this list will be Water System No., WSF State Asgn ID, Analyte/Analyte Group Code, Sample Count, Sample Type, Sample Per., Begin Date, End Date, Initial Mon Prd Begin Date, Water Type, Water System Facility [Name], Analyte/Analyte Group [Name].

Buttons:

Yes Pressing this button for a schedule will disassociate the supporting/raw schedule from the principal/finished schedule and remove the record from Schedule Package (table TMNSKPAC). Pressing this button for a schedule group will disassociate the supporting/raw schedule group from the principal/finished schedule group and removes the record from Schedule Group Package (table TMNSGPAC). The supporting sample schedule/schedule group cannot be disassociated if the principal schedule has been linked to a violation whose status is V or P. If the software encounters this situation, it will invoke exit state error message: **The principal sample schedule has been linked to a violation of status V or P and cannot be disassociated.** (7.2.2.3 H)

No Pressing this button will perform no action except to close the dialog box and return the user to the Schedule Package Maintenance List. (7.2.2.3 I)

7.2.2.4 Schedule Package Association List

The Schedule Package Association List, a multi-select list (Exhibit 7-10), will allow users to maintain a TOC schedule package by selecting multiple Raw TOC (Analyte Code 2920) and Alkalinity (Analyte Code 1067 or 1927) schedules to associate with the finished sample schedule. For other types of packages, this list will allow selection and association of one or more supporting schedules to the principal schedule.

Prior to displaying the Schedule Package Association **List**, the software will check the following items. (7.2.2.4 A)

- For TOC Packages, this list will display candidate raw TOC schedules that have not already been assigned to the Finished Schedule and that meet the following criteria:
 - The candidate (for listing) raw TOC schedule's Water System is the same as that of the Finished Schedule and
 - Monitoring Requirement's Analyte Code is 2920, 1067, or 1927 and
 - Water System Facility's type is not either Distribution System ("DS") or Treatment Plant ("TP").
- For schedule packages of other types, candidate schedules for this list should be for the same water system and not already be assigned to the Principal Schedule. Note that raw/supporting schedules from a different water system may be associated to the finished/principal schedule. The user will need to use the **View/Search** menu item to retrieve candidate raw/supporting schedules from a different water system.

Edit

Select The **Edit/Select** menu item will be enabled only if one or more Supporting Schedules are selected. When the user chooses **Edit/Select** for a schedule, the selected schedules will be associated to the Principal Schedule, and a new Schedule Package record will be created for each selected schedule. When the user chooses **Edit/Select** for a schedule group, the selected schedule groups will be associated to the Principal Schedule Group, and a new Schedule **Group** Package record will be created for each selected schedule group. Once all Schedule Package/Schedule Group Packages have been created, the selected schedules are displayed on the Schedule Package Maintenance List. (7.2.2.4 C)

View (7.2.2.4 D)

Search Selecting **View/Search** will display the standard Non-TCR Sample Schedule Search window (to enable a user to specify another water system and/or water system facility from which to select one or more raw/supporting sample schedules).

Sort Selecting **View/Sort** will display the standard Sort window.

Filter by WSF State Asgn ID, Sampling Point, Sample Type, Sample Per., Analyte Code, Analyte Group Code, Initial Monitoring Period Begin Date, Water Type Code.

Refresh Selecting **View/Refresh** will retrieve the unfiltered list.

7.2.2.5 Non-TCR Sample Schedule Maintenance

Exhibit 7-11 shows the Non-TCR Sample Schedule Maintenance window, which will allow users to add or change Non-TCR Sample Schedules. The Water System Facility, ~~Sampling Point~~, Analyte, or Analyte Group, and Monitoring Requirement can be entered or selected from a list. All supporting list windows are the same as used with the non-TCR schedule window of SDWIS/STATE Release 6.0, therefore they are not shown.

Changes to the window will include: (7.2.2.5 A)

- Adding Vio.Type, FED Reportable Contaminant Code [protected], and Monitoring Assessment [Indicator] fields.

Water System/Facility and Sampling Group Box:

The Water System/Facility group box contains the Water System No. and Name of the previously selected Water System as protected fields.

The prompt for this group box will be blue and underlined to indicate that ~~both~~ a WSF State Asgn ID ~~and Sampling Point~~ must be supplied. This group box will be protected in Change mode to prevent modification.

WSF State Asgn ID The State Assigned ID of the Water System Facility for which the schedule is intended. As the user tabs off this field, check that the supplied State Assigned ID is valid for the selected Water System. If not, invoke exit state error message: **The Water System Facility State Asgn ID entered does not belong to this water system.**

Name Protected field. It contains the name of the selected Water System Facility.

~~*Sampling Point* The Water System Facility and Sampling Point can be selected by entering a value in the Sampling Point field or clicking the **Go To** button (to the right of the Sample Location field), which displays the Sampling Point Selection List. This functionality is unchanged from Release 6.0. Selecting a Sampling Point from this window will populate the Water System Facility and Sampling Point fields.~~

~~(Developer's Note: Use the existing *SBS_SAMPLING_POINT_SELECT_LIST* procedure.)~~

~~As the user enters/changes a value and tabs off the Sampling Point field, check that the supplied Sampling Point is valid for the selected Water System Facility, then populate the retrieved Sampling Point's Description_Text data in the Sample Location field.~~

~~• If no Water System Facility has been specified and retrieved provide the following exit state error message: **Water System Facility must be specified prior to specifying Sampling Point/Location.** (Return the cursor to the WSF State Asgn ID.)~~

~~• If the Sampling Point is not valid for the specified/retrieved water system facility, do not supply a message but directly invoke the Sampling Point Selection List from where the user may select a valid sampling point.~~

~~*Sample Location*~~ — Read-only field. It contains a description of the sampling location of the sampling point.

Sample Schedule Group Box:

The Monitoring Requirement group prompt will be blue and underlined to indicate that mandatory information will be required in this group. This group will be protected and may not be modified in Change mode.

Analyte Code The user may enter a valid Analyte Code or use the **Go To** button to display the Analyte Selection List.

As the user enters/changes a value and tabs off the Analyte Code field, check that the supplied Analyte is valid, then populate the retrieved Analyte's Name value in the protected Analyte Name field. If Analyte Code 3100 is entered, invoke exit state error message: **Analyte 3100 cannot be scheduled on this window.**

If the supplied analyte does not exist in the database, do not supply a message, but directly invoke the Analyte Selection List from which the user may select a valid analyte.

As the user enters/changes a value and tabs off the Analyte Code field, the Analyte Group Code field will be protected. Either Analyte Code or Analyte Group Code must be supplied; both may not be supplied.

(Developer's Note: Use the existing SBS_ANALYTE_SELECT_LIST procedure.)

Analyte Group Code

The user may enter a valid Analyte Group Code or use the **Go To** button to display the Analyte Group Selection List.

As the user enters/changes a value and tabs off the Analyte Group Code field, check that the supplied Analyte Group is valid, then populate the retrieved Analyte Group's Name value in the protected Analyte Group Name field.

If the supplied Analyte Group does not exist in the database, do not supply a message but directly invoke the Analyte Group Selection List from where the user may select a valid analyte group.

As the user enters/changes a value and tabs off the Analyte Group Code field, the Analyte Code field will be protected. Either Analyte Code or Analyte Group Code must be supplied; both may not be supplied.

(Developer's Note: Use the existing SBS_ANALYTE_GROUP_SELECT_LIST procedure.)

Samples Required Group:

The prompt in the Samples Required group will be blue and underlined to indicate that a Monitoring Requirement is mandatory for a Sample Schedule. A user can supply data in the four fields (two enterable fields and two selectable lists) to the right of the prompt or click on the **Go To** button. The fields will allow entry of a sample count, sample type, periodicity, and violation type. Clicking on the **Go To** button will display the Monitoring Requirement Maintenance List to allow the selection or addition of a monitoring requirement.

[Sample Count] Will be an enterable numeric field.

[Sample Type] Will be a selectable list with the following permitted values: [\(7.2.4.5 B\)](#)

RT Routine

CO Confirmation

SP Special

OT Other

~~IN Initial Tap or Distribution System Sample~~

~~FR Follow-up or Routine Tap or Distribution System Sample~~

~~FE Follow-up or Routine Entry Point Sample~~

~~SO Initial/Follow-up/Routine Source Water Sample~~

(CDS processes will know the explicit Lead & Copper schedule requirement by virtue of that schedule's association to a violation type; for Release 8.0, Monitoring Requirements will be associated to Violation Types.)

[Periodicity] will be a selectable list with the following permitted values in the order listed:

1T One Time.

YR 1 Year.

2Y 2 Years.

3Y 3 Years.

4H 4 Hours.

4Y 4 Years.

5Y	5 Years.	
6M	6 Months.	
6Y	6 Years.	
7Y	7 Years.	
8Y	8 Years.	
9Y	9 Years.	
10Y	10 Years.	
DL	1 Day.	
2 W	2 Weeks.	(7.2.2.5 C)
HR	1Hour.	
MN	Month.	
QT	Quarter.	
WK	Week.	

If a [Sample Type] of Confirmation (CO) is selected, the [Periodicity] drop-down menu should be automatically set to One Time (1T).

If a [Sample Type] of Routine (RT) and [Periodicity] of 1T is selected, invoke an advisory dialog box with the following text: *A routine sample schedule with periodicity of "One Time" will not be evaluated by CDS. Are you sure you want to create this Sample Schedule?* This dialog box has **Yes** and **No** buttons. **Yes** will store the fact that the user wishes to create the schedule anyway. **No** will return the user to the Non-TCR Sample Schedule Maintenance window. (*CDS Setup* will be unable to determine and create an SSMPA because "1T" is not an appropriate type of Monitoring Period.)

Vio. Type

The value that *CDS* processes will use to determine a violation of the schedule if one is created. (7.2.2.5 D)

*FED Reportable
Contaminant
Code*

This is a protected field. Analyte used when creating the candidate violation and which will be used when reporting to SDWIS/FED. This information will be retrieved from the linkage between Violation Type and Analyte or, if the Violation Type is not linked, from the Monitoring Requirement associated to the Sample Schedule. Note that, in this latter case, if the schedule is a Group Schedule, display the Analyte Group Code even though technically, each individual Analyte Code within the group will be reported. (Each Violation Type sometimes is associated with a federal reportable contaminant code from one Analyte.) (7.2.2.5 E)

As the user tabs off the last enterable Samples Required field (which will now be Vio.Type), an exit state error message will indicate if the specified Monitoring Requirement does not exist for the specified Analyte/Analyte Group. Clicking **OK** on the exit state error message will display the Monitoring Requirement Maintenance List to allow the user to either create the monitoring requirement or select an existing one. If a new monitoring requirement is added, the user can then select it from the list. Exiting the Monitoring Requirement Maintenance List will return the user to the Non-TCR Sample Schedule Maintenance window with the selected monitoring requirement. Monitoring requirements also can be listed by pressing on the **Go To** button next to the Samples Required prompt. (7.2.2.5 F)

As the user tabs off the last Samples Required field, the software will check that values have been supplied in all three four Samples Required fields. If any one of the three four Samples Required fields have not been specified, invoke exit state error message: **A monitoring requirement must be specified for the Schedule.**

*Initial Monitoring
Period Begin Date*

Optional field to indicate to the *CDS Setup* program (~~described in Subsection 2.1.10~~ 3.6) the begin date of the first monitoring period for which this schedule will be effective. *While this field is considered optional, and the user can create a schedule without valuing it, any schedule that does not have this field valued cannot be used in CDS processing.* *CDS Setup* will use this date to create an association between the schedule and the first monitoring period whose Begin Date is on or after the schedule's Initial Monitoring Period Begin Date and whose Duration is the same as the Sample Schedule Periodicity. *CDS Setup* will then create associations between the schedule and all monitoring periods of the same duration that arithmetically follow the first monitoring period. Arithmetical sequence in this case can best be described by the following example. If a quarterly schedule has an Initial Monitoring Period Begin Date (Non-TCR Schedule Maintenance Window) of 10/1/2000, *CDS Setup* will first search for a quarterly monitoring period whose Begin Date is 10/1/2000. If none exists, it will search for the next monitoring period in arithmetic sequence that will be a quarterly monitoring period whose begin date is equal to the Initial Monitoring Period Begin Date (Non-TCR Schedule Maintenance Window) plus the days of the schedule's duration plus 1. In this case, it will look for a quarterly monitoring period whose Begin Date is 1/1/2001. A quarterly monitoring period whose Begin Date is 11/1/2000, for example, will not

qualify because it will precede the arithmetically sequential monitoring period begin date of 1/1/2001.

Water System

Notified Date

Optional field used to enter the date that the Water System was notified about the Sample Schedule.

Effective Period Group Box:

Effective Period

Begin

The prompt will be blue and underlined to indicate that the field is mandatory. This field will be protected in Change mode to prevent modification.

Effective Period

End

Optional field for the Sample Schedule end date. If this field is changed, as the user tabs off this field, check that this date is not prior to the Effective Period Begin date. If the Effective Period Begin date is not valued, invoke exit state error message: **The Effective Period Begin date must be specified for the Schedule.** (Return the cursor to the Effective Period Begin date.) If the Effective Period End date is prior to the Effective Period Begin date, invoke exit state error message: **The Effective Period date must be same as or after to the Effective Period Begin date.** (Return the cursor to the Effective Period End date.) This field may be changed. When changed, the overlap check will be performed, and if this schedule overlaps another, the date will remain at the value that causes the overlap and the Overlapping Schedule Warning dialog box will be presented.

Monitoring

Assessment

Optional dropdown list where the user may specify the monitoring assessment flag. *CDS Setup* will determine the value for this field once it has processed the schedule; but the user may override the value determined by *CDS Setup*. Note that by specifying X for this field, the user will indicate that the schedule should not be reassessed when *CDS Setup* executes, and this schedule should not show on future reports.
(7.2.2.5 G)

Permitted values will be:

I = Increase.

D = Decrease.

S = Same.

X = Do Not Reassess.

A = Reassess if new data.
N = Not Assessed.

Sampling Point Subschedules Group Box:

The Sampling Point Subschedules group box will be provided so that the user can optionally enter the specific locations within the water system facility at which some or all of the samples must be collected. If the entered schedule is a schedule group (that contains subschedules), all the individual schedules created for that group schedule will also contain sampling point subschedules. The sum of the counts of each sampling point subschedule should be less than or equal to the main schedule's Sample Count (as shown in the Samples Required field). If the user does not specify a Sampling Point Subschedules, SDWIS/STATE assumes that the samples may be collected at any sampling point within the facility. Examples of when a compliance officer might specify one or more specific sampling points include: entry point monitoring where a given facility may have more than one sampling point, disinfection by-products monitoring where the primacy agency has approved a system's maximum residence point, or lead and copper tap sampling where the primacy agency has approved a sampling plan and expects samples to be collected at those precise locations.

The Sampling Point Subschedules group box will not be activated until the water system facility and monitoring requirement have been entered. This list will need to display up to 125 sampling point subschedules. (7.2.2.5 H)

A Sampling Point Subschedules cannot be changed or deleted after *CDS Setup* processes the schedule (the programming necessary to allow these to change is complex and considered too expensive to justify). Once *CDS Setup* has processed a schedule that has a subschedule, the Sample Schedule's CDS Setup Processed Flag (new attribute) will be set to "Y." The user will be able to tell that *CDS Setup* has already processed a schedule with subschedules because its subschedules will appear "grayed-out" and the **Add**, **Modify**, and **Delete** buttons will be disabled (that is, the user will not be able to maintain any existing subschedules nor add any additional subschedules). If the user needs to add, modify, or delete a sampling point subschedule after *CDS Setup* has processed the sample schedule/schedule group, it will be necessary to close out (or delete, if appropriate) the existing sample schedule and add a new one that includes the desired changes. However, a user will be able to add a sampling point subschedule if no previous sampling point subschedule exists, regardless of whether *CDS Setup* has processed the schedule or not. If the non-TCR schedule has at least one Sampling Point subschedule and the schedule's CDS Setup Processed Flag is "Y," the **Add**, **Modify**, and **Delete** buttons should be disabled. (7.2.2.5 I)

The group box contains the following buttons: Sampling Point Subschedules **Add**, Sampling Point Subschedules **Modify**, and Sampling Point Subschedules **Delete**.

[Sampling Point
Subschedules]

Add

Pressing **Add** will invoke the Sampling Point Selection List where the user may select multiple sampling points that should each trigger the creation of a Sampling Point Subschedules whose Sample Count defaults to 1. Once each sampling point has been highlighted and the user chooses the **Select** menu item, each selected Sampling Point should appear in the Sampling Point Subschedules List with a count of 1. (7.2.2.5 J)

[Sampling Point
Subschedules]

Modify

Pressing **Modify** will invoke the Sampling Point Subschedules Maintenance dialog box (Exhibit 7-12) displaying the selected Sampling Point and Count, which can be changed. (7.2.2.5 K)

Sampling Point
Subschedules

Delete

Pressing **Delete** will remove the sampling point subschedule (or sampling point schedule group subschedule) from the list; however, the commit to the database will not occur at this point. (7.2.2.5 L)

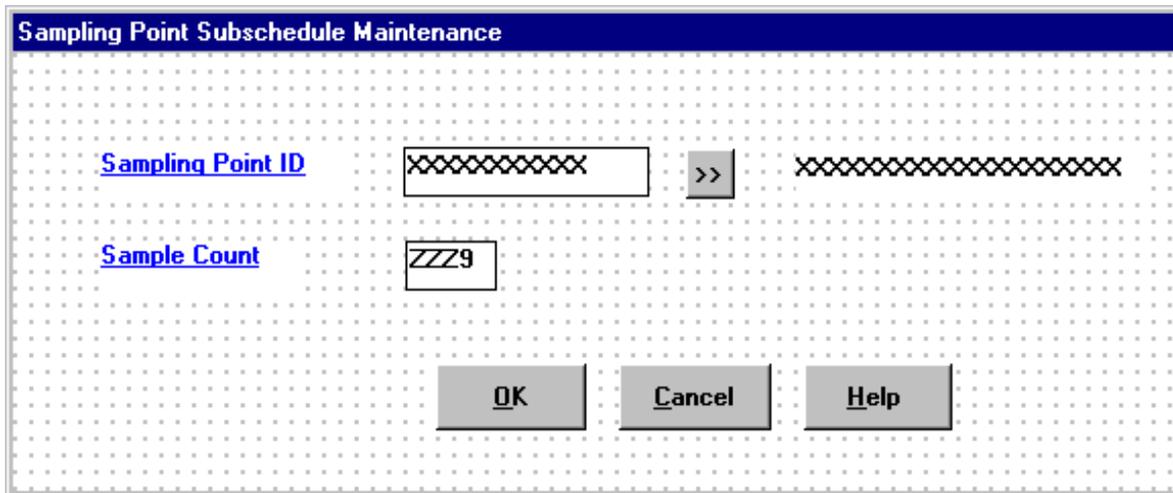


Exhibit 7-12. Sampling Point Subschedules Maintenance

The Sampling Point Subschedules Maintenance dialog box (Exhibit 7-12) will be used to enter Sampling Point Subschedules.

Protected Field:

The protected Sampling Location field will contain sampling location text.

Entry Fields:

Sampling Point ID The Water System Facility and Sampling Point can be selected by entering a value in the Sampling Point ID field or clicking the **Go To** button (to the right of the Sampling Point ID field), which displays the Sampling Point Selection List. Selecting a Sampling Point from this list will populate both the Sampling Point ID field and the Sampling Location field.

As the user enters/changes a value and tabs off the Sampling Point ID field, check that the supplied Sampling Point is valid for the selected Water System Facility, then populate the retrieved Sampling Point's DESCRIPTION_TEXT data in the Sampling Location field. If the Sampling Point is not valid for the specified/retrieved water system facility, do not supply a message but directly invoke the Sampling Point Selection List from where the user may select a valid sampling point. The field's prompt will be blue and underlined to indicate that this field is mandatory. (7.2.2.5 M)

Sample Count This field will be used to enter the number of samples required to be collected at this sampling point. The field's prompt will be blue and underlined to indicate that this field is mandatory. (7.2.2.5 N)

Buttons:**Sampling Point
Go To**

Pressing this button will invoke the Sampling Point Selection List discussed further in Subsection 7.2.2.6. Selecting a Sampling Point from this list will populate both Sampling Point fields. (7.2.2.5 O)

OK

Pressing this button will cause the software to check that both a sampling point and Sample Count have been entered. If either is missing, invoke exit state error message: **Insufficient data has been given to change a Sampling Point Subschedule.** Return the cursor to the first field on Sampling Point Subschedule Maintenance that is missing data. (7.2.2.5 P)

The software will then check that the candidate Sampling Point Subschedule does not already exist for the schedule/schedule group. The uniqueness criteria for sampling point subschedule will be Sampling Point. If the user inadvertently tries to enter a subschedule for a Sampling Point that has already been used in a subschedule, invoke exit state error message: **A subschedule has already been specified for this sampling point.** Return the cursor to the Sampling Point ID field. Otherwise, the dialog box will close, and:

- If the user entered an Analyte Code (or the current non-TCR schedule is a schedule) the software will create a new Sampling Point Subschedule record (table TMNSPSUB).
- If the user entered an Analyte Group Code (or the current non-TCR schedule is a schedule group) the software will create a new Sampling Pt Sched Grp Subsched record (table TMNSPSGS). (7.2.2.5 Q)

At this point, the new Sampling Point Subschedule/Sampling Pt Sched Grp Subsched will not yet have been committed to the database.

Cancel

If the user clicks on this button, the software will disregard any data entered and return the user to the previous window. (7.2.2.5 R)

Help

Pressing this button will invoke online Help for the window. (7.2.2.5 S)

Tab Sequence:

WSF State Asgn ID, ~~Sampling Point~~, WSF State Asgn ID **Go To** button, Analyte Code, Analyte Code **Go To** button, Analyte Group Code, Analyte Group Code **Go To** button, Samples Required **Go To** button, sample count, sample type list, periodicity list, Vio. Type, Effective Period Begin, Effective Period End, Initial Monitoring Period Begin Date, Water System Notified Date, Monitoring Assessment, **Seasonal Collection Period** button, **Notes** button, **State Collection Period** button, Sampling Point Subschedules **Add** button, Sampling Point Subschedules **Modify** button, Sampling Point Subschedules **Delete** button, **Schedule Group Analyte List** button, **Originating Result** button, **OK** button, **Cancel** button, **Help** button. (7.2.2.5 T)

Buttons:

Seasonal Collection Period

Pressing this button will display the Seasonal Collection Period dialog box (Exhibit 7-13) that will contain four additional optional entry fields for the sample schedule (Start Month, Start Day, End Month, End Day). When pressing the **OK** button, an edit check will ensure that if a value is supplied for any one of these four fields, values for all of them will be supplied. If these four fields are valued, the same edit checks that currently apply to the same fields on the existing TCR Sample Schedule Maintenance window will apply here. If a seasonal collection period is entered, it will be used by *CDS* to determine compliance with the sample schedule.

The image shows a dialog box titled "Seasonal Collection Period". It features a blue header bar with the title in white. The main area has a light gray background with a dotted pattern. There are two rows of input fields. The first row is labeled "Start Month/Day" and contains two boxes, each with "ZZ", separated by a slash. The second row is labeled "End Month/Day" and also contains two boxes, each with "ZZ", separated by a slash. At the bottom of the dialog, there are three buttons: "OK", "Cancel", and "Help".

Exhibit 7-13. Seasonal Collection Period

- Start Month* Will map to SAMPLE_SCHEDULE_START_MONTH. If a value is supplied, must be a number from 1-12, else invoke existing exit state error message: **Start Month must be between 1 and 12.** (Return the cursor to that field.)
- Start Day* Will map to SAMPLE_SCHEDULE_START_DAY. If a value is supplied, must be a number from 1-31 and valid for the Start Month specified, else invoke existing exit state error message: **Start day for Sample Schedule is invalid.** (Return the cursor to that field.)
- End Month* Will map to SAMPLE_SCHEDULE_END_MONTH. If a value is supplied, must be a number from 1-12, else invoke existing exit state error message: **End Month must be between 1 and 12.** (Return the cursor to that field.)
- End Day* Will map to SAMPLE_SCHEDULE_END_DAY. If a value is supplied, must be a number from 1-31 and valid for the End Month specified, else invoke existing exit state error message: **End day for**

Sample Schedule is invalid. (Return the cursor to that field.)

Notes

Pressing this button will display a dialog box containing an optional scrollable text field in which descriptive information can be entered for the sample schedule.

State Collection Period

Pressing this button will display the State Collection Period dialog box (Exhibit 7-14) containing five additional optional entry fields for the sample schedule (Start Month, Start Day, End Month, End Day, Sequence Year). ~~When pressing the **OK** button of this dialog box, an edit check will ensure that if a value is supplied for any one of these fields, values are supplied for all of them.~~ When the user presses **OK**, the software will check that if one of the Month or Day fields is valued, values are supplied for all four Month/Day fields. The Sequence Year field may optionally be valued irrespective of whether the Month/Day fields are valued. If these fields are valued, the same edit checks that currently apply to the same fields on the Seasonal Collection Period window apply here. The information in these five fields will not be used by SDWIS/STATE in any business logic (such as compliance assistance).
(7.2.2.5 U)

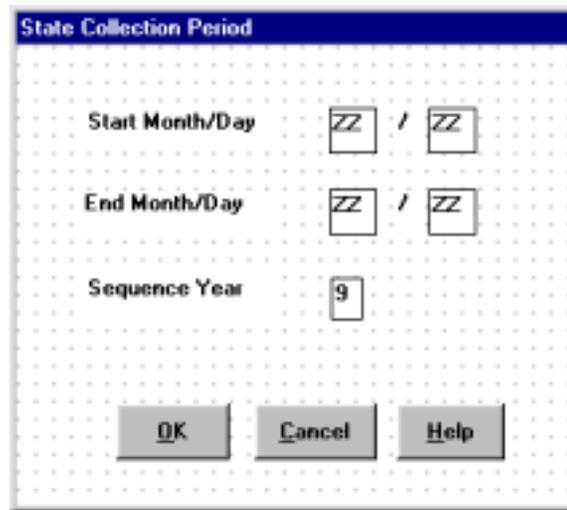


Exhibit 7-14. State Collection Period

Start Month

Will map to SAMPLE_SCHEDULE_START_MONTH. If a value is supplied, must be a number from 1-12,

else invoke existing exit state error message: **Start Month must be between 1 and 12.** (Return the cursor to that field.)

<i>Start Day</i>	Will map to SAMPLE_SCHEDULE_START_DAY. If a value is supplied, must be a number from 1-31 and valid for the State Start Month specified, else invoke existing exit state error message: State Start day for Sample Schedule is invalid. (Return the cursor to that field.)
<i>End Month</i>	Will map to SAMPLE_SCHEDULE_END_MONTH. If a value is supplied, must be a number from 1-12, else invoke existing exit state error message: State End Month must be between 1 and 12. (Return the cursor to that field.)
<i>End Day</i>	Will map to SAMPLE_SCHEDULE_END_DAY. If a value is supplied, must be a number from 1-31 and valid for the State End Month specified, else invoke existing exit state error message: End day for Sample Schedule is invalid. (Return the cursor to that field.)
<i>Sequence Year</i>	Will map to SAMPLE_SCHEDULE_STATE_YEAR. If a value is supplied, must be a number from 1-9, else invoke existing exit state error message: Sequence Year is invalid. (Return the cursor to that field.)

OK and

Originating Result Each of these buttons creates Non-TCR Sample Schedules for Schedule Groups. The **Originating Result** button will be enabled only if the non-TCR schedule is type "CO." The following list of actions applies to both buttons.

—Add Mode If the user selects an analyte and presses either button, then one new Sample Schedule will be created using the information on this window and associated to the Monitoring Requirement, Water System, and Water System Facility selected. Any Sampling Point Subschedules in the Sampling Point Subschedules list will also be committed to the database

as new TMNSPSUB records associated to the just created schedule.
(7.2.2.5 V)

If the user selects an analyte group and presses either button, one new Schedule Group will be created and associated to the Monitoring Requirement, Water System, and Water System Facility selected. Any Sampling Point Subschedules in the Sampling Point Subschedules list will also be committed to the database as new Sampling Pt Sched Grp Subsched /TMNSPSGS records associated to the just created schedule group. In addition, for each analyte in the Analyte Group, a Sample Schedule will be created and associated to the Sample Schedule Group as well as to the corresponding Monitoring Requirement for that analyte and to the selected Water System and Water System Facility selected. If a monitoring requirement that matches the criteria specified by the user in the schedule does not exist for an analyte that is part of the analyte group specified by the user, the system will first create the monitoring requirement, then create the Sample Schedule and associate it to the Monitoring Requirement, Sample Schedule Group, Water System, and Water System Facility. For each hidden sample schedule whose creation is triggered by the schedule group, each Sampling Point Subschedule in the Sampling Point Subschedules list will also trigger the creation of a new TMNSPSUB record associated to the just created hidden schedule.
(7.2.2.5 W)

—Change Mode

If the Sample Schedule is for an analyte, then the Sample Schedule record will be updated with the changed fields. If the Sample Schedule being changed is for an Analyte Group, then the Schedule Group record will be updated with the changes, and so will each of the hidden schedules associated to the Schedule Group. Any hidden schedules in the Schedule Group that have been closed by specifying an exception analyte will not be updated. The updating of the Sampling Point Subschedules fields will be treated in the same way as the other fields except that if the CDS Setup Processed Flag is set to “Y,” the Sampling Point Subschedules/Sampling Pt Schedule Group Subschedules may not be added to, modified, or deleted. (The buttons to allow modification/deletion are disabled under this condition, so the error handling is not necessary here.)

- For a schedule, any new Sampling Point Subschedules in the Sampling Point Subschedules list will be committed to the database as new TMNSPSUB records associated to the current schedule. (7.2.2.5 X)

- For a schedule group, any new Sampling Point Subschedules in the Sampling Point Subschedules list will be committed to the database as new Sampling Pt Sched Grp Subsched (TMNSPSGS) records associated to the current schedule group. The software will retrieve each associated hidden schedule and for each new Sampling Point Subschedule in the Sampling Point Subschedules list will also trigger the creation of a new TMNSPSUB record associated to the current hidden schedule. (7.2.2.5 Y)
- If the Sample Schedule/Schedule Group is associated to a Violation with status “V” or “P” and the proposed End Date is earlier than the Compliance Period Begin Date of the violation (COMP_PRD_BEGIN_DT), do not accept the proposed End Date. Instead, invoke exit state error message: **Cannot close the schedule on this date because it is associated to a violation with a compliance period begin date that is later. You must either disassociate the schedule from the violation or change the status of the violation to rejected (R) or deleted (D) if you want to close this schedule with this date.** On pressing OK, the software returns to the maintenance window with the cursor in the [Effective Period] End field and resets the [Effective Period] End date to the original date. (7.2.2.5 Z)
- Otherwise, SDWIS/STATE will check each hidden schedule for associated SSMPA records whose Applicable Period Begin Date is after the changed End Date of the Sample Schedule/Schedule Group. If an SSMPA that meets these criteria is found, it will be deleted. Note that when an SSMPA is deleted, any Sub-SSMPA records that reference it are automatically (cascade) deleted. Prior to deleting each SSMPA and Sub-SSMPA, the Last Update Timestamp field of each Sample Analytical Result and Monitoring Period that is associated with the SSMPA or Sub-SSMPA will be set to the current timestamp (so that these will be re-assessed by *CDS Setup* the next time it runs). (7.2.2.5 AA)

—Add and Change
Mode

~~The software performs an overlap check. The overlap edit check will ensure that one routine (type “RT”) schedule may not overlap another RT schedule for the same Water System, Water System Facility, and Analyte/Analyte Group, and effective period. For example, if a monitoring schedule for Analyte 2047 (Aldicarb) is to be taken for Water System XX3334444, Sampling Point “0001” (which belongs to Water System Facility “Well-01”) with Sampling Requirement 1 RT per YR,~~

~~starting 1/1/1996 and the open Effective Period End date already exists, do not allow the entry of an overlapping monitoring schedule for Analyte 2047 (Aldicarb) to be taken for Water System XX3334444, Water System Facility "Well-01," with Sampling Requirement 1 RT per QT, starting 1/1/1999, and with an open Effective Period End date.~~

~~The overlap check involves two parts:~~

- ~~• One for individual Sample Schedules (associated with a single analyte and not associated with a Schedule Group) to make sure that there is no existing sample schedule for the same water system, the same water system facility, and for the same analyte with at least a day of overlap in the Effective Periods and at least a day of overlap in the Seasonal Collection Periods.~~
- ~~• A second for Schedule Groups (associated with an Analyte Group) to make sure that for each analyte in the group, there is no existing sample schedule for the same water system, the same water system facility, and for the same analyte with at least a day of overlap in the Effective Periods and at least a day of overlap in the Seasonal Collection Periods. If for any one analyte in the group, a Sample Schedule is found to overlap, then the Sample Schedule Group will be deemed overlapping.~~

~~If an overlap exists, the software will invoke the Overlapping Schedule Warning dialog box, which has the following message: A routine schedule for this Water System, Water System Facility, Sampling Point, and Analyte/Analyte Group that at least partially covers the period specified in the proposed schedule already exists. The dialog box will have an OK button that, when pressed, will return the cursor to the Effective Period Begin field.~~

The overlap edit check will ensure that one routine (type "RT") schedule may not overlap another RT schedule for the same Water System, Water System Facility, and Analyte/Analyte Group, effective period, and seasonal collection period.

For example, if a sample schedule for Analyte 2047 (Aldicarb) has been recorded for Water System XX3334444, Water System Facility "Well-01" with Sampling Requirement 1 RT per YR, starting 1/1/1996 and the open Effective Period End date and no seasonal collection period has been specified (which is interpreted to mean year-round), the software should not allow the entry of an overlapping monitoring schedule for Analyte 2047 (Aldicarb) for Water System XX3334444, Water System

Facility “Well-01” with Sampling Requirement 1 RT per QT, starting 1/1/1999 and with an open Effective Period End date, regardless of the seasonal collection period entered.

The overlap check will involve two parts:

- One for individual Sample Schedules (associated with a single analyte and not associated with a Schedule Group) to make sure that there is no existing routine sample schedule for the same water system, the same water system facility, and for the same analyte with at least a day of overlap in the Effective Periods and at least a day of overlap in the Seasonal Collection Periods. (7.2.2.5 AB)
- A second for Schedule Groups (associated with an Analyte Group) to make sure that for each analyte in the group, there is no existing routine sample schedule for the same water system, the same water system facility, and for the same analyte with at least a day of overlap in the Effective Periods and at least a day of overlap in the Seasonal Collection Periods. If for any one analyte in the group, a Sample Schedule is found to overlap, then the Sample Schedule Group will be deemed overlapping. (7.2.2.5 AC)

The following examples demonstrate what “at least a day of overlap in the Effective Periods and at least a day of overlap in the Seasonal Collection Periods” means. Assume the following Sample Schedule already exists:

Water System Facility “Well-01” has been scheduled to collect one routine sample every quarter with an Effective Begin Date of 1/1/1999 and an open Effective End Date and with a Seasonal Collection Period of 9/1 to 3/31.

(1) If the user enters the following Sample Schedule:

Water System Facility “Well-01” is to collect one routine sample every month with an Effective Begin Date of 1/1/1999 and an open Effective End Date and with a Seasonal Collection Period of 4/1 to 8/31.

It should be allowed, since this schedule overlaps neither by Effective Period nor by Seasonal Collection Period.

(2) If the user enters the following Sample Schedule:

Water System Facility “Well-01” is to collect 1 routine sample every quarter with an Effective Begin Date of 1/1/1999 and an open Effective End Date and with a Seasonal Collection Period of 4/1 to 8/31.

It should be allowed, because, even though this routine schedule’s Effective Period (1/1/1999 on) overlaps the original’s Effective Period, its Seasonal Collection Period does not overlap the original schedule’s Seasonal Collection Period.

(3) If the user enters the following Sample Schedule:

Water System Facility “Well-01” is to collect 2 routine sample every month with an Effective Begin Date of 1/1/1999 and an open Effective End Date and with a Seasonal Collection Period of 4/1 to 8/31.

It should be allowed, because, even though this routine schedule’s Effective Period (1/1/1999 on) overlaps the original’s Effective Period, its Seasonal Collection Period does not overlap the original schedule’s Seasonal Collection Period.

(4) If the user enters the following Sample Schedule:

Water System Facility “Well-01” is to collect 2 routine sample every month with an Effective Begin Date of 1/1/1999 and an open Effective End Date and with a Seasonal Collection Period of 1/15 to 4/30.

It should not be allowed, since this schedule’s Effective Period (1/1/1999 on) overlaps the original schedule’s Effective Period AND this schedule’s Seasonal Collection Period overlaps the original schedule’s Seasonal Collection Period.

It is very important to note that this overlap check will apply only to Sample Schedules that reference a Monitoring Requirement whose Sample Type is RT (routine). Note that in Release 7.0, Sample Types of IN, FR, FE, and SO were treated as equivalent to RT. These Sample Types have been removed.

If an overlap exists, the software will invoke the Overlapping Schedule Warning dialog box, which will have the following message: **A routine schedule for this Water System, Water System Facility, and Analyte/Analyte Group that at least partially covers the period specified in the proposed schedule already exists.** The dialog box will have an **OK** button that, when pressed, will return the cursor to the Effective Period Begin field. (7.2.2.5 AD)

Six possible error messages may be displayed upon clicking either button on the Non-TCR Sample Schedule Maintenance window:

- If the specified monitoring requirement does not exist, invoke exit state error message: **The specified Monitoring Requirement does not exist.** Clicking **OK** on the exit state error message will display the Monitoring Requirement Maintenance List to allow the user to either create the monitoring requirement or select an existing one. If a new monitoring requirement is added, the user can then select it from the list. Exiting the Monitoring Requirement Maintenance List will return the user to the Non-TCR Sample Schedule Maintenance window with the selected monitoring requirement. The user can click the **OK** button again to save the non-TCR sample schedule.
- If the WSF State Asgn ID field is blank, invoke exit state error message: **A Water System Facility must be specified for the Schedule.**
- ~~• If both the Sampling Point ID and Sample Location fields are blank, a message will indicate the following: *A Sampling Point must be specified for the Schedule.*~~
- If both the Analyte and Analyte Group are blank, the following exit state message will appear: **Either an Analyte or an Analyte Group must be selected for the Schedule.**
- If a value is supplied for any one of the four Seasonal Collection Period dialog box optional Start Month, Start Day, End Month, End Day entry fields, if values are not supplied for all four fields, invoke new exit state error message: **If any Seasonal Collection parameter is supplied, all four must be supplied.**
- ~~• If a value is supplied for any one but not all of the five State Collection Period dialog box optional entry fields, or if values are not supplied for all five fields, a new exit state error message will~~

indicate: ~~If any State Collection parameter is supplied, all five must be supplied.~~ (7.2.2.5 AE)

- If a value is supplied for any one of the four State Collection Period dialog box optional Start Month, Start Day, End Month, End Day entry fields, if values are not supplied for all four fields, invoke new exit state error message: **If a State Collection month/day parameter is supplied, all four must be supplied.** (7.2.2.5 AF)
- If one or more sampling point subschedules have been added, check that the sum of the Counts in the subschedules is not greater than the Sample Count for the Sample Schedule/Schedule Group. If it is, invoke exit state error message: **Combined Sampling Point Subschedule count cannot exceed main Sample Schedule count.** (7.2.2.5 AG)

To this point the software has performed the same actions regardless of which button (**OK** or **Originating Result**) has been selected. From this point forward, the actions associated with each button are different.

Originating Result

—Add Mode

The software creates the schedule and invokes the Originating Sample Result Selection List (Exhibit 7-15). Here the user may select the originating sample result that triggered the need for the Confirmation schedule. Once the user is at this window, the option to cancel will be available, but since the schedule has already been created, cancel here means “cancel from selecting an originating sample result.” The user may cancel and not link the schedule to a result, but until the user returns to link the confirmation schedule to its originating result, this schedule will not be evaluated by the M&R compliance check process.

—Change Mode

The software will check whether or not the schedule has previously been associated to an originating result. If it has, this button will invoke the Originating Sample Result Information window (Exhibit 7-16). If it has not, this button will invoke the Originating Sample Result Selection List.

The Originating Sample Result Selection List will display sample results that satisfy the following criteria: routine (RT) sample results that are not rejected (Sample Rejection Reason not valued) and are for the same Water System, Water System Facility, and Analyte Code as that of the confirmation Schedule and whose Sample Collection End Dates are < Schedule Effective Begin Date and which are not already associated to a

Confirmation sample schedule. The sample results will be sorted by
Sample Collection (End) Date, descending with the following columns:

Collection Date.
Sample Type.
Lab Sample Number.
State Sample Number.
Sampling Point.
Sample Location.
Data Quality Code.
Reported Measure (Concentration Measure TXT).
Measure Unit.
Less Than Indicator.
Less than Code.
Reporting Level.
Reporting Level UOM.
For Compliance.

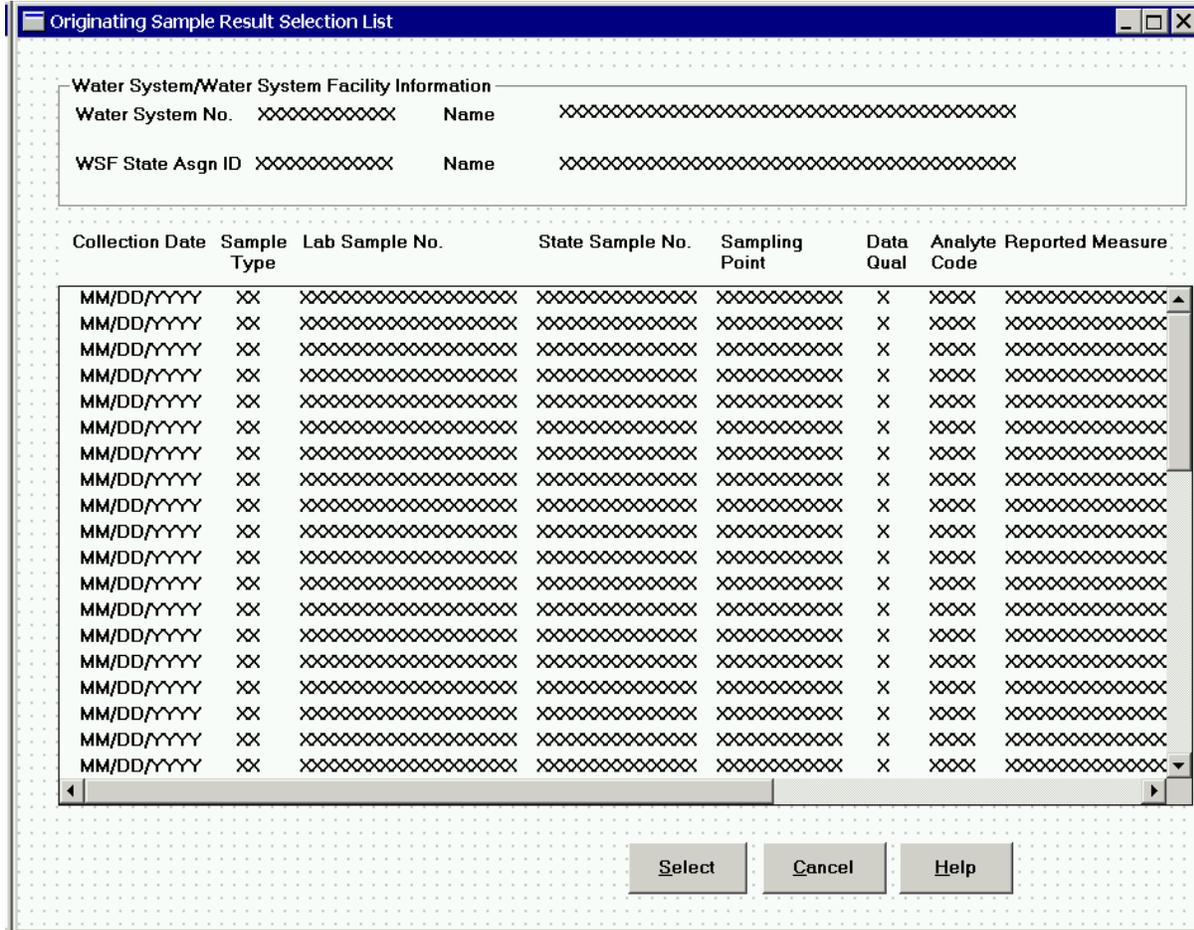


Exhibit 7-15. Originating Sample Result Selection List

The Originating Sample Result Selection List window will have three buttons: **Select**, **Cancel**, and **Help**.

Select This button will be active only when a record is highlighted. When the user clicks on **Select**, the software will flow to the Originating Sample Result Information window (Exhibit 7-16) with protected fields displaying the information from the selected result.

Cancel Pressing **Cancel** will return the user to the previous window.

Help Pressing the **Help** button will invoke online Help for the window.

Originating Sample Result Information

Lab Sample No. XXXXXXXXXXXXXXXXXXXX State Sample No. XXXXXXXXXXXXXXXXXXXX
 Water System No. XXXXXXXXXXXX Name XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
 Sample Type [dropdown] Collection Date MM/DD/YYYY
 Analyte Code XXXX Name XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

Result

Concentration XXXXXXXXXXXXXXX [dropdown] Method Code XXXXXXXXXXXX
 Less Than
 Reporting Level Type
 Regulatory Minimum Reporting Level
 Lab Reporting Level
 Level ZZZZZZ9.9999999 [dropdown]

Analysis

Data Quality [dropdown]

OK Disassociate Help

Exhibit 7-16. Originating Sample Result Information

The Originating Sample Result Information window will have the following fields and buttons.

Protected Fields:

Lab Sample No. This is the ID number that the lab assigned to this sample for tracking within the lab.

State Sample No. This is the ID number that the state assigned to this sample.

Water System No. The water system number for the originating sample.

[Water System] Name The name of the water system where the originating sample was taken.

Sample Type The sample type will be either Routine or Repeat.

Collection Date The date the sample was collected.

Analyte Code The analyte code for the sample.

[Analyte] Name The name of the analyte.

Result Group Box:

The results of the sample analysis will be in the Result group box.

*Concentration and
Unit of Measure* The actual resulted measure of the analyte in the
sample and the unit it was measured with.

Method Code The standard method code used to analyze the
sample.

Less Than This checkbox will be marked if the sample
analytical result is less than the following indicated
reporting level type. If it is greater than or equal
to the Less Than checkbox, it will not be marked.

Reporting Level Type Group Box:

The Reporting Level Type group box will contain two radio buttons
indicating if the reporting level is Regulatory Minimum Reporting Level
or Lab Reporting Level. Only one radio button will be valued.

*Level/Level Unit of
Measure* The limit established by the lab below which
scientifically reliable results can be achieved.

Analysis Group Box:

Data Quality Code indicating whether or not the sample
analytical result met established data quality
acceptance criteria.

Buttons:

OK Pressing this button will close the dialog box and
return the user to the previous window.

Disassociate Pressing this button will disassociate the Result from the Schedule. The dialog box will close and the list of results will be presented for selection.

Help Pressing this button will invoke online Help for the window.

OK

—Add and Change Modes

In either Add or Change mode, if the user presses **OK** after creating the schedule, the software should perform a new edit check for confirmation sample schedules. If the confirmation sample schedule is not associated to an originating result, invoke the Schedule Not Associated to Result dialog box. This dialog box contains the following advisory:

This is an advisory. If you do not associate this confirmation sample schedule to the appropriate result that precipitated it, CDS will not be able to determine M&R compliance for this confirmation sample schedule.

Do you want to associate it to the originating result?

The Schedule Not Associated to Result dialog box has **Yes**, **No** and **Help** buttons. If the user presses **Yes**, flow directly to the Originating Result Selection List from where the originating result may be selected. If the user presses **No**, do not modify the confirmation sample schedule and flow to the Non-TCR Sample Schedule Maintenance List. Pressing **Help** will invoke online Help for the dialog box.

If the confirmation sample schedule is already associated to an originating result, pressing **OK** will perform the edit checks listed and the software will flow the user to the Non-TCR Sample Schedule Maintenance List.

Schedule Group Analyte List

Pressing this button will invoke the Schedule Group Analyte List (Exhibit 7-17) from which users may select an analyte and make it an exception to a Schedule Group. This button will be enabled only in Change mode for Schedule Groups.

The Schedule Group Analyte List will display the list of analytes, one for each hidden schedule in the Schedule Group. The exception analyte effective date (i.e., the date the hidden schedule was closed and when the

Schedule Group Analyte List

Schedule Group Group Box:

The fields in the group box, which are protected, will contain the schedule group reference information from schedule group, monitoring requirement, and analyte group.

Analyte List Box:

The Analyte list box will list all the analyte codes and their names that are associated with the schedule group. Also the Close Date column will be populated with the exception analyte effective date if an analyte has been closed and an exception analyte created. This list will be a single selection list, allowing users to select one row at a time and close the schedule.

Menu Items:

File

Exit Selecting **File/Exit** will return the user to the Non-TCR Sample Schedule Maintenance window

Edit

Close **Edit/Close** will be enabled only if an analyte is selected. If the user selects a row that contains an analyte that has already been closed, it will invoke exit state error message: **The selected analyte has already been closed**. If the user selects a row for an analyte that has not been closed and chooses the **Edit/Close** menu option, it will invoke the Close Hidden Schedule/Create Exception Analyte window (Exhibit 7-18).

Note: Once a user has closed a hidden schedule, it cannot be re-opened or otherwise changed. If the user unintentionally creates an exception analyte, which in turn closes a hidden schedule or enters an incorrect Close Date for the exception analyte, the user will have to delete the Schedule Group and re-enter it.

View

Sort Selecting **View/Sort** will invoke the standard Sort window.

Filter by Selecting **View/Filter by** will filter on Analyte Code, Analyte Name, Close Date, Closed, and Open. If a user chooses Closed as the filter option, analytes whose Close Date is not valued (and are, therefore,

open) will be filtered out of the list. Conversely, if the user chooses the Open filter option, the list will display all the analytes whose Close Date is null.

Refresh

Selecting **View/Refresh** will retrieve the unfiltered list using original search criteria. When the list is re-displayed after returning from the Close Hidden Schedule window, the list will be displayed with the Close Date valued for any analyte schedule that was just closed. If the user cancels from the Close Hidden Schedule window, then the list will be displayed without any change.

To create a new exception analyte within the Schedule Group, a user would select an analyte and choose the **Edit/Close** menu option. This will invoke the Close Hidden Schedule/Create Exception Analyte window (Exhibit 7-18).

This window will have two group boxes: the Schedule Group group box will display information about the schedule group related to the new exception analyte. All fields in this group box will be protected.

The Exception Analyte group box will display the exception analyte and allow the user to enter a close date. The exception Analyte Code and Name fields will be protected, and the prompt for the Close Date field will be blue and underlined to indicate that the field is mandatory.

The Close Hidden Schedules/Create Exception Analyte window will now appear without a Sampling Point. (7.2.2.5 AI)

the SSMPA or Sub-SSMPA will be set to the current timestamp (so that these will be re-assessed by *CDS Setup* the next time it runs).
(7.2.2.5 AJ)

- Cancel** When the user clicks on this button, the software will disregard any data entered and returns the user to the previous window. (7.2.2.5 AK)
- Help** Pressing this button will invoke online Help for the window.
(7.2.2.5 AL)

7.2.2.6 Sampling Point Selection List

The multi-select Sampling Point Selection List will support both the non-TCR Schedule and the Violation Maintenance functions. This list will look and operate as does the existing Sampling Point Selection List with the following exceptions.

When the user highlights one or more sampling points:

- If the list is invoked from Non-TCR Schedule Maintenance **Add** button, it will be a multi-select list. Pressing **Select** will trigger the creation of a Sampling Point Subschedule for each highlighted sampling point whose Sample Count defaults to 1. The window will close and return the user to Non-TCR Schedule Maintenance with each selected Sampling Point appearing in the Sampling Point Subschedules List with a count of 1. (7.2.2.6 A)
- If the list is invoked from the Sampling Point Subschedule Maintenance dialog box, it will be a single-select list. Pressing **Select** will select the highlighted sampling point and will populate the two sampling point fields. (7.2.2.6 B)
- If the list is invoked from Violation Maintenance (specifically, from the Violation Sampling Point Association List), it will be a multi-select list. Pressing **Select** will trigger the creation of a Violation Sampling Point Asgmt record (table TMNVISPA) for each highlighted sampling point. The software will close the window and return the user to the Violation Sampling Point Association List with the selected sampling points showing on the list. The selected records will be passed to the invoking routine. At this point, the software will not commit any Violation Sampling Point Asgmt record to the database. The user may select between 1 and 100 records to associate at one time. (7.2.2.6 C)

(Developer's Note: This is a new multi-select list that looks like the existing SBS_SAMPLING_POINT_SELECT_LIST but that supports the multi-select needs of the Monitoring and Noncompliance component.)

7.3 Monitoring Requirements

Presentation Type 2: The information in this section reflects a Release 8.0 update to an existing documented design. As such, normal text means no change from the current 7.0 release; redline/redline strikeout indicates where the functionality of an existing object (such as a field, button, menu item, etc.) has changed or where new functionality has been added for Release 8.0.

7.3.1 Model Changes for Monitoring Requirement

Two changes have been made to entity MONITORING_REQUIREMENT (table TMNMNR). First, the description field has been expanded to size 2000. Second, For Release 8.0, the way a Monitoring Requirement will be identified as satisfying a particular regulatory requirement will be through its association to a Violation Type. Therefore, a new relationship will be added between Monitoring Requirement and Violation Type where:

- Each Monitoring Requirement may optionally relate to one M&R Violation Type and
- Each M&R Violation Type may optionally relate to one or more Monitoring Requirement.

Though the relationship says “M&R,” the model will not enforce this by limiting relationships to those Violation Types with a Category Code of “MON” (Monitoring).

The new relationship between Monitoring Requirement and Violation Type will eliminate the need for the four Lead and Copper Rule sample types that were introduced for Release 7.0 (i.e., IN, FR, FE, and SO). These four Sample Types, therefore, will be removed from the list of permitted values for Sample Type.

7.3.2 Monitoring Requirements Window Flow

The window flow of Monitoring Requirements is described in Subsection 7.3.2.1 through Subsection 7.3.2.3.

7.3.2.1 Monitoring Requirements Search

Selecting the **Edit/Planning/Monitoring Requirements** submenu item will display the Monitoring Requirement Search dialog box, Exhibit 7-19. The user will be able to search for Monitoring Requirements based on an Analyte, Analyte Group, Sample Type or Sample Periodicity. Clicking the **Search** button will display the Monitoring Requirement Maintenance List with those monitoring requirements that meet the specified search criteria.

Analyte Group Code This field will map to table TSAANGRP, column CODE. As the user enters data and tabs off this field, all other fields on the dialog box will be protected. Conversely, clearing this field of data (that is, backspacing or deleting from the field), will enable all other fields on this dialog box. May be entered, selected from a list by clicking the **Go To** button, or left blank. If the user specifies a complete Analyte Group Code, the software will attempt an exact match. If an exact match is found, the software will retrieve the analyte group and populate the protected Analyte Group Name field. If an exact match is not found or the user specifies a partial string in this field, the software will display the closest matching analyte group code at the top of the Analyte Group Selection List. (Closest matching means a match with the Analyte Group Code, sorted alphabetically, that starts with the same text string as supplied.) If no match is possible, the software will display the entire list of analyte groups. The default sort for this search will be Analyte Group Code, in ascending alphabetical order. Clicking the **Go To** button will display the Analyte Group Selection List with the same default sort.

| *Sampling*
| *Frequency*
| *Sample Type*

Specifies the type of sample to be taken. This is a standard, protected drop-down list box containing the following permitted values:

CO	Confirmation.
RT	Routine.
SP	Special.
OT	Other.
RP	Repeat
TR	Temporary Routine.
IN	Initial Tap or Distribution System Sample.
FR	Follow-up or Routine Tap or Distribution System Sample.
FE	Follow-up or Routine Entry Point Sample.
SO	Initial/Follow-up/Routine Source Water Sample.

| If Sampling Frequency Sample Type is valued, all other fields will be set to spaces.

| *Sampling Frequency*
| *Sample Periodicity*

Specifies the period of time in which the sample is to be taken. This is a standard, protected dropdown list box containing the following permitted values:

1T	One Time.
YR	1 Year.
2Y	2 Years.
3Y	3 Years.
4H	4 Hours.
4Y	4 Years.
5Y	5 Years.
6M	6 Months.
6Y	6 Years.
7Y	7 Years.
8Y	8 Years.
9Y	9 Years.
10Y	10 Years.
DL	1 Day.
2 W	2 Weeks.
HR	1Hour.
MN	Month.
QT	Quarter.
WK	Week.

If Sampling Frequency Sample Periodicity is valued, all other fields will be set to spaces.

Tab Sequence:

Analyte Code, Analyte Code **Go To** button, Analyte Group Code, Analyte Group Code **Go To** button, Sampling Frequency Sample Type, Sampling Frequency Sample Periodicity, **Search** button, **Clear** button, **Cancel** button, **Help** button.

Buttons:

Analyte Code

Go To

Pressing this button will invoke the Analyte Selection List. The default sort for Analyte Selection List is Analyte Code in ascending alphabetical order. This list should not include analytes of code 3100, CU90, PB90, or analytes of type "GC" (group contaminant) or "OT" (other).
(Developer's Note: Use the same Analyte Selection List as is used currently; just prevent these specified analytes from appearing on the list when called from this window.)

Analyte Group Code **Go To**

Pressing this button will invoke the Analyte Group Selection List. The default sort for Analyte Group Selection List is Analyte Group Code, in ascending alphabetical order. This list should not include any Analyte Group that contains an analyte of code 3100, CU90, PB90, or an analyte of type "GC" (group contaminant) or "OT" (other).

Search

Pressing this button will enable the software to perform a search based on one of the following criteria. All Monitoring Requirements associated with the specified criteria will be retrieved and displayed on the Monitoring Requirement Maintenance List sorted by Sample Type, Sample Periodicity, and Number of Samples.

- If Analyte Code is fully valued, an attempt will be made to retrieve an exact match.
 - If an exact match is found, the software will retrieve the monitoring requirements for the specified analyte and display them on the Monitoring Requirement Maintenance List.
 - If the user specifies a partial string in this field, the software will display the closest matching analyte code at the top of the Analyte Selection List (minus Analytes 3100, CU90, PB90, and any analytes of type "GC" and "OT"). (Closest matching means a match with the Analyte Code, sorted alphabetically, that starts with the same text string as supplied.) If no match is possible, the software will display the entire list of analytes, sorted by Code, in ascending alphabetical order.
 - If no monitoring requirements meet the search criteria, display informational exit state message: **No Monitoring Requirement exists in the database for this search criteria.**
- If **Analyte Group Code** is fully valued, an attempt will be made to retrieve an exact match.
 - If an exact match is found, the software will retrieve the monitoring requirements for the specified analyte group

and display them on the Monitoring Requirement Maintenance List.

- If the user specifies a partial string in this field, the software will display the closest matching analyte group code at the top of the Analyte Group Selection List. (Closest matching means a match with the Analyte Group Code, sorted alphabetically, that starts with the same text string as supplied.) If no match is possible, the software will display the entire list of analytes, sorted by Analyte Group Code, in ascending alphabetical order.
- If no monitoring requirements meet the search criteria, display informational exit state message: **No Monitoring Requirement exists in the database for this search criteria.**

- If Sampling Frequency Sample Type is selected, all Monitoring Requirements for the specified Sample Type (e.g., Routine) will be retrieved sorted by Analyte/Analyte Group, Sample Periodicity, and Number of Samples. If no monitoring requirements meet the search criteria, display informational exit state message: **No Monitoring Requirement exists in the database for this search criteria.**

- If Sampling Frequency Sample Periodicity is selected, all Monitoring Requirements for the specified Sample Periodicity (e.g., Monthly) will be retrieved sorted by Analyte/Analyte Group, Sample Type, and Number of Samples. If no monitoring requirements meet the search criteria, display informational exit state message: **No Monitoring Requirement exists in the database for this search criteria.**

Clear

Pressing this button will clear data from all fields (and any invisible retrieved data) on the search dialog box. All fields (that may have been protected) will be enabled. The mnemonic for this button will be "l."

Cancel

When the user presses on this button, the software will disregard any data entered and returns the user to the *Monitoring and Noncompliance* main menu.

Menu Items:

File

Exit Selecting **File/Exit** will return the user to the *Monitoring and Noncompliance* main menu.

Edit

Add Selecting **Edit/Add** will display the Monitoring Requirement Maintenance window in Add mode. This option will be enabled when an analyte record has not been highlighted.

Change Selecting **Edit/Change** will display the Monitoring Requirement Maintenance window with the selected monitoring requirement. This option will be enabled only when an analyte record has been highlighted. Monitoring requirements that belong to EPA (when TMNMNR_ST_CODE = "HQ") cannot be changed.

Select The **Edit/Select** menu item will be enabled only when this window is invoked from either the Non-TCR Schedule Maintenance window, the TCR Schedule Maintenance window, or the TCR Sample Schedule Modification window. Selecting **Edit/Select** will close the window and return the user to either the Non-TCR Schedule Maintenance window or the TCR Sample Schedule Modification window. When invoked from the TCR Sample Schedule Modification window, only the **Edit/Select** menu item will be available—all other menu items will be protected.

Delete Selecting **Edit/Delete** will display a delete confirmation dialog box for the selected monitoring requirement record. This option will be enabled only when a monitoring requirement record has been highlighted. Two edit checks will be possible:

- A monitoring requirement record cannot be deleted if it is a federally owned record. If a user tries to delete a federally owned monitoring requirement record, provide the following exit state error message: **This is a federally owned monitoring requirement record and cannot be deleted.** If the record is federally owned, do not execute the following reference check.

- If the user selects for deletion a state-owned monitoring requirement, the software will display a delete confirmation dialog box (Exhibit 7-21) for the selected Monitoring Requirement that says: *Are you sure you want to delete this Monitoring Requirement? Deleting it will also delete all Sample Schedules which reference it.* The dialog box will have two buttons, **Yes** and **No**. The monitoring requirement cannot be deleted if it is referenced by an about-to-be-deleted schedule which in turn is associated with a validated or preliminary violation (associated violation's D_CURRENT_STATUS_TYPE_CODE is "V" or "P") . If the software encounters this situation, it will invoke exit state error message: **Monitoring Rqt links to a schedule(s) that references a violation--cannot delete.**
 - If the user presses **Yes**, the software will delete the monitoring requirement, all sample schedules that may reference that monitoring requirement, and all SSMPAs that may reference the about-to-be-deleted schedule. Note that when an SSMPA is deleted, any Sub-SSMPA records that reference it will be automatically (cascade) deleted. Prior to deleting each SSMPA and Sub-SSMPA, the Last Update Timestamp field of each Sample Analytical Result and Monitoring Period that is associated with the SSMPA or Sub-SSMPA will be set to the current timestamp (so that these will be re-assessed by *CDS Setup* the next time it runs). Before deleting an associated Sample Schedule, delete any association between the Sample Schedule and a deleted or rejected Violation.
 - If the user presses **No**, no action will be taken, the dialog box will close, and return the user to the Monitoring Requirement Maintenance List.

Refresh Selecting **View/Refresh** will retrieve the unfiltered list (original search criteria).

The value in the Ownership column will be set to “Federal” when Monitoring Requirement St_Code is “HQ.” The value in the Ownership column will be set to “State” when Monitoring Requirement ST_CODE is not “HQ.”

List Columns:

| Sampling Freqcy Samples Rqd ~~Sample Count~~, Sampling Freqcy Sample Type, Sampling
| Freqcy Sample Per., Analyte/Analyte Group Code, M&R Violation Type, Fed Reportable
| Cont. Code, Ownership, CFR No., Analyte/Analyte Group Name.

Protected Fields:

*Number of rows
resulting from search
criteria entered* This protected field will show the total number of rows that met the search criteria.

*Number of rows
displayed* This protected field will show the total number of rows that displayed in the list, that may be less than the number of rows that met the search criteria.

7.3.2.3 Monitoring Requirements Maintenance

To add a new monitoring requirement, the user would select **Edit/Add** from the Monitoring Requirement Maintenance List. This will invoke the Monitoring Requirement Maintenance window in Add mode, as shown in Exhibit 7-22. The Monitoring Requirement Maintenance window will require the user to select either an analyte or an analyte group, and the frequency (the number of samples of a specified sample type per a specified period of time). The CFR No. field will be optional. The Monitoring Requirement will be uniquely identified by either the analyte or analyte group plus the three fields in the Sampling Frequency group box. While CFR No. is part of the uniqueness for federally owned monitoring requirements, it will not be part of the uniqueness for state-owned monitoring requirements.

Entry Fields:

For federally owned monitoring requirements (where ST_CODE is “HQ”) that are selected in Change mode, the software will protect all entry fields.

Analyte Group Box:

The prompt for the Analyte group box will be blue and underlined to indicate that either an analyte or analyte group must be specified.

Analyte Code

The user may click the **Go To** button, to invoke the Analyte Selection List (Exhibit 7-23), or may enter a value directly into the Analyte Code field. The default sort for Analyte Selection List will be Analyte Code in ascending alphabetical order. If the user enters a value in the Analyte Code field, on tabbing off the field, the software will retrieve the specified analyte if it is an exact match and populate the Analyte Name field. If the value entered is not an exact match, the software will invoke the Analyte Selection List sorted by ascending Analyte Code, from which the user may select an analyte on which to search and populate the analyte field on this window. If the user specifies a partial string in this field, the software will display the closest matching analyte code at the top of the list. (Closest matching means a match with the Analyte Code, sorted alphabetically, that starts with the same text string as supplied.) If no match is possible, the software will display the entire list of analytes. When calling the Analyte Selection List, the software should not display Analyte Code 3100, CU90, PB90, or analytes of type "GC" (group contaminant) or "OT" (other). If the Analyte Code field is valued, the Analyte Group field will be set to spaces.

(Developer's Note: Use the same Analyte Selection List as is used currently; just prevent these specified analytes from appearing on the list when called from this window.)

to search and populate the analyte group field on this window. If the user specifies a partial string in this field, the software will display the closest matching analyte code at the top of the list. (Closest matching means a match with the Analyte Group Code, sorted alphabetically, that starts with the same text string as supplied.) If no match is possible, the software will display the entire list of analyte groups. If Analyte Group Code is valued, Analyte Code will be set to spaces.

(Developer note: Use the existing SBS_ANALYTE_GROUP_SELECT_LIST procedure. Just prevent analyte groups that contain the analytes specified above from appearing in the list.)

Sampling Frequency Group Box:

The prompt for this group box will be blue and underlined to indicate that sampling frequency information must be provided in this group box.

Samples Required Specifies the number of samples to be taken.

[Sample Type] Specifies the type of sample to be taken. This will be a standard, protected dropdown list containing the following permitted values:

- RT Routine.
- CO Confirmation (if "CO", default Sample Periodicity to "1T").
- SP Special.
- RP Repeat or Check.
- TR Temporary Routine.
- OT Other.
- ~~IN Initial Tap or Distribution System Sample.~~
- ~~FR Follow-up or Routine Tap or Distribution System Sample.~~
- ~~FE Follow-up or Routine Entry Point Sample.~~
- ~~SO Initial/Follow-up/Routine Source Water Sample.~~

Because RP and TR monitoring requirements are not usable on the Non-TCR Schedule Maintenance window, only new monitoring requirements of Sample Type RT, CO, and SP can be created. However, RP and TR remain in the dropdown, so that the user may display federally owned monitoring requirements of this type.

9Y = 9 Years.
10Y = 10 Years.
DL = Daily 1 Day.
2W = Every 2 Weeks.
HR = One 1 Hour.
MN = Month.
QT = Quarter.
WK = Week.

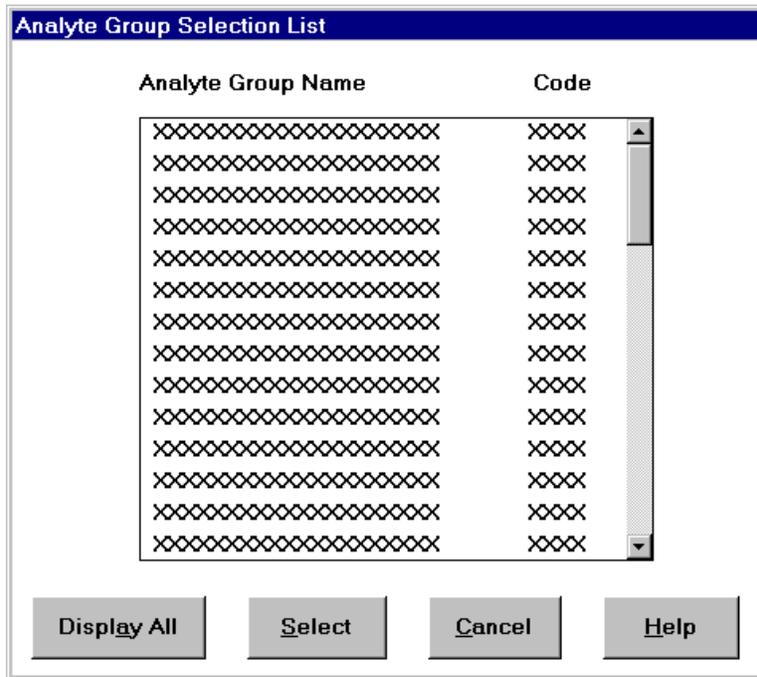


Exhibit 7-24. Analyte Group Selection List

M&R Violation Type

The user may enter a valid M&R Violation Type or use the **Go To** button to display the Violation Type Selection List, which will be sorted by ascending type. Only violations types whose Category is (Monitoring (Mon) or Reporting (Rpt)) and whose Severity Level is either (null or Major (MJ)) will be listed. As the user enters/changes a value and tabs off the M&R Violation Type field (which maps to TYPE_CODE in VIOLATION TYPE.), the software will check that the supplied Violation Type is valid, then populate the retrieved Violation Type's Name value in the corresponding protected field and the Violation Type's associated Fed Reportable Contaminant Code value in the

corresponding, protected, field. If there is no associated Fed Reportable Contaminant Code (i.e., the selected Violation Type does not reference a ANALYTE record), the software will instead display the Analyte or Analyte Group for the Monitoring Requirement (e.g., for a nitrate monitoring requirement that references Violation Type 03, the nitrate code—1040 will be displayed both here and in the Analyte Code field at the top of the maintenance window). If the entered/changed Violation Type is one that has both an MJ and MN Severity Level, populate with the record whose Severity Level is MJ.

If the supplied M&R Violation Type does not exist in the database, the software will not supply a message but will directly invoke the Violation Type Selection List from which the user may select a valid M&R Violation Type.

Note: While this field is optional, it must be valued for CDS processes to determine monitoring compliance.

CFR No.

The user may click the **Go To** button to invoke the Code of Regulation Selection List (Exhibit 7-25), or may enter a value directly into the CFR No. field. The default sort for Code of Regulation Selection List is CFR No., in ascending alphabetical order. If the user enters a value in CFR No., on tabbing off the field, the software will retrieve the specified CFR if it is an exact match and populate the CFR No. field. If the value entered is not an exact match, the software will invoke the CFR Selection List, sorted by ascending CFR No., from which the user may select. If the user specifies a partial string in this field, the software will display the closest matching CFR No. at the top of the list. (Closest matching means a match with the CFR No., sorted alphabetically, that starts with the same text string as supplied.) If no match is possible, the software will display the entire list of CFRs.

(Developer note: Use the existing LUM_C_COR_SELECT_LIST and LUM_S_COR_SELECT_LIST client/server procedures.)

Description

~~120~~ Size 2000 character text field for the Monitoring Requirement. On a Change action, this field can be updated.

Tab Sequence:

~~Analyte Code, Go To button, Analyte Group, Go To button, Sample Count, Sample Type drop-down, Sample Periodicity drop-down, CFR No., Go To button, OK, Cancel, Help.~~

Analyte Code, Analyte Code **Go To** button, Analyte Group Code, Analyte Group Code **Go To** button, Samples Required, [Sample Type], [Periodicity], M&R Violation Type, M&R Violation Type **Go To** button, CFR No., CFR No. **Go To** button, Description, **OK** button, **Cancel** button, **Help** button.

Buttons:

Analyte Code

Go To

Pressing this button will invoke the Analyte Selection List. The default sort for Analyte Selection List will be Analyte Code, in ascending alphabetical order. This list should not include analytes of code 3100, CU90, PB90, or analytes of type "GC" (group contaminant) or "OT" (other).

(Developer's Note: Use the same Analyte Selection List as is used currently; just prevent these specified analytes from appearing on the list when called from this window.)

Analyte Group

Code **Go To**

Pressing this button will invoke the Analyte Group Selection List. The default sort for Analyte Group Selection List will be Analyte Group Code, in ascending alphabetical order. This list should not include any Analyte Group that contains an analyte of code 3100, CU90, PB90, or an analyte of type "GC" (group contaminant) or "OT" (other).

M&R Violation

Type **Go To**

Pressing this button invoke the Violation Type List. The default sort for Violation Type List will be ascending type. Only violations types whose Category is (Monitoring (Mon) or Reporting (Rpt)) and whose Severity Level is either (null or Major (MJ)) will be listed.

CFR No. **Go To**

Pressing this button will invoke the CFR Selection List. The default sort for Code of Regulation Selection List will be CFR No., in ascending alphabetical order.

OK

Pressing this button will invoke the edit checks listed below. If all edit checks pass successfully, the monitoring requirement will be created and displayed on the Monitoring Requirement Maintenance List.

- If neither an Analyte Code or Analyte Group Code are selected, provide exit state error message: **Either an Analyte or an**

Analyte Group is required. Return the cursor to the Analyte Code field.

- If Analyte Code is “3100,” provide exit state error message: **Cannot add a monitoring requirement for analyte code 3100.** Return the cursor to the Analyte Code field.
- If Analyte Type Code is either “GC” (group contaminant) or “OT” (other), provide exit state error message: **Cannot add requirement for analyte of type “Group Contaminant” or “Other.”** Return the cursor to the Analyte Code field.
- If any of the three fields in the Sampling Frequency group box (sample count, sample type or sample periodicity) are left blank, provide exist state message: **Sample count, sample type and sample periodicity are required fields.** Return the cursor to the blank field.
- If a Monitoring Requirement of Sample Type RP or TR is selected, provide error exit state message: **Monitoring Requirement types Repeat and Temp Routine may not be created.** Return the cursor to the second field in the Sampling Frequency group box.
- If a user selects either Analyte Code CU90 or PB90, invoke exit state error message: **Use Analyte Codes 1022 and 1030 instead of CU90 and PB90.** Return the cursor to the Analyte Code field.
- If a user enters an analyte group, after retrieving the Analyte Group, check each analyte in the specified group to ensure that one is not Analyte Code CU90 or PB90. If found in the Analyte Group, invoke exit state error message: **Analyte Group may not contain CU90 or PB90. Use Analyte Codes 1022 and 1030.** Return the cursor to the Analyte Group Code field.
- If a user enters an analyte group and sample type of RT, TR, or RP, after retrieving the Analyte Group, check each analyte in the specified group to ensure that one is not Analyte Code 3100. If found in the Analyte Group, invoke exit state error message: **Analyte Group may not contain 3100 if sample type is RT, TR, or RP.** Return the cursor to the Analyte Group Code field.

- This uniqueness check should allow two monitoring requirements with the same sample count, sample type, sample count unit code and analyte/analyte group if:
 - One of them references a violation type and the other does not; or
 - Each references a different violation type.

But if neither references a violation type, the software should consider the second one a duplicate and not allow it to be created/updated.

~~The software should impose the following uniqueness check on monitoring requirement:~~

~~MONITORING_REQUIREMNT SAMPLE_COUNT and
MONITORING_REQUIREMNT SAMPLE_TYPE and
MONITORING_REQUIREMNT SAMPLE_COUNT_UNIT_CODE and
(ANALYTE_CODE or ANALYTE_GROUP_CODE)~~

Prior to creating the new monitoring requirement, check that one does not already exist, and if it does, provide exit state error message:
Monitoring requirement for this analyte/analyte group already exists.

Cancel

When the user presses this button, the software will disregard any data entered and return the user to the *Monitoring and Noncompliance* main menu.

Help

Pressing this button will invoke online Help for this window.

7.0 Sample Type Code	Sample Type Code Description	Analyte Referenced	8.0 Violation Type
IN	Initial Tap	Lead (1030), Copper (1022)	51
	Distribution System Sample	pH (1066 or 1925), Alkalinity (1928, 1067, 1929, 1031, or 1927), Orthophosphate (1044), Silica (1049), Calcium (1016, 1019, or 1919), Conductivity (1064), or Temperature (1996)	53
FR	Follow-up or Routine Tap	Lead (1030), Copper (1022)	52
	Distribution System Sample	pH, Alkalinity, Orthophosphate, Silica, Calcium, Conductivity, or Temperature	53
FE	Follow-up or Routine Entry Point Sample	pH, Alkalinity, Orthophosphate, Silica, Calcium, Conductivity, or Temperature.	53
SO	Initial/Follow-up/Routine source water sample	Lead (1030) or Copper (1022)	56

Exhibit 7-26. Schema Migration Cross-walk for LCR Monitoring Requirements

7.4 TCR Sample Schedule

Presentation Type 3: The information in this section is not a comprehensive design of this function and only reflects Release 8.0 changes/new functionality. As such, normal text means new functionality (e.g., a new button, window, etc. is introduced); redline/redline strikeout indicates where the functionality of an existing object (such as a field, button, menu item, etc.) has changed.

To accommodate the request of SDWIS/STATE users, who voted for changing the existing Positive Sample Result Validation function as one of the top five priorities for Release 8.0, it is necessary among other things, to enable a user to indicate whether Total Coliform Rule

Noncompliance Determination (TCR NCD) should determine compliance with the upstream, downstream, and original repeat sampling requirements for a given TCR repeat schedule. The requirement to do this stems both from the federal regulation as well as the situation where a public water system does not have three or more taps from which to collect TCR samples. The following federal regulation forms the basis of this design change:

If a total coliform-positive sample is at the end of the distribution system, or one away from the end of the distribution system, the State may waive the requirement to collect at least one repeat sample upstream or downstream of the original sampling site. (CFR 141.21(b)(2))

Other minor requested changes that will be accommodated while working in this area include the following:

- Change the message when no current or future samples schedules are found.
- Change the default sort order for the TCR Sample Schedule Maintenance List window.
- Add to the TCR Sample Schedule Maintenance List the common “Select Another Water System,” function that is available throughout the *Inventory* component.
- Remove the universally unused “deviate” function from a TCR schedule.
- Correct the routine overlap check.

While these changes are essential, none of them radically change the design or operation of these functions as they exist in *SDWIS/STATE Release 7.0*. Therefore, the design documented in the following subsections focuses on enhancements and/or changes to the function rather than a comprehensive design specification for each. Redlining in this section indicates a change to current functionality triggered by the new functionality.

7.4.1 Model Changes to Sample Schedule

To enable a user to indicate whether TCR NCD should determine compliance with the upstream, downstream, or original repeat sampling requirements for a given TCR repeat schedule, a new attribute is being added to entity SAMPLE_SCHEDULE (table TMNSASCH), which can be maintained from the TCR Sample Schedule Maintenance window:

STREAMNESS_REQUIRED_INDICATOR—Text, 1, optional, permitted values.
There are three permitted values: Null, Yes, and No.

7.4.2 Maintenance Window Changes

Maintenance window changes are described in Subsection 7.4.2.1 through Subsection 7.4.2.3.

7.4.2.1 TCR Sample Schedule Search

Add the following protected field to the window consistent with how it appears on the Site Visit Search window.

Protected Field:

*WS Group Used/
Regulating Agency
Used*

This protected field will show the user's current Water System Group Name or Regulating Agency depending on which the user has made current. The software will dynamically change the prompt depending on whether Water System Group Name or Regulating Agency is current. The prompt will be "WS Group Used" if the user's current Water System Group is valued, otherwise the prompt will be "Regulating Agency Used." (7.4.2.1A)

Buttons:

Search

Pressing this button will retrieve schedules based on the specified criteria. This criteria will be further constrained as described:

The user's current Water System Group/Regulating Agency will be used as an implied search criteria in all searches for schedule records. This means that the software will retrieve only schedules linked to a water system that is linked to the user's current Water System Group/Regulating Agency. If an exact Water System No. is entered, the software will validate that it belongs to the user's current Water System Group/Regulating Agency.

- If a valid water system is entered but is not part of the user's current Water System Group or Regulating Agency, invoke exit state error message: **WS is not part of current group/agency. Change group/agency to access this WS.** (7.4.2.1B)
- If no current or future TCR Sample Schedule exists for the selected water system, continue to flow to the information dialog box but change the message to read as follows: **No current or**

future schedules of this type exist for the specified water system. (7.4.2.1C)

7.4.2.2 TCR Sample Schedule Maintenance List Window

The following changes will need to be made to the TCR Sample Schedule Maintenance List window. The columns in this list are ~~Rule~~, Sample Count, Sample Type, Sample Per., Begin Date, End Date, ~~Deviated~~, ~~Deviation Type~~, Start MM/DD, End MM/DD, Streamness Compliance, Analyte Code, Analyte, Rule. (7.4.2.1D)

(Developer's Note: When necessary, stack labels; squeeze columns so that the columns through Streamness Compliance are displayed without scrolling to the right. If possible, retain the sort order selected by a user throughout the time the user is maintaining TCR Sample Schedules, whether maintaining them for one water system or going to schedules for another water system using the new, View/Select Another Water System menu item.)

Menu Items:

Edit

Delete Selecting **Edit/Delete** will display a delete confirmation dialog box for the selected schedule. This option will be enabled only when a sample schedule has been selected. (7.4.2.1E)

- The sample schedule cannot be deleted if there is a violation which has a status of V (validated) or P (preliminary) associated with it. A sample schedule that is linked to a violation which has a status of V (validated) or P (preliminary) cannot be removed unless the violation is first disassociated from the schedule. If a schedule selected for removal is linked to a violation of status of V or P, invoke the following warning message: **This sample schedule is associated to a Validated (V) or Preliminary (P) violation and cannot be deleted. To delete this schedule, you must first disassociate or delete or reject the violation(s) using the Violation Maintenance function in the *Monitoring* component.**
- If the schedule is not associated to one or more violations of status V or P; but it is associated to one or more violations of status of R or D, the software will delete the association to the violation record before deleting the sample schedule.

~~*Deviate*~~ Opens the ~~Deviation Maintenance~~ window.

Select The **Edit/Select** menu item will be enabled only when this window is invoked from the Violation Maintenance window. Choosing **Edit/Select** will close the window and return the user to the Violation Sample Schedule Association dialog box with the selected schedule populating the dialog box's fields. (Note that at this point, the software does not commit the association between sample schedule and violation to the database. This occurs when the user presses **OK** on the Violation Maintenance window).

View

Show All Schedules Selecting **View/Show All Schedules** will display all (past, present, and future) TCR sample schedules for the water system. The proposed default sort is Begin Date ascending.

Show Current and Future Schedules Selecting **View/Show Current and Future Schedules** will display the default view. Current and future TCR schedules for the water system will be displayed.

(1) Show all schedules for the water system or water system facility whose Effective Begin Date is \leq current date and whose Effective End Date is (null or \geq current date)

AND

(2) Show all schedules for the water system or water system facility whose Effective Begin Date is $>$ current date.

The proposed default sort will be Begin Date ascending.

If no current or future schedules are found, invoke exit state information message: **No current or future TCR Sample Schedules exist for the selected criteria.** When the user clicks on **OK**, the TCR Sample Schedule Maintenance List will be displayed. (7.4.2.2. C)

Select Another

Water System Selecting the **View/Select Another Water System** function will work the same way as it does in the online *Inventory* component. When this function is used, the software will apply the current “view” as well as the current sort and filter selections to the new list of TCR Sample Schedules (e.g., if the user has picked the “Show All Schedules” view and has sorted by Begin Date descending, when the user selects another water system, the software will apply the same “Show All Schedules” view and sort order to the new list of TCR Sample Schedules).

Search

Selecting **View/Search** will invoke the Non-TCR Sample Schedule Search window.

Sort

Selecting **View/Sort** will display the standard Sort dialog box. Change the tab order on the Sort Order Selection dialog box so that it tabs to the Asc/Desc *after* the attribute selection field rather than before it (i.e., tab to the Asc/Desc options buttons for the First Order field after the First Order field—right now, it tabs to the Asc/Desc option button for the Second Order field after the First Order field).

Filter by

Rule, Sample Type, Sample Count Unit, *Deviated*, Start MM, Start DD, End MM, End DD,

Refresh

Selecting **View/Refresh** will retrieve the unfiltered list (original search criteria).

7.4.2.3 TCR Sample Schedule Maintenance Window

A new entry field will be added to the TCR Sample Schedule Maintenance window.

Entry Field:

*Streamness
Compliance
Required?*

This field with a dropdown list will enable the user to indicate whether TCR NCD should determine compliance with the upstream, downstream, and original repeat sampling requirements of the TCR or not. It will be placed below the Monitoring Requirement group box and above the Notes and Water System Notified Date fields. This field will be enabled only for Sample Schedules of type RP (repeat); otherwise it will be protected. This field will map to the new TCR STREAMNESS_REQUIRED_INDICATOR attribute in entity

SAMPLE_SCHEDULE (table TMNSASCH). The permitted values will be:

- Y—Compliance Officer has indicated that Streamness must be considered when the TCR schedule is evaluated by TCR NCD—(i.e., if repeat samples do not indicate streamness of upstream, downstream, and the original site, TCR NCD will determine a candidate minor M&R violation.)
- N—Compliance Officer has explicitly indicated that streamness should not be considered when the TCR schedule is evaluated by TCR NCD.

The default for the field will be “No.”

Tab Sequence:

Tab order for this window will need to be reset. Currently, the Periodicity field (i.e. attribute SAMPLE_COUNT_UNIT_CODE) is out of order (i.e., after the **Help** button). The tab sequence will be as follows:

Samples Required [Sample Count], Sample Required [Sample Type Code], per [Sample Unit Count], per [Sample Count Unit Code], Monitoring Requirements **Go To** button, Seasonal Period Start MM/DD, Seasonal Period End MM/DD, Effective Period Begin Date, Effective Period End Date, Streamness Compliance Required, Notes, Water System Notified Date, Corrective Action Taken, ~~View Deviation~~ button, **Originating Positive Result** button, **OK** button, **Cancel** button, **Help** button, per [Sample Count Unit Code]

Buttons:

View Deviation

OK and Originating Positive Result

Revise the existing, routine TCR Sample Schedule overlap check as follows. Routine will be defined as a schedule where the SAMPLE_TYPE_CODE of the referenced MONITORING_REQUIREMNT is either RT (routine) or TR (temporary routine).

The overlap check must consider both the effective period of the sample schedule (defined by the BEGIN_DATE and END_DATE in

SAMPLE_SCHEDULE—do not confuse them with attributes of the same name in MONITORING_REQUIREMNT) as well as the seasonal period of the sample schedule (defined by the period between the START_MONTH plus START_DAY and END_MONTH plus END_DAY—do not confuse these with similar attributes with STATE in the front of their name. Also note that if START_MONTH and START DAY are later than END MONTH and END DAY, the seasonal period will encompass periods in two calendar years).

This overlap check will be similar to the existing routine overlap check for Non-TCR Sample Schedules. The following examples in Exhibit 7-27 clarify the routine overlap check for TCR Sample Schedules. The error message that will be displayed in the event that the software encounters an overlapping routine TCR schedule will not change.

MONITORING_REQUIREMNT				SAMPLE_SCHEDULE				(Scenario ID) Status Outcome
SAMPLE_COUNT	SAMPLE_TYPE_CODE	SAMPLE_UNIT_COUNT	SAMPLE_COUNT_UNIT_CODE	BEGIN_DATE	END_DATE	START_MONTH / START_DAY	END_MONTH / END_DAY	
1	RT	1	MN	1/1/1991	Open	5/1	9/30	1a Existing NA
1 (Doesn't Matter)	RT	1 (Doesn't Matter)	QT (Doesn't Matter)	7/1/1999	Open	10/1	4/30	1b New OK
5 (Doesn't Matter)	TR	1 (Doesn't Matter)	MN (Doesn't Matter)	9/1/2000	9/30/2000	9/1	9/30	1c New Overlap
1	RT	1	QT	4/1/1999	3/31/2001	1/1	12/31	2a Existing NA
1 (Doesn't Matter)	RT	1 (Doesn't Matter)	MN (Doesn't Matter)	9/1/2000	9/30/2000	9/1	9/30	2b New Overlap
1 (Doesn't Matter)	RT	1 (Doesn't Matter)	MN (Doesn't Matter)	3/31/2001	Open	1/1	12/31	2c New Overlap

Exhibit 7-27. TCR Schedules Overlap Check Example Scenarios

7.5 TCR Noncompliance Determination

Presentation Type 3: The information in this section is not a comprehensive design of this function and only reflects Release 8.0 changes/new functionality. As such, normal text means new functionality (e.g., a new button, window, etc. is introduced); redline/redline strikeout indicates where the functionality of an existing object (such as a field, button, menu item, etc.) has changed.

The changes documented in this section have been triggered by the requests of SDWIS/STATE users, who voted as their top three change requests for Release 8.0, changes to both the way TCR schedules are automatically created as well as some enhancements to TCR NCD related components.

7.5.1 Validation of Positive Sample Results

This subsection contains the design for implementing Candidate 8.0 Requirement #52:

“Revise the way SDWIS/STATE creates Repeat TCR Sample Schedules upon validation of a positive TCR result in the following ways:

- Allow the user to confirm the creation of a repeat schedule by adding the question “Do you wish to create this repeat schedule?” and by adding “Yes” and “No” buttons to the “Repeat Schedule Creation” window.
- Allow the user to select a different Repeat Monitoring Requirement on the “Repeat Schedule Creation” Window (our software returns the wrong repeat monitoring requirement when a system that normally collects 1 routine is on a temporary routine requirement calling for 5 routines - this would allow the user to override this incorrect determination without making significant changes to the underlying code).
- Bring up the “Repeat Schedule Creation” whether the positive result is from a routine or a repeat (by adding the first change, those who do not want repeats on repeats would simply click on the **No** button).”

This candidate requirement received the second highest total points in the first round of rankings by SDWIS/STATE users.

The following additional minor improvements will be included in the design:

- Addition of the new proposed Streamness Required Indicator (with label “Subject to Upstream/Downstream Requirement”) on the Repeat Schedule Confirmation dialog box.

- Basing the default Begin and End dates for the Repeat schedule on the Collection Date of the original sample rather than on the current date.
- Enabling a user to validate a positive sample without the software assessing whether an acute violation has occurred and without that assessment changing a TCR Sample Schedule. In other words, only validate the positive results. This would allow a user to process old, positive, TCR results without impacting TCR NCD.
- Bypass the current search dialog box and go directly to the Positive Sample Analytical Result Validation List with TCR automatically applied as the desired rule.

7.5.1.1 Positive Sample Analytical Result Validation List

The following changes are proposed for the Positive Sample Analytical Result Validation List, Exhibit 7- 28. When the user selects, **Edit/TCR Noncompliance/Positive Sample Result Validation List** on the *Monitoring and Noncompliance* main menu, the software should no longer invoke the Positive Sample Analytical Result Validation List Search dialog box. Instead, it will apply the existing selection criteria (including rule TCR) and display the positive TCR sample analytical results with the following change: the results for a given sample will be listed together, with the total coliform result listed first. (Currently, if a Sample is positive for both total coliform and either fecal or *E. coli*, the two results will usually be listed separately, which is confusing and inappropriate.) Regardless of which sort order is later selected by a user (except Analyte or Analyte Code, in which case the user will be indicating that the user wants to control analyte sorting), the software will stay with the convention of displaying the results for a given sample together, with the total coliform result listed first. Note that a “Result (P/A)” column will be added; even though this list will only display positive results, it will be a nice confirmation of this fact.

The fields in this list will be: Sample Type, Water System No., Collection Date, Lab Sample No., ~~Monitoring Period~~ Mon. Per. Name, Result (P/A) [which maps to MICROBIOLOGICAL_ANALYTICAL_RESULT Presence Indicator Code—stack with Result on top and (P/A) underneath], Result QA [which maps to SAMPLE_ANALYTICAL_RESULT Data Quality Code— stack Result on top and QA underneath], Analyte Code, Lab State ID, Lab Name, Water System Name, Analyte Name (with width reduced so that it is just wide enough for “COLIFORM, TOTAL (TCR).”

(Developer’s Note: When necessary, stack labels so that column takes as little space as possible. Retain the sort order selected by a user throughout the time the user is processing positive TCR sample results.)

- Change the Data Quality Code for the selected result(s) from “A” (accepted) to “V” (validated).
- Remove highlighted result(s) from the list.
- Retain the same sort order and filter previously selected and “dash” the lines around the next not-yet-validated result.

View

- Sort* For **View/Sort**, the existing “sorted by” function (that only gives you PWD ID, Collection Date) should be replaced by the standard Sort dialog box. Sorting will be allowed by Water System No. (replaces PWS ID), Collection Date, Monitoring Period Name, Water System Name, Sample Type, Analyte Name, and Analyte Code.
- Filter by* Selecting **View/Filter by** will allow the user to filter by Sample Type, Collection Date, Lab Sample No., Monitoring Period Name, Water System Name, Water System No., Lab State ID, Lab Name, Analyte Code, Analyte Name. List these alphabetically.
- Refresh* Selecting **View/Refresh** will retrieve the unfiltered list (original search criteria).
- Select All* For **View/Select All**, no change to existing functionality. Shown here to indicate position of new menu items.

Protected Fields:

*WS Group/
Regulating Agency
Used*

This protected field will show the Water System Group Name or Regulating Agency used in the search criteria. The software will dynamically change the prompt depending on whether Water System Group Name or Regulating Agency is current. The prompt will be “WS Group Used” if the user’s current Water System Group is valued, otherwise the prompt will be “Regulating Agency Used.”

7.5.1.2 Repeat Schedule Creation Window

When the user highlights one or more result and selects **Edit/Validate**, the software will invoke the Repeat Schedule Creation dialog box.

The following changes are proposed for the Repeat Schedule Creation dialog box, Exhibit 7-29.

Repeat Schedule Creation

Do you want to create a Repeat TCR Schedule for (each of these) sample(s) with a positive result(s)?

If so:

- * enter the desired repeat requirement for the schedule;
- * enter the desired Begin and End Dates for the schedule;
- * indicate whether TCR NCD should determine compliance with the upstream, downstream, and original repeat sampling requirements or not; and
- * click on Yes.

Repeat Monitoring Requirement

ZZZ9 XX per XXX [dropdown] >>

Begin Date [MM/DD/YY] End Date [MM/DD/YY]

Do you want TCR NCD to determine compliance with the upstream, downstream, and original repeat sampling requirements for this schedule(s)? [dropdown]

Review TCR Schedules Yes No Cancel Help

Exhibit 7-29. Repeat Schedule Creation

A new statement (literal) at the top of the window:

Do you want to create a Repeat TCR Schedule for this (each of these) sample(s) with a positive result?

If so:

- **Enter the desired repeat requirement for the schedule;**
- **Enter the desired Begin and End Dates for the schedule;**
- **Indicate whether TCR NCD should determine compliance with the upstream, downstream, and original repeat sampling requirements or not; and**
- **Click on Yes.**

Protected Fields:

Repeat Monitoring Requirement Group Box:

The prompt for this group box will be blue and underlined to indicate that the repeat monitoring requirement is mandatory information (if the user wants to create repeat schedules). The software will default to the repeat monitoring requirement currently determined by the software. Clicking on the **Go To** button will display the Monitoring Requirement Maintenance List to allow the selection of a different repeat monitoring requirement.

[Sample Count] This field will display the Sample Count of the selected repeat monitoring requirement.

[Sample Type] This field will display the Sample Type of the selected repeat monitoring requirement.

[Sample Unit Count] This field will display the Sample Unit Count of the selected repeat monitoring requirement.

[Periodicity] This field will display the Sample Count Unit Code (i.e., periodicity) of the selected repeat monitoring requirement.

Entry Fields:

Begin Date Enterable date field that maps to BEGIN_DATE in SAMPLE_SCHEDULE. Default it to the earliest Sample Date of the results being validated plus one day. An external calendar function will allow the user to more easily enter dates for this field. The prompt will be blue and underlined to indicate that this field is mandatory if the user wants to create repeat schedules.

End Date Enterable date field that maps to END_DATE in SAMPLE_SCHEDULE. Default this to the earliest Sample Date of the result being validated plus 15 days. An external calendar function will allow the user to more easily enter dates for this field. The prompt will be blue and underlined to indicate that this field is mandatory if the user wants to create repeat schedules.

*Do you want TCR NCD
to determine compliance
with the upstream,
downstream, and original
repeat sampling
requirements for
this schedule(s)?*

A new dropdown list with permitted values of Yes and No. The default value is No. The prompt for this field is blue and underlined to indicate that this field is mandatory if the user wants to create repeat schedules.

Buttons:

| **OK.** Remove from dialog box.

Monitoring

Requirement Go To Allow the user to pick the a different Repeat Monitoring Requirement for 3100 by clicking on the **Go To** button (right now there eight repeat monitoring requirement records, seven calling for 4 repeats and one calling for 3 repeats). If the user clicks on the **Go To** button, use the existing Monitoring Requirement Maintenance List window to display only these repeat monitoring requirements (Sample Type is RP) allowing the user to select one.

Yes The mnemonic for this button will be “Y.” If the user selects **Yes**, the software will use the user-specified data to create a repeat TCR schedule.

If a repeat monitoring requirement has not been selected, invoke exit state error message: **A repeat monitoring requirement must be specified.**

If Begin Date is valued, invoke exit state error message: **A Begin Date must be specified.**

If End Date is valued, invoke exit state error message: **An End Date must be specified.**

If the End Date is before the Begin Date, invoke exit state error message: **The End Date must be on or after the Begin Date.**

Once the samples are validated, the software will either flow to the new Preliminary Acute Violation Creation Advisory dialog box (described

below) or return to the Positive Sample Analytical Result Validation List Window with the same sort and filter that was in place prior to the validation with the validated samples removed from the list.

No

The mnemonic for this button will be “N.” Pressing this button will cause software to do everything it currently does when validating a positive TCR result except create Repeat schedule(s) for the selected result(s). In other words, it will change the results Data Quality to V, determine whether the just validated result constitutes an acute violation and, if so, create a preliminary, acute, violation and remove the highlighted result(s) from the list once it returns to the list.

**Review
TCR Schedules**

The mnemonic for this button will be “S.” Pressing this button will display all the TCR Sample Schedules for the water system (view set to all schedules, sorted by Begin Date descending) using the existing TCR Sample Schedule Maintenance List window with only the **File/Exit** menu item and the three toolbar buttons enabled (Exhibit 7-31).

If the user has selected results from more than one water system, the software will first display the existing Water System Selection List showing only water systems associated to the sample results selected for validation.

- The **Edit/View** menu item will be protected.
- If the user selects **File/Exit**, the software will return to the Repeat Schedule Creation dialog box.
- If the user selects **Edit/Select**, the software will invoke the TCR Sample Schedule Maintenance List, displaying all the TCR Sample Schedules for the selected water system.
 - If the user selects **File/Exit** on the TCR Sample Schedule Maintenance List, the software will return to the previous dialog box (either the Repeat Schedule Creation dialog box or the Water System Selection List, depending on whether the results selected for validation belong to one or more than one water system, respectively).

Cancel

When the user presses this button, the software will return to the Positive Sample Analytical Result Validation List with previously selected

settings (e.g., all previously highlighted rows still highlighted, the sort order the same, the filter the same, etc.).

Help Pressing this button will invoke online Help for this window.

Example:

For example, a user has selected four positive routine samples, belonging to three different water systems (ND0000002, ND0100476, and ND3100101), to validate. When the Repeat Schedule Creation dialog box is displayed and the user clicks **Review TCR Schedules**, the Water System Selection List with records as shown in Exhibit 7-30 should be displayed.

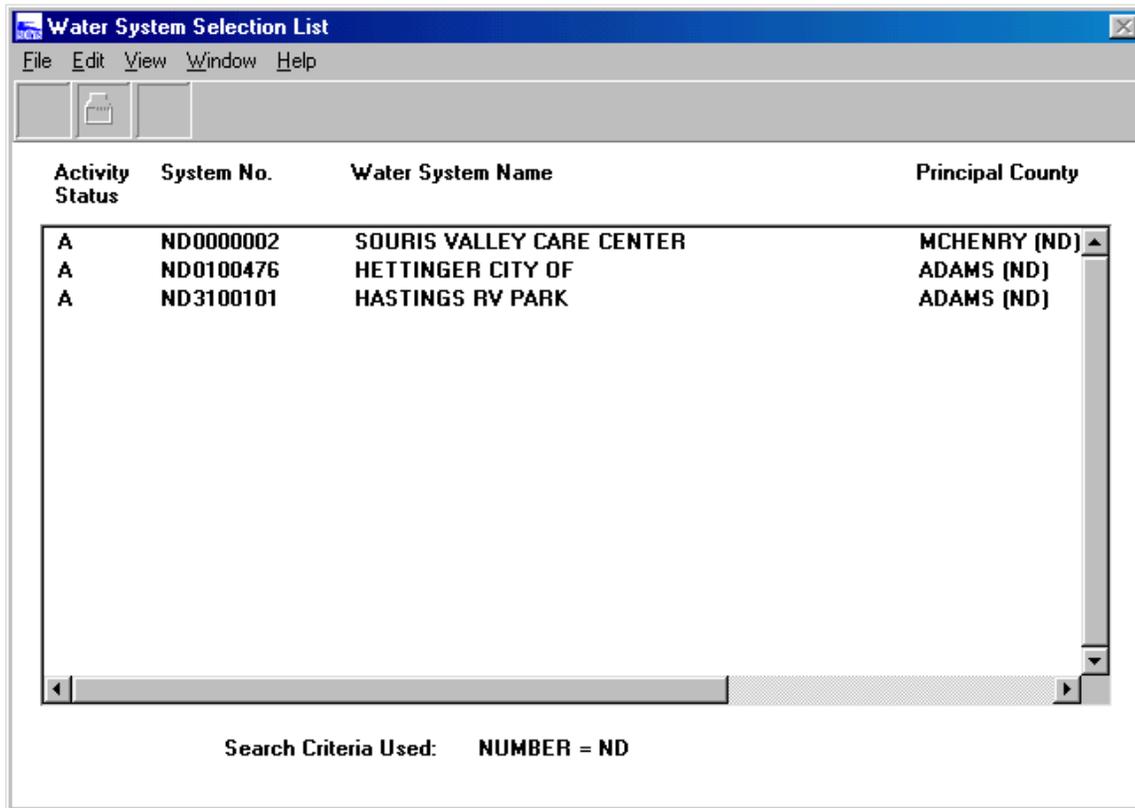


Exhibit 7-30. Water System Selection List Example

If the user highlights the bottom row and selects **Edit/Select**, the following should be displayed (i.e., all the TCR sample schedules for Hastings RV Park (Exhibit 7-31)).

Rule	Sample Count	Sample Type	Sample Per.	Begin Date	End Date	Deviated?	Deviation Type	Start MI
TCR	1	RT	QT	04/01/2001		N		5 1
TCR	5	RT	MN	03/01/2001	03/31/2001	N		3 1
TCR	4	RP	DL	02/12/2001	02/22/2001	N		2 12
TCR	4	RP	DL	02/10/2001	02/20/2001	N		2 10
TCR	5	RT	MN	02/01/2001	02/28/2001	N		2 1
TCR	4	RP	DL	01/20/2001	01/30/2001	N		1 20
TCR	1	RT	QT	01/01/2001	01/31/2001	N		5 1
TCR	1	RT	QT	01/01/1991	12/31/2000	N		5 1

Exhibit 7-31. TCR Sample Schedule Maintenance List Example

7.5.1.3 New Preliminary Acute Violation Creation Advisory Dialog Box

The current validation of positive TCR results processing checks to see if the validation of a repeat positive sample constitutes an acute violation. If the software assessment is that a violation is warranted, it will create a preliminary violation; however, the user will not necessarily be aware that this has happened. A new step, to better communicate to the user that a violation has been created, will be added. If the validation of a positive TCR repeat sample results in the creation of a Preliminary Type 21 (MCL—TCR, Acute), after creating each violation, the software will invoke a new Preliminary Acute Violation Creation Advisory dialog box (Exhibit 7-32) that will display protected information about the preliminary violation. The advisory dialog box will be invoked for each preliminary violation that has just been created. If the process determines an acute violation but also finds that a preliminary or validated, duplicate violation already exists, it will not create a second violation and will not invoke the dialog box. Pressing **OK** will close the dialog box and display the next preliminary

may be necessary to add FK_SESSIONID to the Preliminary Violation table and to modify the Precompliance function so that it populates it in order to enable this.

- Determine why Precompliance is valuing field Sample Type in Preliminary Violation table with “lh” and fix it.
- Either remove the table Results from the Precompliance database or, if easy to fix, modify the Precompliance process so that it sends results to this table as originally designed.

7.5.2.2 Display SDWIS/STATE Violations Along with Violations Determined by Precompliance

The main change for the Precompliance report is to not only display violations determined by the Precompliance process but also to display any violations that have already been entered into SDWIS/STATE for the selected Monitoring Period and the selected Water Systems. Note that the report is to display SDWIS/STATE violations even if Precompliance does not determine a violation for the particular water system. To enable this, the query against the SDWIS/STATE Violation table needs to be based on the Regulating Agency or Water System Group used when the selected Session was created by Precompliance. In order to accomplish this, the following changes need to be made to the PRECOMP.MDB.

The following SDWIS/STATE entities should be linked to PRECOMP.MDB using the MS Access view. Save the MS Access password when linking them so that the user does not have to login when previewing or printing a report.

- TINLGENT.
- TINRAA.
- TINWSG.
- TINWSGA.
- TINWSYS.
- TMNMPRD.
- TMNVIOL.
- TMNVTYPE.
- TSAANLYT.

In addition, add the following fields to the Session table in PRECOMPLIANCE.MDB so that the new queries can use internal system numbers and state codes rather than name values.

- TINLGENT_IS_NUMBER.
- TINLGENT_ST_CODE.
- TINWSG_IS_NUMBER.

- TINWSG_ST_CODE.
- TMNMPRD_IS_NUMBER.
- TMNMPRD_ST_CODE.

The software will use the criteria described in Appendix E-9 (TCR PRECOMP.MDB Selection Criteria for SDWIS/STATE Violations) to select the SDWIS/STATE violations for the session's water systems and monitoring period when a Regulating Agency has been selected.

If Precompliance determines no violations and there are no violations in the Violation table (TMNVIOL) for any of the selected water systems and the selected Monitoring Period, the software will return the following message in the Precompliance report: **No violations were determined by Precompliance and there are no violations in SDWIS/STATE for the selected Regulating Agency/Water System Group and selected Monitoring Period.**

This is a change from the existing message. When displaying violation data from the Precomp database, allow the user to select whether to sort by Water System No. or Water System Name. For each Water System, report the Precomp violations first, sorted by Violation Type, ascending, followed by the SDWIS/STATE violations, sorted by violation type (i.e., TMNVTYPE.TYPE_CODE).

When displaying information on the report,

- If there are no violations in PRECOMP.MDB for a session but there are TCR violations in TMNVIOL for a selected water system and selected monitoring period, print **No violations determined by Precompliance for this water system.**
- If there are no violations in TMNVIOL for the system, ~~print column titles (e.g., Type, FY - Vio ID, etc.)~~ print "Violations Already Entered into SDWIS/STATE" (do not print column titles) label with **No TCR violations entered for this water system and monitoring period** to its right.

The violations for a single water system should not be split with a page break, and the header should be repeated on each page.

7.5.3 Modifications to TCR Preliminary Noncompliance (Precomp) and Noncompliance Processes

The following changes will be made to the existing TCR Preliminary Noncompliance (Precomp) and Noncompliance Processes that execute from the TCR Noncompliance Determination Selection List.

7.5.3.1 Account for Streamness Indicator (Both Processes)

As the software processes each TCR schedule that meets the user-specified criteria, prior to executing the check which verifies that at least one repeat sample was collected from an “Upstream” site (Sample REPEAT_LOCATION_TYPE_CODE is UP), at least one from a “Downstream” site (Sample REPEAT_LOCATION_TYPE_CODE is DN) and at least one from the “Original” site (Sample REPEAT_LOCATION_TYPE_CODE is OR), the software will now check to see if the TCR Schedule’s new STREAMNESS_REQUIRED_INDICATOR attribute is valued with N or Y.

- If it is valued with N, the software will bypass this “streamness” check, that is, it *will not* take the value in field REPEAT_LOCATION_TYPE_CODE into consideration. (N—Compliance Officer has explicitly indicated that streamness should not be considered when the TCR schedule is evaluated by TCR NCD.)
- If it is valued with Y, the software will apply the streamness check as it always has. (Y—Compliance Officer has indicated that Streamness must be considered when the TCR schedule is evaluated by TCR NCD—(i.e., if repeat samples do not indicate streamness of upstream, downstream, and the original site, TCR NCD will determine a candidate minor M&R violation.))

It should be noted that for TCR schedules, the STREAMNESS_REQUIRED_INDICATOR will always be valued with either Y or N because all Release 7.0 TCR schedules will be schema migrated with this value set to Y and on the TCR Schedule Maintenance window, the Y and N will be the only options.

7.5.3.2 Populate New PRECOMPLIANCE.MDB Fields (Precomp Only)

The following new fields have been added to the Session table in PRECOMPLIANCE.MDB so that the new queries can use internal system numbers and state codes rather than name values.

- TINLGENT_IS_NUMBER.
- TINLGENT_ST_CODE.
- TINWSG_IS_NUMBER.
- TINWSG_ST_CODE.
- TMNMPRD_IS_NUMBER.
- TMNMPRD_ST_CODE.

The Precompliance software should

- Always populate the last two new fields (TMNMPRD_IS_NUMBER and TMNMPRD_ST_CODE) and

- Either populate the first two fields (if a Regulating Agency was selected when running Precompliance) or the third and fourth fields (if a Water System Group was selected when running Precompliance).

7.5.3.3 Select Fiscal Year on TCR Noncompliance Determination Selection List (Non-compliance Only)

Entry Field:

On the TCR Noncompliance Determination Selection List, add a new entry field at the top whose prompt is **Generated preliminary violations are for FY:** and beside it a four digit number field variable, which will allow the user to enter the four-digit fiscal year that will be assigned to any potential violations that the TCR NCD software creates. The default value for [Fiscal Year] is the *current* fiscal year. (The federal fiscal year runs from October 1 through September 30—October 1, 2001 is in fiscal year 2002). Therefore, the software will set the default in this way: If the month of current date is 1–9, last two digits default to current YY; if the month of current date is 10–12, last two digits default to current YY + 1.

Buttons:

NonComp

A new edit check will be inserted at the start of Noncompliance determination only that checks that the Fiscal Year has been entered, and is a valid, four-digit year that is not a future fiscal year (note that October to December of a given year falls into the next fiscal year, so if the user is running Noncompliance in one of these three months, the current fiscal year will be equal to the current calendar year plus one). The value entered in [fiscal year] must be \leq current federal fiscal year. If the value is $>$ current federal fiscal year, invoke error exit state message: **Fiscal Year must be same as/prior to current federal fiscal year.**

The software will then set field FED_FISCAL_YEAR of each potential Violation that TCR Noncompliance Determination creates to the user-specified fiscal year.

7.6 Violation

Presentation Type 2: The information in this section reflects a Release 8.0 update to an existing documented design. As such, normal text means no change from the current 7.0 release; redline/redline strikeout indicates where the functionality of an existing object (such as a field, button, menu item, etc.) has changed or where new functionality has been added for Release 8.0.

The design for the Violation function was first documented in the EBS Design Document that targeted SDWIS/STATE Release 6.0. Since then, the functionality and checks used to maintain violations/violation groups have expanded and changed.

7.6.1 Violation Model Changes

Although Violation has been a table in the SDWIS/STATE database for many years, its relationships and attributes have changed to accommodate the rule changes. The following model changes will be made for Release 8.0.

- Remove relationship between entities VIOLATION and SAMPLING_POINT (and remove foreign key TSASMPPT_IS_NUMBER and TSASMPPT_ST_CODE from table TMNVIOL).

This relationship was used in Release 7.0 and earlier to associate a violation to a water system facility. In Release 8.0, violations will be directly related to water system facilities.

- Add a new relationship between entities VIOLATION and WATER_SYSTEM_FACILITY where:

Each Violation sometimes MAY_BE_INCURRED_AT_ONE Water System Facility;
and
Each Water System Facility MAY_BE_WHERE_OCCURRED_MANY Violations.

- Add a new associative entity between VIOLATION and entity SAMPLING_POINT to reflect the business relationships that:

One Violation sometimes IS_INCURRED_AT_MANY Sampling Points and
One Sampling Point sometimes IS_THE_SITE_FOR_MANY Violations.

This new associative entity is needed to support the model changes in the Non-TCR Sample Schedules area as well as to support the need to sometimes not only identify the Water System Facility involved in a violation but also the particular sampling points. For instance, if a user has specified the sampling points at which lead and copper tap samples must be collected in a Non-TCR Sample Schedule and that schedule is violated, the user would be able to record not only the facility at which the violation occurred (in this case a distribution system) but could optionally record each sampling point at which the samples were supposed to be collected. If the LCR Compliance Report were used to determine this violation, SDWIS/STATE would automatically create associations to each of the Sampling Points specified in the schedule that were not satisfied.

- Add involuted relationship:

Each [PN] Violation sometimes IS_BASED_ON_ONE Violation;
Each Violation sometimes IS_THE_BASIS_FOR_ONE [PN] Violation.

- Add a new relationship with entity MDBP_SUMMARY (with foreign key in TMNVIOL) where:

Each Violation sometimes IS_BASED_ON_ONE MDBP Summary; and
Each MDBP Summary sometimes IS_THE_BASIS_FOR_MANY Violations.

- Add a new relationship with entity FACILITY_ANALYTE_LEVEL (with foreign key in TMNVIOL) where:

Each Violation sometimes VIOLATES_ONE Facility Analyte Level; and
Each Facility Analyte Level sometimes IS_VIOLATED_BY_MANY Violations.

- Add a new relationship between entities VIOLATION_GROUP and SCHEDULE_GROUP where:

One Violation Group sometimes IS_BASED_ON_A_FAILURE_TO_SATISFY_ONE Schedule Group and

One Schedule Group sometimes IS_NOT_FULFILLED_LEADING_TO_ONE Violation Group.

- Add a relationship between entities VIOLATION and PUBLIC_NOTIFICATION_ACTIVITY where:

One Violation Sometimes IS_THE_FAILURE_TO_COMPLY_WITH One or More PUBLIC_NOTIFICATION_ACTIVITY and
One PUBLIC_NOTIFICATION_ACTIVITY sometimes IS_NOT_SATISFIED_LEADING_TO_ONE Violation.

- Add a relationship between entities VIOLATION and SCHEDULE_ACTIVITY where:

One Violation Sometimes IS_THE_FAILURE_TO_COMPLY_WITH One or More SCHEDULE_ACTIVITY and
One SCHEDULE_ACTIVITY sometimes IS_NOT_SATISFIED_LEADING_TO_ONE Violation.

- | • Add relationship between entities VIOLATION and DEFICIENCY where:
| One Violation sometimes IS_BASED_ON_MANY Deficiency and
| One Deficiency sometimes IS_THE_BASIS_FOR_ONE Violation.
- | • Add the following new attributes:
 - | • VIOLATION_PERIOD_BEGIN_DATE.
 - | • VIOLATION_PERIOD_END_DATE.
 - | • VIOLATION_TIER_LEVEL.
 - | • PACKAGE_NUMBER.
 - | • REPORT_PACKAGED_VIO_TO_FED_FLG.
- | • Enlarge the size of attribute REMARKS_TEXT from 155 to 2000 characters.

Additional information about these entities is contained in Appendix A.

7.6.2 Violation Window Flow

To add a violation, the user will select **Edit/Violations/Add** from the *Monitoring and Noncompliance* main menu to invoke the Water System Search. A water system must be selected in order to create a violation. Once a water system has been selected the application will flow directly to the Violation Maintenance window.

To change a violation, the user will select **Edit/Violations/Maintain** from the *Monitoring and Noncompliance* main menu which to invoke the Violation Search dialog box.

7.6.2.1 Violation Search

The user may access the Violation Search window from the *Monitoring and Noncompliance* main menu by selecting **Edit/Violations/Maintain**. This window is used to search violation records according to the search options shown in the window (Exhibit 7-33).

| The user's current Water System Group/Regulating Agency will be used as an implied search
| criteria in all searches for Violation records. This means that the software will retrieve only
| violations linked to water systems that are, in turn, linked to the user's current Water System
| Group/Regulating Agency.

*[Analyte Group
Code Name]*

This protected field will display the name of the selected analyte group.

*[Violation Type
Name]*

This protected field will display the name of the violation type.

Entry Fields:

Search by Violation Group Box:

If any Search by Violation Group Box field is valued, all fields in the other main group boxes will be disabled.

Water System No.

A standard nine-character Water System Number that may be entered or left blank. The **Go To** button may be pressed to select a water system from a list. Once a valid water system is entered or picked from a list, the water system name will be displayed on the window. If a valid water system is entered but is not part of the user's current Water System Group or Government Agency, display exit state error message: **WS is not part of current group/agency. Change group/agency to access this WS.**

[Violation] No.

A combination of two fields, the four-digit Violation Fiscal Year and the five-digit External System Number that may be entered or left blank. Entering a specific water system and both a Violation Fiscal Year and External System Number can retrieve a unique Violation.

The user can enter any combination of the three fields in this group box.

Search by Analyte/Type/Current Status and Date Range Group Box:

*Individual
[Analyte Code]*

The user may enter a four-character analyte code that references an analyte.

*[Analyte] Group
[Code]*

The user may enter a user-defined analyte group code to represent groups of analytes in the state database. Each analyte group must have a unique code assigned for easy identification and reference in compliance determination.

Violation Type The user may enter a valid Violation Type or use the **Go To** button to display the Violation Type Selection List. If the supplied Violation Type does not exist in the database, do not supply a message, but directly invoke the Violation Type Selection List from which the user may select a valid Violation Type.

Violation Status The user may enter the status of the violation or select from the following dropdown list:

P= Preliminary.
V= Validated.
R= Rejected.
D= Deleted.

Determination Date Range Group Box:

[Determination Date Range Begin] The user may enter the begin date for searching when the violation was determined or created.

[Determination Date Range End] The user may enter the end date for searching when the violation was determined or created.

Tab Sequence:

Water System No., Water System **Go To** button, [Violation Fiscal Year], [External System Number], Individual Analyte Code, Individual Analyte Code **Go To**, Analyte Group Code, Analyte Group Code **Go To**, Violation Type, Violation Type **Go To**, Violation Status, [Determination Date Range Begin], [Determination Date Range End], **Search** button, **Clear** button, **Cancel** button, **Help** button.

Buttons:

Water System Go To Pressing this button will invoke the Water System Selection List; if the user has typed part of the water system number or part of the water system name, it will be used in the search to invoke the Water System Selection List. The user may select a water system from this list.

Individual [Analyte
Code] **Go To**

The user may enter a valid analyte code or use the **Go To** button to display the Analyte Selection List.

[Analyte] Group
[Code] **Go To**

The user may enter a valid analyte group code or use the **Go To** button to display the Analyte Group Selection List.

[Violation] Type
Go To

The user may add/change the violation type by entering a value or use the **Go To** button and select from the Violation Type Selection List.

Search

All search permutations remain in place with the following modification:

The user's current Water System Group/Regulating Agency will be used as an implied search criteria in all searches for Violation records. This means that the software will retrieve only violations linked to a water system that is linked to the user's current Water System Group/Regulating Agency. If an exact Water System No. is entered, the software will validate that it belongs to the user's current Water System Group/Regulating Agency.

- When searching by Violation the following options will be available:
 - Water System No.
 - Federal Fiscal Year.
 - Water System No. and Federal Fiscal Year.
 - Water System No., Federal Fiscal Year, and Violation No.

- When searching by Analyte, Violation Type, Current Status, and Date Range, the following options will be available:
 - Analyte Code Individual.
 - Analyte Code Group.
 - Violation Type.
 - Violation Status.
 - Determination Date Range.
 - A combination of either low or high Determination Date range or both with any of the other search criteria in the second group box can be used as a search criteria.

- Search with no filtering criteria. If the user opts not to specify anything on the search dialog box, the user's current Water System Group/Regulating Agency will still be used in retrieving records that will be displayed in the Violation Maintenance List.

Clear Pressing this button will clear all fields on the dialog box so the user may enter new search criteria.

Cancel When the user presses this button, the software will disregard any data entered and return the user to the previous window.

Help Pressing this button will invoke online Help for this window.

7.6.2.2 Violation Maintenance List

The Violation Maintenance List (Exhibit 7-34) will be invoked by the Violation Search window and list the violations matching the search criteria the user enters.

The list box will display the following fields: Violation No., Status, Vio. Type, Analyte Code, Compliance Period Begin Date, Compliance Period End Date, Water System No., Water System Name, WSF State Asgn ID, Violation Period Begin Date, Violation Period End Date, Tier Level, Package Number, Report Pckgd Vio?, ~~Sampling Point~~, Monitoring Period, Analyte Name, Analyte Result/UM, Determination Date.

- Change* Selecting **Edit/Change** will display the Violation Maintenance window with the selected violation available for change. This option will be enabled only when one a violation has been selected.
- Validation* Selecting **Edit/Validation** will display the Violation Validation window. [The user can select multiple violations to validate.](#) Subsection 7.6.2.2.1 covers this function.
- Delete* Selecting **Edit/Delete** will display the Violation Delete Confirmation dialog box (Exhibit 7-35) for the selected violation. This option will be enabled only when one a violation has been selected.

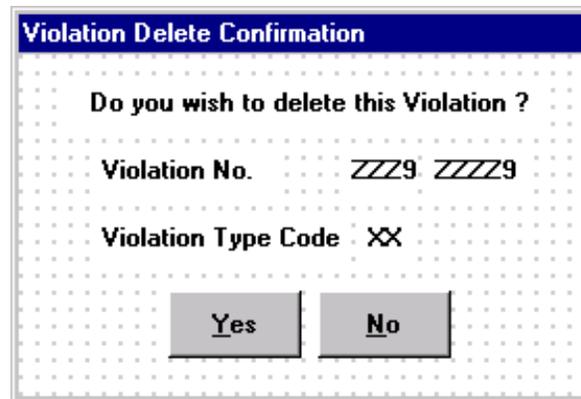


Exhibit 7-35. Violation Delete Confirmation

- Select* The **Edit/Select** menu item will be enabled only if one or more violations are selected from either the Enforcement Action Maintenance window or the PN Violation Association dialog box. When the user chooses **Edit/Select**:
- If the window is invoked from Enforcement Action Maintenance, selecting **Edit/Select** will associate the selected violation(s) to the enforcement action by creating a new VIOLATION_ENFORCEMENT_ACTION_ASGMT record (table TMNVIEAA). The software will close the window and return the user to the Enforcement Actions Maintenance window with the selected violation(s) showing on the list.
 - If the window is invoked from the PN Violation Association dialog box, selecting **Edit/Select** will associate the selected violation(s) to the PN violation (of violation type 75 or 76) by

creating a relationship between the selected violation and the PN violation. The software will close the window and return the user to the PN Violation Association dialog box with the selected violation showing on the list.

Package The **Edit/Package** menu item will be enabled only if more than one violation in the Violation Maintenance List has been selected. Selecting **Edit/Package** will set the Package Number for each selected violation to the same auto-generated value and set REPORT_PACKAGED_VIO_TO_FED_FLG to Y. If all the selected violations' Package Numbers are not the same (excluding 0), invoke exit state error message: **Cannot package. You selected violations with different package numbers.** The Violation Maintenance List will keep the user's highlighted violations. (Note, 0 is excluded because if a user wishes to add one or more new violations to the package, the violations selected to be part of the package will have 0 in field PACKAGE_NUMBER.)

Remove from Package The **Edit/Remove from Package** menu item will be enabled only if one violation in the Violation Maintenance List has been selected. Selecting **Edit/Remove from Package** will reset PACKAGE_NUMBER to 0 and REPORT_PACKAGED_VIO_TO_FED_FLG to spaces.

View

Search Selecting **Edit/Search** will invoke the Violation Search window.

Sort Selecting **View/Sort** will invoke the standard Sort window with the following fields available for sorting: Violation No. Fed Fiscal Year, Violation No. External System Number, Status, Vio. Type, Analyte Code, Compliance Period Begin Date, Compliance Period End Date, Violation Period Begin Date, Violation Period End Date, Water System No., Water System Name, WSF State Asgn No., ~~Sampling Point~~, Monitoring Period, Analyte Name, Analyte Result/UM, Determination Date, Package Number.

Filter by Selecting **View/Filter by** will let the user filter by the same fields listed for **View/Sort**.

Refresh Selecting **View/Refresh** will refresh the original listing.

Protected Fields:

*WS Group Used/
Regulating Agency
Used*

This protected field will show the user's current Water System Group Name or Regulating Agency depending on which the user has made current. The software will dynamically change the prompt depending on whether Water System Group Name or Regulating Agency is current. The prompt will be "WS Group Used" if the user's current Water System Group is valued, otherwise the prompt will be "Regulating Agency Used."

*Number of rows
resulting from search
criteria entered*

This protected field will show the total number of rows that met the search criteria.

*Number of rows
displayed*

This protected field will show the total number of rows that displayed in the list, that may be less than the number of rows that met the search criteria.

7.6.2.2.1 Violation Validation Window

The Violation Validation window (Exhibit 7-36) will be accessed from the Violation Maintenance List by selecting the **Edit/Validation** menu option after highlighting one or more violations. This window will be used to validate or reject a violation records. If the user selects more than one violation to validate, the software will display the data from the first violation.

Buttons:

Validate

If the user presses the **Validate** button and if the Generate a violation letter checkbox is checked, then the software will create a violation letter. If more than one violation was selected for validation, the software will create a violation letter for each violation.

If the Apply Standard Response checkbox is checked, flow to the Standard Response Selection List window, displaying only standard responses for violations (i.e., Standard Response_Type_Code = "V"), for the user to pick a Standard Response for the violation. If more than one violation was selected for validation, display the following advisory when the user clicks the **OK** button on the Standard Response Selection

List. **This Standard Response will be applied to each violation selected for validation. Please confirm by selecting OK.** If the user selects **OK**, the software will apply the Standard Response to each violation and set the Status to “Validated” and the Status Date to current date.

Reject

If the user presses the **Reject** button, the software will invoke a Violation Rejection Remarks dialog box where the user can enter remarks for the rejection for the selected particular violation(s). If more than one violation was selected for processing, display the following advisory when the user clicks **OK** on the Violation Rejection Remarks dialog box: **This remark will be stored with each violation selected for rejection. Please confirm by selecting OK.** If the user presses **OK**, the software will then set the Status of the violation to “Rejected,” set the Status Date to the current date and insert the remarks on the dialog box into the remarks attribute for each violation.

Cancel

Pressing the **Cancel** button will close the window without changing the Status, then either flow back to the previous window if the Violation processed was the last one selected for validation, or flow to the Violation Validation window populated with the next violation record selected if there is another Violation that was initially selected for validation.

actions and sample schedules. Only individual violations can be linked to sample analytical results. A standard response may be applied to both individual and group violations.

Toolbar Icons:



Clicking on this icon will invoke the Water System Information window, which will display basic inventory information for the water system associated with the selected site visit record. This icon will be disabled when no site visit record is highlighted.



Clicking on this icon will invoke the Historical Sampling Information window, which will display protected information on samples collected for the site visit water system. This icon will be disabled when no site visit record is highlighted.



Clicking on this icon will invoke the Display Points of Contact window, which will display a protected list of legal entities and individuals (such as operators, engineers, etc.) associated with the water system linked to the selected site visit record. This icon will be disabled when no site visit record is highlighted.



Clicking on this icon will invoke online Help for the window.

Protected Fields:

Water System No. Public Water System No. selected by the user on the previous window.

*[Water System]
Name* Name of Public Water System selected by the user on the previous window.

Violation No. The concatenation of the FED_FISCAL_YEAR attribute and The EXTERNAL_SYS_NUM (EXSN) attribute in the VIOLATION entity. The EXSN for each violation will be unique by water system. When a new violation is added, the software will check entity EXTERNAL_SYSTEM_NUMBER (table TINEXSN) (where Table Name is TMNVIOL and related to current Water System) to determine the next EXSN.

*[Violation Type]
Name* Name of user-specified violation type.

Package Number This field maps to new attribute PACKAGE_NUMBER in VIOLATION. This attribute will be only valued for violations that have been packaged using Violation Maintenance List and Package Violations and should display on the window only if its value is greater than 0.

[WSF Name] Name of user-specified water system facility.

[MCL Violated Unit of Measure] The user may click on the **MCL Violated** button to set the value in this protected field and set the value in the adjoining MCL Violated field to the comparable value in TMNALRA.

Entry Fields:

Determination Date Determination Date is the date the violation was determined or created. ~~This date must be after the monitoring period selected.~~ The prompt for this field will be blue and underlined to indicate that this field is mandatory.

SDWIS/FED Data Origin The prompt for this field will be blue and underlined to indicate that this field is mandatory. Permitted values will be

HQ - Headquarters.
R - Region.
S - State.

If the Primacy Agency is defined as type Region (i.e., GOVERNMENT_AGENCY_TYPE_CODE = "RG" where GOVERNMENT_AGENCY_PRIMACY_INDICATOR_CODE = "Y"), the DATA_ORIGIN_CODE default value will be "R." If the Primacy Agency is defined as type State (ST), the DATA_ORIGIN_CODE default value will be "S." ~~The default entry is "State." The user should select "Region" only if the user is entering an enforcement action that was taken by an EPA Regional Office. (Only enforcement actions whose data origin code is "S" for "State" can be reported to SDWIS/FED using the Migration to SDWIS/FED component).~~

Violation Type Group Box:

[Violation] Type The user may enter a valid Violation Type or use the **Go To** button to display the Violation Type Selection List. The prompt for this field will be blue and underlined to indicate that the field is mandatory.

As the user enters/changes a value and tabs off the Violation Type field, check that the supplied Violation Type is valid, then populate the retrieved Violation Type's Name, Category, and Monitoring Violation Type value in the corresponding, protected fields.

If the supplied Violation Type does not exist in the database, do not supply a message, but directly invoke the Violation Type Selection List from which the user may select a valid Violation Type.

The other three fields are protected and provide additional information about the selected Violation Type. The additional information provided is: [Violation Type] Name, Category, and Monitoring Violation Type. These are carried over from Violation Type.

Analyte Code Group Box:

The prompt for the Analyte Code group box will be blue and underlined to indicate that mandatory information is required in this group.

Individual

[Analyte Code] The user may enter a valid analyte code or use the **Go To** button to display the Analyte Selection List.

As the user enters/changes a value and tabs off the Individual [Analyte Code] field, check that the supplied analyte is valid for the selected Violation Type. See Appendix B-7 (Additions to Violation Type Analyte Assignment/table TMNVTAA) for a list of valid Analyte to Violation Type pairings. If the Violation Type has not yet been selected, provide exit state error message: **A Violation Type must be selected before picking an Analyte or Analyte Group.** On selecting **OK**, the software will remove the entered analyte code and return to the Violation Maintenance window with the cursor in the [Violation] Type field.

As the user enters/changes a value and tabs off the Individual [Analyte Code] field, the [Analyte] Group [Code] field will be disabled. Either

Individual [Analyte Code] or [Analyte] Group [Code] must be supplied; both may not be supplied.

(Developer's Note: Use the existing SBS_ANALYTE_SELECT_LIST procedure.)

*[Analyte] Group
[Code]*

The user may enter a valid analyte group code or use the **Go To** button to display the Analyte Group Selection List.

As the user enters/changes a value and tabs off the [Analyte] Group [Code] field, check that the supplied analyte group is valid. If the supplied analyte group does not exist in the database, do not supply a message but directly invoke the Analyte Group Selection List from where the user may select a valid analyte group.

As the user enters/changes a value and tabs off the [Analyte] Group [Code] field, the Analyte Code field will be disabled. Either Analyte Code or Analyte Group Code must be supplied; both may not be supplied.

This field will be protected for Violation Types 01, 02, 21-26, 28, 31, 36, 41, 42, 51- 62, 63, 64, and 65, since group violations are not relevant for these types.

(Developer's Note: Use the existing SBS_ANALYTE_GROUP_SELECT_LIST procedure.)

Compliance Period Group Box:

~~The prompt for this group box is blue and underlined to indicate that information is required for this group box.~~

Compliance Period is conditionally mandatory, depending on the Violation Type. If the Violation Type record indicates that Compliance Period should be reported to SDWIS/FED (i.e., VIOLATION_TYPE.FED_REPORT_PERIOD_TYPE = CP), then Compliance Period is mandatory.

SDWIS/STATE will automate entry of the following compliance period information:

- If the user enters a [Compliance Period] Begin Date and Duration on the Violation Maintenance window and tabs from one of those fields, the software will check if a

monitoring period exists for that time period and automatically populate the [Compliance Period] End Date and Mon. Period fields accordingly.

- If the user enters a [Compliance Period] Begin Date and a [Compliance Period] End Date that matches an existing monitoring period, the software will automatically populate the Mon. Period and Duration fields.
- If the user enters an existing monitoring period from the selection list, the software will automatically populate all other fields in the Compliance Period group box.

The following rules also apply to how a compliance period can be set up for a violation:

- If the [Compliance Period] Begin Date is entered with a Duration equal to or greater than one month, the [Compliance Period] Begin Date must be the first day of the month.
- If the [Compliance Period] End Date is entered with a Duration equal to or greater than one month, the [Compliance Period] End Date must be the last day of the month.
- If a [Compliance Period] Begin Date, [Compliance Period] End Date, and Duration are entered, the Duration must match the time period between the beginning and ending dates.
- The user must either enter one date and a Duration, a [Compliance Period] Begin Date and a [Compliance Period] End Date, or the name of a Monitoring Period to define a compliance period.

A standard compliance period begins on the first day of a month and ends on the last day of a month.

[Compliance Period]

Begin Date The user may enter the first day of the compliance period.

Duration The user may enter a valid compliance period duration or select a value from the dropdown list. Permitted values for this field will be:

Spaces.
1T= One Time.
HR= One Hour.
4H= 4 Hours.
DL= Daily.
WK= Week.

MN= Month.
QT= Quarter.
6M= 6 Months.
YR= Year.
2Y= 2 Years.
3Y= 3 Years.
4Y= 4 Years.
5Y= 5 Years.
6Y= 6 Years.
7Y= 7 Years.
8Y= 8 Years.
9Y= 9 Years.
10Y= 10 Years.
NA= Not Applicable.

[Compliance Period]

End Date Last day of the compliance period End Date.

Mon. Period The user may enter the name of the monitoring period.

- When the user enters a [Compliance Period] Begin Date and Duration and tabs from one of those fields, if a monitoring period already exists for that time period, then the [Compliance Period] End Date and Mon. Period fields will be automatically populated.
- When the user enters a [Compliance Period] Begin Date and then enters a [Compliance Period] End Date that matches an already existing monitoring period, the other two fields in the Compliance Period group box will be automatically populated as soon as the user tabs from the [Compliance Period] End Date field.
- If the user enters a Mon. Period that already exists or selects a Mon. Period from the selection list, all other fields in the Compliance Period group box will be automatically populated.
- Once the user tabs out of the last field in the compliance period group box or enters data into one or more fields and then clicks the cursor in a field beyond the group box, the following actions will be taken:

- If the [Compliance Period] Begin Date is entered with a duration that is equal to or greater than one month, then the [Compliance Period] Begin Date must be the first day of the month, or else invoke exit state error message: **The Begin Date must be the first day of the month.**
- If the [Compliance Period] End Date is entered with any Duration that is equal to or greater than one month, then the [Compliance Period] End Date must be the last day of the month, or else invoke exit state error message: **The End Date must be the last day of the month.**
- If the user enters a [Compliance Period] Begin Date, [Compliance Period] End Date, and Duration that is greater than or equal to one month, the Duration must match the period indicated by the dates or else invoke exit state error message: **The Duration does not match the Begin and End Dates entered. Please change either the Duration or one of the dates.**
- If the user enters only a [Compliance Period] Begin Date or [Compliance Period] End Date or a Duration, then invoke exit state error message: **You must enter one date and a duration, or two dates, or the name of a monitoring period to define the compliance period.**
- If the user enters a [Compliance Period] Begin Date that is not the first day of the month and the [Compliance Period] End Date that is not the last day of the month without entering a Duration or Mon. Period name, then invoke informational message: **The period entered is not a standard Compliance Period. Please confirm this by pressing OK.**

If the user selects **OK**, the software will write those dates into the two fields in the VIOLATION entity attributes (COMP_PRD_BEGIN_DATE and COMP_PRD_END_DATE). If the user selects **Cancel**, the cursor will return to the [Violation Period] Begin Date field.

- If the user enters a [Compliance Period] Begin Date that is not the first day of the month or a [Compliance Period] End Date that is not the last day of the month, and enters a Duration (permitted values will be: 1T, 4H, 1H, DL, WK), then invoke the following informational message:
The period entered is not a standard Compliance Period. Please confirm this by pressing OK, otherwise select Cancel to make appropriate changes.
- If the user entered only a Mon. Period name and if that Mon. Period name did not match any existing Mon. Period, then invoke the following message: **A Mon. Period with this name does not exist. Please enter a Begin Date and Duration for the Mon. Period.**
- If the user enters a Mon. Period name and data in at least two of the other three fields and the data in the other fields match an existing monitoring period, then the monitoring name entered will be disregarded and overwritten with the monitoring period name of the existing Monitoring Period record that matches.
- If the user does not enter a Mon. Period but does enter data into the duration field and at least one of the date fields ~~two of the other three fields~~ and if there is no matching Mon. Period record, then invoke the following informational message: **This is a new Mon. Period. Please enter name for the new monitoring period.**
- Violation Types 41 and 42 require values in [Compliance Period] Begin and End Dates. These attributes will be stored in the VIOLATION entity and will be populated even for other violations with their respective monitoring period dates, if they are tied to one.
- Typically Violation Types 42, 57, and 58 may not have a compliance period that corresponds to a typical monitoring period. In those cases, only the Begin and End Dates will be needed.

- Typically Violation Types 01-04, 07, 21-26, 31, 36, 51-56, 59-61, 63, and 65 are compliance periods that correspond to typical monitoring periods.
- Violation Types 05, 06, 08, 09, 10, 28, 41, 62, 64, and all user-defined violations may or may not have a monitoring period.

*Report to
SDWIS/FED?*

This field will map to new attribute REPORT_PACKAGED_VIO_TO_FED_FLG in entity VIOLATION. This attribute will be visible only for (and available for valuing when Package Number is greater than 0.

Violation Period Group Box:

The period for a violation can be categorized in one of two ways or, in some instances both ways. The first has historically been called the Compliance Period for the Violation. This period, in SDWIS/STATE is defined by the Compliance Period Begin and End Dates and typically corresponds to the monitoring period in effect when the violation occurred. The second, newer way of categorizing a violation reflects the actual period of time that the system was in violation. For this second method, SDWIS/STATE will use two new date attributes and calls them VIOLATION_PERIOD_BEGIN_DATE and VIOLATION_PERIOD_END_DATE. These are more appropriate for single event violations (like public notification violations, for example) where the violation begin date is defined as the first day after the designated monitoring period, requirement, or event is missed and the end date is the date the system returned to compliance.

VIOLATION_PERIOD_BEGIN_DATE will be conditionally mandatory, depending on the Violation Type. VIOLATION_PERIOD_END_DATE will be always optional.

*[Violation Period]
Begin Date*

If the Violation Type record indicates that Violation Period should be reported to SDWIS/FED (i.e., VIOLATION_TYPE.FED_REPORT_PERIOD_TYPE = VP), then VIOLATION_PERIOD_BEGIN_DATE will be mandatory. A calendar function will allow the user to more easily enter dates for this field.

*[Violation Period]
End Date*

The user may enter the end date of the violation period for the violation. If End Date is before Begin Date, invoke exit state error message:
Violation Period End Date must be on/after Begin Date.

[Violation] Tier Level

This field will record the Tier Level for certain violation records. This value will be initially defaulted to the Tier Level from the violation type record, but the user can change it. This field is intended to record the Tier Level relative to the new Public Notification Rule.

Water System Facility Group Box:

WSF State Asgn ID

The user may enter the state assigned identification of the water system facility to which the violation belongs.

This field should be disabled if Violation Type is equal to 21 - 26, 51 - 65, 71 or 72. If user picks a WSF and subsequently picks one of the above Violation Types, blank out the selected WSF and do not save as part of the record.

Analysis Result

The user must enter an analysis result if either Violation Type 01 or 02.

[Analysis Result Unit of Measure]

The UOM will be required when Analysis Result is valued.

MCL Violated

This field will be enabled if the violation type is "MCL." The user may click on the **MCL Violated** button to set to set the value in this field and set the value in the adjoining UOM field to the comparable value in TMNALRA.

If the user changes the value in the MCL Violated field, it will be compared with the value in the Analysis Result field. If the numeric value in Analysis Result \leq the numeric value in the MCL Violated field, invoke exit state error message: **Violation Analysis Result must be greater than MCL Violated value.**

Issuing Agency

Mandatory. Defaults to the Legal Entity—Government Agency marked as the primacy agency.

Rule

Defaults to TCR if the Violation Type is 21 - 26.

Status

If the user changes the status from Validated to some other status and the violation is associated to one or more records in Enforcement Action, Sample Schedule, SBS Sample Analytical Result, MDBP Summary, FANL, Deficiency, Public Notification Activity, Compliance Schedule Activity, or another Violation, replace current exit state error message

with Associations Exist Advisory: **This Violation is associated to one or more of the following: enforcement actions, sample schedule, results, MDBP summary, FANL, deficiencies, PN activities, compliance schedule activities or another violation. You may also want to disassociate or otherwise change the status of these associated records as well.**

Provide an **OK** and a **Cancel** button on the advisory dialog box.

Tab Sequence:

Determination Date, SDWIS/FED Data Origin:, [Violation] Type, [Violation] Type **Go To** button, Tier Level, Individual [Analyte Code], Individual [Analyte Code] **Go To** button, [Analyte] Group [Code], [Analyte] Group [Code] **Go To** button, [Compliance Period] Begin Date, Duration, [Compliance Period] End Date, Mon. Period, Mon. Period **Go To** button, Report to SDWIS/FED?, [Violation Period] Begin Date, [Violation Period] End Date, WSF State Asgn ID, [WSF State Asgn ID] **Go To** button, Analysis Result, [Analysis Result Unit of Measure], MCL Violated, [MCL Violated Unit of Measure], Issuing Agency, Issuing Agency **Go To** button, Rule, Rule **Go To** button, Status, [Status] Date, CFR No., CFR No. **Go To** button, **Sample Schedule** button, **Sample Analytical Result(s)** button, **Enforcement Action(s)** button, **Standard Response** button, **MDBP Summary** button, **Sampling Point(s)** button, **FANL** button, **Deficiency** button, **Originating Violation** button, **PN Schedule Activity(s)** button, **Compliance Schedule Activity(s)** button, **Record MCL** button, **Comments** button, **OK** button, **Cancel** button.

Buttons:

Button descriptions are not necessarily listed in the order in which they appear on the window.

[Violation] Type

Go To Pressing this button will invoke the Violation Type Selection List.

Individual [Analyte

Code] **Go To** Pressing this button will invoke the Analyte Selection List.

[Analyte] Group

[Code] **Go To** Pressing this button will invoke the Analyte Group Selection List.

Mon. Period

Go To Pressing this button will invoke the Monitoring Period Selection List.

Water System
Facility **Go To**

Pressing this button will invoke the Water System Facility Selection List from where the user may select a valid water system facility. Once a valid water system facility has been entered or selected, the water system facility name will be displayed on the window in the protected [WSF Name] field.

(Developer's Note: Use existing MBS_WSFACILITY_SELECT procedure.)

Issuing Agency
Go To

The user may enter a valid issuing agency or use the **Go To** button to display the Issuing Agency Selection List.

Rule **Go To**

The user may enter a valid rule or use the **Go To** button to invoke the Rule List which displays the rule(s) currently assigned to the monitoring period.

CFR No. **Go To**

The user may enter a valid Code of Federal Regulations (CFR) number or use the **Go To** button to display the Code of Federal Regulations List and select the number appropriate for the selected rule.

**Enforcement
Action(s)**

The user may click on the **Enforcement Action(s)** button to select the appropriate enforcement action for the violation. Pressing this button will invoke the Violation Enforcement Actions Association List (discussed in Subsection 7.6.2.3.1).

Sample Schedule

The user may click on the **Sample Schedule** button to select the appropriate schedule with which to associate the violation. ~~This button is only available for monitoring type violations.~~ Pressing this button will invoke the Violation Sample Schedule Association dialog box (discussed in Subsection 7.6.2.3.2).

**Sample Analytical
Result(s)**

The user may click on the **Sample Analytical Result(s)** button to access the Violation Sample Analytical Result Association List and choose one or more results for the violation. ~~This button is only available for MCL type violations.~~ Pressing this button will invoke the Violation Sample Analytical Result Association List (Subsection 7.6.2.3.3).

Standard Response The user may click on the **Standard Response** button to display the Standard Response Selection List (Subsection 7.6.2.3.4), which shows standard responses of Type V.

MDBP

Summary

Pressing this button will invoke the Violation MDBP Summary Association window, displaying either the MDBP Summary that is already associated to the violation or empty fields, if an MDBP Summary has not been associated with the violation. From here, users can associate/disassociate an MDBP Summary with a violation. This window is discussed in Subsection 7.6.2.3.5.

Sampling Point(s)

Pressing this button will invoke the Violation Sampling Point Association List which will display any sampling points that may already be associated to the violation. This button will be enabled only when the violation has been associated to a water system facility. From this window, users may associate/disassociate one or more sampling points with a violation. This window is discussed in Subsection 7.6.2.3.6.

FANL

Pressing this button will invoke the Violation Facility Analyte Level Association window, which will display either the Facility Analyte Level that is already associated to the violation or empty fields, if a Facility Analyte Level has not been associated with the violation. From this window, users can associate/disassociate a Facility Analyte Level with a violation. This window is discussed in Subsection 7.6.2.3.7.

Deficiency

Pressing this button will invoke the Violation Deficiency Association window, which will display either the Deficiencies that are already associated to the violation or empty fields, if a Deficiency has not been associated with the violation. From this window, users can associate/disassociate Deficiencies with a violation. This window is discussed in Subsection 7.6.2.3.8.

Originating Violation

Pressing this button will invoke the PN Violation Association window, which will display either the originating violation that is already associated to the PN violation or empty fields, if one has not been associated. This button will be enabled for violations of type 75 or 76. From the association window, users can associate/disassociate an originating violation with the PN violation. This window is discussed in Subsection 7.6.2.3.9.

**PN Schedule
Activity(s)**

Pressing this button will invoke the Violation PN Schedule Activity Association List, which will display either the PN Schedule Activities that are already associated to the violation or empty fields, if a PN Schedule Activity has not been associated with the violation. This button will be enabled only if the user has associated a violation to the PN Violation using the previous button. From the association window, users can associate/disassociate PN Schedule Activities with a violation. This window is discussed in Subsection 7.6.2.3.10.

**Compliance Schedule
Activity(s)**

Pressing this button will invoke the Violation Compliance Schedule Activity Association List, which will display either the Compliance Schedule Activities that are already associated to the violation or empty fields, if a Compliance Schedule Activity has not been associated with the violation. From the association window, users can associate/disassociate Compliance Schedule Activities with a violation. This window is discussed in Subsection 7.6.2.3.11.

Record MCL

The **Record MCL** button will be enabled only if the user selects an MCL violation type (Violation Type Category = MCL).

When the user click on this button, the software will read the value in Analyte Level Rule Assignment (TMNALRA) Measure Text, where the record is for the current analyte and where the Threshold Type = "MCL" and Analyte Level Rule Assignment Begin Date \leq Violation Compliance Period End Date and Analyte Level Rule Assignment End Date is (null or \geq Compliance Period Begin Date). The MCL Violated field will be set to that value and the adjoining UOM field will be set to the comparable value in TMNALRA.

If the user changes the value in the MCL Violated field, it will be compared with the value in the Analysis Result field. If the numeric value in Analysis Result \leq the numeric value in the MCL Violated field, invoke exit state error message: **Violation Analysis Result must be greater than MCL Violated value.**

Comments

Pressing this button will invoke a dialog box containing an optional scrollable text field in which descriptive information can be entered for the violation. This has been expanded to allow up to 2000 characters; therefore, the dialog box has been enlarged from its previous size.

OK

Pressing this button will commit additions and updates and invoke the actions taken in Release 7.0 with the following changes:

- For MCL Violations (violations of VIOLATION TYPE Category Code = MCL), the software will check dependencies between Determination Date and Compliance Period Begin Date and generates error messages. These existing exit state “error” messages should be changed to “warning” messages.
- Remove the edit check for M&R violations (violations of VIOLATION TYPE Category Code = MON) that require the Determination Date to be on or after the Compliance Period End Date.
- In Release 7.0, the software changes the Fiscal Year of a violation if the Determination Date is changed and falls in a different fiscal year. In Release 8.0, the software should no longer change the Fiscal Year of a violation.
- In Add mode, before saving the Violation, ask the user to enter the desired Fiscal Year in a new dialog box. Supply, as default, the Fiscal Year as currently determined, i.e., based on the Determination Date. However, let the user change the Fiscal Year to any year that is prior to the determined Fiscal Year.
- For all violation types, the Determination Date must be on or after the Compliance Period Begin Date unless Compliance Period Begin Date is null, in which case do not run this edit check ~~For monitoring violations, the Determination Date must be on/after the Compliance End Date.~~
- If Violation Type is 75 and the violation has not been associated to an originating violation, invoke exit state error message: **PN Violations of Type 75 must be associated to an originating violation using the PN Violation Association button.** On pressing **OK**, return the cursor to this button on the Violation Maintenance window.
- If Violation Type is 01, 02, 11, 21 - 26, 27, 31, 36, 41, 42, 43, 44, 46, 51 - 65, 71 ~~or~~ 72, 75 or 76 must supply an Analyte Code and supplies Analyte Code must be paired with the Violation Type in the Violation Type Analyte Assignment entity (table

TMNVTAA). If there is no Analyte Code supplied, invoke exit state error message, **Analyte Code is necessary for this particular Violation Type.**

- If Violation Type Code is 07 - 10, or 28, 37, 38, 47, or 48 both Analyte Code and Analyte Group Code may be blank.
- For all other federally defined types of violations, must supply either Analyte Code or Analyte Group Code.
- If Analyte Code is supplied but not paired with the Violation Type in TMNVTAA, invoke exit state error message: **This Analyte Code is not appropriate for this Violation Type.** On pressing **OK**, display the Analyte Selection List with those Analyte Codes that are paired with the selected Violation Type.
- For all state defined violation types, both Analyte Code and Analyte Group Code may be blank.
- The software will perform the following duplicate by data check:

For all "HQ" Violation Types except 21- 26, 51 - 65, 71 and 72
01 - 10, 27MJ, 27MN, 28, 31MJ, 31MN, 36MJ, 36MN, 37, 38,
41, 42, 43, 44, 46, 47, and 48

- If a user tries to add or modify a violation with a status (TMNVIOL_STATUS_TYPE_CODE) of potential (P) or valid (V) that **is not associated to a Water System Facility Sampling Point**, then the user will be prohibited from adding or changing the violation when another violation with a status of P or V already exists for the same Water System with the same Violation Type, Analyte/Analyte Group, and Compliance Period Begin Date, regardless of whether the existing violation references a Water System Facility **Sampling Point** or not. (Note that for those violation types such as 27MJ and 27MN where the severity level is explicitly included, the uniqueness criteria should allow a violation of the same type for each of the two severity levels.)
- If a user tries to add or modify a violation with a status (TMNVIOL_STATUS_TYPE_CODE) of preliminary (P)

or valid (V) **that is associated to a Water System Facility Sampling Point**, then the user is prohibited from adding or changing the violation when another violation with a status of P or V already exists for the same Water System with the same Violation Type, Analyte/Analyte Group and Compliance Period Begin Date, if:

- The existing violation *does not reference a Water System Facility Sampling Point*.
- The existing violation *references a Sampling Point that belongs to the same Water System Facility as does the candidate violation's Water System Facility sampling point*.
- The uniqueness check for violations of types 07 - 10, or 28, which may not have an analyte code, incorporate the following fields in the uniqueness check for violations with Violation Status (potential or valid): ~~plus~~ Violation Type, plus Water System, plus Compliance Period Begin Date. This check will apply to both individual violations (not linked to a violation group) and "hidden" violations.
- If a duplicate violation exists, invoke a dialog box (that resembles an error exit state message—with only an **OK** button) with the following text: **A potential or validated violation of this type, for this water system, analyte/analyte group, compliance period begin date, and water system facility sampling point (if supplied) already exists. Duplicates are not permitted.** When the user clicks **OK**, return to the Violation Maintenance window.

For Violation Types 21- 26, 51- 65, 71 and 72

- If a user tries to add or modify a violation with a status (TMNVIOL_STATUS_TYPE_CODE) of potential (P) or valid (V), the user will be prohibited from adding or changing the violation

when another violation with a status of P or V already exists for the same Water System with the same Violation Type, Analyte, and Compliance Period Begin Date. (Note that for these violation types, a user cannot create a Violation Group nor relate a violation to a Sampling Point).

- If a duplicate violation exists, invoke a dialog box (that resembles an exit state error message—with only an **OK** button) with the following text: **A potential or validated violation of this type, for this water system, analyte, and compliance period begin date already exists. Duplicates are not permitted.** When the user clicks **OK**, return to the Violation Maintenance window.

For Violations of State-Owned Violation Types

- There is no uniqueness criteria. Also, these violations are not ever reported to SDWIS/FED.

When the software is considering the uniqueness of a violation group, prior to creating/committing the candidate violation group and any of its hidden violations in the database, the *Duplicate-by-Data Check* will be invoked for each candidate hidden violation that will be created for each analyte in the analyte group. If SDWIS/STATE encounters an individual violation (not linked to a violation group) or hidden violation that matches the same criteria as one of the hidden violations that will be created, invoke the Hidden Violation Duplicate Encountered dialog box with the following message: **One of the hidden violations that would belong to the Violation Group you wish to create already exists. The hidden violation that cannot be created because it already exists is for Analyte Code: (show Analyte Code) and Name:(show Analyte Name). The Violation Group cannot be created if one of its hidden violations cannot be created.** The Hidden Violation Duplicate Encountered dialog box will have an **OK** button. Pushing **OK** will stop any further processing and return the user to the Violation Maintenance window.

- Commits all changes to the database including any new association records that may have been selected in the association windows.
- Display the new, “Create SOX/EOX Advisory” dialog box
 - If the [*Violation Period*] End Date is entered and
 - An Enforcement Action of Action Type SOX or EOX with a Status of Taken and a Status Date equal to the entered violation period end date does not exist.

The new “Create SOX/EOX Advisory” will display the following text:

It appears that you are returning this violation to compliance but no equivalent enforcement action record exists. Do you want to create an SOX or EOX enforcement action for this violation?

If so, supply the desired values and select Yes. Otherwise, select No.

The advisory will have the following fields, all functioning the same as they function on the Enforcement Action Maintenance window in Add mode:

- Action Type with a **Go To** button, defaulted to SOX.
- Status (defaulted to Taken).
- Status Date (defaulted to the current date).
- SDWIS/FED Data Origin (defaulted to S).
- Regulating Agency and **Go To** button, defaulted to the primacy agency.
- State Asgn ID No.
- Compliance Officer.

On selecting **Yes**, apply the following edit checks:

- Action Type, Status, Status Date, SDWIS/FED Data Origin, and Regulating Agency are mandatory. If one or more is missing, supply exit state error message: **Action Type, Status, Status Date, SDWIS/FED Data Origin,**

and Regulating Agency are mandatory and return the cursor to the Action Type field.

- If Action Type is not equal to SOX or EOX, supply exit state error message: **Action Type must be SOX or EOX** and return the cursor to the Action Type field.

If the data passes the edit checks:

- Create an Enforcement Action record with the data supplied for the current Water System.
- Associate the just created Enforcement Action record to the Violation.

Cancel When the user presses this button, the software will disregard any data entered and return the user to the previous window.

7.6.2.3.1 Violation Enforcement Actions Associations List

The Violations Enforcement Actions Association List (Exhibit 7-38), will be invoked from the Violation Maintenance window by pressing the **Enforcement Action(s)** button. It will list the enforcement actions that the user has already associated with the violation. The user may associate additional enforcement actions to the violation by pressing the **Associate Enforcement Action(s)** button and disassociate enforcement actions displayed on the list by highlighting one record and pressing **Disassociate Enforcement Action(s)**.

The Enforcement Actions list box will display the following fields: [Enforcement Action] Number (which will map to ENFORCEMENT_ACTION_FISCAL_YEAR and EXTERNAL_SYSTEM_NUMBER), Action Type, Status, Status Date.

7.6.2.3.2 Violation Sample Schedule Association Window

The functionality associated with this window has not changed since Release 7.0 with the following exceptions:

- A Violation Group may now be associated with a Schedule Group. If the user is maintaining a Violation Group (Analyte Group is valued on the Violation maintenance window) and presses the Sample Schedule button, the software will invoke the Violation Sample Schedule Association dialog box showing the currently associated schedule group. If no schedule group has previously been associated, the fields will be empty. The user may press the **Associate Schedule** button to invoke the Non-TCR Schedule Maintenance List showing schedule groups for the selected analyte group. The select function on the non-TCR Schedule Maintenance List is described in Subsection 7.2.2.2.
- If the user wishes to associate an individual violation with a schedule from the existing Violation Sample Schedule Association dialog box, when the user presses the **Associate Schedule** button, the software will invoke the TCR Schedule Maintenance List (for 3100/TCR violations) (see Subsection 7.4.2.2) or the non-TCR Schedule Maintenance List (all others) (see Subsection 7.2.2.2). These lists have new **Edit/Select** menu items to accommodate these associations.

*(Developer Note: On the existing Violation Sample Schedule Association dialog box, it will be necessary to retain the logic that checks for the flags (to be associated/disassociated) when the violation is being committed (user pressing **OK** on Violation Maintenance window).)*

7.6.2.3.3 Violation Sample Analytical Result Association List

The functionality associated with this window since Release 7.0 will not change.

7.6.2.3.4 Standard Response Selection List

The functionality associated with this window since Release 7.0 will not change, except that the software will select only standard responses of Type V for display on the list.

7.6.2.3.5 Violation MDBP Summary Association

The Violation MDBP Summary Association window (Exhibit 7-39) will be invoked from the Violation Maintenance window by pressing the **MDBP Summary** button. It will list the MDBP Summary that the user has already associated with the violation. The user may

associate one MDBP Summary to the violation by pressing the **Associate MDBP Summary** button and disassociate an MDBP Summary displayed by pressing the **Disassociate MDBP Summary**. The protected fields in this window, all attributes/fields of MDBP Summary, will be: Summary Type, Samples Collected, Samples Required, and M&R Compliance Indicator as well as the Begin Date and End Date of the Monitoring Period that is associated with the MDBP Summary.

Exhibit 7-39. Violation MDBP Summary Association

Buttons:

Associate MDBP Summary

Pressing this button will invoke the MDBP Summary Maintenance List, as described in Subsection 5.1.4.2. If a water system facility is not associated to the current violation, invoke existing WSF Selection List

(Developer's note: Use existing MBS_WS_FACILITY_SELECT procedure) so that the user may select a valid water system facility before flowing to the MDBP Summary Maintenance List window.

The user may select an MDBP Summary to which to associate with the violation. MDBP Summaries are selected for display on this list according to the following criteria: Summary is for the current Water System and Water System Facility, and the Monitoring Period Begin Date is equal to the Compliance Period Begin Date of the violation. If Compliance Period Begin Date for the Violation is null, only use the first two criteria to display candidate summaries.

Disassociate MDBP Summary

The user can press **Disassociate MDBP Summary** to remove the currently associated MDBP Summary from the window. Note that the software will not commit the removal to the database at this point; the removal of the association to the current MDBP summary will be committed to the database when the user presses **OK** on the Violation Maintenance window.

7.6.2.3.6 Violation Sampling Point Association List

The Violation Sampling Point Association List (Exhibit 7-40), will be invoked from the Violation Maintenance window by pressing the **Sampling Point(s)** button. It will list the sampling points that the user has already associated with the violation. The user may associate additional sampling points to the violation by pressing the **Associate Sampling Points** button and disassociate sampling points displayed on the list by highlighting one record and pressing **Disassociate Sampling Point**.

The Sampling Points list box will display the following fields: Activity Status of Sampling Point, Status Date of Sampling Point, Type Code of Sampling Point, Sampling Point [which maps to Identification Code], Location [which maps to Description Text], and Pu/Cu Tier Level.

Water System/Facility

Water System No XXXXXXXXXXXX Name XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

WSF State Asgn ID XXXXXXXXXXXX Name XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

Violation

Type XX No. ZZZ9 ZZZZ9 Determination Date MM/DD/YYYY

Name XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

Compliance Period

Begin Date MM/DD/YYYY End Date MM/DD/YYYY

Sampling Points

Status	Date	Type	Sampling Point	Location	Tier Level
X	MM/DD/YYYY	XX	XXXXXXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXXXXXX	X
X	MM/DD/YYYY	XX	XXXXXXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXXXXXX	X
X	MM/DD/YYYY	XX	XXXXXXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXXXXXX	X
X	MM/DD/YYYY	XX	XXXXXXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXXXXXX	X
X	MM/DD/YYYY	XX	XXXXXXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXXXXXX	X
X	MM/DD/YYYY	XX	XXXXXXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXXXXXX	X
X	MM/DD/YYYY	XX	XXXXXXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXXXXXX	X

Associate Sampling Points Disassociate Sampling Points

OK Cancel Cancel

Exhibit 7-40. Violation Sampling Point Association List

Buttons:

Associate Sampling Points

This button will invoke the multi-select Sampling Point Selection List, from which the user may select one or more sampling points to associate with the violation. The software will select Sampling Points that are valid for the current Water System Facility. The Select function on this list is described in Subsection 7.2.2.6.

Disassociate Sampling Points

The user may highlight one record and press **Disassociate Sampling Points**. This action will cause the software to remove the highlighted record from the list (that is, remove the VIOLATION_SAMPLING_POINT_ASGMT record (table TMNVISPA). Note that the software will not commit the removal to the

database at this point; the removal will be committed to the database when the user presses **OK** on the Violation Maintenance window.

7.6.2.3.7 Violation Facility Analyte Level Association

The Violation Facility Analyte Level Association window (Exhibit 7-41) will be invoked from the Violation Maintenance window by pressing the **FANL** button. It will display the FANL that the user has already associated with the Violation. The user may associate a FANL to the Violation by pressing the **Associate FANL** button and disassociate the FANL displayed by pressing **Disassociate FANL**.

The Violation Facility Analyte Level Association window will display the following protected fields (all belonging to entity FACILITY_ANALYTE_LEVEL): Control Level Type, Level, Effective Begin Date, and Effective End Date.

The screenshot shows a software window titled "Violation Facility Analyte Level Association". The window is divided into several sections:

- Water System/Facility:** Contains two rows of fields. The first row has "Water System No." and "Name". The second row has "WSF State Asgn ID" and "Name".
- Violation:** Contains fields for "Type", "No.", "Determination Date", and "Name".
- Compliance Period:** Contains fields for "Begin Date" and "End Date".
- Facility Analyte Level:** Contains fields for "Control Level Type", "Level", "Effective Begin Date", and "Effective End Date".

At the bottom of the window, there are five buttons: "Associate FANL", "Disassociate FANL", "OK", "Cancel", and "Help".

Exhibit 7-41. Violation Facility Analyte Level Association

Buttons:

Associate FANL Pressing this button will invoke the Facility Analyte Level Maintenance List, as described in Subsection 7.1.2.2, Exhibit 7-2. The user may select a FANL to associate with the Violation. The software will select FANLs for display on this list if they are associated with both the user-specified Water System and Water System Facility. If a water system facility has not been selected, invoke the existing WSF Selection List so that the user may select a valid water system facility.

(Developer's Note: use existing MBS_WS_FACILITY_SELECT procedure.)

Once a valid water system facility has been selected from the list, the software will then flow to the Facility Analyte Level Maintenance List.

Disassociate FANL The user may highlight one record and press **Disassociate FANL**. This action will cause the software to remove the highlighted record from the list. Note that the software will not commit the removal to the database at this point; the removal of the association to the highlighted FANL will be committed to the database when the user presses **OK** on the Violation Maintenance window.

7.6.2.3.8 Violation Deficiency Association Window

The Violation Deficiency Association window (Exhibit 7-42) will be invoked from the Violation Maintenance window by pressing the **Deficiency** button. It will list the Deficiency that the user has already associated with the Violation. The user may disassociate the Deficiency displayed on the window by pressing **Disassociate Deficiency**. The protected fields in this window, which are all attributes/fields of DEFICIENCY, are: Deficiency No., Severity of Deficiency, Category of Deficiency, Date Identified, Resolved Date, and Description.

Violation Deficiency Association

Water System/Facility

Water System No. XXXXXXXXXX Name XXXXXXXXXXXXXXXXXXXXXXXXXXXX

WSF State Asgn ID XXXXXXXXXX Name XXXXXXXXXXXXXXXXXXXXXXXXXXXX

Violation

Type XX No. ZZZ9 ZZZ9 Determination Date MM/DD/YYYY

Name XXXXXXXXXXXXXXXXXXXXXXXXXXXX

Compliance Period

Begin Date MM/DD/YYYY End Date MM/DD/YYYY

Deficiency

No. ZZZ9 Severity XXX Category XX

Date Identified MM/DD/YYYY Resolved Date MM/DD/YYYY

Description XXXXXXXXXXXXXXXXXXXXXXXXXXXX

Associate Deficiency Disassociate Deficiency OK Cancel Help

Exhibit 7-42. Violation Deficiency Association

Buttons:

Associate Deficiency

Pressing this button will invoke the Deficiency Selection List, as described in Subsection 4.1.2.6, Exhibit 4-12. The user may select one deficiency with which to associate the violation. Deficiencies will be selected for display on this list according to the following criteria: The Deficiencies displayed will be limited by the Water System.

Disassociate Deficiency

The user may press **Disassociate Deficiency** to disassociate the Deficiency displayed. Note that the software will not commit the removal to the database at this point; the removal of the association to

the highlighted deficiency will be committed to the database when the user presses **OK** on the Violation Maintenance window.

7.6.2.3.9 PN Violation Association Window

The PN Violation Association window (Exhibit 7-43) will be invoked by pressing the **Violation** button on the Violation Maintenance window. The window will show if an originating Violation has already been associated with the current Violation of the Violation Maintenance window. The user may use the **Associate Violation** button to select a Violation if one has not been previously associated or may use the **Disassociate Violation** button to disassociate one selected in error.

The PN Violation group box protected fields will be: [Violation] Type, No. (Fiscal Year and External System Number), Determination Date, [Violation Type] Name, and the Begin and End Dates of the Violation Compliance Period. The Originating Violation group box fields will be the same ones.

Water System/Facility

Water System No. XXXXXXXXXX Name XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

WSF State Asgn ID XXXXXXXXXX Name XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

PN Violation

Type XX No. ZZZ9 ZZZZ9 Determination Date MM/DD/YYYY

Name XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

Compliance Period

Begin Date MM/DD/YYYY End Date MM/DD/YYYY

Originating Violation

Type XX No. ZZZ9 ZZZZ9 Determination Date MM/DD/YYYY

Name XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

Compliance Period

Begin Date MM/DD/YYYY End Date MM/DD/YYYY

Associate Violation **Disassociate Violation** **OK** **Cancel** **Help**

Exhibit 7-43. PN Violation Association

Buttons:

Associate Violation

Pressing this button will invoke the Violation List. Deficiencies are displayed on this list if they are for the same Water System and are sorted by descending Deficiency Determination Date. The user may select one originating violation to which to associate this PN violation. Violations are selected for display on this list according to the following criteria: The Violations displayed will be limited to non-hidden Violations for the current Water System regardless of the status of the

Violation (V, P, R, or D). Sort by Compliance Period Begin Date descending. Enable the user to filter by Fiscal Year + Violation ID. Do not allow a user to associate a validated PN Violation to a non-validated originating Violation

**Disassociate
Violation**

The user may press **Disassociate Violation** to disassociate the Violation currently displayed as associated. Note that the software will not commit the removal to the database at this point; the removal of the association to the Violation will be committed to the database when the user presses **OK** on the Violation Maintenance window.

7.6.2.3.10 Violation PN Schedule Activity Association List

The Violation PN Schedule Activity Association List (Exhibit 7-44) will be invoked from the Violation Maintenance window by pressing the **PN Schedule Activity** button. It will list the Public Notification Activities that have already been associated with the Violation. The user may associate additional Public Notification Activities by pressing the **PN Schedule Activity** button and disassociate PN Schedule Activities by highlighting one record and pressing **Disassociate PN Schedule Activity**.

The PN Schedule Activities list box will display the Name of the Activity (actually the Name of its Activity Type), PN Required Date, PN Performed Date, and the Close Date.

Violation PN Schedule Activity Association List

Water System/Facility

Water System No. XXXXXXXXXXXX Name XXXXXXXXXXXXXXXXXXXXXXXXXXXX

WSF State Asgn ID XXXXXXXXXXXX Name XXXXXXXXXXXXXXXXXXXXXXXXXXXX

Violation

Type XX No. ZZZ9 ZZZZ9 Determination Date MM/DD/YYYY

Name XXXXXXXXXXXXXXXXXXXXXXXXXXXX

Compliance Period

Begin Date MM/DD/YYYY End Date MM/DD/YYYY

PN Schedule Activities

Name	PN Required	PN Performed	Close Date
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	MM/DD/YYYY	MM/DD/YYYY	MM/DD/YYYY
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	MM/DD/YYYY	MM/DD/YYYY	MM/DD/YYYY
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	MM/DD/YYYY	MM/DD/YYYY	MM/DD/YYYY
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	MM/DD/YYYY	MM/DD/YYYY	MM/DD/YYYY
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	MM/DD/YYYY	MM/DD/YYYY	MM/DD/YYYY
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	MM/DD/YYYY	MM/DD/YYYY	MM/DD/YYYY

Associate PN Schedule Activities Disassociate PN Schedule Activities

OK Cancel Help

Exhibit 7-44. Violation PN Schedule Activity Association List

Buttons:

Associate PN Schedule Activities

Pressing this button will invoke the multi-select PN Schedule Activities List, from which the user may select one or more Public Notification Activities to associate with the violation. The software will select Public Notification Activities that are valid for the current Water System and Water System Facility.

**Disassociate PN
Schedule Activity**

The user may highlight one record and press **Disassociate PN Schedule Activity**. This action will cause the software to remove the highlighted record from the list (that is, remove the foreign key of the Violation from the Public Notification Activity record). Note that the software will not commit the removal to the database at this point; the removal will be committed to the database when the user presses **OK** on the Violation Maintenance window.

7.6.2.3.11 Violation Compliance Schedule Activity Association List

The Violation Compliance Schedule Activity Association List (Exhibit 7-45) will be invoked from the Violation Maintenance window by pressing the **Compliance Schedule Activity** button. It will list the Compliance Schedule Activities that have already been associated with the Violation. The user may associate additional Compliance Schedule Activities by pressing the **Compliance Schedule Activity** button and disassociate Compliance Schedule Activities by highlighting one record and pressing **Disassociate Compliance Schedule Activity**.

The Compliance Schedule Activities list box will display the Name of the Activity (actually Name of its Activity Type), Due Date, Achieved Date, Reported Date, and Projected Date.

**Disassociate
Compliance
Schedule Activity**

The user may highlight one record and press **Disassociate Compliance Schedule Activity**. This action will cause the software to remove the highlighted record from the list (that is, remove the foreign key of the Violation from the Public Notification Activity record). Note that the software will not commit the removal to the database at this point; the removal will be committed to the database when the user presses **OK** on the Violation Maintenance window.

7.7 Milestone

Presentation Type 3: The information in this section is not a comprehensive design of this function and only reflects Release 8.0 changes/new functionality. As such, normal text means new functionality (e.g., a new button, window, etc. is introduced); redline/redline strikeout indicates where the functionality of an existing object (such as a field, button, menu item, etc.) has changed.

Changes to EPA's reporting requirements for the Lead and Copper Rule and the need for regions to report regionally owned data have triggered minor changes to the Milestone Event function. In particular, EPA eliminated the requirement for primacy agencies to report the completion of several of the interim milestones; however, the minor revisions do not eliminate corresponding record keeping requirements.

7.7.1 Milestone Event Search

The Milestone Event Search dialog box will be invoked as in Release 7.0, but it will be revised to always apply and display the user's current Regulating Agency or Water System Group. To accomplish this, the following changes will be needed.

Protected Fields:

A new protected field and group box will be added to show the to the Water System Group Name or Regulating Agency the user selected.

*WS Group Used/
Regulating Agency
Used*

This protected field will show the user's current Water System Group Name or Regulating Agency depending on which the user has made current. The software will dynamically change the prompt depending on whether Water System Group Name or Regulating Agency is current. The prompt will be "WS Group Used" if the user's current Water

System Group is valued, otherwise the prompt will be “Regulating Agency Used.” (7.7.1 A)

Entry Fields:

Water System No. This works as it did in Release 7.0 except that if a valid water system is entered but is not part of the user’s current Water System Group or Regulating Agency, invoke exit state error message: **WS is not part of current group/agency. Change group/agency to access this WS.** (7.7.1 B)

Milestone End Date

The date the milestone is considered “Done.” This date will be enabled only when Milestone Type is DONE and it must be after the Milestone Date (Planned Date). If Milestone Date entered is on/before Planned Date, invoke exit state error message: **Milestone End Date must be after Milestone Date.** Return the cursor to Milestone End Date. (7.7.1 C)

7.7.2 Milestone Event Maintenance List

Protected Fields:

The following field has been placed directly above the standard “Number of records retrieved” fields to display the user-specified current Water System Group/Regulating Agency that was used in the search to produce the list.

*WS Group Used/
Regulating Agency
Used*

This protected field will show the user’s current Water System Group Name or Regulating Agency depending on which the user has made current. The software will dynamically change the prompt depending on whether Water System Group Name or Regulating Agency is current. The prompt will be “WS Group Used” if the user’s current Water System Group is valued, otherwise the prompt will be “Regulating Agency Used.” (7.7.2 A)

7.7.3 Milestone Event Maintenance

Entry Fields:

Data Origin Code If the Primacy Agency (Government Agency where Primacy Indicator is Y) is defined as type Regional (RG), the DATA_ORIGIN_CODE should default to "R." If the Primacy Agency is defined as type Regional (ST), the DATA_ORIGIN_CODE continues to default to "S." (7.7.3 A)

Milestone Value This field is to be optional when Milestone Type is LSLR. (7.7.3 B)

Note that while the PBCU Summary Maintenance window (in *Sampling* component) no longer prompts one to create an associated Milestone Event, the **Associated Sample Summary** button remains on the window so that users can review historical associations. In addition, while SDWIS/STATE no longer reports milestones of type PB90, CU90, CCSR, CCSC, OTDE, STDE, OTIN, STIN, WQPS, or MPLS, to SDWIS/FED, states may continue to maintain these milestone types.

7.7.4 Schema Migration

Note that 7.0—8.0 Schema Migration *will not* do the following:

- Convert existing type PB90 and CU90 milestones to sample summaries.
- Delete existing milestones of type CCSR, CCSC, OTDE, STDE, OTIN, STIN, WQPS, and MPLS milestones from a state's or region's SDWIS/STATE database.

The second is inappropriate since primacy agencies are still required to keep these kinds of records, they just are not supposed to report them to EPA.

7.8 Results Alert Report

Presentation Type 2: The information in this section reflects a Release 8.0 update to an existing documented design. As such, normal text means no change from the current 7.0 release; redline/redline strikeout indicates where the functionality of an existing object (such as a field, button, menu item, etc.) has changed or where new functionality has been added for Release 8.0.

The Results Alert Report will automatically identify results (individual results and/or lead and copper summary results) that exceed one or more selected threshold levels (e.g., MCL, ACL, URTH, Facility Control, MRDL, MRDLG). The user will designate the analyte or analyte group of interest, the group of water systems by the agency that regulates them, the threshold

levels of interest, and the period of time to check. For period of time, users can choose the period of time during which results were entered, or a period of time during which samples were collected, or a monitoring period during which samples were collected. Note that the Result Alert Report will not check results stored as MDBP Summaries or as Field Results (which are stored in the MICROBIOLOGICAL_SAMPLE entity) against threshold levels. (MDBP Summaries are excluded because the new D/DBP Rule Compliance Report checks these.)

Each result that exceeds a selected threshold level will be included in the report that is generated at the end of the process. In addition to presenting information about the result that exceeded the threshold level (e.g., water system, the water system facility, the sampling point, the sample, and the result) the report also will include the threshold level that was exceeded. The report can be run as often as desired.

The requirements for the Results Alert Report, as discussed during the October 1999 JRP, also incorporated the previously separate requirement for a Facility Water Quality Control Parameter (WQCP) Range Exceedence Check. This meant that this component could also be used to identify results that exceed a Facility Analyte Level, such as WQCP for a water system facility (established under the Lead and Copper Rule), a maximum permissible limit for a water system facility (established under the Lead and Copper Rule), or other maximum or minimum levels that apply to a single water system facility.

Note: the Facility Water Quality Control Parameter (WQCP) Range Exceedence Check that is part of the Results Alert Report is different from the new Lead and Copper Water Quality Parameter Compliance Report.

7.8.1 Model Changes for the Results Alert Report

To satisfy the general requirement to store the output of the Results Alert Report, the following entities will be used:

- CDS_REPORT_LOG—will keep a record of each time the user runs a CDS report. This entity will record links to records in entity CDS_CANDIDATE_EXCEEDENCE that are created as a result of running this report.
- CDS_CANDIDATE_EXCEEDENCE—the parent entity for candidate exceedence will have information about the water system, water system facility, and sampling point related to each exceedence as well as information about the threshold level that was exceeded.
- CDS_SAMPLE_RESULT—will contain information about the sample and result that exceeded a threshold level.

- CDS_SAMPLE_SUMMARY_RESULT—will contain information about sample summaries and summary results that exceed a threshold level.
- CDS_REPORT_EXECUTION_ERRORS—will be populated if an Analyte to Threshold Level pairing picked by the user does not exist.

The detailed specifications for these entities can be found in Appendix A.

7.8.2 GUI Entry Window Design Requirements

The Results Alert Report window will continue to initiate the *Threshold Level Exceedence Check*, *Action Level Exceedence Check*, and *Facility Level Exceedence Check*. To initiate this report, from the *Monitoring and Noncompliance* main menu, the user will select **Edit/Compliance Decision Support/Results Alert Report** (Exhibit 7-46) to invoke the Results Alert Report window (Exhibit 7-47).

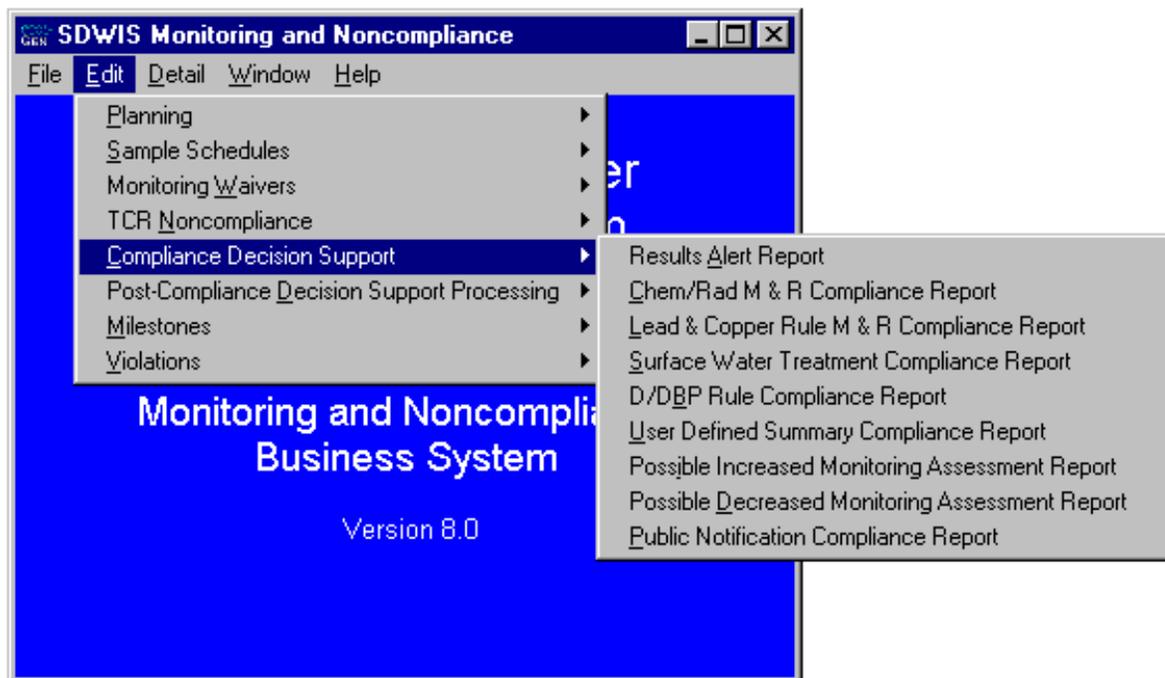


Exhibit 7-46. Revised Monitoring and Noncompliance Main Menu

for Analyte Selection List will be Analyte Code, in ascending alphabetical order. *The Analyte Selection List must not contain Analytes 3100, 3013, or 3014.* If the user enters a value in Analyte Code, on tabbing off the field accept the specified analyte if it is an exact match. If the value entered is not an exact match, invoke the Analyte Selection List sorted by ascending Analyte Code, from which the user may select an analyte. If the user specifies a partial string in this field, display the closest matching analyte code at the top of the list. (Closest matching means a match with the Analyte Code, sorted alphabetically, that starts with the same text string as supplied.) If no match is possible, the software will display the entire list of analytes. If Analyte Code is valued, Analyte Group will be set to spaces. If the user enters analyte code 3100, 3013, or 3014, invoke exit state error message: **TCR Analytes 3100, 3013, or 3014 may not be selected for this report.**

*Analyte Group
Code*

The user may click the **Go To** button to invoke the Analyte Group Selection List or may enter a value directly into Analyte Group Code. The default sort for Analyte Group Selection List is Analyte Group Code, in ascending alphabetical order. If the user enters a value in Analyte Group Code, on tabbing off the field accept the specified analyte if it is an exact match. If the value entered is not an exact match, invoke the Analyte Group Selection List window, sorted by ascending Analyte Group Code, from which the user may select an analyte group. If the user specifies a partial string in this field, display the closest matching analyte code at the top of the list. (Closest matching means a match with the Analyte Group Code, sorted alphabetically, that starts with the same text string as supplied.) If no match is possible, display the entire list of analytes groups. If Analyte Group Code is valued, Analyte Code will be set to spaces.

Threshold Levels Group Box:

Threshold Levels

The user may select one or more of the threshold levels by checking one or more of the following checkboxes:

- Action Level (ACL).
- Maximum Contaminant Level (MCL).
- Maximum Contaminant Level Goal (MCLG).
- Unreasonable Risk to Health (URTH).
- Trigger Level (TRL).
- Maximum Residual Disinfectant Level (MRDL).

- Water System Facility Maximum Level (WSF Max).
- Water System Facility Minimum Level (WSF Min).
- Regulatory Minimum Detection Level (RMDL).
- Practical Quantitative Level (PQL).
- Performance Level Requirement (PLR).
- Maximum Residual Disinfectant Level Goal (MRDLG).

Regulating Agency Group Box:

Regulating Agency This field will map to table TINLAGENT column NAME. Its value will default to the regulating agency that is marked as the primacy agency as long as the user is linked to that agency. If the user is not linked to the primacy agency, its value will default to the first regulating agency name, in alphabetic order, to which the user is linked (also the first one available on the Regulating Agency Selection List). The user may click the **Go To** button to invoke the Regulating Agency Selection List or may enter a value directly into the Regulating Agency field.

- The Regulating Agency Selection List will display only those regulating agencies to which the user is associated.

(Developer's Note: Legal Entities of type GA where the Government Agency is associated to the Individual (through D_USER) through INDIVIDUAL_GOVERNMENT_AGENCY_ASGT. Use existing EBS_C_LGL_ENT_SELECT_LIST and EBS_S_COMMON_LEGAL_ENTITY client/server procedures.)

- The default sort for Regulating Agency Selection List will be Name, in ascending alphabetical order.
- If the user enters a value in Regulating Agency, on tabbing off the field check both for an exact match and whether the current user is associated to the specified Agency. If both criteria are met, retrieve the specified regulating agency.
 - If the value entered is not an exact match, invoke the Regulating Agency Selection List, sorted by ascending Name, from where the user may select a regulating agency.

- If the user specifies a partial string in this field, display the closest matching regulating agency at the top of the list. (Closest matching means a match with the Regulating Agency Name, sorted alphabetically, that starts with the same text string as supplied.)
- If the user specifies a valid government agency but is not associated to that agency (through *INDIVIDUAL_GOVERNMENT_AGENCY_ASGT*), present existing exit state error message to indicate that the selected government/regulating agency is not valid for the current user. (The SDWIS/STATE Administrator would need to link the user to that agency).

The prompt for Regulating Agency will be blue and underlined to indicate that this field is mandatory.

Period of Time Group Box:

The user can choose from one of three checkboxes: Data Entry Date Range, Sample Collection Date Range, and Monitoring Period.

Data Entry Date Range

The Period of Time option “Data Entry Date Range” will look at the following date fields for all processes executed for this report:

- If the user selects Analyte Code PB90 or CU90: CDS Sample Summary Result Last Update Timestamp.
- If the user selects any other analyte: CDS Sample Analytical Result Last Update Timestamp.

Sample Collection Date Range

The Period of Time option “Sample Collection Date Range” will look at the following date fields for all processes executed for this report:

- If the user selects Analyte Code PB90 or CU90, this option will be disabled.
- If the user selects any other analyte: Sample Collection End Date.

- Monitoring Period* The Period of Time option “Monitoring Period” will look at the following date fields:
- If the user selects Analyte Code PB90 or CU90: Sample Summary Results associated with the specified monitoring period.
 - If the user selects any other analyte: Sample Collection End Date against the period defined by the Monitoring Period Begin and End Dates.
- [Begin Date]* This prompt will be implied. If [Begin Date] and either [End Date] or Duration are valued, retrieve the monitoring period that matches the criteria and display it in all monitoring period fields. If no monitoring period exists that matches the criteria, invoke the Monitoring Period Selection List. The software will not process anything if only Begin Date is valued.
- (Developer’s Note: Use existing MBS_MONITORING_PERIOD_SELECTION_LIST.)*
- [End Date]* This prompt will be implied. If [End Date] and either [Begin Date] or Duration are valued, retrieve the monitoring period that matches the criteria and display it in all monitoring period fields. If no monitoring period exists that matches the criteria, invoke the Monitoring Period Selection List. Do not process anything if only End Date is valued.
- Monitoring Period Name* If the user enters a valid monitoring period name, retrieve the monitoring period that matches the criteria and display it in all monitoring period fields. If the user enters a partial string or an invalid monitoring period name, invoke the Monitoring Period Selection List. Pressing the Monitoring Period **Go To** button will invoke the Monitoring Period Selection List.
- Duration* If Duration and either [Begin Date] or [End Date] are valued, retrieve the monitoring period that matches the criteria and display it in all monitoring period fields. If no monitoring period exists that matches the criteria, invoke the Monitoring Period Selection List. Do not process anything if only Duration is valued.

Tab Sequence:

Analyte Code, Analyte Code **Go To** button, Analyte Group Code, Analyte Group Code **Go To** button, ACL checkbox, MCL checkbox, MCLG checkbox, URTH checkbox, Trigger Level checkbox, MRDL checkbox, WSF Max checkbox, WSF Min checkbox, RMDL checkbox, PQL checkbox, PLR checkbox, MRDLG checkbox, Regulating Agency, Regulating Agency **Go To** button, Data Entry Date Range checkbox, Sample Collection Date Range checkbox, Monitoring Period checkbox, [Begin Date], [End Date], Monitoring Period Name, Monitoring Period **Go To** button, Duration, **OK** button, **Cancel** button, **Help** button.

Buttons:

OK Error messages that may be displayed upon clicking the **OK** button:

- If neither an Analyte Code nor an Analyte Group is selected, invoke existing exit state error message: **Either an Analyte or Analyte Group must be entered.**
- If the Regulating Agency field is left blank, invoke the following existing exit state error message: **Regulating Agency is a required field.**
- If none of the 12 ~~10~~ possible threshold levels in the Threshold Levels group box is selected, invoke exit state error message: **Result Alert Report requires selection of a threshold type.**
- If none of the checkboxes (Data Entry Date Range, Sample Collection Date Range, or Monitoring Period) is selected, invoke exit state error message: **Result Alert Report requires selection of a period of time.**
- If Data Entry Date Range checkbox or Sample Collection Date Range checkbox is selected

If [Begin Date] and [End Date] are not valued, invoke exit state error message: **Date range is required.**

- If Monitoring Period checkbox is selected, and no valid monitoring period has been retrieved, invoke exit state error message: **No Monitoring Period was selected.**

Once all edits checks have successfully passed, processing will begin. The first process, *Clear Previous CDS Exceedence Records*, will run for every Alert Results Report. The three exceedence check processes will run according to the user's selections (Exhibit 7-48).

Threshold Level	Process
MCL, MCLG, TRL, UPTH, PLR, PQL, RMDL, MRDL, and MRDLG	Threshold Level Exceedence Check.
ACL	Action Level Exceedence Check.
Maximum WSF Analyte Level or Minimum WSF Analyte Level	Facility Analyte Level Exceedence Check.

Exhibit 7-48. Threshold Level to Alerts Report Process Matrix

The last process, Create Candidate Exceedence, will execute each time the Results Alert Report runs. Process Aggregate Lead and Copper 90th Percentile Data, originally conceived as one of the Alert Report processes, will be necessary for the accurate execution of this report; however, it will run as part of *CDS Setup* (generally at least once per day).

Once processing has started, the CDS Status window will appear with its title bar reflecting the name of the selected report (in this case, Results Alert Report). As described for *CDS Setup*, the processing gauge will show users the overall percentage of Results Alert Report processes that have completed; the smaller gauge will show the percentage of completion for each individual process (e.g., *Threshold Level Exceedence Check*).

7.8.3 Processing Design Requirements for the Results Alert Report

Five distinct processes will directly support the Result Alert Report:

- *Clear Previous CDS Exceedence Records* will clear records from the Oracle reporting entities created during a previous run of the Results Alert Report when the selection criteria of the current run selects a result already included in the candidate entities.
- *Threshold Level Exceedence Check* will check SAMPLE_ANALYTICAL_RESULT records (stored in table TSASAR) against THRESHOLD or MEASURE_LEVEL records stored in the ANALYTE_LEVEL_RULE_ASSIGNMENT entity (table TMNALRA).

- *Action Level Exceedence Check* will check SAMPLE_SUMMARY_RESULT records (stored in table TSASSR) for PB90 and CU90 results against their action levels stored in the ANALYTE_LEVEL_RULE_ASSIGNMENT (table TMNALRA).
- *Facility Level Exceedence Check* will check SAMPLE_ANALYTICAL_RESULT records (stored in table TSASAR) against designated levels (either maximum or minimum) stored in the new entity, FACILITY_ANALYTE_LEVEL.
- *Create Candidate Exceedence* will create records in CDS_CANDIDATE_EXCEEDENCE and either CDS_RESULT or CDS_SAMPLE_SUMMARY_RESULT that satisfy the selection criteria entered by the user.

The following sections summarize the five processes that will directly support the Results Alert Report.

7.8.3.1 Clear Previous Candidate Exceedence Records

As mentioned in Subsection 7.8.2, the output of the Results Alert Report will be the creation of candidate exceedence in the three new *CDS* report entities. To avoid creation of duplicate exceedence records in these reporting entities, the processes that run as part of the Result Alert Report will include a step that deletes previously created exceedence records if they reference a CDS Sample Analytical Result or CDS Sample Summary Result that will be reevaluated by the current run. It will do this by identifying and deleting a CDS result that has the same internal system number and state code as one selected for evaluation. This process will also ensure the removal of an exceedence that previously met exceedence criteria but that, due to changing some parameters, no longer meets the criteria.

7.8.3.2 Threshold Level Exceedence Check

The *Threshold Level Exceedence Check* process runs if the user selects any one of the following Threshold Levels:

- Maximum Contaminant Level (MCL).
- Maximum Contaminant Level Goal (MCLG).
- Unreasonable Risk to Health (URTH).
- Trigger Level (TRL).
- Maximum Residual Disinfectant Level (MRDL).
- Regulatory Minimum Detection Level (RMDL).
- Practical Quantitative Level (PQL).
- Performance Level Requirement (PLR).
- Maximum Residual Disinfectant Level Goal (MRDLG).

It will first checks to see if each combination of Analyte and Threshold Level selected by the user exists as an Analyte Level. If a combination does not exist⁸, it will create a record in the CDS_REPORT_LOG_ERROR entity that will state the analyte (code and name) and threshold level (code) pairing does not exist. These non-existent pairings will then be included in the report that appears at the end. So, for example, if a user selects an analyte group that contains all the inorganic chemicals and selects URTH as the threshold level and one or more of the inorganic chemicals in the group does not have an URTH level, the report will make the user aware of this.

Next, this process will select results (stored in entity SAMPLE_ANALYTICAL_RESULTS (table TSASAR) that are for the selected water systems, analytes, and period of time, and will determine whether candidate exceedence records have already been created for them or not. If they have, it will delete the candidate exceedence record and its related CDS Reporting data.

Finally, it will compare the selected results against threshold levels stored in entity ANALYTE_LEVEL_RULE_ASSIGNMENT (table TMNALRA); if a result exceeds a selected Threshold Level, it will pass data to the *Create Candidate Exceedence* process. If the unit of measure for a result is different than the unit of measure for the threshold level and the result is not less than detect (i.e., the Less Than Indicator is not equal to “Y.” If the Less Than Indicator is equal to “Y,” no conversion will be necessary—use zero as the value), the process will first convert the result to the same unit of measure as the threshold level using the conversion table in Exhibit 7-49:

From UOM	To UOM	Multiplier
MG/L	UG/L	1000
MG/L	NG/L	1000000
UG/L	MG/L	0.001
UG/L	NG/L	1000
NG/L	MG/L	0.000001
NG/L	UG/L	0.001

Exhibit 7-49. Conversion Table

If the unit of measure for a result is not equal to any of the unit of measures in column two, then the process will not be able to compare the result to the threshold level. Instead, it will send an error message to the CDS Report Error Log identifying the result that could not be converted and stating that its unit of measure could not be converted.

⁸These are stored in the Analyte Level Rule Assignment entity and are maintained by the SDWIS/STATE Administrator.

This process will not address TCR results. Those results will be handled by the automated TCR NCD application. Other design requirements for this process follow. The detailed design specification for this process is contained in Appendix E.1 (Results Alert Report Processes).

- The process will only consider accepted or validated results that reference a selected analyte and whose parent sample's Rejection Reason Code is blank.
- The process will consider results from samples regardless of whether they are for compliance or not and regardless of the Sample Type and regardless of the activity status of the sampling point, water system facility, or water system associated to the sample and regardless of the Federal PWS Type of the water system.
- For composite samples, each sample used to make the composite will be included in the report.
- Results will be compared against threshold levels that are *in effect*. "In effect" means that the date the report is run is between the effective begin and end dates for the threshold level.
- The report will display each result that exceeds a selected threshold level for a selected analyte. The result will be displayed along with the threshold level.

See Appendix E.1 (Results Alert Report Processes) for the detailed specification.

7.8.3.3 Action Level Exceedence Check

The *Action Level Exceedence Check* process will compare results in the SAMPLE_ANALYTICAL_RESULT entity or the SAMPLE_SUMMARY_RESULT entity against action levels. The process will determine whether to check Sample Analytical Results or Sample Summary Results based on the Analyte(s) picked for running the report.

- For analyte codes PB90 and CU90, the process will use the SAMPLE_ANALYTICAL_RESULT entity.
- For Lead or Copper individual analytes (analyte codes 1030 and 1022 respectively), it will use the SAMPLE_SUMMARY_RESULT entity.
- For all other analytes, it will use the SAMPLE_ANALYTICAL_RESULT entity. (Note that the following analytes will not be included in any of the exceedence checks: total coliform, fecal coliform, *E.coli*, and analytes with a Type Code of Group Contaminant (GC), Other (OT), or Rule (RL).)

The first action of this process will be to identify when a selected analyte does not have an action level. When it finds that is the case, it will create a record in the CDS_REPORT_LOG_ERROR entity that will state the analyte (code and name) and threshold level (code) pairing that does not exist. These non-existent pairings will then be included in the report that appears at the end.

Next, this process will select results (either stored in SAMPLE_ANALYTICAL_RESULTS entity (table TSASAR) or SAMPLE_SUMMARY_RESULT, depending on which analytes were selected) that are for the selected water systems, analytes, and period of time and determines whether candidate exceedence records have already been created for them or not. If they have, it will delete the candidate exceedence record and its related CDS Reporting data.

Finally, it will compare the values for the selected results against the action level for the respective analyte. If a result exceeds an action level, it will pass the data to the *Create Candidate Exceedence* process described below. If the unit of measure for a result that is not less than detect (i.e., the Less Than Indicator is not equal to “Y”) is different than the unit of measure for the threshold level, the process will first convert the result to the same unit of measure as the threshold level using the conversion table in Subsection 7.8.3.2.

If, for a result that is not less than detect (i.e., the Less Than Indicator is not equal to “Y”), the unit of measure for a result is not equal to any of the unit of measures in column two, then the process will not be able to compare the result to the threshold level. Instead, it will send an error message to the CDS Report Error Log identifying the result that could not be converted and stating that its unit of measure could not be converted. If the Less Than Indicator is equal to “Y,” no conversion will be necessary. The process will use zero as the value for that result.

Other design requirements for this process follow. The detailed design specification for this process is contained in Appendix E.1 (Results Alert Report Processes).

- When checking Sample Analytical Results or Sample Summary Results, only accepted or validated results will be considered.
- When checking Sample Analytical Results, the process will consider results from samples regardless of whether they are for compliance or not and regardless of the Sample Type and regardless of the activity status of the sampling point, water system facility, or water system associated to the sample and regardless of the Federal PWS Type of the water system.
- For composite samples, each sample used to make the composite will be included in the report.

- Sample Summaries will be considered whether they are related to a Water System Facility or not, whether they are for compliance or not, and regardless of the activity status of the sampling point, water system facility, or water system associated to it.
- Results will be compared against action levels that are *in effect*. “In effect” means that the date the report is run is between the effective begin and end dates for the action level.
- The report will display each result or sample summary result that exceeds the action level for a selected analyte. The result will be displayed along with the action level.

7.8.3.4 Facility Level Exceedence Check

The *Facility Level Exceedence Check* will run if the user selects either one of the following Threshold Levels (a user may select both):

- Water System Facility Minimum Level (WSF Min).
- Water System Facility Maximum Level (WSF Max).

The initial action of this process will be to select results (stored in entity SAMPLE_ANALYTICAL_RESULTS (table TSASAR) that are for the selected water systems, analytes, and period of time and determine whether candidate exceedence records have already been created for them or not. If they have, it will delete the candidate exceedence record and its related CDS Reporting data.

Having completed the task of clearing previous candidate records, the process will then compare the selected results against WSF maximum and/or minimum levels (depending on which were selected by the user) stored in entity FACILITY_ANALYTE_LEVEL (table TSAFANL). (FACILITY_ANALYTE_LEVEL stores facility levels such as water quality control levels and maximum permissible source water levels (both from the Lead and Copper Rule), or special turbidity levels). If a result exceeds a WSF maximum level or is less than a WSF minimum level, it will pass the data to the *Create Candidate Exceedence* process.

If the unit of measure for a result that is not less than detect (i.e., the Less Than Indicator is not equal to “Y”) is different than the unit of measure for the threshold level, the process will first convert the result to the same unit of measure as the threshold level using the conversion table in Subsection 7.8.3.2. If, for a result that is not less than detect (i.e., the Less Than Indicator is not equal to “Y”), the unit of measure for a result is not equal to any of the units of measure in column two, then the process will not be able to compare the result to the threshold level. Instead, it will send an error message to the CDS Report Error Log identifying the result that could not be converted and stating that its unit of measure could not

be converted. If the Less Than Indicator is equal to “Y,” no conversion will be necessary. The process will use zero as the value for that result.

Other design requirements for this process follow. The detailed design specification for this process is contained in Appendix E.1 (Results Alert Report Processes).

- This process will not address TCR results.
- The process will only consider accepted or validated results.
- The process will consider results from samples regardless of whether they are for compliance or not, regardless of the Sample Type, and regardless of the Activity Status of the sampling point, water system facility, or water system associated to the sample and regardless of the Federal PWS Type of the water system.
- For composite samples, each sample used to make the composite will be included in the report.
- Results will be compared against WSF levels that are *in effect*. “In effect” means that the date the report is run is between the effective begin and end dates for the level.
- The report will display each result that exceeds a selected threshold level for a selected analyte. The result will be displayed along with the threshold level.

7.8.3.5 Create Candidate Exceedence

The *Create Candidate Exceedence* process will create records in five *CDS* report entities:

- CDS_CANDIDATE_EXCEEDENCE.
- CDS_SAMPLE_RESULT.
- CDS_SAMPLE_SUMMARY_RESULT.
- CDS_REPORT_LOG.
- CDS_REPORT_EXECUTION_ERRORS.

When the Results Alert Report identifies an exceedence, the *Create Candidate Exceedence* process will be invoked to populate the exceedence information in the above tables. A record will be created in the Report Log table every time the Results Alert Report is executed. This Report Log record will contain information about the parameters that were chosen to execute the report. Any candidate exceedence that is created by the report process will be associated to this Report Log. Also, whenever errors are encountered during the execution of the report, a record will be created in entity CDS_REPORT_EXECUTION_ERRORS and associated to the Report Log record corresponding to that execution.

For every exceedence that is determined, one record will be created in entity CDS_CANDIDATE_EXCEEDENCE. This entity will contain information related to the threshold level that was exceeded, the inventory information related to the result that caused the exceedence, and the analyte information. If the user selected analyte PB90/CU90, a corresponding CDS Sample Summary Result will be created and associated to the CDS_CANDIDATE_EXCEEDENCE record. If analytes other than PB90 or CU90 are selected, a record will be created in entity CDS_SAMPLE_RESULT that corresponds to the exceedence that was determined. The CDS_SAMPLE_SUMMARY_RESULT, and CDS_SAMPLE_RESULT entities will each contain denormalized information about the result that caused the exceedence.

Appendix E.1 (Results Alert Report Processes) contains the detailed specifications for this process.

7.8.4 Report (Output) Requirements

At the conclusion of the Results Alert Report, an MS Access report will be invoked and displayed. The MS Access report and supporting queries will be in an MS Access database called CDSRPTS.MDB in the C:\SDWIS\CDS subdirectory of the client machine. Although this MS Access database will not have a menu driven system (all of its reports will be invoked from within the SDWIS/STATE application), users will be able to open it and modify the queries and/or reports if desired. However, users will need to retain the original report names in order for the reports to be invoked from the SDWIS/STATE application. (The report names will need to be hard-coded in order to automatically launch them at the conclusion of a report). As with other SDWIS/STATE MS Access-based components that target SDWIS/STATE Oracle tables, CDSRPTS.MDB will use Open Data Base Connectivity (ODBC) to link to the Oracle CDS reporting entities.

Since there are three possible combinations of data that can be presented in the report at the end of this process, three separate reports will be developed. The three combinations that require three separate reports are as follows:

- Exceedence that involve only Sample Analytical Results (user did not select Analyte Code PB90 or CU90).
- Exceedence that involve only Sample Summary Results (user selected Analyte Code PB90 and/or CU90).
- Exceedence that involve both Sample Analytical Results, Sample Summary Results, and MDBP Summaries (user selected PB90 and/or CU90 and any other analyte). (These are individual reports that each launch at the conclusion of the Result Alerts Report.)

This report, as with other CDS reports, will create a CDS Report Execution Log record each time it is run. All three reports will include a sub-report that will display records created in entity CDS_REPORT_EXECUTION_ERRORS during the run. If no records are created in this entity, the sub-report will say that as well.

7.9 Chemical/Radionuclide M&R Compliance Report

Presentation Type 2: The information in this section reflects a Release 8.0 update to an existing documented design. As such, normal text means no change from the current 7.0 release; redline/redline strikeout indicates where the functionality of an existing object (such as a field, button, menu item, etc.) has changed or where new functionality has been added for Release 8.0.

Users need to periodically determine which water systems have collected the required number of samples and obtained valid results during a required period of time. The Chemical/Radionuclide Monitoring and Reporting (M&R) Compliance Report satisfies this requirement for chemical and radionuclide sample schedules so long as the periodicity (frequency) of the Sample Schedule is monthly or longer and the Sample Schedule is associated to a Violation Type⁹ except for a Lead and Copper Rule M&R Violation Type (51, 52, 53, & 56), a D/DBP M&R Violation Type (27 & 29), or a SWTR/IESWTR Violation Type (31, 36, 37, and 38)—compliance determination for these latter violation types are included in other compliance reports. Therefore the Chemical/Radionuclide M&R Compliance Report not only determines M&R compliance for schedules associated to Violation Type 03 and 04 but also for schedules associated to primacy-agency-defined (non-headquarters) Violation Types. It should also be noted that, even though the name implies that this only runs for “Chemical” and “Radionuclide” analytes, this report will also check compliance for other classifications of analytes¹⁰ so long as they are associated to an appropriate Violation Type.

For each M&R violation identified, the application will create a candidate violation in the new CDS_CANDIDATE_VIOLATION entity. The user can then review the candidate violations to determine whether to create potential violations in the SDWIS/STATE database, reject the candidate violations, or take other action (e.g., send a reminder letter, check with the laboratory). The functions of creating potential violations and rejecting candidate violations are described in Subsection 7-17.

⁹In Release 8.0, a user will indicate the appropriate Violation Type for a Non-TCR Sample Schedule by associating it to the schedule via the schedule’s Monitoring Requirement. See the subsections on Monitoring Requirement and Non-TCR Sample Schedule for more information.

¹⁰The only analytes explicitly excluded are total coliform, fecal coliform and *E. coli*.

The number and type of required samples, the frequency of collecting those samples, and the specific period(s) during which they should be collected are established by regulation. These requirements are recorded in the SDWIS/STATE database as follows:

- The analyte for which to test, the number of samples, the type of samples, and the frequency of sampling are recorded in the Monitoring Requirements Maintenance window.
- The water system facility ~~sampling point~~ to which a given monitoring requirement applies will be captured in the non-TCR schedule that can be viewed in the Non-TCR Sample Schedule Maintenance window.
- The specific period of time during which a set of samples must be collected in order to satisfy the monitoring requirement will be maintained as a monitoring period.

As discussed in the *CDS Setup* section, the associative entity SAMPLE_SCHEDULE_MONITORING_PERIOD_ASSIGNMENT will be critical for determining routine M&R compliance. Exhibit 7-50 portrays these relationships using example data. In the example, the requirement to collect one routine pesticide sample every year during the season in which pesticides are applied was placed on water system facility TP01¹¹ ~~entry point~~ EP2 at the start of 1997. So far, the Public Water System owner has been required to collect one routine sample during each of three annual periods: calendar year 1997, calendar year 1998, and calendar year 1999. This monitoring requirement could continue to apply to this water system facility ~~entry point~~ for years to come.

¹¹In Release 8.0, the user can also indicate the precise Sampling Point(s) at which samples must be collected. See the Non-TCR Sample Schedule design section for more information.

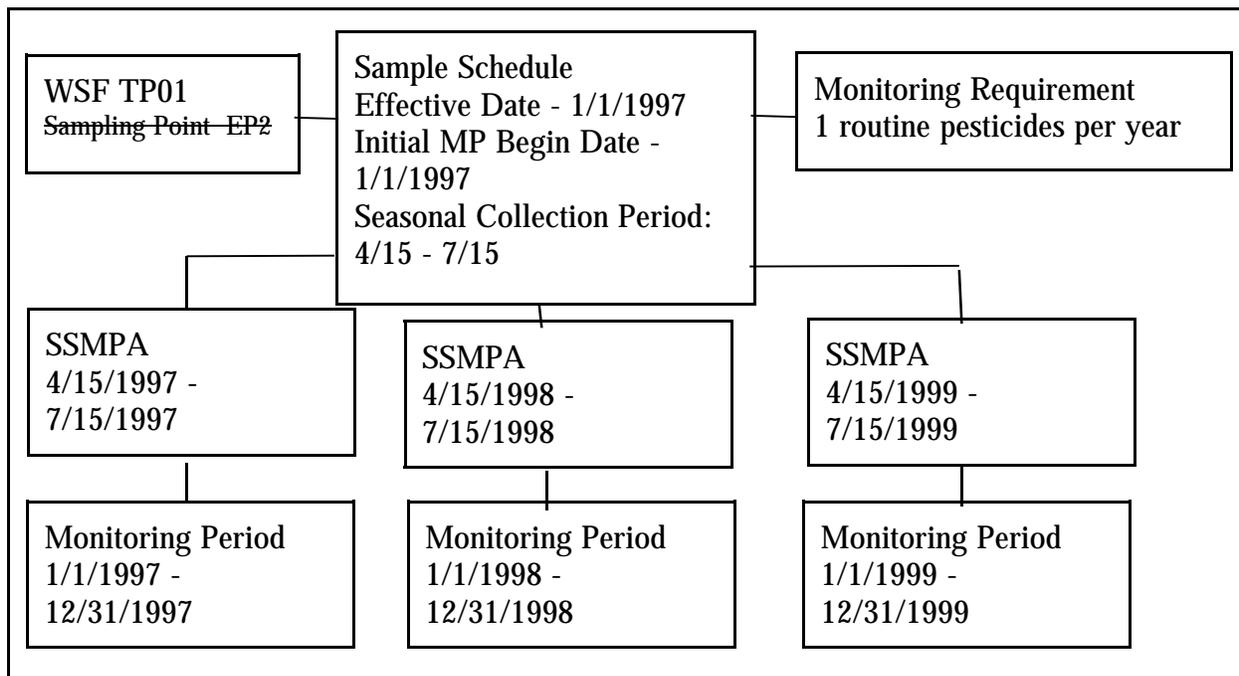


Exhibit 7-50. Relationships Supporting M&R Compliance Determination

In order to know whether the Public Water System owner has complied with this requirement, the compliance officer reviews the pesticide results that have been obtained from the water system facility ~~sampling point~~. If the proper number of samples was collected (in this example, one routine) during the specified period and a valid result was obtained, the Public Water System owner has complied with this requirement for the specified monitoring period.

In order for SDWIS/STATE to assist the compliance officer, it must be able to determine the water system facility ~~sampling point~~ and monitoring period to which each incoming sample and result belongs. Then, when the compliance officer activates the *Chemical/Radionuclide M&R Compliance Check* (by selecting the analyte(s) and monitoring period of interest), the application can identify all the sample schedules for the selected analyte(s) that call for samples to be collected during the selected monitoring period. The application will then compare the requirements of each schedule (number of samples, type of samples, and periodicity) against the specific samples and results obtained from the water system facility ~~sampling point~~ during the selected monitoring period.

Instead of making all these determinations during the compliance check, *CDS Setup* makes the correct associations between results and sample schedules. Therefore, the M&R compliance check simply compares results already linked to a given monitoring period (through the

SSMPA and possibly to a Sampling Point Sub-SSMPA) against the requirements called out in the associated sample schedule.

To demonstrate this, consider the above example again, and assume that sometime in calendar year 2000, a user installs SDWIS/STATE Release 7.0. In order for *CDS Setup* to determine the appropriate monitoring period(s) for the sample schedule, the user will need to indicate that the initial monitoring period begin date for the sample schedule is 1/1/1997. (Existing attribute "Next Due Date" has been changed to "Initial Monitoring Period Begin Date" for this purpose.) The user then also will need to create the current annual monitoring period (i.e., calendar year 2000). The next time the user initiates *CDS Setup* (perhaps later that evening), the process will make associations (SSMPA records) between the new monitoring period and the appropriate sample schedules, and between any pesticide results for the water system facility ~~entry point~~ and the appropriate newly created SSMPAs. When the user activates the Chemical/Radionuclide M&R Compliance Check, selecting an analyte group of pesticides and calendar year 2000 as the monitoring period, the application will simply compare the number and type of pesticide samples and results for the water system facility ~~entry point~~ and associated to calendar year 2000 against the number and type of samples called for by the sample schedule, which is also associated to calendar year 2000 through the SSMPA. If the number of samples is equal to or greater than the number required, determine successful compliance with the sampling point schedule. If at least one result is associated but less than the number called for in the schedule, create an M&R minor routine violation in the Candidate CDS Violation entity. If no results were found, determine an M&R major routine candidate violation in the same entity.

In this example, if a sample is not collected during the seasonal collection period specified (April 15 to July 15), its results will not be associated to the SSMPA and that sample will not count towards compliance. If the user manually associates the sample results to the monitoring period, it will now count towards compliance. See Section 2.1.5, Sampling Modifications for additional detail.

7.9.1 Model Changes for Chemical/Radionuclide M&R Compliance Check

~~To satisfy the general requirement to store the output of the Chemical/Radionuclide M&R Compliance Check, SDWIS/STATE continues to use the previously described in Section 7.8.1, (Results Alerts Report).~~

- ~~• CDS Candidate Exceedence~~
- ~~• CDS Sample Result~~
- ~~• CDS Sample Summary Result,~~

The Chemical/Radionuclide M&R Compliance Check also heavily uses entities

- CDS_CANDIDATE_SCHEDULE—contains information about sampling schedules whose monitoring requirements have not been met. Note that often the candidate schedule will be a “hidden” schedule (i.e., a schedule for a single analyte that is part of a Schedule Group). See Section 7.2 for more information on hidden schedules). In this case, information about the Schedule Group will be created in the *CDS* report entities.
- CDS_CANDIDATE_VIOLATION—contains information about candidate violation records which are determined during *CDS* processing.

For Release 8.0, a new entity will be added:

- CDS_SAMPLING_POINT_SUB-SCHEDULE —contains information about the Sampling Point Subschedule(s) (involved in a candidate violation) that may have been created for a non-TCR Sample Schedule to designate that compliance determination should occur at the sampling point level.

See Appendix A for the structure of each of the *CDS* entities.

7.9.2 GUI Entry Window Requirements

The **Chemical/Radionuclide M&R Compliance Report Check** Selection window (Exhibit 7-52) will be used to initiate the Chemical/Radionuclide M&R Compliance Check ~~as well as the Lead and Copper Tap M&R Compliance Check~~. To initiate this report, from the *Monitoring and Noncompliance* main menu, the user will select **Edit/Compliance Decision Support/Chem/RAD M&R Compliance Report**. This will invoke the Chemical/Radionuclide M&R Compliance Reports Selection window (Exhibit 7-52).

This window has ~~five~~ four inputs:

- Analyte or Analyte Group.
- ~~Lead and Copper Tap (a check-box):~~
- Regulating Agency.
- Applicable Period End Date Range.
- Check Compliance with Confirmation Schedules (a checkbox).

To initiate the Chemical/Radionuclide M&R Compliance Check, the user selects the analyte or analyte group of interest, the regulating agency appropriate for the user and the applicable period end date range of interest. The selected regulating agency will limit the check to those public water systems that are regulated by the government agency selected. So, for instance, if

a user selected a county as the regulating agency, only sample schedules for those systems associated to that county government agency will be assessed.

The applicable period during which a monitoring requirement applies to water system facility depends on the juxtaposition of three periods: the Sample Schedule's Effective Period, the Sample Schedule's Seasonal Collection Period and the Monitoring Period as indicated in Exhibit 7-51.

Understanding Applicable Periods

Example: Annual Nitrate Monitoring for a Seasonal System

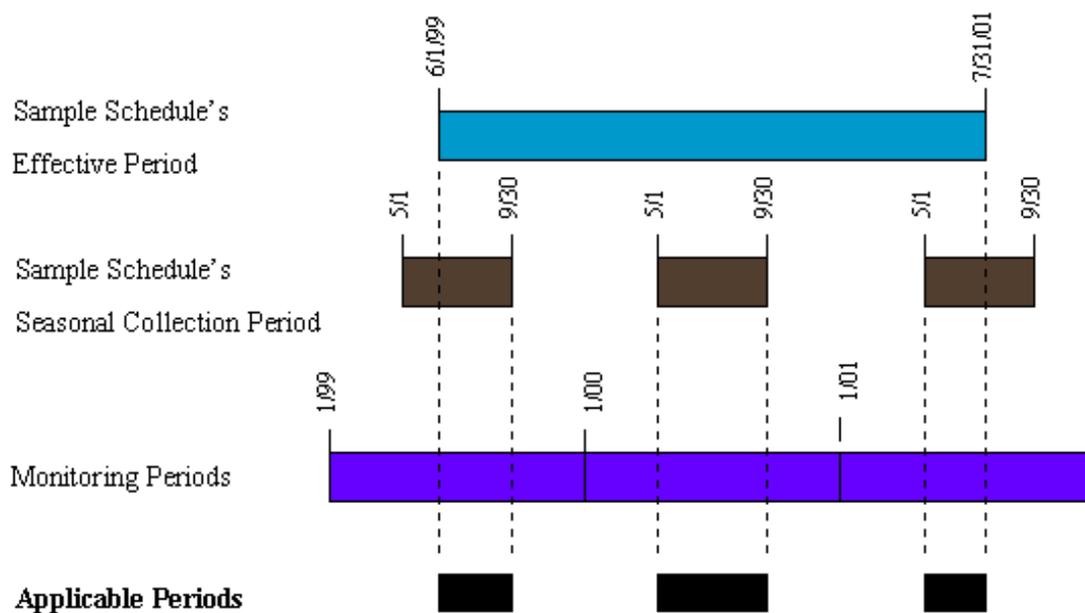


Exhibit 7-51. Understanding Applicable Periods

The user can additionally indicate that the M&R compliance check should evaluate confirmation sample schedules. If the user selects the latter, the compliance check will evaluate all confirmation sample schedules for the analyte(s) selected that have an effective end date that is between the applicable period end date range's begin date and the current date. See Subsection 7.9.3.3, Chemical/Radionuclide Confirmation M&R Compliance Check, for more extensive information about the confirmation M&R compliance check.

The Lead and Copper Tap checkbox will be removed for Release 8.0 because all Lead & Copper Rule related compliance will be handled in the Lead & Copper Rule Compliance Report. reflects the fact that the M&R compliance check for lead and copper tap samples are

~~different than those for other chemicals. The check for the lead and copper tap sample schedules is different in that it compares the schedule requirements against the Sample Summary area rather than against the individual sample area (see Section 2.1.16, Lead and Copper Tap M&R Compliance Check). The selection of the Lead and Copper Tap check-box is the trigger that informs the software to execute the Lead and Copper Tap M&R Compliance Check. The selection of the Check Compliance with Confirmation Schedules checkbox is the trigger that informs the software to execute the Chemical/Radionuclide Confirmation M&R Compliance Check.~~

This window can produce two ~~five~~ possible permutations of an M&R report:

- ~~Chemical/Radionuclide Routine M&R Compliance Check only—Either Analyte/Analyte Group is valued but the Check Compliance with Confirmation Schedules neither checkbox is not valued.~~
- ~~Chemical/Radionuclide Routine M&R Compliance Check and Chemical/Radionuclide Confirmation M&R Compliance Check—Either Analyte/Analyte Group is valued and the Check Compliance with Confirmation Schedules checkbox is valued. but the Lead and Copper Tap check-box is not valued.~~
- ~~Lead and Copper Tap M&R Compliance Check only—No value in Analyte/Analyte Group and Lead and Copper Tap check-box is valued.~~
- ~~Chemical/Radionuclide Routine M&R Compliance Check and Lead and Copper Tap M&R Compliance Check—Either Analyte/Analyte Group is valued and the Lead and Copper Tap check-box is valued, but the Check Compliance with Confirmation Schedules check-box is not valued.~~
- ~~Chemical/Radionuclide Routine M&R Compliance Check, Chemical/Radionuclide Confirmation M&R Compliance Check, and Lead and Copper Tap M&R Compliance Check—Either Analyte/Analyte Group is valued and both check boxes are valued.~~

Once processing has started, the CDS Status window will appear with its title bar reflecting the name of the selected report. The processing gauge will show users the overall percentage of M&R report processes that have completed; the smaller gauge will show the percentage of completion for each individual process, in this case Chem/RAD M&R Compliance Report. When the Report log record is inserted into the database at the time of running this report, the RTN_CMPL_CHEK_IND must be populated with a “Y” for all the combinations above ~~except the 3rd one where the analyte/analyte group is not valued and the Lead and Copper Tap check box is valued.~~

valued, Analyte Group will be set to spaces. If the user enters either analyte code (3100, 3013, or 3014), invoke exit state error message: *TCR Analytes 3100, 3013, or 3014 may not be selected for this report.*

Analyte Group Code

The user may click the **Go To** button to invoke the Analyte Group Selection List or may enter a value directly into the Analyte Group Code field. The default sort for Analyte Group Selection List will be Analyte Group Code in ascending alphabetical order. If the user enters a value in Analyte Group Code, on tabbing off the field, accept the specified analyte if it is an exact match. If the value entered is not an exact match, invoke the Analyte Group Selection List, sorted by ascending Analyte Group Code, from which the user may select an analyte group. If the user specifies a partial string in this field, display the closest matching analyte code at the top of the list. (Closest matching means a match with the Analyte Group Code, sorted alphabetically, that starts with the same text string as supplied.) If no match is possible, display the entire list of analytes groups. If Analyte Group Code is valued, Analyte Code will be set to spaces.

~~*Lead and Copper*~~

~~*Tap*~~

~~If this check-box is checked, the *Lead and Copper Tap M&R Compliance Check*, described in Section 2.1.16, runs.~~

Regulating Agency

This field will map to table TINLGENT column NAME. Its value will default to the government agency that is marked as the primacy agency as long as the user is linked to that agency. If the user is not linked to the primacy agency, its value will default to the first government agency name, in alphabetic order, to which the user is linked (also the first one available on the Regulating Agency Selection List). The user may click the **Go To** button to invoke the Regulating Agency Selection List or may enter a value directly into Regulating Agency.

- The Regulating Agency Selection List will display only those government agencies to which the user is associated.

(Developer's Note: For Legal Entities of type GA where the Government Agency is associated to the Individual [through D_USER] through INDIVIDUAL_GOVERNMENT_AGENCY_ASGT., use CDS_READ_REGULATING_AGENCY_LIST action block.)

- The default sort for Regulating Agency Selection List will be Name, in ascending alphabetical order.
- If the user enters a value in Regulating Agency, on tabbing off the field, check both for an exact match and whether the current user is associated to the specified Agency. If both criteria are met, it will retrieve the specified regulating agency.
 - If the value entered is not an exact match, invoke the Regulating Agency Selection List, sorted by ascending Name, from which the user may select a regulating agency.
 - If the user specifies a partial string in this field, display the closest matching regulating agency at the top of the list. (Closest matching means a match with the Regulating Agency Name sorted alphabetically that starts with the same text string as supplied.)

The prompt for the Regulating Agency field will be blue and underlined to indicate that this field must be specified.

Applicable Period End Date Range Group Box:

Begin Date This field will specify the begin date of the Applicable Period End Date range. A calendar function will allow the user to more easily enter dates for this field. ~~If Begin Date is entered and End Date is valued, check that Begin Date is not greater than End Date.~~

End Date This field will specify the end date of the Applicable Period End Date range. A calendar function will allow the user to more easily enter dates for this field. ~~If End Date is entered and Begin Date is valued, check that End Date is not less than Begin Date.~~

The prompt for the Applicable Period End Date Range group box will be blue and underlined to indicate that both Begin Date and End Date fields must be specified. The graphic in Exhibit 7-51 is helpful in understanding how the software treats the dates entered in these two fields.

*Check
Compliance with
Confirmation
Schedules*

This checkbox will be enabled only after the user has tabbed off either the Analyte or Analyte Group field, and a valid analyte or analyte group has been retrieved. (This requirement reflects the understanding that the *Chemical/Radionuclide Confirmation M&R Compliance Check* cannot be executed without also executing the *Chemical/Radionuclide Routine M&R Compliance Check*—which requires valuing Analyte or Analyte Group.) Conversely, if the user blanks out the Analyte or Analyte Group field, deselect the Check Compliance with Confirmation Schedules checkbox and disable it.

Tab Sequence:

Analyte Code, Analyte Group Code, ~~Lead and Copper Tap check box~~, Regulating Agency, Applicable Period End Date Range—Begin Date, Applicable Period End Date Range—End Date, Check Compliance with Confirmation Schedules checkbox, **OK** button, **Cancel** button, **Help** button.

Buttons:

OK Error messages that may be displayed upon clicking the **OK** button:

If neither an Analyte Code or an Analyte Group is selected ~~and the Lead and Copper Tap check box is not checked~~, provide the following exit state error message: *Either an Analyte or Analyte Group must be entered or the Lead and Copper Tap box must be checked.*

If the Regulating Agency field is left blank, provide the following existing error exit state message: *Regulating Agency is a required field.*

If either a Begin Date or an End Date in the Applicable Period End Date Range Group Box is left blank, provide the following existing exit state error message: *Date range is required.*

If End Date is earlier than Begin Date in the Applicable Period End Date Range Group Box, provide the following existing exit state error message: *End Date cannot be earlier than Begin Date.*

7.9.3 Processing Design Requirements

Processing for this function will involve four distinct processes:

- Clear Previous Chemical/Radionuclide M&R Candidate Violations.
- Chemical/Radionuclide Routine M&R Compliance Check.
- Chemical/Radionuclide Confirmation M&R Compliance Check.
- Create Candidate Violations.

These processes are described in Subsection 7.9.3.1 to Subsection 7.9.3.4. Appendix E-2 (Chemical/Radionuclide M&R Compliance Determination Check) provides the detailed design logic for these processes.

7.9.3.1 Clear Previous Chemical/Radionuclide M&R Candidate Violations

The Clear Previous Chemical/Radionuclide Candidate Violations process will identify those CDS Candidate Violations that satisfy the criteria entered by the user for the current run and remove them. This step will prevent the creation of duplicate CDS Candidate Violations. This step also will remove a candidate CDS violation when the information in the *CDS* entities has changed such that there is no longer a candidate violation (e.g., by the time the M&R compliance check is run a second time, results for a schedule have been entered, thus alleviating the original candidate violation).

This process will first identify all the water systems that are associated to the selected Regulating Agency (i.e., from table TINWSYS associated to TINLGENT via TINRAA). Then, using these water systems, it will delete candidate violations based on whether the user only selected compliance for routine schedules or for routine and confirmation schedules.

If the user wants to only check compliance for routine schedules, this process will delete candidate violations that were determined by previous runs of the Chemical/Radionuclide M&R Compliance Report (i.e., Report Type is equal to "MR") that are not confirmation violations (i.e., Violation Type does NOT equal 04) that have either an Analyte Code that matches the selected Analyte or Analyte Group or an Analyte Group Code that matches or is wholly contained in the selected Analyte Group and an Applicable Period End Date that is in the selected Applicable Period End Date Range.

If the user also selects the Check Compliance with Confirmation Schedules checkbox, this process will also delete candidate violations with a Violation Type of "04" that have an Analyte Code that matches the selected Analyte or Analyte Group and an Applicable Period End Date that is between the Begin Date of the selected Applicable Period End Date Range and the current date (note that the SSMPA Applicable Period End Date column in TCDSVIOL

table will contain the Sample Schedule's Effective End Date for candidate violation of type 04).

~~applies the remaining conditions selected by the user against data in the CDS reporting entities (analyte/analyte code, applicable period end date range, and confirmation schedules if checked). When data in the CDS reporting entities match the criteria, this process will delete the data, including CDS Candidate Violation records as well as related data in the CDS Sample Result, CDS Sample Summary Result, and/or CDS Sample Schedule and/or CDS Sampling Point Sub-schedule entities.~~

~~Note that neither of the above processes will delete Candidate Violation Types 53 or 56. Since these require Analyte Code 5000 rather than the analyte code specified in the sample schedule, it is impossible to determine whether or not a selected analyte resulted in the candidate violation. Therefore, it is better to leave these, even if it results in duplicate candidate violations. Even if the user does not notice the duplicates and tries to migrate them into SDWIS/STATE, the migration process will not create duplicates in SDWIS/STATE.~~

The detailed specifications for the confirmation sample schedule M&R compliance can be found in Appendix E-2 (Chemical Radionuclide M&R Compliance Determination Check).

7.9.3.2 Chemical/Radionuclide Routine M&R Compliance Check

As already described, most of the "setup" work for determining routine M&R compliance will be done by the *CDS Setup* process each day. By the time the Chemical/Radionuclide Routine M&R Compliance Check is run, *CDS Setup* will have already:

- Determined which Sample Schedules correlate to the monitoring period selected for the check and created an SSMPA record to link them; and
- Determined which results satisfy a given Sample Schedule for the selected monitoring period and related them to their corresponding SSMPA.

All that will be left for the routine M&R compliance check will be to check each Sample Schedule Monitoring Period Assignment (SSMPA) ~~sample schedules~~ that references one of the user-selected analyte(s) (through its associated Sample Schedule and Monitoring Requirement) and that references a Violation Type (through its associated Sample Schedule and Monitoring Requirement) but does not reference Violation Type 04, 27, 29, 31, 36, 37, 38, 51, 52, 53, or 56 and that references a Monitoring Requirement of periodicity equal to or longer than Monthly and has an Applicable End Date within the user-selected applicable period end date range.

First it will check to see if the SSMPA has a user-maintained Monitoring Period Average (MPAvg) associated to it. If it does, it will check to see what Violation Type is associated to the selected Sample Schedule. If it is not Violation Type "03," then, if the number of result recorded in the MPAvg is less than the number of samples called for in the schedule, it will create a candidate violation using the Violation Type associated to the Sample Schedule and populate the MNR_NUMBER_OF_SAMPLES column in the CDS_CANDIDATE_VIOLATION table with the number of result recorded in the MPAvg. Otherwise, it will move on to the next SSMPA. If the Violation Type is "03," then, if the number of results recorded in the MPAvg is zero, it will create a candidate routine major M&R violation (Type 03, Severity MJ) and populate the MNR_NUMBER_OF_SAMPLES column in the CDS_CANDIDATE_VIOLATION table with the number of result recorded in the MPAvg and moves on. If, on the other hand, the number of results recorded in the MPAvg is greater than zero but less than the number of samples called for schedule, it creates a candidate routine minor M&R violation (Type 03, Severity MN) and populates the MNR_NUMBER_OF_SAMPLES column in the CDS_CANDIDATE_VIOLATION table with the number of result recorded in the MPAvg and moves on. If neither conditions exists, that Sample Schedule has not been violated and it moves on to the next SSMPA.

If the SSMPA does not have a user-maintained Monitoring Period Average (MPAvg) associated to it, it will check compliance both at the Sampling Point Sub-Schedule level (if any sub-schedules exist for the schedule) as well as the Sample Schedule level.

If the Violation Type associated to the selected Sample Schedule is "03," the process will check to see if any Sampling Point Sub-Schedules have been violated (number of results credited to the Sampling Point are less than the number of samples called for in the Sub-Schedule). If one or more Sampling Point Sub-Schedules have been violated, it will next determine whether the candidate violation is a major or minor violation by comparing the number of results credited to the SSMPA against the number of samples called for in the Schedule. If the number of results credited to the SSMPA is zero, it will create a candidate routine major M&R violation (Type 03, Severity MJ) and populate the MNR_NUMBER_OF_SAMPLES column in the CDS_CANDIDATE_VIOLATION table with the count of the results associated with the SSMPA corresponding to the Schedule being checked (which would be zero in this case). If the number of results credited to the SSMPA is greater than zero but the total number of samples called for by the Schedule and the total number of samples called for by the Sampling Point Sub-Schedules are equal and there are no results associated to any of the Sampling Point Sub-Schedule Monitoring Period Assignments, it will create a candidate routine major M&R violation (Type 03, Severity MJ) and populate the MNR_NUMBER_OF_SAMPLES column in the CDS_CANDIDATE_VIOLATION table with the count of the results associated with the SSMPA corresponding to the Schedule being checked (even though this may be confusing to the user at first, it will be a good way to indicate that, although none of the specific sampling points were satisfied, the PWS did do some sampling). Otherwise it will create a candidate routine minor M&R violation (Type 03,

Severity MN) and populate the MNR_NUMBER_OF_SAMPLES column in the CDS_CANDIDATE_VIOLATION table with the count of the results associated with the SSMPA corresponding to the Schedule being checked. If none of the Sampling Point Sub-Schedules have been violated or there are no Sampling Point Sub-Schedules, then, if the number of results credited to the SSMPA is zero, it will create a candidate routine major M&R violation (Type 03, Severity MJ) and populate the MNR_NUMBER_OF_SAMPLES column in the CDS_CANDIDATE_VIOLATION table with the count of the results associated with the SSMPA corresponding to the Schedule being checked (which would be zero in this case). If the number of results credited to the SSMPA is greater than zero but is less than the number of samples called for in the Sample Schedule, it will create a candidate routine minor M&R violation (Type 03, Severity MN) and populate the MNR_NUMBER_OF_SAMPLES column in the CDS_CANDIDATE_VIOLATION table with the count of the results associated with the SSMPA corresponding to the Schedule being checked.

If the Violation Type associated to the selected Sample Schedule is not "03" (note that Violation Types 04, 27, 29, 31, 36, 37, 38, 51, 52, 53, and 56 have already been excluded), the process will check to see if any Sampling Point Sub-Schedules have been violated (number of results credited to the Sampling Point are less than the number of samples called for in the Sub-Schedule). If any have been violated, it will create a candidate violation using the Violation Type associated to the Sample Schedule and populate the MNR_NUMBER_OF_SAMPLES column in the CDS_CANDIDATE_VIOLATION table with the count of the results associated with the SSMPA corresponding to the Schedule being checked. If none of the Sampling Point Sub-Schedules have been violated or there are no Sampling Point Sub-Schedules, then, if the number of results credited to the SSMPA is less than the number of samples called for in the Sample Schedule, it will create a candidate violation using the Violation Type referenced by the Sample Schedule and populates the MNR_NUMBER_OF_SAMPLES column in the CDS_CANDIDATE_VIOLATION table with the count of the results associated with the SSMPA corresponding to the Schedule being checked.

However, the above logic is complicated by the fact that:

- A user can pick an Analyte Group when initiating a compliance check.
- Sample Schedules can be by Analyte Group or by single Analyte.
- The Analyte Group picked for the compliance check and the Analyte Groups used to create Sample Schedules may overlap.
- A candidate violation will be created for analyte group when the same candidate violation is determined for every analyte in the group.

Assume, for example, a user selects an analyte group named “Regulated Organic Chemicals” and this group contains all the regulated VOCs as well as all the regulated synthetic organic chemicals (SOC). Also assume that there are Sample Schedules in the database for this same Analyte Group but there are also some Sample Schedules for an Analyte Group consisting of all the regulated and unregulated VOCs (called “All VOCs”), some Sample Schedules for an Analyte Group consisting of all the SOCs included in Analytical Method 525 (called “525 SOCs”), and finally some Sample Schedules referencing one of the VOC or SOC analytes (because of a detect, for example).

If the compliance check determines that a Sample Schedule referencing the “All VOCs” analyte group had not been satisfied, the compliance check will create candidate *individual* violations for each of the analytes included in both the “Regulated Organic Chemicals” and the “All VOCs” analyte groups rather than a candidate violation for the “All VOCs” group, since this latter group references some analytes not included in the group picked by the user. Because of this, users will probably want to be careful to correlate analyte groups that they use for the M&R compliance check and those they use for Sample Schedules (e.g., if a user intends to check compliance for all *regulated* organic chemicals, then only include regulated organic chemicals in the analyte groups used for schedules, not regulated and unregulated organic chemicals).

This process and the next two processes will always ~~will only~~ run as part of the Chemical/Radionuclide M&R Compliance Report. ~~when an Analyte or Analyte Group is selected.~~ When a candidate violation is determined, it will pass the ~~At a high level, this process will do the following - for Sample Schedules that satisfy the criteria entered by the user, this process will pass the following~~ violation data to the Create Candidate Violations action block.

- ~~• A routine major monitoring violation record (Type = 03, Severity Level = MJ) when no results from routine samples collected during the monitoring period (or during the seasonal period if one is defined) exists for a routine schedule.~~
- ~~• A routine minor monitoring violation record (Type = 03, Severity Level = MN) when one or more results from routine samples collected during the monitoring period (or during the seasonal period if one is defined) exists for a routine schedule but the number of results is less than the number called for in the routine schedule, (this violation type is appropriate only if the routine schedule calls for more than one sample).~~
- ~~• A confirmation major monitoring violation record (Type = 04, Severity Level = MJ) when there are no results from confirmation samples collected during the effective period of the confirmation sample schedule.~~

- ~~A confirmation minor monitoring violation record (Type = 04, Severity Level = MN) one or more result from confirmation samples collected during the effective period of the confirmation sample schedule exists, but the number of results is less than the number called for in the confirmation schedule (this violation type is appropriate only if the confirmation schedule calls for more than one sample).~~
- ~~An Initial Water Quality Parameters (WQPS) M&R violation (Type = 53) when there are fewer samples with results than the number of samples required by an initial WQPS Monitoring schedule (see Section 2.1.16 for a discussion concerning the initial WQPS monitoring requirement).~~
- ~~A Follow-Up or Routine Entry Point WQPS M&R violation (Type = 53) when there are fewer samples with results than the number of samples required by a Follow-Up or Routine Entry Point WQPS Monitoring schedule (see Section 2.1.16 for a discussion concerning the Follow-Up or Routine Entry Point WQPS Monitoring requirement).~~
- ~~A Follow-Up or Routine Tap WQPS violation (Type = 53) when there are fewer samples with results than the number of samples required by a Follow-Up or Routine Tap WQPS Monitoring schedule (see Section 2.1.16 for a discussion concerning the Follow-Up or Routine Tap WQPS Monitoring requirement).~~
- ~~An Initial/Follow-Up/Routine Source Water M&R violation (Type = 56) when there are fewer samples with results than the number of samples required by an Initial/Follow-Up/Routine Source Water Monitoring schedule (see Section 2.1.16 for a discussion concerning the Initial/Follow-Up/Routine Source Water Monitoring requirement).~~

Populate the CDS_CANDIDATE_VIOLATION table MNR_NUMBER_OF_SAMPLES column with the count of the samples associated with the SSMPA corresponding to the Schedule being checked.

7.9.3.3 Chemical/Radionuclide Confirmation M&R Compliance Check

Determining M&R compliance for confirmation sample schedules requires a different approach than described above for routine sample schedules. Determining compliance for a confirmation schedule is really independent of the monitoring period for its associated routine sample. That is to say, a confirmation schedule has a distinct monitoring period from that of the routine sample result that triggered it. However, because compliance with confirmation schedules is in many instances less important than compliance with routine schedules (most times, the Public Water System owner has the *option* of collecting a confirmation sample but is not required to do so), and because the frequency of confirmation schedules is much less than the frequency of routine schedules, it is not desirable to make the user invoke the confirmation

compliance check separately from the routine compliance check. Therefore, the confirmation compliance check will run at the same time as the routine check. However, the confirmation compliance check will run only if the user indicates that he wants it to run (some users have indicated that they rarely, if ever, want to determine compliance with confirmation schedules).

If a user indicates that he wants to check compliance for confirmation schedules, then the Chemical/Radionuclide will identify all confirmation schedules that have ended sometime within the start of the specified applicable period end date range and the current date specified by the user. One of two things will prevent the process from determining a candidate M&R violation for a confirmation schedule, either:

- An appropriate number of confirmation samples have been collected in the time frame specified by the sample schedule, or
- The user has indicated that the confirmation sample schedule has already been addressed.

~~A user will probably want to indicate that a confirmation schedule has been addressed whenever a violation has been entered based on it, or the user has decided not to issue a violation even though the appropriate number of confirmation samples have not been collected on time. If a user does not mark a confirmation schedule as assessed in these circumstances, it will result in the creation of a candidate violation for the schedule every time the user runs confirmation compliance for a monitoring period that begins before the end date of the schedule.~~

~~Note that, if a Confirmation Sample Schedule in entity CDS Candidate Schedule is marked as assessed, and a CDS Candidate Violation was previously created for it and still exists, this process will delete the candidate violation; the *Chemical/Radionuclide Confirmation M&R Compliance Check* process will not re-create it. Users should mark only a confirmation Sample Schedule as assessed after they have elected to migrate a CDS Candidate Violation to the actual SDWIS/STATE violation table (TMNVIOL) as a potential or validated violation.~~

See Appendix E-2 (Chemical Radionuclide M&R Compliance Determination Check) for the detailed specifications for the confirmation sample schedule M&R compliance process.

7.9.3.4 Create Candidate Violations

This process will take the information passed to it by either the *Chemical/Radionuclide Routine M&R Compliance Check* or the *Chemical/Radionuclide Confirmation M&R Compliance Check* processes and create records in CDS Candidate Violation as shown in Appendix E-2 (Chemical Radionuclide M&R Compliance Determination Check).

7.9.4 Report (Output) Requirements

At the conclusion of the *Chemical/Radionuclide M&R Compliance Report* and the ~~*Lead and Copper Tap Compliance Report*~~, an MS Access report will be invoked and displayed. The MS Access report and supporting queries will be in an MS Access database called CDSRPTS.MDB in the C:\SDWIS\CDS subdirectory of the client machine. Although this MS Access database will not have a menu driven system (all of its reports will be invoked from within the SDWIS/STATE application), users will be able to open it and modify the queries and/or reports if desired. However, users will need to retain the original report names in order for the reports to be invoked from the SDWIS/STATE application. (The report names need to be hard-coded in order to automatically launch them at the conclusion of the processing). As with other SDWIS/STATE MS Access-based components that target SDWIS/STATE Oracle tables, CDSRPTS.MDB will use Open Data Base Connectivity (ODBC) to link to the Oracle CDS reporting entities.

For every CDS candidate M&R violation, there will be a child record in CDS Candidate Schedule that is a copy of the Sample Schedule that was not fully satisfied. Then, depending on whether some samples or no samples were collected (and, of course, entered into SDWIS/STATE), there may be child records in either the CDS Sample Result or the CDS Summary Result entities for each CDS candidate M&R violation.

Since two ~~five~~ possible combinations of processes can run from this window, two ~~five~~ separate reports will be developed. The two ~~five~~ combinations that require separate reports are:

- *Chemical/Radionuclide Routine M&R Compliance Check* will be the only process that runs (either Analyte/Analyte Group is valued but the Check Compliance with Confirmation Schedules checkbox is not valued ~~neither check-box is valued~~).
- *Chemical/Radionuclide Routine M&R Compliance Check* and *Chemical/Radionuclide Confirmation M&R Compliance Check* processes will run (either Analyte/Analyte Group is valued and the Check Compliance with Confirmation Schedules checkbox is valued, ~~but the Lead and Copper Tap check-box is not valued~~).
- ~~*Lead and Copper Tap M&R Compliance Check* is the only process that runs (no value in Analyte/Analyte Group and Lead and Copper Tap check-box is valued).~~
- ~~*Chemical/Radionuclide Routine M&R Compliance Check* and *Lead and Copper Tap M&R Compliance Check* both run (either Analyte/Analyte Group is valued and the Lead and Copper Tap check-box is valued, ~~but the Check Compliance with Confirmation Schedules check-box is not valued~~).~~

- ~~Chemical/Radionuclide Routine M&R Compliance Check, Chemical/Radionuclide Confirmation M&R Compliance Check, and Lead and Copper Tap M&R Compliance Check~~ all run (either Analyte/Analyte Group is valued and both check-boxes are valued).

Both ~~All five~~ reports will include a sub-report that will display records created in the CDS Report Error Log entity during the run. If no records are created in this entity, the sub-report will say that as well.

This function also will create a *CDS Report* Execution log record each time it is run.

7.10 Lead and Copper Rule Compliance Report

Presentation Type 2: The information in this section reflects a Release 8.0 update to an existing documented design. As such, normal text means no change from the current 7.0 release; redline/redline strikeout indicates where the functionality of an existing object (such as a field, button, menu item, etc.) has changed or where new functionality has been added for Release 8.0.

Users need to periodically determine which water systems have collected the required number of samples (and reported valid results) during a required period of time and which water systems have had a result outside a prescribed limit. The Lead & Copper Rule Compliance Report satisfies this requirement for all the Lead & Copper Rule monitoring requirements (i.e., lead and copper tap, WQP tap, WQP entry point and source water monitoring) and for two of its treatment technique requirements (i.e., WQP entry point, tap limits, and source water limits). In addition, it will enable compliance officers to identify action level exceedence by incorporating a pre-set, Results Alert Report.

This new report brings together three processes from Release 7.0 and adds two new ones:

- the existing *Lead & Copper Rule (LCR) Tap M&R Compliance Check* process;
- the existing *LCR Source Water M&R Compliance Check* process;
- the existing *LCR Action Level Compliance Check* process (actually this is the Result Alert Report preset to identify any L&C Sample Summaries that exceed an action level);
- the new *WQP Entry Point and Tap M&R Compliance Check* process; and
- the new *WQP Entry Point and Tap Treatment Technique Compliance Check* process

For each candidate violation identified, this component will create a candidate violation in the CDS_CANDIDATE_VIOLATION entity. For each action level exceedence identified, it will create a candidate exceedence in the CDS_CANDIDATE_EXCEEDENCE entity. The user can then review these candidate violations and exceedence and determine the appropriate

course of action. Appropriate courses of action might include checking with the laboratory or the water system owner about a missing sample, sending a reminder letter to the owner, issuing a violation notice, rejecting the candidate violation, creating a violation in the SDWIS/STATE database, putting the system on a compliance schedule to satisfy the treatment steps under LCR, etc.

7.10.1 Model Changes for Lead and Copper Rule Compliance Report

To satisfy the general requirement to store the output of the *Lead and Copper Rule Compliance Check*, the following previously described *CDS* reporting entities will be required: CDS_CANDIDATE_EXCEEDENC (new to this report), CDS_SAMPLE_RESULT, CDS_SAMPLE_SUMMARY_RESULT, CDS_CANDIDATE_SCHEDULE, and CDS_CANDIDATE_VIOLATION, each of which has already been discussed. See Appendix A for the structure of each of the *CDS* entities. The tables that these entities become will be accessible via an MS Access database.

Because Water System Facility is now a mandatory part of a LCR Summary, the following additional attributes will be added to CDS_SAMPLE_SUMMARY_RESULT:

- WSF_TINWSF_IS_NO.
- WSF_TINWSF_ST_CO.
- WSF_ACTIV_STAT_CD.
- WSF_STATUS_DATE.
- WSF_AVAIL_CD.
- WSF_NAME.
- WSF_STATE_ASGN_ID.
- WSF_EX_SYS_NO.
- WSF_TYPE_CODE.
- WSF_WATER_TYP_CD.
- SSM_DATE_RECEIVED.

In addition, these attributes will be added to CDS_SAMPLE_RESULT:

- SP_ACTIV_STAT_CD.
- SP_STATUS_DATE.
- WSF_ACTIV_STAT_CD.

7.10.2 GUI Entry Window Design Requirements

The *Lead and Copper Rule Compliance Report Selection* window (Exhibit 7-53) will be used to initiate the Lead and Copper Rule (LCR) Compliance Report. To initiate this report, from the *Monitoring and Noncompliance* main menu, the user will select **Edit/Compliance Decision**

This report process will produce an MS Access report that will consist of up to six sub-reports: one for each unique type of candidate failure, i.e., action level exceedence, lead & copper tap monitoring failure, WQP treatment technique failure, WQP monitoring failure, source water treatment technique failure or source water monitoring failure. The user will specify three levels of sorting that will be used within each sub-report using any combination of these fields:

- Water System Number (ascending only),
- Water System Name (ascending only),
- Violation Type (ascending or descending), and
- Monitoring Period (ascending or descending based on the monitoring period begin date).

For the sub-report of action level exceedence, the “violation type” will be applied to the type of action level exceedence (i.e., PB90 or CU90) since there is not a violation type associated with these.

Entry Fields:

Please select at least one group box:

User may specify one or more reports to run.

Action Level

Compliance Check Selecting this checkbox will cause the Action Level Compliance Check report processes to run as described in Subsection 7.10.3.2.

Tap M&R

Compliance Check Selecting this checkbox will cause the Tap M&R Compliance Check report processes to run as described in Subsection 7.10.3.3.

WQP TT and M&R

Compliance Check Selecting this checkbox will cause the WQP Treatment Technique and M&R Compliance Check processes to run as described in Subsection 7.10.3.4.

Source Water TT and

M&R Compliance

Check

Selecting this checkbox will cause the Source Water Treatment Technique and M&R Compliance Check processes to run as described in Subsection 7.10.3.5.

Regulating Agency This field will map to table TINLGENT column NAME. Its value will default to the regulating agency that is marked as the primacy agency as long as the user is linked to that agency. If the user is not linked to the primacy agency, its value defaults to the first regulating agency name, in alphabetic order, to which the user is linked (also the first one available on the Regulating Agency Selection List). The user may click the **Go To** button to invoke the Regulating Agency Selection List or may enter a value directly into Regulating Agency.

- The Regulating Agency Selection List will display only those regulating agencies to which the user is associated.

(Developer's Note: For Legal Entities of type GA where the Government Agency is associated to the Individual [through D_USER] through INDIVIDUAL_GOVERNMENT_AGENCY_ASGT., use CDS_READ_REGULATING_AGENCY_LIST action block.)

Applicable Period End Date Range Group Box:

| *[Lower Date]* This field will specify the begin date of the Applicable Period End Date range. A calendar function will allow the user to more easily enter dates for this field. ~~If Begin Date is entered and End Date is valued, check that Begin Date is not greater than End Date.~~

| *[Upper Date]* This field will specify the end date of the Applicable Period End Date range. A calendar function will allow the user to more easily enter dates for this field. ~~If End Date is entered and Begin Date is valued, check that End Date is not less than Begin Date.~~

| The Applicable Period End Date Range Group Box is blue and underlined to indicate that both Begin Date and End Date fields must be specified. The graphic in Exhibit 7-52, Subsection 7.9, is helpful in understanding how the software treats the dates entered in these two fields.

Tab Sequence:

| Action Level Compliance Check checkbox, Tap M&R Compliance Check checkbox, WQP TT and M&R Compliance Check checkbox, Source Water TT and M&R Compliance Check checkbox, Regulating Agency, Regulating Agency **Go To** button, Applicable Period End Date

Range [Lower Date], Applicable Period End Date Range [Upper Date], **OK** button, **Cancel** button, **Help** button.

Buttons:

Regulating
Agency **Go To**

The user may use the **Go To** button to display the Regulating Agency Selection List. Return the cursor to the [Lower Date] field.

(Developer's Note: Use the existing EBS_C_LGL_ENT_SELECT_LIST and EBS_S_COMMON_LEGAL_ENTITY procedure.)

OK

Error messages that may be displayed upon clicking the **OK** button:

- If Regulating Agency field is left blank, provide the following existing exit state error message: **Regulating Agency is a required field.**
- If either a Begin Date or an End Date in the Applicable Period End Date Range Group Box is left blank, provide the following existing exit state error message: **Date range is required.** Return the cursor to [Lower Date].
- If both dates are valued but the date in [Lower Date] is after date in [Upper Date] invoke existing exit state error message: **Date range specified is invalid.** Return the cursor to [Lower Date].
- If at least one of the compliance checkboxes is not checked, invoke the following existing exit state error message: **Must specify type of Compliance Check to run this report.**

Cancel

When the user presses this button, the software will disregard any data entered and return the user to the *Monitoring and Noncompliance* main menu.

Help

Pressing this button will invoke online Help for this window.

7.10.3 Processing Design Requirements

The Processing Design Requirements function will involve nine distinct processes:

- *Clear Previous Candidate Violations and Exceedence.*
- *Lead & Copper Action Level Exceedence Check.*
- *LCR Tap M&R Compliance Check.*
- *LCR WQP M&R(Distribution System) Compliance Check.*
- *LCR WQP M&R Biweekly Schedule Compliance Check.*
- *LCR WQP Treatment Technique Level Check.*
- *LCR Source Water Monitoring Check.*
- *LCR MPL Source Water Treatment Check.*
- *Create Candidate Violations.*

The first process, which will clear previously created candidate records that fall into the period and are associated with water systems that are regulated by the user-specified Regulating Agency, may be incorporated as a sub-process within each of the other eight processes if this proves to be a more efficient way of accomplishing this task. The general requirements for it, however, will be presented in Subsection 7.10.3.1.

7.10.3.1 Clear Previous LCR Candidate Violations and Exceedence.

The *Clear Previous LCR Candidate Violations and Exceedence* process identifies those CDS candidate violations that satisfy the criteria entered by the user for the current run and removes them prior to executing the report using the same criteria. This process serves two purposes:

- Prevents the creation of duplicate *CDS* candidate violations and exceedence.
- Removes old and possibly no longer valid *CDS* candidate violations and exceedence in the event that they are not recreated when the report is rerun due to the presence of changed information in the database (e.g., by the time the M&R compliance check is run a second time, results for a schedule have been entered, thus alleviating an original *CDS* candidate M&R violation).

To accomplish the above, this process will first identify all the water systems in the *CDS* entities that are associated to the selected Regulating Agency. Then, using these water systems and based on the compliance checks selected, it will identify corresponding lead and copper candidate violations and exceedence as follows:

- If the *Lead & Copper Action Level Exceedence Check* has been selected, it will identify and remove CDS Candidate Exceedence for PB90 and CU90.

- If the *LCR Tap M&R Compliance Check* is selected, it will identify and remove candidate type 51 and 52 violations.
- If the *LCR WQP TT and M&R Compliance Check* is selected, it will identify and remove candidate type 53 and 59 violations.
- If the *LCR Source Water TT and M&R Compliance Check* is selected, it will identify and remove candidate type 56 and 63 violations.

The detailed specifications for this process can be found in Appendix E.3 (Lead & Copper Compliance Report Processes).

7.10.3.2 LCR Action Level Exceedence Compliance Check

The *LCR Action Level Exceedence Check* process compares results in the SAMPLE_SUMMARY_RESULT entity against the action levels for lead and copper. Namely, it will check Sample Summary Results for Analytes PB90, 1030, CU90, and 1022 for 90th percentile records (i.e., Type Code in Sample Summary Result is equal to “90”). Beginning with Release 8.0, lead and copper 90th percentile sample summaries will be migrated in using only analyte codes PB90 and CU90; however, this process will be designed to check for all four analyte codes to accommodate any historical data. This process will borrow significantly from the Results Alert Report process called *Action Level Exceedence Check* but will be different in that it will hard-coded some of the criteria that, in the Results Alert Report are user-selected.

In particular, this process will check those Sample Summaries that are associated to a Water System that is regulated by the user-selected Regulating Agency and that are for a Monitoring Period that falls in the user-selected period (actually it uses the Applicable Period End Date recorded in the SSMPA) where the Sample Summary is marked as “for compliance” and references either analyte code PB90, CU90, 1030, and 1022 and where the referenced Sample Summary Result is a 90th percentile result (TYPE_CODE = “90”) with a data quality of “accepted” or “validated.”

The process will then check the Sample Summary Result of each selected Sample Summary against the Action Levels stored in Analyte Level for lead (1030) and copper (1022), first converting the result to the same UOM as the Action Level (though lead and copper 90th percentiles calculated by CDS Setup and entered online will have mg/l as their UOM, those migrated in using *Migration to SDWIS/STATE* may not). If the UOM for a summary result cannot be converted (e.g., pci/l cannot be converted to mg/l), the process will send an error message to the CDS Report Error Log identifying the summary result that could not be converted and stating that its unit of measure could not be converted.

For each summary result that exceeds an action level, the process will pass the data to the *Create Candidate Exceedence* process described in the Results Alert Report section (Subsection 7.8).

The detailed design specification for this process is contained in Appendix E.3 (Lead & Copper Compliance Report Processes).

7.10.3.3 LCR Tap M&R Compliance Check

The process that determines candidate tap M&R violations (violation types 51 and 52) is conceptually the same as the *Chemical/Radionuclide Routine M&R Compliance Check* but with the following differences:

- Instead of checking schedules against sample analytical results (which are stored in Sample Analytical Results (table TSASAR)), this process will check against results in the Sample Summary Result (table TSASSR) and will be limited to 90th percentile summary results for analytes PB90, CU90, 1030, and 1022.
- For states that only enter lead and copper results as individual sample analytical results, this process will depend on the Lead and Copper 90th Percentile Aggregation. For states that enter PB90 and CU90 results as Sample Summary/Summary Results, this compliance check will not be dependent on the aggregation process.
- This process will compare 90th percentile summary results that are linked to a Water System Facility against Sample Schedules that are linked to the same Water System Facility for Analyte Codes 1022 and 1030, comparing 90th percentile summary results for CU90 or 1022 against the first and those for PB90 or 1030 against the second.

This process will run only when the user selects the [LCR] Tap M&R Compliance Check checkbox on the Lead & Copper Rule Compliance Report Selection window. This process will create the following *CDS* candidate violations in the following circumstances:

- An Initial PB/CU Tap M&R violation (Type = 51) for Analyte Code 5000 when there is either no Sample Summary associated to the SSMPA for a Initial PB/CU Tap Sample Schedule (Violation Type associated to the Sample Schedule = 51 ~~Sample Type = IN~~ and Analyte Code equals 1030 or 1022) or the Sample Summary Result Sample Count for Sample Summary associated to the SSMPA is less than the number of samples required by an Initial PB/CU Tap Monitoring schedule or the collection period for the Sample Summary falls outside of the specified Seasonal Period for the Sample Schedule.

- A Follow-up or Routine Tap M&R violation (Type = 52) for Analyte Code 5000 when there is either no Sample Summary associated to the SSMPA for a Follow-up or Routine Tap Sample Schedule (Violation Type associated to the Sample Schedule = 52 ~~Sample Type = FR~~ and Analyte Code equals 1030 or 1022) or the Sample Summary Result Sample Count for Sample Summary associated to the SSMPA is less than the number of samples required by a Follow-up or Routine Tap Sample Schedule or the collection period for the Sample Summary falls outside of the specified Seasonal Period for the Sample Schedule.

This process will only create one candidate violation if the schedule violated references an Analyte Group that only has lead and copper in it. The candidate violation will have "5000" as its analyte code.

However, if the user enters Sample Schedules for lead and copper tap water sampling without using an Analyte Group and these Sample Schedules are for the same Water System Facility, the same Monitoring Period, the same Violation Type ~~Sample Type (IN or FR)~~, and the Public Water System owner fails to satisfy either Sample Schedule, then this process will create two CDS candidate violations for the same Monitoring Period and Water System Facility with the same violation type—an undesirable outcome. Of course, if the user chooses to migrate both into SDWIS/STATE, only one violation will actually be created. The second will be considered a duplicate and will not be created in TMNVIOL.

In addition to the data already passed to the Create Candidate Violation Process, the following information will be passed:

- From the Water System Facility associated to the Sample Summary—pass the data in STATE_ASGN_IDENTIFICATION_CODE, NAME, TINWSF_IS_NUMBER, and WSF_TINWSF_ST_CODE attributes in Water System Facility to the WSF_STATE_ASGN_ID, WSF_NAME, WSF_TINWSF_IS_NUMBER, and WSF_TINWSF_ST_CODE attributes in CDS_SAMPLE_SUMMARY_RESULT entity.

(Developer's Note: A Sample Summary is not always involved, in which case these would not be valued).

- From Sample Summary—Summary Received Date to CDS Sample Summary Result—SSM_DATE_RECEIVED.

In addition, this process will set the new VIOL_VP_BEGIN_DATE in CDS_CANDIDATE_VIOLATION to the Applicable Period End Date plus one day (this is the Applicable Period End Date from the current SSMPA). What this means is that, for candidate, type 52 violations, the Compliance Period will be the full Monitoring Period (e.g., 1/1/CCYY - 12/31/CCYY), but the Violation Period Begin Date will be 10/1/CCYY (unless the system

additionally closes for the season sometime between June 1 and September 30, in which case it will be equal to the close date plus one), reflecting the first day after the end of the time period during which the monitoring was to be completed.

7.10.3.4 LCR WQP TT and M&R Compliance Check

The LCR WQP TT and M&R Compliance Check is the most complex of the compliance checks in the LCR Compliance Report. It determines compliance in accordance with the Lead & Copper Rule Minor Revisions (LCRMR). The following well defines the method for determining compliance with the optimal water quality control parameter requirements. It is taken from EPA's *Compliance with OWQPs as Revised by LCRMR*, dated February 2001.

- **Compliance determinations are always based on a 6-month period**, regardless of the system's monitoring schedule (e.g., daily, biweekly, semi-annually, annually, triennially) or whether the WQP results are from an entry point or the distribution system [see §141.82(g)]. The start of the first 6-month period begins on the day the State has designated Optimal Water Quality Parameters (OWQP), however, to make tracking easier, the start of the first 6-month compliance period can be either January first or July first.
- **Systems cannot be outside the OWQP ranges or below the OWQP minimum for more than a total of 9 days** at a specific sampling point or combination of sampling points, or for a specific WQP or combination of WQPs during a 6-month period. The 9 days can occur anytime during the 6-month period and do not have to be consecutive. Nine days was selected because this number represents five percent of the total number of days in a 6-month period. Thus, a system must meet its OWQP specifications at least 95 percent of the time. The 9 days also allow systems to make necessary repairs that may be causing the system to not meet its OWQP specifications [see §141.82(g)].
- **Confirmation samples are no longer used.** The results of all WQP samples collected during the 6-month period at a sampling location that is used for OWQP compliance must be reported to the State by the system and used in determining compliance. However, States have discretion to delete results of obvious sampling errors from this calculation [see §141.87(f)].

The LCRMR introduces two new terms, "daily value" and "excursion" with which States and water systems need to become familiar to fully understand the new compliance procedure.

7.10.3.4.1 Daily Value

A “daily value” will be calculated for each WQP at each sampling point. The procedure for determining the daily value is based on the sampling frequency for that WQP and sampling point.

It is quite possible for a water system to collect several samples a day for a given WQP at one sampling point and to conduct annual monitoring at another. Although the term “daily values” contains the word “daily”, in many instances, the daily value represents a measurement that was collected more or less frequently than once per day. The table shown in Exhibit 7-54 explains how to calculate the daily value based on the sampling frequency for a given WQP.

Note: A daily value is calculated for each sampling point and for each parameter, even if no monitoring occurred at a sampling point during the 6-month period being evaluated. This occurs when a system is on an annual or triennial WQP tap monitoring schedule (see example below).

Daily Value Calculation Based on Monitoring Frequency	
<i>If a system is monitoring for a specific WQP at a sampling site:</i>	<i>Then the daily value is:</i>
For frequently than daily	Calculated by averaging all the results measured at the sampling location for that WQP during the day. If both continuous monitoring results and grab samples are collected on the same day, both must be included in the calculation of the daily value. States can specify the frequency with which continuous monitoring results should be recorded. A State can also require systems to determine the “daily value” using another formula when they monitor more frequently than daily at the same sampling location. If a State elects to use a different calculation than that specified in the federal rule, it must describe the procedure in its revised primacy package [see §141.82(g)(1) and §142.16(d)(1)(ii)]. Systems should check with their States regarding the frequency of recording values and procedures for aggregating results.
Daily	Results of each daily sample for that WQP at that location.
Biweekly	Results of each sample collected during the 2-week period for that WQP at that location.
Semi-annually	Results of each sample collected during the 6-month period for that WQP at that location.
Annually or Triennially	<p>The most recent measurement(s) taken, even if the measurement(s) was (were) collected during a previous monitoring period.</p> <p>Example: A system is on annual WQP tap monitoring during January -December 2000. It measures pH at the tap on January 10, 2000 (pH = 7.5) and June 20, 2000 (pH = 7.6). For the 6-month period of January to June 2000, there are two daily values because both measurements were collected during the 6-month period being evaluated. For the 6-month period of July to December 2000, only the most recent value of 7.6 is used.</p>

Exhibit 7-54. Daily Value Calculation Chart

7.10.3.4.2 Excursion

The second new term is an “excursion.” An excursion is any “daily value” for a WQP that is below the minimum value or outside the range of OWQPs set by the State. The duration of an excursion is the number of days that elapse starting with the day the excursion first occurs, until the day the daily value is within the OWQP range or above the OWQP minimum for that WQP. These dates are based on the date the system *collected* the sample, not the date the system received the sample results. To determine the duration of the excursion:

- *Count the first day that the sample is outside the OWQP range or below the minimum. Use the date that the sample was collected and not the day the system or State received the results.*
- *Stop counting days when a sample result from the same location and for the same parameter meets the OWQP range, or is at or above the minimum value. Do not count the day the sample falls within the OWQP range, or is at or above the minimum value in the calculation.*

For example, assume a water system measures entry point pH on a Monday and the results are below the State-set minimum. If the system again measures pH at the same entry point on the next day and the Tuesday daily value is within the State-set limits, the system will have had a one-day excursion. If, on the other hand, the system waits until Friday to measure pH at the same entry point and this Friday measurement is within the State-set limits, the system will have an excursion with a duration of 4 days (i.e., the system was outside the pH range for Monday, Tuesday, Wednesday, and Thursday).

- *Repeat this procedure any time a measurement does not meet the OWQP specifications during the 6-month period being evaluated.*

To determine if a system is in compliance, count the total number of days that a system had an excursion for each sampling location and for each WQP. Multiple excursions that occur on the same day are counted only once. For example, if the system had an excursion for pH and alkalinity on the same day, this will count as only one excursion. To remain in compliance, a system cannot have excursions on more than 9 different days at a specific sampling point or combination of sampling points, or for a specific WQP or combination of WQPs during a 6-month period [see §141.82(g)].

The 9 days can occur anytime during the 6-month period and do not have to be consecutive. Thus, a system that had excursions for pH at sampling point 1 for 4 days and excursions for pH at sampling point 2 on 6 different days would be out of compliance.

7.10.3.4.3 Other Points to Keep in Mind

As implementers of the Lead and Copper Rule know, it is necessary to keep several other points in mind.

Unresolved Excursions from a Previous Monitoring Period

Although compliance is determined in discrete 6-month periods, an unresolved excursion from a previous monitoring period may count in the next 6-month monitoring period. This is because an excursion continues until:

- The system collects a sample at the same sampling location and for the same WQP that again is within the OWQP range, or is at or above the OWQP minimum, or
- The system is at or below both action levels and is no longer required to collect WQPs. Small and medium-size systems (i.e., ones that serve 50,000 or fewer people) that no longer exceed the lead or copper action level, and systems that meet the criteria under §141.81(b)(3) are not required to collect WQP samples.

To illustrate these points, one can assume a water system that is below the OWQP pH minimum of 7.0 at its one tap sampling point on June 25, 2001. This excursion continues until the water system again monitors pH at its tap sampling point and the result is at or above the minimum of 7.0. Assume that the system does not collect another pH sample that is above the pH minimum until July 3, 2001. How should this excursion be counted?

During the January to June 2001 compliance period, the system had a 6-day excursion. The excursion began on June 25th and continued to the end of the 6-month monitoring period of June 30th, for a total of 6 days. During the July to December 2001 compliance period, the system had a 2-day excursion. The excursion will be counted from the beginning of the July to December compliance period (i.e., July 1st) and will end when the system again is above the pH minimum at the tap sampling point (or July 3rd in this example). The day that the system is above the minimum will not count. Therefore, the system will have an excursion on both July 1st and July 2nd.

A slight variation on the above scenario can be assumed. The water system is below the OWQP pH minimum of 7.0 at its one tap sampling point on June 25, 2001. However, the system conducts lead and copper tap monitoring on July 3rd and is below both action levels. The system serves 50,000 or fewer people and is not required to conduct WQP monitoring during July through December 2001. How should this excursion be counted?

For the compliance period of January to June 2001, the system has a 6-day excursion. For the compliance period of July through December 2001, the system has 2 days with excursions. On

July 3rd, the requirement to conduct WQP monitoring will no longer apply (unless the State requires the system to continue); therefore, the system will incur no additional excursions.

Note: The LCRMR contains a provision that allows states to require continued WQP monitoring even after a small or medium-size system is at or below both action levels, should the state believe this monitoring is needed to insure adequate process control. If the system did not collect its lead and copper tap sample until July 10th or later, it would be out of compliance with its OWQPs because it would have more than 9 days with excursions. If in the future, the system again exceeds the lead or copper action level and is required to collect WQP monitoring, the unresolved excursion will not be considered. An unresolved excursion from a previous monitoring period is not considered for a small or medium-size system if the 6-month period being evaluated was preceded by a 6-month OWQP compliance period in which the system was not required to conduct WQP monitoring because the system was at or below the lead and copper action levels. *This is the only instance in which an unresolved excursion from a previous monitoring period will not be considered.*

Seasonal Systems

For NTNCWSs that are closed for a portion of the year, the months that the system is not open/not providing water should not be counted when counting the number of days with excursions.

Systems with Multiple Treatment Plants

If a system has multiple treatment plants with different OWQP specifications and the plants are not interconnected, the plants should be treated as separate systems for the purpose of assessing compliance with OWQPs. One can assume that a system has two treatment plants. Excursions that exist at Treatment Plant 1 would be considered separately from any excursions that occur at Treatment Plant 2. Thus, if the system had 4 days during a 6-month period with excursions at Treatment Plant 1 and 4 days with excursions at Treatment Plant 2 during the same 6-month period, the system would be in compliance because it would not have exceeded the 9-day excursion limit.

This process will support compliance determination for the WQP requirements in two ways. For those who want enter summaries of monitoring conducted for a given six-month monitoring period can do so. This process will then use the summary to determine compliance. On the other hand, those who wish to enter individual results of WQP monitoring can likewise rely on this compliance check.

7.10.3.4.4 LCR WQP TT and M&R Compliance

To determine compliance for LCR WQP TT and M&R, the software will do the following:

- First, it identifies every water system that is regulated by the Regulating Agency selected. It will then identify the calendar 6-month period(s) that fall in the Applicable Period End Date Range selected (so, for example, if a user picked an Applicable Period End Date Range of 10/1/2002 - 12/31/2002, the process would determine compliance for the 6-month period that runs from July 1, 2002 to December 31, 2002).
- The process will next evaluate compliance with the WQP monitoring requirements and then evaluates compliance with the WQP treatment technique requirements. It will know which systems to check for M&R compliance by virtue of the existence of a Sample Schedule that references Violation Type 53 (note that the process is not currently designed to work with violation types 54 and 55). For treatment technique compliance, the process will assess those water system facilities that have a Facility Analyte Level record associated to a "Level" Violation Type equal to 59 (note that the process is not currently designed to work with violation type 60).

If at any point during the compliance check for M&R compliance the process identifies a candidate violation, it will cease evaluating that WS and MP for M&R compliance and move to evaluating the same WS and MP relative to treatment technique compliance. The process will then assess M&R compliance in the following order:

- It will assess compliance with WQP monitoring requirements in the **distribution system**. If no candidate M&R violations are found,
- It will assess compliance with the WQP monitoring requirements for entry points, **one entry point at a time**. If no candidate M&R violations are found while assessing the schedule for a given entry point, it will go to the next entry point or ends if there are no more entry point schedules.

In other words, it will not look to see if the system failed to do any other WQP monitoring. So, if a water system failed to properly monitor its distribution system and entry points for OWQP, the software would only identify one of the failures. The design could be written to identify every failure, however, the user would then need to properly package violations so that only one of each type would be reported to SDWIS/FED for a given Water System and Monitoring Period.

The detailed design specification for this process is contained in Appendix E.3 (Lead & Copper Compliance Report Processes).

7.10.3.4.5 LCR Source Water TT and M&R Compliance Check

The process that determines candidate source water monitoring violations (violation type 56) will use the same logic as the *Chemical/Radionuclide Routine M&R Compliance Check* except it will look for Sample Schedules that reference violation type 56.

The process that determines candidate maximum permissible level violations (i.e., violation type 63) will use the same logic as the Assess Chemical/Radionuclide MCL Compliance but, instead of comparing the MCL Value against an Analyte Level, it will compare it against the Facility Analyte Level for the contaminant that references violation type 63. When creating the candidate violation, in addition to populating the Compliance Period with the monitoring period referenced by the SSMPA, it will also value the Violation Period Begin Date with the current date. (EPA guidance says, “The violation begin date is the day you determine an MPL exceedence occurred.”)

7.11 Surface Water Treatment Compliance Report

The Surface Water Treatment (SWT) Compliance Report window (Exhibit 7-55) lets users check compliance for a water system’s Surface Water Treatment M&R and level requirements. Level compliance involves exceedence of a level which includes both creation of candidate treatment technique violations as well as advisories to compliance officers when compliance calculations cannot be completed. The information in this section assumes that the user has read and has a good understanding of how SDWIS/STATE proposes to maintain MDBP summaries in support of the Surface Water Treatment Rule, as described in section 5.1 of this document.

Presentation Type 1: This section documents the design for a function that is new with Release 8.0. As such, normal text means completely new design for Release 8.0. This section contains no redlined text.

7.11.1 Model Changes for Surface Water Treatment Compliance Report

The Surface Water Treatment Compliance Report uses existing entities:

- CDS_CANDIDATE_VIOLATION—contains information about candidate violation records which are determined during *CDS* processing.
- CDS_REPORT_LOG —contains information about the report process.
- CDS_CANDIDATE_EXCEEDENCE—contains information about the level in the Analyte Level Rule Assignment Table that a sample analytical results exceeds.
- CDS_SAMPLE_RESULT—contains information about sample analytical results.
- CDS_SCHEDULE—contains information about the sample schedule that was not met and that resulted in a candidate violation.

For Release 8.0, new entities have been added:

- CDS_MDBP_SUMMARY—contains information about the MDBP Summary that is associated to the candidate violations.
- CDS_FACILITY_ANALYTE_LEVEL (FANL) —contains information about the FANL that is associated to the violations.

The following attributes have been added to CDS Report Log:

- TURBIDITY_SELECTED_INDICATOR.
- FEDERAL_EP_RDC_SELECTED_INDICATOR.
- STATE_EP_RDC_SELECTED_INDICATOR.
- FEDERAL_DS_RDC_SELECTED_INDICATOR.
- STATE_DS_RDC_SELECTED_INDICATOR.
- DBP_PRECURSORS_SELECTED_INDICATOR.
- BROMATE_BROMIDE_SELECTED_INDICATOR.
- CI2_CHLORAMINE_SELECTED_INDICATOR.
- ClO2_CHLORITE_EP_SELECTED_INDICATOR.
- ClO2_CHLORITE_DS_SELECTED_INDICATOR.
- TTHM_HAA5_M&R_SELECTED_INDICATOR.
- CREATE_CI2_CHLORAMINE_MRDL_SELECTED_INDICATOR.

The following new relationships have been added:

- One or more CDS Candidate Violation sometimes is caused by non-compliance of One MDBP Summary.
- One or more CDS MDBP Summary always takes location and analyte from One CDS FANL.

7.11.2 GUI Entry Window Requirements

To initiate this report, from the *Monitoring and Noncompliance* main menu, the user will select **Edit/Compliance Decision Support/Surface Water Treatment Compliance Report**. The user will need to:

- Specify the report(s) to process,
- Regulating Agency, and
- Monitoring Period End Date range,
- And optionally request the creation of MDBP of type MRDL summaries from field results reported with TCR samples.

This window (Exhibit 7-55) and the D/DBP Compliance Report window will list all reports available for determining compliance for all Microbial/Disinfection By-Products rules (Turbidity Rule, SWTR, IESWTR, Stage 1 D/DBP). The Surface Water Treatment Compliance Report window defaults to the following reports being selected:

- Entry Point RDC (Federal).
- Entry Point RDC (State).
- Distribution RDC (Federal).
- Distribution RDC (State).
- Turbidity.

Users may choose to run one or more of these reports as well as one or more of the other compliance determination report options listed on the window. The compliance reports that appear on the window but do not default as selected (the ones listed above) are generally associated with the D/DBP rules and will be discussed in Subsection 7.12.

The Regulating Agency field is pre-populated with the primacy agency or selected government agency, if applicable. Pressing **OK** will start the compliance determination process. The process generates candidate M&R and Level or Treatment Technique violations for water systems that were not able to meet compliance requirements. Users will be able to migrate these candidate CDS violations using the Migrate CDS Candidate Violations function.

Surface Water Treatment Compliance Report

Select one or more reports to run

Entry Point RDC (Federal) DBP Precursors

Entry Point RDC (State) Bromate/Bromide

Distribution RDC (Federal) Chlorine/Chloramine MRDL

Distribution RDC (State) Chlorine Dioxide/Chlorite (Entry Point)

Turbidity Chlorine Dioxide/Chlorite (Distribution)

Regulating Agency

Regulating Agency >>

Monitoring Period End Date Range

Between and

Create Chlorine/Chloramine MRDL Summaries

OK Cancel Help

Exhibit 7-55. Surface Water Treatment Compliance Report

Entry Fields:

Select one or more reports to run Group Box:

The user may specify one or more reports to run.

*Entry Point RDC
[Compliance
Check] (Federal)*

Checking this checkbox will cause the Entry Point RDC Compliance Check (Federal) report processes to run as described in Subsection 7.11.3.2.

*Entry Point RDC
[Compliance
Check] (State)*

Checking this checkbox will cause the *Entry Point RDC Compliance Check (State)* report processes to run as described in Subsection 7.11.3.2.

*Distribution RDC
[Compliance
Check] (Federal)*

Checking this checkbox will cause the *Distribution RDC Compliance Check (Federal)* report processes to run as described in Subsection 7.11.3.2.

*Distribution RDC
[Compliance
Check] (State)*

Checking this checkbox will cause the *Distribution RDC Compliance Check (State)* report processes to run as described in Subsection 7.11.3.2.

*Turbidity
Compliance Check*

Checking this checkbox will cause the *Turbidity Compliance Check* report processes to run as described in Subsection 7.11.3.2 and 7.11.3.3.

*DBP Precursors
[Compliance Check]*

Checking this checkbox will cause the *DBP Precursors Compliance Check* report processes to run as described in Subsection 7.12.3.1.

*Bromate/Bromide M&R
[Compliance Check]*

Checking this checkbox will cause the Bromate/Bromide M&R Compliance Check report processes to run as described in Subsection 7.12.3.2.

*Chlorine/Chloramine
MRDL [Compliance
Check]*

Checking this checkbox will cause the Chlorine/Chloramine MRDL Compliance Check report processes to run as described in Subsection 7.12.3.3.

*[Entry Point] Chlorine
Dioxide/Chlorite*

[Compliance Check] Checking this checkbox will cause the Entry Point Chlorine Dioxide/Chlorite Compliance Check report processes to run as described in Subsection 7.12.3.4.

*[Distribution)]Chlorine
Dioxide/Chlorite*

[Compliance Check] Checking this checkbox will cause the Distribution Chlorine Dioxide/Chlorite Compliance Check report processes to run as described in Subsection 7.12.3.5.

Regulating Agency This field will map to table TINLGENT, column NAME. Its value will default to the government agency that is marked as the primacy agency as long as the user is linked to that agency. If the user is not linked to the primacy agency, its value will default to the first government agency name, in alphabetic order, to which the user is linked (also the first one available on the Regulating Agency Selection List). The user may click the **Go To** button to invoke the Regulating Agency Selection List or may enter a value directly into the Regulating Agency field.

- The Regulating Agency Selection List will display only those government agencies to which the user is associated.

(Developer's Note: Legal Entities of type GA where the Government Agency is associated to the Individual [through D_USER] through INDIVIDUAL_GOVERNMENT_AGENCY_ASGT. Use existing EBS_C_LGL_ENT_SELECT_LIST and EBS_S_COMMON_LEGAL_ENTITY client/server procedures.)

- The default sort for Regulating Agency Selection List will be Name, in ascending alphabetical order.
- If the user enters a value in Regulating Agency, on tabbing off the field, the software will check both for an exact match and whether the current user is associated to the specified Agency. If both criteria are met, it will retrieve the specified regulating agency.
 - If the value entered is not an exact match, the software will invoke the Regulating Agency Selection List, sorted

by ascending Name, from where the user may select a regulating agency.

- If the user specifies a partial string in this field, the software will display the closest matching regulating agency at the top of the list. (Closest matching means a match with the Regulating Agency Name sorted alphabetically, that starts with the same text string as supplied.)
- If the user specifies a valid government agency but is not associated to that agency (through INDIVIDUAL_GOVERNMENT_AGENCY_ASGT), present existing exit state error message to indicate that the selected government/regulating agency is not valid for the current user. (The SDWIS/STATE Administrator would need to link the user to that agency).

The prompt for the Regulating Agency will be blue and underlined to indicate that this field must be specified.

Monitoring Period End Date Group Range Box:

*Between [Lower
Date]*

The user may specify in this field, which uses a calendar function, the lower date of the range within which the Monitoring End Date may fall.

*And [Upper
Date]*

The user may specify in this field, which uses a calendar function, the upper date of the range within which the Monitoring End Date may fall.

The prompt for the Monitoring Period End Date Range group box is blue and underlined to indicate that a date range (that is, both lower and upper date) must be specified.

*Create Chlorine/
Chloramine
MRDL Summaries
Indicator*

Checking this checkbox will create MDBP summaries of type MRDL from the chlorine and/or chloramine results stored as field results with Total Coliform Samples marked for compliance and of sample type

Routine or Repeat. This process is discussed in detail in Subsection 7.12.3.7.

Tab Sequence:

Entry Point RDC (Federal), Entry Point RDC (State), Distribution RDC (Federal), Distribution RDC (State), Turbidity, DBP Precursors, Bromate/Bromide, Chlorine/Chloramine MRDL, Chlorine Dioxide/Chlorite EP, Chlorine Dioxide/Chlorite DS, Regulating Agency, **Go To** button, Monitoring Period End Date Range Between, Monitoring Period End Date Range And, Create Chlorine/Chloramine MRDL Summaries, **OK** button, **Cancel** button, **Help** button.

Buttons:

Regulating Agency

Go To

The user may press the **Go To** button to display the Regulating Agency Selection List. Return the cursor to the summary type field.

(Developer's Note: Use the existing EBS_C_LGL_ENT_SELECT_LIST and EBS_S_COMMON_LEGAL_ENTITY procedure.)

OK

Error messages that may be displayed upon clicking the **OK** button:

- If at least one of the compliance checkboxes or the Create Chlorine/Chloramine MRDL Summary checkbox is not checked, invoke the following existing error exit state message: **Must specify type of Compliance Check to run this report.**
- If Regulating Agency field is left blank, invoke the following existing exit state error message: **Regulating Agency is a required field.**
- If either one or both dates in the Monitoring Period End Date Range is not valued, invoke the following exit state error message: **Must specify Monitoring Period End Date Range to run this report.**
- If both dates are valued but date in [Lower Date] is after date in [Upper Date] invoke exit state error message: **Date range specified is invalid.** Return the cursor to [Lower Date].

Once processing has begun, the CDS Status window will appear with its title bar reflecting the name of the selected report, in this case, Surface Water Treatment Compliance Report. The processing gauge will show users the overall percentage of Surface Water Treatment Compliance Report processes that have completed; the smaller gauge will show the percentage of completion for each individual process, for example, "Clear Previous Candidate Violations."

Cancel When the user presses this button, the software will disregard any data entered and return the user to the Monitoring and Noncompliance main menu.

Help Pressing this button will invoke online Help for this window.

7.11.3 Processing Design Requirements

Each of following processes will perform compliance processing against MDBP Summaries for specific contaminants outlined in the Turbidity, SWTR, or IESWTR rules, as long as the user creates the appropriate Facility Analyte Level records. As noted above compliance for the Stage 1 DBP Rule will be discussed in Subsection 7.12. If users wish to calculate compliance for other analytes or in a different way, the User-Defined Summary Compliance should be used as discussed in Subsection 7.13.

For all the compliance processes discussed below, the user must create Facility Analyte Level records, set the MDBP Summaries flag to "Y," and indicate the type of MDBP Summary noted for each process. All processes are dependent upon M&R and Level Compliance Indicators which are set when the MDBP Summary is created as described in Subsection 5.1.

The Surface Water Treatment Compliance Report will involve 12 distinct processes, all described in detail in Appendix E-4 (Surface Water Treatment Rule and D/DBP Compliance Processes).

- Create Chlorine/Chloramine MRDL Summaries.
- Clear Candidate MDBP Violations.
- Entry Point RDC Compliance Check (Federal).
- Entry Point RDC Compliance Check (State).
- Distribution RDC Compliance Check (Federal).
- Distribution RDC Compliance Check (State).
- Turbidity Compliance Check.
- DBP Precursors Compliance Check.
- Bromate/Bromide Compliance Check.
- Chlorine/Chloramine MRDL Compliance Check.

- Entry Point Chlorine Dioxide/Chlorite Compliance Check.
- Distribution Chlorine Dioxide/Chlorite Compliance Check.

If the user checks the Create Chlorine/Chloramine MRDL Summaries checkbox, this process, discussed in Subsection 7.12.3.7, will be performed prior to any other process. The Clear Candidate MDBP Violations process, discussed in Subsection 7.11.3.1, will remove candidate CDS violations created during previous executions of the Surface Water Treatment Compliance Report or D/DBP Compliance Report. The next five processes relate primarily to SWTR and are described in Subsection 7.11.3.2 to Subsection 7.11.3.3. The remaining processes relate primarily to the D/DBP rules and are described in Subsection 7.12.3.1 to 7.12.3.7. Appendix E-4 (Surface Water Treatment Rule and D/DBP Compliance Processes) provides the detailed design logic for all processes.

7.11.3.1 Clear Candidate MDBP Violations

The *Clear Previous MDBP Candidate Violations* process will identify existing CDS Candidate Violations that satisfy the criteria entered by the user for the current run and remove them. This step will prevent the creation of duplicate CDS Candidate Violations. This step will also remove a candidate CDS violation when the information in SDWIS/STATE has changed such that there is no longer a candidate violation (e.g., by the time the M&R compliance check is run a second time, results for a schedule have been entered, thus alleviating the original candidate violation).

This process will first identify all the water systems that are associated to the selected Regulating Agency (i.e., from table TINWSYS associated to TINLGENT via TINRAA). Then, for each selected water system, delete candidate violations based on the user-specified compliance check type(s) and Monitoring Period End Date range.

When CDS candidate violations match the user-specified criteria, this process will then check for associated CDS FANLs, associated CDS MDBP Summaries, CDS Candidate Exceedence, CDS Sample Results, and Sample Schedules. If the about-to-be-deleted CDS candidate violation is the only one associated to that CDS table record, the software will delete the record, then delete the CDS candidate violation.

7.11.3.2 Compliance Process Reports

With the exception noted below for the Individual Filter Turbidity Compliance Check, all the compliance reports will be processed in the following manner:

- The reports check for both M&R and level compliance for the summary type specified in Exhibit 7-56. The software will identify FANLs with the MDBP Summary Type of the specified type(s) in effect during the monthly monitoring periods with an end date

within the specified range for water systems associated to the regulating agency and performs the following processes.

Compliance Report	MDBP Summary Type
Turbidity	AVGT, MAXT, 95PT
Entry Point RDC (Federal)	EPRD
Entry Point RDC (State)	SERD
Distribution RDC (Federal)	DSRD
Distribution RDC (State)	SDRD

Exhibit 7-56. Surface Water Treatment Compliance

- If an M&R violation type is specified in the FANL, and there is no MDBP summary of the specified type for the monitoring period, an M&R violation of the type specified will be created.
- If an M&R violation type is specified in the FANL, and an MDBP summary is found, and the M&R Compliance Indicator is set to “No Major,”
 - An M&R violation of the type specified is created with a severity level of Major.
 - If there is no severity associated with that type of violation in the violation table, a candidate CDS violation is created without the severity level.
- If an M&R violation type is specified in the FANL, and an MDBP summary is found, and the M&R Compliance Indicator is set to “No Minor,”
 - An M&R violation of the type specified is created with a severity level of Minor.
 - If there is no severity associated with that type of violation in the violation table create the violation without the severity level.
- If an MDBP summary is found and the Level Compliance Indicator is set to NO a level violation of the type specified in the FANL is created.

7.11.3.3 Individual Filter Turbidity Report

The Individual Filter Turbidity report will create candidate M&R violations and warning or alert messages. The IFT summary will contain the response to seven questions, three concerning monitoring and four concerning turbidity levels. (Subsection 5.1.2.4 covers the online Individual Filter Turbidity Maintenance window.)

The MDBP Summary M&R Compliance Indicator will be set to No if any of the three questions has an inappropriate answer. The M&R candidate violation will be created as described above. In addition, the report will list which of the three monitoring questions was answered inappropriately.

The MDBP Summary Level Compliance indicator will be set to No if any of the four questions concerning turbidity levels is answered Yes. If turbidity levels at an individual filter are exceeded, a treatment technique violation has not occurred. Instead the water supply must prepare and submit a report on the condition of the filters to the primacy agency. Therefore, the Turbidity Compliance process will not create candidate treatment technique violations; however, the report will list which of the four turbidity level questions was answered Yes.

7.12 Disinfectant/Disinfection By-Products Compliance Report

The Disinfectant/Disinfection By-Products Compliance Report window (Exhibit 7-57) will let users check compliance for a water system's Disinfectant/Disinfection By-Products (D/DBP) M&R and some level requirements. Level compliance involves exceedence of a level which includes both creation of candidate treatment technique violations as well as advisories to compliance officers when compliance calculations cannot be completed. The information in this subsection assumes that the user has read and has a good understanding of how SDWIS/STATE proposes to maintain MDBP summaries in support of the D/DBP Rule, as described in Subsection 5.1 of this document.

Presentation Type 1: This section documents the design for a function that is new with Release 8.0. As such, normal text means completely new design for Release 8.0. This section contains no redlined text.

7.12.1 Model Changes for Disinfectant/Disinfection By-Products Compliance Report

The Disinfectant/Disinfection By-Products Compliance Report uses existing and new entities as described in Subsection 7.11.1.

7.12.2 GUI Entry Window Requirements

To initiate this report, from the *Monitoring and Noncompliance* main menu, the user will select **Edit/Compliance Decision Support/D/DBP Compliance Report**. The user will be able to:

- Specify the report(s) to process;
- Regulating Agency; and
- Monitoring Period End Date range;
- And request the creation of MDBP summaries from field results reported with TCR samples.

The D/DPB Compliance Report window (Exhibit 7-57) and the Surface Water Treatment Compliance Report window will list all reports available for determining compliance for all Microbial/Disinfection By-Products rules (Turbidity Rule, SWTR, IESWTR, and Stage 1 D/DBP). The D/DBP Compliance Report window will display TTHM/HAA M&R as a choice and will default to the following reports being selected.

- DBP Precursors.
- Bromate/Bromide M&R.
- Chlorine/Chloramine MRDL.
- Chlorine Dioxide/Chlorite Entry Point.
- Chlorine Dioxide/Chlorite Distribution.
- TTHM HAA5 M&R.
- Create Chlorine/Chloramine MRDL.

Users may chose to run one or more of the above and/or one or more of the other compliance determinations listed in the window. The compliance determinations listed in the window but not above are generally associated with the surface water treatment rules and are discussed in Subsection 7.11.

The Regulating Agency field will be pre-populated with the primacy agency or selected government agency if applicable. Pressing **OK** will start the compliance determination process. Except where noted, the process will generate candidate M&R and Level or Treatment Technique violations for water systems that were not able to meet compliance requirements. Users will be able to migrate these candidate CDS violations using the Migrate CDS Candidate Violations function.

D/DBP Compliance Report

Select one or more reports to run

<input type="checkbox"/> Entry Point RDC (Federal)	<input checked="" type="checkbox"/> DBP Precursors
<input type="checkbox"/> Entry Point RDC (State)	<input checked="" type="checkbox"/> Bromate/Bromide M & R
<input type="checkbox"/> Distribution RDC (Federal)	<input checked="" type="checkbox"/> Chlorine/Chloramine MRDL
<input type="checkbox"/> Distribution RDC (State)	<input checked="" type="checkbox"/> Chlorine Dioxide/Chlorite (Entry Point)
<input checked="" type="checkbox"/> TTHM/HAA5 M & R	<input checked="" type="checkbox"/> Chlorine Dioxide/Chlorite (Distribution)

Regulating Agency

Regulating Agency >>

Monitoring Period End Date Range

Between and

Create Chlorine/Chloramine MRDL Summaries

OK Cancel Help

Exhibit 7-57. D/DBP Compliance Report

Entry Fields:

Specify Report Check-Boxes:

The user may specify one or more reports to run.

*Entry Point RDC
[Compliance
Check] (Federal)*

Selection of this checkbox will cause the *Entry Point RDC Compliance Check* (Federal) report processes to run as described in Subsection 7.11.3.2.

*Entry Point RDC
[Compliance
Check] (State)*

Selection of this checkbox will cause the *Entry Point RDC Compliance Check (State)* report processes to run as described in Subsection 7.11.3.2.

*Distribution RDC
[Compliance
Check] (Federal)*

Selection of this checkbox will cause the *Distribution RDC Compliance Check (Federal)* report processes to run as described in Subsection 7.11.3.2.

*Distribution RDC
[Compliance
Check] (State)*

Selection of this checkbox will cause the *Distribution RDC Compliance Check (State)* report processes to run as described in Subsection 7.11.3.2.

*Turbidity
[Compliance Check]*

Selection of this checkbox will cause the *Turbidity Compliance Check* report processes to run as described in Subsection 7.11.3.2 and Subsection 7.11.3.3.

*DBP Precursors
[Compliance Check]*

Selection of this checkbox will cause the *DBP Precursors Compliance Check* report processes to run as described in Subsection 7.12.3.2.

*Bromate/Bromide
[Compliance Check]*

Selection of this checkbox will cause the *Bromate/Bromide Compliance Check* report processes to run as described in Subsection 7.12.3.23.

*Chlorine/Chloramine
MRDL [Compliance
Check]*

Selection of this checkbox will cause the *Chlorine/Chloramine MRDL Compliance Check* report processes to run as described in Subsection 7.12.3.4.

*[Entry Point] Chlorine
Dioxide/Chlorite
[Compliance Check]*

Selection of this checkbox will cause the *Entry Point Chlorine Dioxide/Chlorite Compliance Check* report processes to run as described in Subsection 7.12.3.5.

*[Distribution] Chlorine
Dioxide/Chlorite*

[Compliance Check] Selection of this checkbox will cause the *Distribution Chlorine Dioxide/Chlorite Compliance Check* report processes to run as described in Subsection 7.12.3.6.

Regulating Agency This field will map to table TINLGENT column NAME. Its value will default to the regulating agency that is marked as the primacy agency as long as the user is linked to that agency. If the user is not linked to the primacy agency, its value will default to the first regulating agency name, in alphabetic order, to which the user is linked (also the first one available on the Regulating Agency Selection List). The user may click the **Go To** button to invoke the Regulating Agency Selection List or may enter a value directly into Regulating Agency.

- The Regulating Agency Selection List will displays only those government agencies to which the user is associated. (*Developer's Note: Legal Entities of type GA where the Government Agency is associated to the Individual [through D_USER] through INDIVIDUAL_GOVERNMENT_AGENCY_ASGT. Use existing EBS_C_LGL_ENT_SELECT_LIST and EBS_S_COMMON_LEGAL_ENTITY client/server procedures.*)
- The default sort for Regulating Agency Selection List will be Name, in ascending alphabetical order.
- If the user enters a value in Regulating Agency, on tabbing off the field the software will check both for an exact match and whether the current user is associated to the specified Agency. If both criteria are met, it will retrieve the specified regulating agency.
 - If the value entered is not an exact match, the software will invoke the Regulating Agency Selection List, sorted by ascending Name, from where the user may select a regulating agency.
 - If the user specifies a partial string in this field, the software will display the closest matching regulating agency at the top of the list. (Closest matching means a match with the Regulating Agency Name sorted

alphabetically, that starts with the same text string as supplied.)

- If the user specifies a valid regulating agency but is not associated to that agency (through INDIVIDUAL_GOVERNMENT_AGENCY_ASGT), present *existing* exit state error message to indicate that the selected government/regulating agency is not valid for the current user. (The SDWIS/STATE Administrator would need to link the user to that agency).

The prompt for the Regulating Agency field will be blue and underlined to indicate that this field must be specified.

Monitoring Period End Date Group Range Box:

*Between [lower
Date]*

The user may specify in this field, which uses a calendar function, the lower date of the range within which the Monitoring End Date may fall.

*And [upper
Date]*

The user may specify in this field, which uses a calendar function, the upper date of the range within which the Monitoring End Date may fall.

The Monitoring Period End Date Range Group Box will be blue and underlined to indicate that a date range (that is, both lower and upper date) must be specified.

*Create Chlorine/
Chloramine
MRDL Summaries
Indicator*

Checking this checkbox will cause the software to create MDBP summaries of type MRDL from the chlorine and/or chloramine results stored as field results with Total Coliform Samples marked for compliance and of sample type Routine or Repeat. This process will be discussed in detail in Subsection 7.12.7 below.

Tab Sequence:

Entry Point RDC (Federal), Entry Point RDC (State), Distribution RDC (Federal), Distribution RDC (State), TTHM/HAA M&R, DBP Precursors, Bromate/Bromide M&R, Chlorine/Chloramine MRDL, Chlorine Dioxide/Chlorite EP, Chlorine Dioxide/Chlorite DS, Regulating Agency, **Go To** button, Monitoring Period End Date Range [Lower], Monitoring

Period End Date Range [Upper], Create Chlorine/Chloramine MRDL Summaries, **OK** button, **Cancel** button, **Help** button.

Buttons:

Regulating Agency

Go To

The user may use the **Go To** button to display the Regulating Agency Selection List. Return the cursor to the summary type field.

(Developer's Note: Use the existing EBS_C_LGL_ENT_SELECT_LIST and EBS_S_COMMON_LEGAL_ENTITY procedure.)

OK

Error messages that may be displayed upon clicking the **OK** button:

- If at least one of the compliance checkboxes or create MRDL Summary checkbox are not checked, invoke the following existing exit state error message: **Must specify type of Compliance Check to run this report.**
- If the Regulating Agency field is left blank, invoke the following existing exit state error message: **Regulating Agency is a required field.**
- If either a [lower date] or [upper date] in the Monitoring Period End Date Range is not valued, provide the following existing exit state error message: **Date range is required.**
- If both dates are valued but the date in [Lower Date] is after the date in [Upper Date] invoke exit state error message: **Date range specified is invalid.** Return the cursor to [Lower Date].

Once processing has begun, the CDS Status window will appear with its title bar reflecting the name of the selected report, in this case, D/DBP Compliance Report. The processing gauge will show users the overall percentage of D/DBP Compliance Report processes that have completed; the smaller gauge will show the percentage of completion for each individual process, for example, "Clear Previous Candidate Violations."

Cancel When the user presses this button, the software will disregard any data entered and return the user to the *Monitoring and Noncompliance* main menu.

Help Pressing this button will online Help for this window.

7.12.3 Processing Design Requirements

Most of following processes will perform compliance processing against MDBP Summaries for specific contaminants outlined in the Stage 1 Disinfectant/Disinfection By-Products rule so long as the user creates the appropriate FANL. Three of the processes, *TTHM/HAA M&R*, *Bromate/Bromide M&R*, and *Chlorine Dioxide/Chlorite Distribution* will not use MDBP Summaries, but will use non-TCR sample schedules and sample analytical results. As noted above, compliance for the Turbidity, SWTR and IESWTR rules will be discussed in Subsection 7.11. If the users wishes to calculate compliance for other contaminants or in a different way, the User-Defined Summary Compliance may used as discussed in Subsection 7.13.

For some of the compliance processes discussed below, the user must create a FANL, set the MDBP Summaries flag to “Y,” and indicate the type of MDBP Summary noted for each process. These processes are dependent upon M&R and Level Compliance Indicators that are set when the MDBP Summary are created as described in Subsection 5.1.

Processing for this function will involves 12 distinct processes:

- *Create Chlorine/Chloramine MRDL Summaries.*
- *Clear Candidate MDBP Violations.*
- *Entry Point RDC Compliance Check (Federal).*
- *Entry Point RDC Compliance Check (State).*
- *Distribution RDC Compliance Check (Federal).*
- *Distribution RDC Compliance Check (State).*
- *Turbidity Compliance Check.*
- *DBP Precursors Compliance Check.*
- *Bromate/Bromide Compliance Check.*
- *Chlorine/Chloramine MRDL Compliance Check.*
- *Entry Point Chlorine Dioxide/Chlorite Compliance Check.*
- *Distribution Chlorine Dioxide/Chlorite Compliance Check.*

If the users checks the Create Chlorine/Chloramine MRDL checkbox, this process, discussed in Subsection 7.12.3.7, will be performed prior to any other process. The *Clear Candidate MDBP Violations* process, discussed in Subsection 7.11.3.1, will remove candidate CDS violations created during previous executions of the Surface Water Treatment Compliance

Report or D/DBP Compliance Report. The next four processes relate primarily to the SWTR rules and are described in Subsection 7.11.3.2 to Subsection 7.11.3.3. The remainder of the processes relate primarily to the D/DBP rules and will be described in Subsection 7.12.3.1 through Subsection 7.12.3.7. Appendix E-4 (Surface Water Treatment Rule and D/DBP Compliance Processes) provides the detailed design logic for all 12 processes.

7.12.3.1 DBP Precursors Compliance Report

This process will calculate M&R and level compliance with the monitoring required to determine removal of the DBP precursor total organic carbon (TOC) and any other required TOC monitoring associated with the Stage 1 D/DBP rule. Compliance will be determined by comparing the sample schedule's monitoring requirements with sample analytical results for M&R compliance. That is, the software will search for SSMPAs whose associated monitoring period End Dates fall within the user-specified date range. For level compliance, the software will check the Precursor Achieved Removal Ratio in the Running Annual Average (entity MCL_VALUE) that is associated with the SSMPA.

The DBP Precursor Compliance Report will use the same processes as those invoked by the Chemical/Radiological M&R Compliance Report (Subsection 7.9) to determine candidate CDS monitoring violations. Sample schedules for total organic carbon (2920) or alkalinity (1927 or 1067) associated to violation type 27 will be compared to sample analytical results and, when necessary, candidate violations will be created.

CDS Setup (Subsection 3.6) will calculate both the monitoring period average (MPA) and running annual average (RAA) of the removal achievement ratios (RAR) for each treatment plant. The level compliance process will create candidate violations of type 46 if a running annual average of the RAR associated to a chosen monitoring period for a water system (that is, regulated by the specified agency) is less than 1.00.

7.12.3.2 Bromate/Bromide Compliance Report

Bromate monitoring is only required of the very few systems that use ozone as a disinfectant. The bromate MCL will be phased in with two effective dates, January 1, 2002 for water systems serving a population over 10,000 and January 1, 2004 for remaining water systems. There is no federal MCL for bromide; only those systems wishing to reduce their bromate monitoring frequency are required to monitor for bromide.

The Bromate/Bromide Compliance Report will use the same processes as those invoked by the Chemical/Radiological M&R Compliance Report (Subsection 7.9) to determine candidate CDS monitoring violations. Sample schedules for analyte code 1004 or 1011 associated to violation type 27 will be compared to sample analytical results and, when necessary, candidate

violations will be created. That is, the software will search for SSMPAs whose associated monitoring period End Dates fall within the user-specified date range.

Since so few supplies will monitor for bromate and primacy agencies may wish MCL compliance determined for supplies with bromate schedules prior to MCL being in effect, compliance will use a state-wide level set in Analyte Level Rule Asgmt (table TMNALRA) instead of Facility Analyte Levels (TMNFANL). Therefore, if the SDWIS/STATE Administrator has added an MCL for bromate as described in Appendix B-3 (List of Analytes To Be Modified or Added), bromate MCL compliance will be determined as part *CDS Setup*. The D_POPULATION attribute from table TINWSYS will be added to the *CDS Setup* Processing Report (for process *Assess Chemical/Radionuclide MCL Compliance*) to assist compliance officers in determining whether to migrate or delete CDS candidate MCL violations.

7.12.3.3 Chlorine/Chloramine Compliance MRDL Report

All supplies that use chlorine and/or chloramine as a disinfectant must monitor the distribution system at the same sampling points and frequency as is required for monitoring under the Total Coliform Rule. The summarized sample results which will be stored as MDBP summaries of type MRDL may be added using online *Sampling* or created as described in Subsection 7.12.3.7 below.

M&R compliance for either the chlorine or chloramine MRDL is very similar to the process described in Subsection 7.11.3.2 using summaries of type MRDL. Once the Facility Analyte Level has been selected, it will be necessary to check each TCR routine or temporary routine schedule whose Effective Period End Dates are either open (null) or fall within the user-specified date range. This may result in one TCR schedule or more than one schedule. For each TCR schedule found, the software will select monitoring period(s) that fall within the user-specified date range and that match the periodicity specified by the TCR schedule. For each monitoring period found, the software will check for the existence of a MRDL summary.

When not found, it will assess a violation of the type associated to the Facility Analyte Level.

When found, both monitoring and level compliance determinations will be made by evaluating the respective compliance indicators in the summary. (How these compliance indicators will be set is described in Subsection 5.1.2.8.)

7.12.3.4 Chlorine Dioxide (CLO2) /Chlorite (CLO3) Entry Point Compliance Report

Supplies that use chlorine dioxide as a disinfectant must monitor daily for chlorine dioxide and chlorite at the entry point. The summarized sample results, which will be stored as MDBP

summaries of type CLO2 for chlorine dioxide and CLO3 for chlorite, may be added using online *Sampling*.

As with the MRDL M&R determination, Chlorine Dioxide/Chlorite Entry Point Compliance Report processes follow those processes outlined in Subsection 7.11.3.2 using MDBP summaries of type CLO2 and CLO3. Monitoring compliance determinations will be made by evaluating the M&R compliance indicator in the summary. The compliance period for CDS candidate violations is the monitoring period of the summary or monthly monitoring periods in effect during the period chosen for the compliance check.

For level compliance determination, the results of entry point samples will not trigger a level violation; instead they will trigger additional distribution monitoring. Therefore, level candidate violations will not be created; however, as with Individual Filter Turbidity Compliance (Subsection 7.11.3.3), if the level compliance indicator is No, the report will list summary data to assist the compliance officer in investigating and determining if the additional distribution samples were collected and/or if levels were in compliance. If it is determined that additional monitoring or level violations should be issued, they may be added using the online violation function.

7.12.3.5 Chlorine Dioxide/Chlorite Distribution Compliance Report

Supplies that use chlorine dioxide as a disinfectant must collect a set of three samples from the distribution system each month to be analyzed for chlorite. In addition, a set of three distribution samples must be taken if an entry point sample exceeds 0.8 for chlorine dioxide or 1.0 for chlorite. The average of each set of distribution samples will be used to determine compliance with the MRDL or MCL. The Chlorine Dioxide/Chlorite Distribution Compliance Report will calculate monitoring compliance for the monthly chlorite samples and provide sample data to assist the compliance officer to determine monitoring compliance for chlorine dioxide and level compliance for both chemicals.

As with Bromate/Bromide M&R compliance, monitoring compliance for monthly chlorite distribution samples will use the same processes as those invoked by the Chemical/Radiological M&R Compliance Report (Subsection 7.9) to determine candidate CDS monitoring violations. The software searches for SSMPAs whose associated monitoring period End Dates fall within the user-specified date range. Sample schedules for analyte code 1008 or 1009 associated to violation type 27 will be compared to sample analytical results and, when necessary, CDS candidate violations of the type associated with the schedule will be created.

For level compliance, the report will list sample analytical data to assist the compliance officer in investigating and determining if the additional distribution samples were collected and/or if levels were in compliance. However, the software will not actually perform level compliance

for monthly chlorite distribution samples. If it is determined that additional monitoring or level violations should be issued, they may be added using the online violation function.

7.12.3.6 TTHM/HAA5 M&R Compliance Report

This report will process the monitoring compliance for total trihalomethanes and haloacetic acids in accordance with the Total Trihalomethane Rule and the Stage 1 D/DBP Rule. This report will use the same processes as those invoked by the Chemical/Radiological M&R Compliance Report (Subsection 7.9) to determine candidate CDS monitoring violations. That is, the software will search for SSMPAs whose associated monitoring period End Dates fall within the user-specified date range. Sample schedules for analyte code 2950 or 2456 associated to violation type 27 or 03 will be compared to sample analytical results and, when necessary, CDS candidate violations will be created.

CDS Setup will determine compliance with the MCL by calculating running annual averages and comparing the averages with the level in Facility Analyte Level (table TMNFANL).

7.12.3.7 Create Chlorine/Chloramine MRDL Summaries

Some users wish to enter data for the chlorine/chloramine MRDL that has already been summarized, including the number of samples collected, the monitoring period average and the running annual average. Other users already enter the chlorine and/or chloramine residuals as field results with the total coliform samples. If the user selects the Create Chlorine/Chloramine MRDL Summaries checkbox, this process will generate MRDL summaries from the Microbiological Samples stored with the total coliform samples.

If the users chooses this process, it will be preformed prior to any other compliance processes. The software will create summaries as follows.

- The software will select Facility Analyte Levels (FANLs) associated to distribution system WSFs that are associated to water systems regulated by the user specified Agency of Control Level Type MAX and Analyte Code of 0999 or 1006 and whose Effective Period falls within the user-specified date range. This may retrieve one or more FANLs. If no FANL is found, the software moves on to the next process.

For each FANL found, it will be necessary to check each TCR routine or temporary routine schedule whose Effective Period End Dates are either open (null) or fall within the user-specified date range. This may result in one or more TCR schedule.

For each TCR schedule found, the software will select monitoring period(s) that fall within the user-specified date range and that match the periodicity specified by the TCR schedule.

– For each monitoring period found, the software will create an MDBP summary of type MRDL associated to the WSF, FANL, and monitoring period, setting Date Reported to current date, and setting fields using the following instructions:

-- Set SAMPLES_REQUIRED to the value in the current TCR Schedule's Monitoring Requirement Sample Count.

-- The software will find all routine total coliform samples marked for compliance associated to a result for analyte 3100 that is associated to the current monitoring period. The software will select and count the number of samples with a value in either the FIELD_FREE_CHLORINE_RESIDUAL_MSR or FIELD_TOTAL_CHLORINE_RESIDUAL_MSR attributes of the TSAMCSMP table and store this as the SAMPLES_COLLECTED.

-- Use the following calculation to set the default value for the MR_COMPLIANCE_INDICATOR field:

$$x = (\text{Number of Samples Taken} / \text{Number of Samples Required}) * 100$$

If $x \geq 100$, default to "Y."

If $x < 89.9$, default to NMJ.

Otherwise, default to NMN.

-- The software will retrieve and sum the residual measures from the selected samples as follows:

If the analyte code in the FANL is "0999":

Use FLD_FREE_CHLORINE_RESIDUAL_MSR
if this field > 0,

Else Use

FLD_TOTAL_CHLORINE_RESIDUAL_MSR

If the analyte code in the FANL is “1006 ”:

Use
FLD_TOTAL_CHLORINE_RESIDUAL_MSR if
this field > 0,
Else Use
FLD_FREE_CHLORINE_RESIDUAL_MSR

Set MONITORING_PERIOD_AVG_MEASURE and
MONITORING_PERIOD_AVG_MSR_TXT by dividing
the sum of the above by the number of samples taken.

- The MRDL summaries for the previous monitoring periods will be used to calculate the running annual average which will be stored in the RUNNING_ANNUAL_AVERAGE_MEASURE and RUNNING_ANNUAL_AVERAGE_MSR_TXT. Each MONITORING_PERIOD_AVG_MEASURE will be multiplied by the number of days in that monitoring period, taking into account the annual operating period of the water system. The quotients will be summed and divided by the total number of days in operation.
- The RUNNING_ANNUAL_AVERAGE_MEASURE should be compared with the level in the FANL. If the RUNNING_ANNUAL_AVERAGE_MEASURE is greater than the FANL level, the Compliance Level Indicator of the MRDL summary should be “N,” else it should be valued “Y.”

7.13 User-Defined Summary Compliance Report

The User-Defined Summary Compliance Report window (Exhibit 7-58) will let users check a water system’s M&R and level compliance using user-defined summaries. As described in Subsection 5.1.4.3, SDWIS/STATE Administrators may create their own MDBP summary types, which may then be used when creating Facility Analyte Levels as well as MDBP summaries. If a users adds Facility Analyte Levels associated to M&R and level violations, the User-Defined Summary Compliance Report will create candidate violations. The information in this section assumes that the user has read and has a good understanding of how SDWIS/STATE proposes to maintain MDBP summaries, as described in Subsection 5.1 of this document.

Presentation Type 1: This section documents the design for a function that is new with Release 8.0. As such, normal text means completely new design for Release 8.0. This section contains no redlined text.

7.13.1 Model Changes for User-Defined Summary Compliance Report

The User-Defined Summary Compliance Report uses existing entities:

- CDS_CANDIDATE_VIOLATION—contains information about candidate violation records which are determined during *CDS* processing.
- CDS_REPORT_LOG —contains information about the report process.

It also uses the following two new Release 8.0 entities:

- CDS_MDBP_SUMMARY—contains information about the MDBP Summary that is associated to the candidate violations.
- CDS_FACILITY_ANALYTE_LEVEL (FANL)—contains information about the FANL that is associated to the violations.

The following attribute has been added to the CDS Report Log to support this report:

USER-DEFINED_SUMMARY_TYPE—contains the type code for the summary for which compliance was determined.

7.13.2 GUI Entry Window Requirements

To initiate this report, from the *Monitoring and Noncompliance* main menu, the user will select **Edit/Compliance Decision Support/User-Defined Summary Compliance Report**. The user will be able to:

- Specify the type of summary;
- Regulating Agency; and
- Monitoring Period End Date Range.

The Regulating Agency field will be pre-populated with the primacy agency or selected government agency if applicable. Pressing **OK** will start the compliance determination process. The process will generate candidate M&R and Level or Treatment Technique violations for water systems that were not able to meet compliance requirements. Users will be able to migrate these candidate CDS violations using the Migrate CDS Candidate Violations function.

TSAMDBPS1. Only permitted values for this code value may be used in this list excluding AVET, MAXT, 95PT, IFT, EPRD, SERD, DSRD, SDRD, MRDL, CLO2, and CLO3.)

Regulating Agency This field will map to table TINLGENT column NAME. Its value will default to the regulating agency that is marked as the primacy agency as long as the user is linked to that agency. If the user is not linked to the primacy agency, its value will default to the first regulating agency name, in alphabetic order, to which the user is linked (also the first one available on the Regulating Agency Selection List). The user may click the **Go To** button to invoke the Regulating Agency Selection List or may enter a value directly into Regulating Agency.

- The Regulating Agency Selection List will display only those regulating agencies to which the user is associated.

(Developer's Note: Legal Entities of type GA where the Government Agency is associated to the Individual [through D_USER] through INDIVIDUAL_GOVERNMENT_AGENCY_ASGT. Use existing EBS_C_LGL_ENT_SELECT_LIST and EBS_S_COMMON_LEGAL_ENTITY client/server procedures.)

- The default sort for Regulating Agency Selection List will be Name, in ascending alphabetical order.
- If the user enters a value in Regulating Agency, on tabbing off the field the software will check both for an exact match and whether the current user is associated to the specified Agency. If both criteria are met, it will retrieve the specified regulating agency.
 - If the value entered is not an exact match, the software invokes the Regulating Agency Selection List, sorted by ascending Name, from where the user may select a regulating agency.
 - If the user specifies a partial string in this field, the software will display the closest matching regulating agency at the top of the list. (Closest matching means a match with the Regulating Agency Name sorted

alphabetically that starts with the same text string as supplied.)

- If the user specifies a valid government agency but is not associated to that agency (through Individual Government Agency Asgt), present *existing* exit state error message to indicate that the selected government/regulating agency is not valid for the current user. (The SDWIS/STATE Administrator would need to link the user to that agency).

The prompt for the Regulating Agency field will be blue and underlined to indicate that this field must be specified.

Monitoring Period End Date Range Group Box:

Between [Lower Date]

The user may specify in this field, which uses a calendar function, the lower date of the range within which the Monitoring End Date may fall.

And [Upper Date]

The user may specify in this field, which uses a calendar function, the upper date of the range within which the Monitoring End Date may fall.

The prompt for Monitoring Period End Date Range Group Box will be blue and underlined to indicate that a date range (that is, both lower and upper date) must be specified.

Tab Sequence:

Summary Type, **Go To** button, Regulating Agency, **Go To** button, Monitoring Period End Date Range [lower date], Monitoring Period End Date Range [upper date], **OK** button, **Cancel** button, **Help** button.

Buttons:

Summary Type
Go To

The user may use the **Go To** button to display the MDBP Summary Type Selection List. As the user selects a summary type, the software will then populate the retrieved Summary Type's Name value in the protected [Permitted Value Description] field. Return the cursor to the Summary Type field.

(Developer's Note: Pass into action block Validate Text Permitted Value the following value for entity CODE, attribute CODE_NAME:

TSAMDBPS1. Only permitted values for this code value may be used in this list, excluding AVET, MAXT, 95PT, IFT, EPRD, SERD, DSRD, SDRD, MRDL, CLO2 and CLO3.)

Regulating Agency

Go To

The user may use the **Go To** button to display the Regulating Agency Selection List. Return the cursor to the Summary Type field.

(Developer's Note: Use the existing EBS_C_LGL_ENT_SELECT_LIST and EBS_S_COMMON_LEGAL_ENTITY procedure.)

OK

Error messages that may be displayed upon clicking the **OK** button:

- If the Summary Type field is left blank, invoke the following existing exit state error message: **Summary Type is a required field.**
- If the Regulating Agency field is left blank, invoke the following existing exit state error message: **Regulating Agency is a required field.**
- If either a [lower date] or [upper date] in the Monitoring Period End Date Range is not valued, provide the following existing exit state error message: **Date range is required.**
- If both dates are valued but date in [Lower Date] is after date in [Upper Date] invoke exit state error message: **Date range specified is invalid.** Return the cursor to [Lower Date].

Once processing has begun, the CDS Status window will appear with its title bar reflecting the name of the selected report, in this case, the User Defined Summary Compliance Report. The processing gauge will show users the overall percentage of User Defined Summary Compliance Report processes that have completed; the smaller gauge will show the percentage of completion for each individual process, for example, "Clear Previous Candidate Violations."

Cancel When the user presses this button, the software will disregard any data entered and return the user to the *Monitoring and Noncompliance* main menu.

Help Pressing this button will invoke online Help for this window.

7.13.3 Processing Design Requirements

For the compliance process discussed below, the user must create a FANL, set the MDBP Summary's flag to "Y," and indicate the type of MDBP Summary noted for each process. All processes depend on M&R and Level Compliance Indicators being set by the user when the MDBP Summary is entered (Subsection 5.1.4.3).

Processing for this function will involve two distinct processes:

- *Clear Candidate MDBP Violations.*
- *User-Defined Summary Compliance Check.*

The processes are described below in Subsection 7.13.3.1 and Subsection 7.13.3.2. Appendix E-5 (User Defined Summary Compliance Process) provides the detailed design logic for these processes.

7.13.3.1 Clear Candidate MDBP Violations

The *Clear Candidate MDBP Violations* process, discussed in Subsection 7.11.3.1, will remove candidate CDS violations created during previous executions of the User-Defined Summary Compliance Report for the summary type specified.

7.13.3.2 User-Defined Summary Compliance Check

The *User-Defined Summary Compliance Check* will check for both M&R and level compliance for the summary type specified. The software will identify FANLs of the user-specified MDBP Summary Type that are in effect during the monthly monitoring periods whose end date falls within the specified range and that are associated to WSFs for water systems associated to the user-specified Regulating Agency. It will then do the following:

- If an M&R violation type is specified in the FANL, and there is no MDBP summary of the specified type for the monitoring period, an M&R violation of the type specified (in the FANL) will be created.
- If an M&R violation type is specified in the FANL, and an MDBP summary is found, and the M&R Compliance Indicator is set to "No Major,"

- An M&R violation of the type specified is created with a severity level of Major.
- If there is no severity associated with that type of violation in the violation table, a candidate CDS violation is created without the severity level.
- If an M&R violation type is specified in the FANL, and an MDBP summary is found, and the M&R Compliance Indicator is set to “No Minor,”
 - An M&R violation of the type specified is created with a severity level of Minor.
 - If there is no severity associated with that type of violation in the violation table create the violation without the severity level.
- If an MDBP summary is found and the Level Compliance Indicator is set to NO a level violation of the type specified in the FANL is created.

7.14 Public Notification Compliance Report

This process will generate potential violations for water systems which did not comply with their Public Notification schedules. It will consider PN Activities which are overdue, i.e., those with have the PN Required Date or the Proof of PN Due Date valued and are prior to the current date.

Presentation Type 1: This section documents the design for a function that is new with Release 8.0. As such, normal text means completely new design for Release 8.0. This section contains no redlined text.

7.14.1 Model Changes

The Public Notification Compliance Report uses existing CDS Reporting entities:

- CDS Candidate Violation—contains information about candidate violation records which are determined during *CDS* processing.
- CDS Report Log—contains information about the type of CDS reports that the user has run

The following new entity has been added to support this report:

- CDS Public Notification Activity—contains information about the public notification activit(ies) that triggered the determination of the CDS Candidate Violation during *CDS* processing.
- In addition, the following attributes have been added to entity CDS Candidate Violation
 - ORIG_TMNVOL_IS_NUMBER.
 - ORIG_TMNVOL_ST_CODE.
 - ORIG_TMNVOL_TMNVTYPE_IS_NUMBER.
 - ORIG_TMNVOL_TMNVTYPE_ST_CODE.
 - TENPNACT_IS_NUMBER.
 - TENPNACT_ST_CODE.

Appendix A contains the structures of these entities.

7.14.2 GUI Entry Window Requirements

The Public Notification Compliance Report window (Exhibit 7-59) will be used to assess potential violations for water systems which did not comply with their Public Notification schedules. To initiate this report, from the *Monitoring and Noncompliance* main menu the user will select **Edit/Compliance Decision Support/Public Notification Compliance Report** to invoke the Public Notification Compliance Report window where the user may specify which PN activities will be included in the compliance check by specifying date ranges between which the PN Required Dates and Proof of PN Required dates should fall. The Regulating Agency field will be pre-populated with the primacy agency if one has been designated.

- The default sort for Regulating Agency Selection List will be Name, in ascending alphabetical order.
- If the user enters a value in Regulating Agency, on tabbing off the field, check both for an exact match and whether the current user is associated to the specified Agency. If both criteria are met, it will retrieve the specified regulating agency.
 - If the value entered is not an exact match, invoke the Regulating Agency Selection List, sorted by ascending Name, from which the user may select a regulating agency.
 - If the user specifies a partial string in this field, display the closest matching regulating agency at the top of the list. (Closest matching means a match with the Regulating Agency Name sorted alphabetically that starts with the same text string as supplied.)

The Regulating Agency field is blue and underlined to indicate that this field must be specified.

Specify date range Group Box:

PN Required Date

Range [Lower Date] This field will specify the first date of the range for the PN Required Date Range. A calendar function will allow the user to more easily enter dates for this field.

PN Required Date

Range [Upper Date] This field will specify the second date of the range for the PN Required Date Range. A calendar function will allow the user to more easily enter dates for this field.

Proof of PN Required Date Range Group Box:

*Proof of PN
Required Date*

Range [Lower Date] This field will specify the first date of the range for the Proof of PN Required Date Range. A calendar function will allow the user to more easily enter dates for this field.

*Proof of PN
Required Date Range
[Upper Date]*

This field will specify the second date of the range for the Proof of PN Required Date Range. A calendar function will allow the user to more easily enter dates for this field.

Tab Sequence:

Regulating Agency, Regulating Agency **Go To** button, PN Required Date Range [Lower Date], PN Required Date Range [Upper Date], Proof of PN Required Date Range [Lower Date], Proof of PN Required Date Range [Upper Date], **OK** button, **Cancel** button, **Help** button.

Buttons:

Regulating Agency
Go To

The user may press the **Go To** button to display the Regulating Agency Selection List. Return the cursor to the summary type field.

(Developer's Note: Use the existing EBS_C_LGL_ENT_SELECT_LIST and EBS_S_COMMON_LEGAL_ENTITY procedure.)

OK

Error messages that may be displayed upon clicking the **OK** button:

- If the Regulating Agency field is left blank, provide the following existing exit state error message: **Regulating Agency is a required field.** Return cursor to Regulating Agency.
- If the user has entered no date in either the PN Required Date Range nor the Proof of PN Required Date Range group boxes, invoke exit state error message: **To run this report, you must specify a date.** Return the cursor to the PN Required Date Range [Lower Date].
- If the user has entered dates in both the PN Required Date Range group box and the Proof of PN Required Date Range group box, invoke exit state error message: **Specify either PN Required or Proof of PN Required Date Range.** Return the cursor to the PN Required Date Range [Lower Date].
- If both the PN Required dates are valued but the date in [Lower Date] is after the date in [Upper Date] invoke exit state error

message: **Date range specified is invalid.** Return the cursor to PN Required [Lower Date].

If both Proof of PN Required dates are valued but date in [Lower Date] is after date in [Upper Date] invoke exit state error message: **Date range specified is invalid.** Return the cursor to the Proof of PN Required [Lower Date].

- Once processing has started, the CDS Status window will appear with its title bar reflecting the name of the selected report. The processing gauge will show users the overall percentage of the PN Compliance Report process that has completed. The smaller gauge will show the percentage of completion for each of the three individual processes that execute for this report.

Cancel When the user presses this button, the software will disregard any data entered and return the user to the Monitoring and Noncompliance main menu.

Help Pressing this button will invoke online Help for this window.

7.14.3 Processing Design Requirements

Processing for this function will involve three distinct processes:

- *Clear Previous CDS Candidate Violations of Type PN* (Vio Type of 75 or 76).
- *Assess Candidate CDS PN Violation.*
- *Create Candidate Violations.*

These processes are described in Subsection 7.14.3.1 to Subsection 7.14.3.3. Appendix E-6 (Public Notification Compliance Report Process) provides the detailed design logic for these processes.

7.14.3.1 Clear Previous PN CDS Candidate Violations

This process is driven by PN Schedules not already associated to a violation whose PN Due Date or Proof of PN Due Date is valued with a date prior to the current date. The software will then find the mirror CDS PN Activity (based on same IS Number) and delete both it and its parent CDS Candidate PN Violation (which will be a violation of type 75 or 76).

7.14.3.2 Assess Candidate CDS PN Violation

This process will assess PN activities associated to a water system associated to the regulating agency in the following steps:

- Consider all activities where the chosen date, either PN required or Proof of PN required, is within the chosen date range.
- If the PN performed date is null, create a candidate violation where the violation period begin date will be the day after the PN due date and the compliance period dates are equal to the compliance period dates of the original violation.
- If the PN performed date is greater than the PN required date, create a candidate violation where the violation period begin date will be the day after the PN due date, the violation period end date will be the PN performed date, and the compliance period dates are equal to the compliance period dates of the original violation.
- If the PN performed date is not null and is not greater than the PN required date and the Proof of PN received date is null, the violation period begin date will be the day after the Proof of PN due date and the compliance period dates are equal to the compliance period dates of the original violation.
- If the PN performed date is not null and is not greater than the PN required date and the Proof of PN received date is greater than the Proof of PN due date, the violation period begin date will be the day after the Proof of PN due date, the violation period end date will be the Proof of PN due date, and the compliance period dates will be equal to the compliance period dates of the original violation.

7.14.3.3 Create Candidate Violations

Create Candidate Violations will operate as described in previous subsections except that the software will be creating only Candidate CDS Violations of type 75 or 76 as well as CDS PN Activities. All PN activities are associated to an enforcement action of type SIE or EIE. If the SIE or EIE is not associated to a violation or is associated to a violation that is not a federal violation, a type 76 candidate violation will be created.

Violations of type 75 will be created when the SIE or EIE associated to the PN activity is associated with a federal violation. The violation associated to the SIE or EIE will be referred to as the originating violation. The candidate type 75 violation will be associated to this originating violation. If the SIE or EIE is associated to more than one violation, the first violation associated will be associated to the type 75 violation.

When the candidate violation is migrated as validated or preliminary, if the violation period end date is valued, an SOX/EOX will be created for the violation using the violation period end date as the taken date.

7.15 Possible Increased Monitoring Assessment Report

Presentation Type 2: The information in this section reflects a Release 8.0 update to an existing documented design. As such, normal text means no change from the current 7.0 release; redline/redline strikeout indicates where the functionality of an existing object (such as a field, button, menu item, etc.) has changed or where new functionality has been added for Release 8.0.

By regulation, a public water system owner must monitor more frequently for a contaminant that is detected above a specified “trigger” level. The Possible Increased Monitoring Assessment Report will identify when a sampling point (typically an entry point to the distribution system) or water system at large (i.e., for lead and copper tap water sampling) is a candidate for increased monitoring for a given contaminant because it has been detected above its trigger level, and the system is not currently monitoring for the contaminant on a quarterly basis (semi-annual for lead and copper).

Users are already able to maintain the trigger levels that this process uses in the *System Administration* component. October 1999 JRP participants requested that the SDWIS/STATE Team pre-populate these trigger levels in the SDWIS/STATE database with those trigger levels specified in EPA’s NPDWR.

7.15.1 Model Changes

The Possible Increased Monitoring Assessment Report will continue to use the following four CDS reporting entities:

- CDS_CANDIDATE_MONITORING_ASSESSMENT.
- CDS_SCHEDULE.
- CDS_SAMPLE_RESULT.
- CDS_SAMPLE_SUMMARY_RESULT.

The CDS_CANDIDATE_MONITORING_ASSESSMENT is a parent table that will support the two schedule assessment reports (i.e., the Possible Increased Monitoring Assessment Report and the Possible Decreased Monitoring Assessment Report). The CDS_SCHEDULE entity also will support the two schedule assessment reports as well as the *Chemical/Radionuclide M&R Compliance Check*, the *Chemical/Radionuclide MCL Compliance Check* (part of *CDS Setup*), and the *Lead and Copper Tap M&R Compliance Check*. The

Entry Fields:

Analyte Code

The user may click the **Go To** button to invoke the Analyte Selection List or may enter a value directly into Analyte Code. The default sort for Analyte Selection List will be Analyte Code, in ascending alphabetical order. *The Analyte Selection List must not contain Analytes 3100, 3013, or 3014.* If the user enters a value in Analyte Code, on tabbing off the field, accept the specified analyte if it is an exact match. If the value entered is not an exact match, invoke the Analyte Selection List, sorted by ascending Analyte Code, from which the user may select an analyte. If the user specifies a partial string in this field, display the closest matching analyte code at the top of the list. (Closest matching means a match with the Analyte Code, sorted alphabetically, that starts with the same text string as supplied.) If no match is possible, display the entire list of analytes. If Analyte Code is valued, Analyte Group will be set to spaces. If the user enters analyte code 3100, 3013, or 3014, invoke exit state error message: *TCR Analytes 3100, 3013, or 3014 may not be selected for this report.*

Analyte Group Code

The user may click the **Go To** button to invoke the Analyte Group Selection List or may enter a value directly into Analyte Group Code. The default sort for Analyte Group Selection List will be Analyte Group Code, in ascending alphabetical order. If the user enters a value in Analyte Group Code, on tabbing off the field accept the specified analyte if it is an exact match. If the value entered is not an exact match, invoke the Analyte Group Selection List, sorted by ascending Analyte Group Code, from which the user may select an analyte group. If the user specifies a partial string in this field, display the closest matching analyte code at the top of the list. (Closest matching means a match with the Analyte Group Code, sorted alphabetically, that starts with the same text string as supplied.) If no match is possible, display the entire list of analytes groups. If Analyte Group Code is valued, Analyte Code will be set to spaces.

Regulating Agency

This field will map to table TINLGENT column NAME. Its value will default to the government agency that is marked as the primacy agency as long as the user is linked to that agency. If the user is not linked to the primacy agency, its value will default to the first government agency name, in alphabetic order, to which the user is linked (also the first one available on the Regulating Agency Selection List). The user may click

the **Go To** button to invoke the Regulating Agency Selection List or may enter a value directly into Regulating Agency.

- The Regulating Agency Selection List will display only those government agencies to which the user is associated.

(Developer's Note: Legal Entities of type GA where the Government Agency is associated to the Individual [through D_USER] through INDIVIDUAL_GOVERNMENT_AGENCY_ASGT. Use existing EBS_C_LGL_ENT_SELECT_LIST and EBS_S_COMMON_LEGAL_ENTITY client/server procedures.)

- The default sort for Regulating Agency Selection List is Name, in ascending alphabetical order.
- If the user enters a value in Regulating Agency, on tabbing off the field check both for an exact match and whether the current user is associated to the specified Agency. If both criteria are met, retrieve the specified regulating agency.
 - If the value entered is not an exact match, invoke the Regulating Agency Selection List, sorted by ascending Name, from which the user may select a regulating agency.
 - If the user specifies a partial string in this field, display the closest matching regulating agency at the top of the list. (Closest matching means a match with the Regulating Agency Name sorted alphabetically, that starts with the same text string as supplied.)
 - If the user specifies a valid government agency but is not associated to that agency (through *INDIVIDUAL_GOVERNMENT_AGENCY_ASGT*), present existing exit state error message to indicate that the selected government/regulating agency is not valid for the current user. (The SDWIS/STATE Administrator would need to link the user to that agency).

The prompt for the Regulating Agency field will be blue and underlined to indicate that this field is mandatory.

A date range is not necessary because this assessment report will look only for sample schedules that are currently candidates for increased monitoring; that is to say, Sample Schedules that are still in effect.

Tab Sequence:

Analyte Code, **Go To** button, Analyte Group Code, **Go To** button, Regulating Agency, **Go To** button, **OK** button, **Cancel** button, **Help** button.

Buttons:

OK Error messages that may be displayed upon clicking the **OK** button:

If neither an Analyte Code nor an Analyte Group is selected, invoke existing exit state error message: **Either an Analyte or Analyte Group must be entered.**

If the Regulating Agency field is left blank, invoke the following existing exit state error message: **Regulating Agency is a required field.**

Once processing has begun, the **Cancel** button should be disabled (so it is clear that canceling is not an option after processing has begun). At this point, the CDS Status window, previously shown in Subsection 2.1.9 will appear with its title bar reflecting the name of the selected report; in this case, Possible Increased Monitoring Assessment Report. As described for *CDS Setup*, Subsection 2.1.9, the processing gauge will show users the overall percentage of Results Alert Report processes that have completed; the smaller gauge shows the percentage of completion for each individual process, for example, "Clear Previous Candidates for Increased Monitoring" or "Identify Candidates for Increased Monitoring."

Cancel When the user presses this button, the software will disregard any data entered and return the user to the *Monitoring and Noncompliance* main menu.

Help Pressing this button will invoke online Help for this window.

7.15.3 Process Design Requirements

Processing for this function will involve three distinct processes:

- Clear Previous Candidates for Increased Monitoring.
- Identify Candidates for Increased Monitoring.
- Create Candidate Monitoring Assessment Record and Related Data.

These processes have been updated to take into consideration two items:

- The fact that Sample Schedules/Schedule Groups are not directly related to Sampling Points.
- The Monitoring Requirement Sample Types IN, FR, FE or SO have been replaced by a new relationship to Violation Type.

See Appendix E-7 (Identify Candidate Sample Schedules for Increased Monitoring) for detailed design information on these processes including updates made for Release 8.0. The additional information that was included in this section in the SDWIS/STATE Release 7.0 Design Document is not included due to space considerations.

7.16 Possible Decreased Monitoring Assessment Report

Presentation Type 2: The information in this section reflects a Release 8.0 update to an existing documented design. As such, normal text means no change from the current 7.0 release; redline/redline strikeout indicates where the functionality of an existing object (such as a field, button, menu item, etc.) has changed or where new functionality has been added for Release 8.0.

Periodically, compliance officers need to identify those Samples Schedules that need to be decreased in accordance with the monitoring requirements of the regulations they enforce. The Possible Decreased Monitoring Assessment Report is intended to assist compliance officers in this effort by presenting pertinent information, such as recent results and the history of Sample Schedules for those Sampling Points that may need a change in their Sample Schedule(s). Three different sections of this report will be provided as follows: Possible Reduced Quarterly Schedules, Possible Reduced Semi-Annual Schedules, and Possible Reduced Annual Schedules.

7.16.1 Model Changes

This report will use the same entities as described in Subsection 7.15.1.

7.16.2 GUI Entry Window Design Requirements

As previously mentioned, the same window used for the Possible Increased Monitoring Assessment Report will be used for the Possible Decreased Monitoring Assessment Report. Selecting **Edit/Compliance Decision Support/Possible Decreased Monitoring Assessment Report** will display the Possible Decreased Monitoring Assessment Report window. All edit checks previously discussed for this window in Subsection 7.15.2 will apply here.

7.16.3 Processing Design Requirements

Processing for this function will involve three distinct processes:

- Clear Previous Candidates for Decreased Monitoring.
- Identify Candidates for Decreased Monitoring.
- Create Candidate Monitoring Assessment Record and Related Data.

These processes have been updated to take into consideration two items:

- The fact that Sample Schedules/Schedule Groups are no longer directly related to Sampling Points.
- The Monitoring Requirement Sample Types IN, FR, FE and SO have been replaced by a new relationship to Violation Type.

See Appendix E-8 (Identify Candidate Sample Schedules for Decreased Monitoring) for detailed design information on these processes including updates made for Release 8.0. The additional information that was included in this section in the SDWIS/STATE Release 7.0 Design Document is not included for space considerations.

7.17 Migrate CDS Candidate Violations to SDWIS/STATE Violation Table

Presentation Type 2: The information in this section reflects a Release 8.0 update to an existing documented design. As such, normal text means no change from the current 7.0 release; redline/redline strikeout indicates where the functionality of an existing object (such as a field, button, menu item, etc.) has changed or where new functionality has been added for Release 8.0.

Once CDS Candidate Violations have been generated, either as a result of running *CDS Setup* or one of the CDS reports, the *Migrate CDS Candidate Violations* function will give users a way to easily migrate selected *CDS* candidate violations into the SDWIS/STATE Violation entity (table TMNVIOL) or delete them from the CDS Candidate Violation table.

Users will continue to access this function by selecting (from the *Monitoring and Noncompliance* main menu) menu item **Post-Compliance Decision Support Processing/Migrate CDS Candidate Violations**. Selecting this menu item will invoke the CDS Candidate Violation Search dialog box (Exhibit 7-61).

7.17.1 CDS Candidate Violation Search

Clicking the **Search** button will display the CDS Candidate Violation Migration List with those CDS candidate violations that meet the specified search criteria.

The screenshot shows a dialog box titled "CDS Candidate Violation Search". It is divided into three main sections. The first section, "Issuing Agency", has a text input field containing a pattern of 'x's and a ">>" button. The second section, "Analyte/Analyte Group", contains two rows. The first row has "Analyte Code" with a small text field containing 'xxxx', a ">>" button, and a larger patterned text field. The second row has "Analyte Group Code" with a small text field containing 'xxxx', a ">>" button, and a larger patterned text field. The third section, "Monitoring Period", contains four fields: "Begin Date" and "End Date" are date pickers showing "MM/DD/YY"; "Duration" is a dropdown menu; and "Mon. Period" is a text field with a pattern of 'x's and a ">>" button. At the bottom of the dialog are four buttons: "Search", "Clear", "Cancel", and "Help".

Exhibit 7-61. CDS Candidate Violation Search

Entry Fields:

Issuing Agency

This prompt for this field will be blue and underlined to indicate the field is mandatory. This field will map to the TINLGENT column NAME. Its value will default to the government agency that is marked as the primacy agency as long as the user is linked to that agency. If the user is not linked to the primacy agency, its value will default to the first

government agency name, in alphabetic order, to which the user is linked (also the first one available on the Issuing Agency Selection List). The user may click the **Go To** button, which will invoke the Issuing Agency Selection List, or may enter a value directly into the Issuing Agency field. This will limit the search to those candidate violations for water systems for which the user has jurisdiction.

- The Issuing Agency Selection List will display only those government agencies to which the user is associated.

(Developer's Note: For Legal Entities of type GA where the Government Agency is associated to the Individual (through D_USER) through Individual Government Agency Asgt, use the existing MBS Violation Issuing Agency Selection List or EBS_C_LGL_ENT_SELECT_LIST and EBS_S_COMMON_LEGAL_ENTITY client/server procedures.)

- The default sort for Issuing Agency Selection List will be Name, in ascending alphabetical order.
- If the user enters a value in Issuing Agency, on tabbing off the field check both for an exact match and whether the current user is associated to the specified Agency. If both criteria are met, the software will retrieve the specified Issuing Agency.
 - If the value entered is not an exact match, invoke the Issuing Agency Selection List, sorted by ascending Name, from where the user may select an Issuing agency.
 - If the user specifies a partial string in this field, display the closest matching Issuing agency at the top of the list. (Closest matching means a match with the Issuing Agency Name, sorted alphabetically, that starts with the same text string as supplied.)
 - If the user specifies a valid government agency but is not associated to that agency (through Individual Government Agency Asgt), present existing exit state error message to indicate that the selected government/issuing agency is not valid for the current user. (The SDWIS/STATE Administrator will need to link the user to that agency).

Analyte Code

This field will map to table TSAANLYT column CODE. As the user enters data and tabs off this field, the Analyte Group Code field on the dialog box will be protected. Conversely, clearing this field of data (that is, backspacing or deleting from the field), will enable/unprotect the Analyte Group Code field on this dialog box. This field may be entered, selected from a list by clicking the **Go To** button, or left blank. If the user specifies a complete Analyte Code, attempt an exact match. If an exact match is found, accept the entered value. If an exact match is not found or the user specifies a partial string in this field, display the closest matching analyte code at the top of the Analyte Selection List. (Closest matching means a match with the Analyte Code, sorted alphabetically, that starts with the same text string as supplied.) If no match is possible, the entire list of analytes will be displayed. The default sort for this search will be Analyte Code, in ascending alphabetical order. Clicking the **Go To** button will display the Analyte Selection List with the same default sort. ~~This group box is blue to indicate that an analyte or analyte group must be specified.~~

(Developer's Note: Use the existing SBS_ANALYTE_SELECT_LIST procedure.)

Analyte Group Code

This field will map to table TSAANGRP column CODE. As the user enters data and tabs off this field, the Analyte Code field on this dialog box will be protected. Conversely, clearing this field of data (that is, backspacing or deleting from the field) enables/unprotects the Analyte Code field on this dialog box. This field may be entered, selected from a list by clicking the **Go To** button, or left blank. If the user specifies a complete Analyte Group Code, attempt an exact match. If an exact match is found, retrieve the analyte group and populate the protected Analyte Group Name field. If an exact match is not found or the user specifies a partial string in this field, display the closest matching analyte group code at the top of the Analyte Group Selection List. (Closest matching means a match with the Analyte Group Code, sorted alphabetically, that starts with the same text string as supplied.) If no match is possible, display the entire list of analyte groups. The default sort for this search will be Analyte Group Code in ascending alphabetical order. Clicking the **Go To** button will display the Analyte Group Selection List with the same default sort. ~~This group box is blue to indicate that an analyte or analyte group must be specified.~~

*(Developer's Note: Use the existing
SBS_ANALYTE_GROUP_SELECT_LIST procedure.)*

Monitoring Period Group Box:

~~This group box is blue to indicate that a monitoring period must be specified.~~

[Monitoring Period]

Begin Date

If Begin Date and either End Date or Duration are valued, retrieve the monitoring period that matches the criteria and display it in all monitoring period fields. If no monitoring period exists that matches the criteria, invoke the Monitoring Period Selection List. ~~The software does not do anything if only Begin Date is valued.~~ Since this data is not mandatory, if the user enters data that does not result in the retrieval of a valid monitoring period, the search will be performed based on the other criteria selected. For example, if the user enters Begin Date, End Date, and Duration, but there is no monitoring period that matches those criteria, the software will not inform the user that no valid monitoring period exists that matches the specified criteria. When the user presses **Search**, the software will perform the search as if the user had not entered any Monitoring Period criteria.

(Developer's Note: Use the existing MBS Monitoring Period Selection List.)

[Monitoring Period]

End Date

If End Date and either Begin Date or Duration are valued, retrieve the monitoring period that matches the criteria and display it in all monitoring period fields. If no monitoring period exists that matches the criteria, invoke the Monitoring Period Selection List. ~~The software does not do anything if only End Date is valued.~~

[Monitoring Period]

Duration

If Duration and either Begin Date or End Date are valued, retrieve the monitoring period that matches the criteria and display it in all monitoring period fields. If no monitoring period exists that matches the criteria, invoke the Monitoring Period Selection List. ~~The software does not do anything if only Duration is valued.~~

Mon. Period

[Name]

If the user enters a valid monitoring period name, retrieve the monitoring period that matches the criteria and display it in all monitoring period

fields. If the user enters a partial string or an invalid monitoring period name, invoke the Monitoring Period Selection List. The **Go To** button will invoke the Monitoring Period Selection List.

(Developer's Note: Use the same Monitoring Period Selection List as is used with online Violation Maintenance.)

Tab Sequence:

Issuing Agency, Issuing Agency **Go To** button, Analyte Code, Analyte Code **Go To** button, Analyte Group Code, Analyte Group Code **Go To** button, [Monitoring Period] Begin Date, [Monitoring Period] Duration, [Monitoring Period] End Date, Mon. Period [Name], Monitoring Period **Go To** button, **Search** button, **Clear** button, **Cancel** button, **Help** button.

Buttons:

Search

In Release 7.0, the user must enter either an Analyte Code or Analyte Group Code. This is being changed for Release 8.0 so that the user does not have to enter either of these. The software will perform a search based on the criteria entered on the CDS Candidate Violation Search dialog box and retrieve records based on the following logic:

- Select each Candidate Violation associated to each Water System, where Water System's Regulating Agency is assigned to selected Issuing Agency (note that this part of the search is against the TINWSYS using TINRAA and TINLGENT).
- If an Analyte Code or Analyte Group Code has been valued, additionally limit selection of Candidate Violations to those ~~select each CDS Candidate Violation associated to the current Water System and associated to~~ Analyte Code/Analyte Group Code = (user-specified Analyte Code/Analyte Group Code). (Note: If the user specifies an Analyte Group, **Search** will look both for candidate violations with the same Analyte Group Code as well as for candidate violations with an Analyte Code that is part of the Analyte Group selected. In order to do the latter, **Search** needs to use TSAANGRP, TSAAGA, and TSAANLYT.).

If a valid Monitoring Period has been valued, additionally limit selection of Candidate Violations to those associated to Monitoring Period = (user specified monitoring period). If no valid Monitoring Period can be

retrieved, the search will be performed as if no Monitoring Period has been selected.

Populate the CDS Candidate Violation Maintenance List.

Clear Pressing this button will clear out data from all fields on the search dialog box and enable all fields (that may have been protected).

Cancel When the user presses this button, the software will disregard any data entered and return the user to the *Monitoring and Noncompliance* main menu.

Help Pressing this button will invoke online Help for this window.

CDS candidate violations retrieved from the search will appear on the CDS Candidate Violation Migration List (Exhibit 7-62).

7.17.2 CDS Candidate Violation Migration List

The CDS Candidate Violation Migration List, which displays up to 1,000 records at a time, will list *CDS* candidate violations that meet the search criteria specified on the CDS Candidate Violation Search dialog box. This list will provide the user with the capability to select one, several, or all violations to migrate into SDWIS/STATE as violations, or to delete them. *CDS* candidate violations will be migrated into SDWIS/STATE as rejected, ~~Potential~~, preliminary, or validated violations. The CDS Candidate Violation Migration List window will be enhanced for Release 8.0 to enable a user to review the data used to determine a candidate violation.

Edit

- Select All* Selecting **Edit/Select All** will select all violations on the list.
- Migrate as Preliminary* Selecting **Edit/Migrate as Preliminary** will invoke the Issuing Agency and Fiscal Year dialog box from where the user can change or revalidate the Issuing Agency and fiscal year, then migrate all violations that are selected into the SDWIS/STATE Violation table (TMNVIOL) as Preliminary violations.
- Migrate as Validated* Selecting **Edit/Migrate as Validated** will invoke the Issuing Agency and Fiscal Year dialog box from where user can change or revalidate the Issuing Agency and fiscal year, then migrate all violations that are selected into the SDWIS/STATE Violation table (TMNVIOL) as validated violations.
- Migrate as Rejected* Selecting **Edit/Migrate as Rejected** will invoke the Issuing Agency and Fiscal Year dialog box from where user can indicate the reason for rejecting the candidate violation(s) and change or revalidate the Issuing Agency and fiscal year. The software will then migrate all violations that are selected into the SDWIS/STATE Violation table (TMNVIOL) as rejected violations.
- Enabling users to create “rejected” violations will make this capability consistent with the ability to do this using Violation Maintenance.
- Delete Reject* Selecting **Edit/Delete** will delete all violations that are selected from the CDS Candidate Violation table. No delete confirmation dialog box will be necessary. Deleting **Rejecting** a CDS Candidate Violation will delete it from the list and from the CDS table as well as all related child records (e.g., CDS Results, CDS Sample Schedule, CDS FANL, etc.). There will be no further record of that candidate violation.

View

- Search* Selecting **View/Search** will invoke CDS Candidate Violation Search.
- Filter by* Selecting **View/Filter** by will allow the user to filter by Violation Type, Analyte Code, Analyte Group Code, Water System Number.

<i>Sort</i>	Selecting View/Sort will invoke the standard Sort window.
<i>Refresh</i>	Selecting View/Refresh will retrieve the unfiltered list (original search criteria).
<i>Detail</i>	View/Detail will be enabled only if one record is selected. Selecting View/Detail will invoke the Candidate Violation Detail window.

7.17.2.1 Issuing Agency Dialog Box

Selecting either **Edit/Migrate as Preliminary**, **Edit/Migrate as Validated** or **Edit/Migrate as Rejected**, invokes the Issuing Agency Selection dialog box, Exhibit 7-63 . This dialog box will have the following text as a literal: **All selected CDS candidate violations will be migrated with the following government agency as the issuing agency, fiscal year and, if entered, comments.**

Protected Fields:

The selected violation(s) will be migrated with a status of

This protected field will be valued with either Validated, Preliminary, or Rejected depending on which was selected by the user.

If the violation type category code, for one or more of the selected candidate violations, is:

- Equal to "MON" and the Compliance Period End Date is valued and is future or
- Equal to "PN" or "RPT" and the Violation Period Begin Date is valued and is future or
- Equal to "MCL" or "TT" and the Compliance Period Begin Date is valued and is future;

Add the following literal to the dialog box as well: **One or more of the selected violations will be migrated with a future Compliance or Violation Period (i.e., Compliance Period End Date is future for an M&R violation or Compliance Period Begin Date is future for a MCL or TT violation or Violation Period Begin Date is future for a PN or RPT violation).**

Entry Fields:

Issuing Agency

This prompt for this field will be blue and underlined to indicate it is mandatory. The software will carry forward the Issuing Agency that the user picked on the CDS Candidate Violation Search dialog box. If the user changes the value, it will apply the same specifications to this field as exist for the Issuing Agency field on the CDS Candidate Violation Search dialog box.

*Violations to be
Migrated
for Fiscal Year*

This prompt for this field will be blue and underlined to indicate that it is mandatory. This will be a 4-digit number field variable, which will allow the user to enter the four-digit fiscal year that will be assigned to any potential violations that the TCR NCD software creates. The default value for [Fiscal Year] will be the *current* fiscal year. (The federal fiscal year runs from October 1 through September 30—October 1, 2001 is in fiscal year 2002). Therefore, the software will set the default in this way: If the month of current date is 1—9, the last two digits will default to current YY; if the month of current date is 10—12, the last two digits will default to current YY + 1.

Comments

The user may optionally enter any desired comments (e.g., if rejecting the violation, the reason for rejecting it). This field can contain up to 2000 characters.

- Check that the Issuing Agency has been selected/retrieved. If this field is blank, stop processing and present the existing exit state error message: Issuing Agency must not be blank.
- A new edit check will be inserted at the start of the migration process that will check that the Fiscal Year has been entered, and is a valid, four-digit year that is not a future fiscal year (note that October to December of a given year falls into the next fiscal year, so if the user is running Noncompliance in one of these three months, the current fiscal year will be equal to the current calendar year plus one). The value entered in [fiscal year] must be \leq current federal fiscal year. If the value is $>$ current federal fiscal year, invoke existing error exit state message: **Fiscal Year must be same as/prior to current federal fiscal year.**

The software will then set field FED_FISCAL_YEAR of each migrated violation to the user-specified fiscal year.

- Once the Issuing Agency has been retrieved, disable the **Cancel** button (so it is clear that canceling is not an option after processing has begun).
- Start the migration of the selected *CDS* candidate violations to the SDWIS/STATE Violation table as rejected, preliminary, or validated, depending on which option the user selects.
 - Where an M&R candidate violation is determined as the result of failure to monitor according to an analyte group schedule (i.e., where CDS Candidate Violation field Analyte Group Code is valued), this function will migrate the candidate violation as a violation group and create hidden violations for each analyte in the analyte group that are associated to the violation group.
 - Where field Analyte Code is valued, this function will migrate the candidate violation as an individual violation.
- Impose the duplicate by data edit checks introduced with Release 6.1 (and restated in Subsection 7.6) prior to creating actual violations in the Violation (table TMNVIOL). The software will increment each time an individual violation is created and each

time a violation group is created but will not increment for the creation of a hidden violation. If a selected CDS candidate violation matches the same criteria as an existing violation in table TMNVIOL or if a CDS candidate violation group will create a hidden violation that matches the same criteria as an existing violation in table TMNVIOL, the software will not create a duplicate violation or violation group. Instead it will record the CDS candidate violation or violation group that was not created in the Duplicate CDS Candidate Violations Report and move on to process the next candidate.

- Set the Fiscal Year of the created violation to the year entered on the Issuing Agency and Fiscal Year dialog box.
- If an MCL-type CDS Candidate Violation is linked to one or more CDS sample analytical results, when the actual MCL violation is created in TMNVIOL, link the new violation record to the equivalent sample analytical results in SDWIS/STATE (i.e., in SAMPLE_ANALYTICAL_RESULT entity).
- If an M&R-type CDS Candidate Violation is linked to a candidate monitoring schedule, when the actual M&R violation is created in TMNVIOL, link the new violation to the equivalent sample schedule in SDWIS/STATE (i.e., SAMPLE_SCHEDULE entity).
- If a candidate violation is associated to a CDS facility analyte level, when the violation is created in TMNVIOL, link the new violation to the equivalent record in the Facility Analyte Level entity.
- If a candidate violation is associated to a CDS facility analyte level, when the violation is created in TMNVIOL, link the new violation to the equivalent record in the Facility Analyte Level entity.
- If a candidate violation is associated to a CDS MDBP Summary, when the violation is created in TMNVIOL, link the new violation to the equivalent summary in the new MDBP_SUMMARY entity.

- If a candidate violation is associated to a CDS PN Activity, when the violation is created in TMNVIOL, link the new violation to the equivalent record(s) in the PUBLIC_NOTIFICATION_ACTIVITY entity.
- When migrating, as validated or preliminary, a candidate violation whose Violation Type Code is “75” and Violation Period End is valued:
 - Create an Enforcement Action record as follows and associate it to the newly created violation:
 - Link it to Action Type SOX and set the SDWIS/FED Data Origin Code to “State” if the primacy agency is a State or link it to Action Type EOX and set the SDWIS/FED Data Origin Code to “Region” if the primacy agency is an EPA Region;
 - Set its Status Date to the CDS Violation Period End date;
 - Set its Status to “Taken” if the violation is migrated as Validated and “Potential” if the violation is migrated as Preliminary;
 - Link it to the same agency selected by the user on the Issuing Agency dialog box.
 - Associate the Enforcement Action record to the Violation record.
 - Write to the Post Candidate Violation Migration Report that the software created a SOX or EOX enforcement action and associated it to the violation with the following: **A SOX/EOX enforcement action was created and associated to Water System No. [] Violation No. [Fed Fiscal Year concatenated to Violation EXSN with a space in between].**
- Invoke the CDS Candidate Violation Migration Complete dialog box when all selected candidate violations have been processed. The dialog box will have the following text as a literal:

Migration of CDS Candidate Violations is complete. CDS Candidate Violations selected: [] Violations created: []. This dialog box will have an **OK** button (which will close the dialog box) and the **View-Duplicate-CDS-Candidate-Violations Post Candidate Violation Migration Report** button, which will be visible only if the migration created a report. If no report was created, this button will not appear on the dialog box. When the **View-Duplicate-CDS-Candidate-Violations Post Candidate Violation Migration Report** button is enabled, pressing it will invoke the **Duplicate-CDS-Candidate-Violations Post Candidate Violation Migration Report** described in the next section.

7.17.3 Report (Output) Requirements

The expectation is that the number of *CDS* candidate violations selected for migration and the number of violations created in the TMNVIOL table will normally be the same. ~~When they are the same, no report is created.~~ The only reason that these two numbers may not match is when the software encounters a duplicate violation. The ~~Duplicate-CDS-Candidate-Violations Post Candidate Violation Migration Report~~ will provide two types of information:

- Candidate Violations that could not be migrated because a duplicate existed. It will show individual *CDS* candidate violations and violation groups that could not be migrated. Where a violation group cannot be created (because one or more of its hidden *CDS* candidate violations already exists), the report will also list all of the hidden violations in the violation group that cannot be created with enough information to identify the existing violations/violation groups using the online Violation Search window.
- The creation of a SOX/EOX enforcement action that was linked to the migrated violation.
- The report will be located under C:\SDWIS\CDS\~~DUP_VIOL~~ POST_MIG. Each report will use the following naming convention: ~~DUPVIOL~~_POSTMIG_20011105174324.RPT. Users will need to use desktop tools to review and/or remove old ~~DUP_VIOL~~ POST_MIG reports.

7.18 CDS Reports Log

Presentation Type 2: The information in this section reflects a Release 8.0 update to an existing documented design. As such, normal text means no change from the current 7.0 release; redline/redline strikeout indicates where the functionality of an existing object (such as a field, button, menu item, etc.) has changed or where new functionality has been added for Release 8.0.

Users need a way to view the log, so they can review when they last ran a particular type of CDS report, view and print the results of previous CDS reports, and delete CDS Report Log records (and the CDS reporting entity records associated with them) when it is no longer useful to keep them. The CDS Report Log will satisfy this requirement. It will keep a record of each time the user runs a CDS report or CDS Setup will determine an exceedence (chlorite or chlorine dioxide) or candidate MCL violation. The CDS Report Log will store the options that users selected when the report was executed and let users look at the errors associated with any given report.

7.18.1 Model Changes

The following new attributes will be added to entity CDS_REPORT_LOG:.

- MRDL Selection Indicator (MRDL_SEL_IND).
- MRDLG Selection Indicator (MRDLG_SEL_IND).
- Turbidity Selection Indicator (TURB_SEL_IND).
- Federal Entry Point RDC Selection Indicator (F_EP_RDC_SEL_IND).
- State Entry Point RDC Selection Indicator (S_EP_RDC_SEL_IND).
- Federal Distribution System RDC Selection Indicator (F_DS_RDC_SEL_IND).
- State Distribution System RDC Selection Indicator (S_DS_RDC_SEL_IND).
- DBP Precursors Selection Indicator (PRECURSORS_SEL_IND).
- Bromate/Bromide M&R Selection Indicator (BROM_MR_SEL_IND).
- Chlorine/Chloramine MRDL Selection Indicator (CL2_SEL_IND).
- Entry Point Chlorine Dioxide/Chlorite Selection Indicator (CIO2CLO3EP_SEL_IND).
- Distribution Chlorine Dioxide/Chlorite Selection Indicator (CIO2CLO3DS_SEL_IND).
- TTHM and HAA5 M&R Selection Indicator (TTHMHAA_SEL_IND).
- Create Chlorine/Chloramine MRDL Summaries Selection Indicator (CREATE_CL2_SEL_IND).
- PN Required Date Range Begin Date (PN_RQD_DT_RNG_BGN).
- PN Required Date Range End Date (PN_RQD_DT_RNG_END).
- Proof of PN Required Date Range Begin Date (PPN_RQD_DT_RNG_BGN).
- Proof of PN Required Date Range End Date (PPN_RQD_DT_RNG_END).

The following new permitted values (and descriptions) will be added to attribute REPORT_TYPE:

- AR - Results Alert Report.
- DM - Decreased Monitoring Assessment Report.
- IM - Increased Monitoring Assessment Report.
- MCL - MCL Compliance Check by CDS Setup.
- MR - Chem/Rad M&R ~~Monitoring and Reporting~~ Compliance Report.
- CD - Chlorite/Chlorine Dioxide Exceedence Check by CDS Setup.

- LC - Lead & Copper Rule Compliance Report.
- SW - Surface Water Treatment Compliance Report.
- DD - D/DBP Compliance Report.
- UD - User Defined Summary Compliance Report.
- PN - Public Notification Compliance Report.

See Appendix A for the structure of this entity.

7.18.2 CDS Report Log Maintenance Window Flow

On the *Monitoring and Noncompliance* main menu the user will select menu item **Edit/Post Compliance Decision Support Processing/Review Reports Log and Reports** to invoke the CDS Report Log Search dialog box (Exhibit 7-64). Clicking the **Search** button will display the CDS Report Log Maintenance List with those CDS Report Log records that meet the specified search criteria.

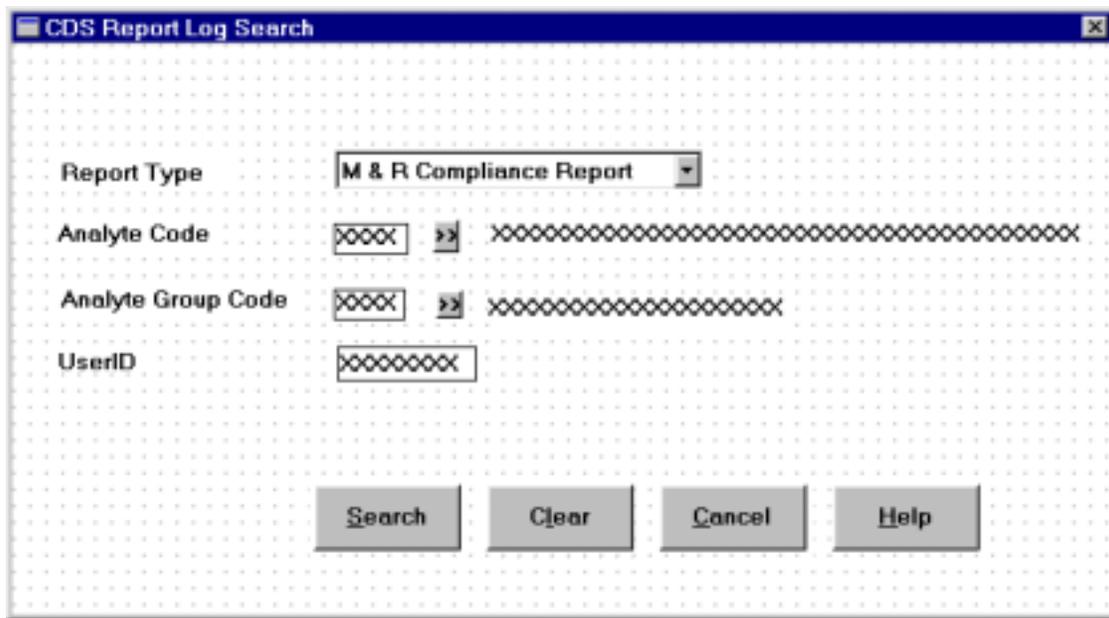


Exhibit 7-64. CDS Report Log Search

Entry Fields:

Report Type The Report Type field will have a dropdown list with the following values:

Results Alert Report.
MCL Compliance Check by CDS Setup Report.
Chlorite/Chlorine Dioxide Exceedence Check by CDS Setup.
Chem/Rad M&R Compliance Report.
Lead & Copper Rule Compliance Report.
Surface Water Treatment Compliance Report.
D/DBP Compliance Report.
User Defined Summary Compliance Report.
Public Notification Compliance Report.
Possible Increased Monitoring Assessment Report.
Possible Decreased Monitoring Assessment Report.

The user may select one of these values or may leave this field blank. If this field is blank the search result will include all types of report logs. Upon tabbing off this field, if the value is Results Alert Report or Chem/Rad M&R Compliance Report enable the Analyte Code and Analyte Group fields.

Analyte Code

This field will be enabled only if the user selects Results Alert Report or Chem/Rad M&R Compliance Report in the Report Type field. The user may click the **Go To** button to invoke the Analyte Selection List or may enter a value directly into Analyte Code. The default sort for Analyte Selection List will be Analyte Code, in ascending alphabetical order. *The Analyte Selection List must not contain analytes 3100, 3013, or 3014.* If the user enters a value in Analyte Code, on tabbing off the field accept the specified analyte if it is an exact match. If the value entered is not an exact match, invoke the Analyte Selection List, sorted by ascending Analyte Code, from which the user may select an analyte. If the user specifies a partial string in this field, display the closest matching analyte code at the top of the list. (Closest matching means a match with the Analyte Code, sorted alphabetically, that starts with the same text string as supplied.) If no match is possible, display the entire list of analytes. If Analyte Code is valued, Analyte Group will be set to spaces. If the user enters analyte code 3100, 3013, or 3014, invoke exit state error message: *TCR Analytes 3100, 3013, or 3014 may not be selected for this report.*

(Developer's Note: Use the existing SBS_ANALYTE_SELECT_LIST procedure.)

*Analyte Group
Code*

This field will be enabled only if the user selects Results Alert Report or Chem/Rad M&R Compliance Report in the Report Type field. The user

may click the **Go To** button to invoke the Analyte Group Selection List or may enter a value directly into Analyte Group Code. The default sort for Analyte Group Selection List will be Analyte Group Code, in ascending alphabetical order. If the user enters a value in Analyte Group Code, on tabbing off the field accept the specified analyte if it is an exact match. If the value entered is not an exact match, invoke the Analyte Group Selection List window, sorted by ascending Analyte Group Code, from which the user may select an analyte group. If the user specifies a partial string in this field, display the closest matching analyte code at the top of the list. (Closest matching means a match with the Analyte Group Code, sorted alphabetically, that starts with the same text string as supplied.) If no match is possible, display the entire list of analytes groups. If Analyte Group Code is valued, Analyte Code will be set to spaces.

*(Developer's Note: Use the existing
SBS_ANALYTE_GROUP_SELECT_LIST procedure.)*

UserID

The user may or may not enter this field. If this field is valued, then the search will be limited to report logs generated by the selected user; if it is blank, all the report logs will be returned in this list. In order to see report logs created by *CDS Setup* for MCL Compliance Reports, the user must either enter "CDSSETUP" or leave the field blank.

Tab Sequence:

Report Type, Analyte Code, Analyte Code **Go To** button, Analyte Group Code, Analyte Group Code **Go To** button, UserID, **Search** button, **Clear** button, **Cancel** button, **Help** button.

Buttons:

Search

Performs search based on the criteria entered on the CDS Report Log Search dialog box and retrieves records based on the following logic:

Select all CDS Report Log records where Report type = [user specified Report Type] and (Analyte Code = [user specified Analyte Code] or Analyte Group Code = [user specified Analyte Group Code]) and Report Run User ID = [user specified UserID] .

If none of the fields is entered, the search will return all the records in the database.

MRDL, Turbidity, Fed EP RDC, State EP RDC, Fed DS RDC, State DS RDC, Precursors, Br MR, CL2MRDL, CLO2/CLO3 EP, CLO2/CLO3 DS, TTHM/HAA, AL, LCR Tap, WQP, SOWT.

The CDS Report Log Maintenance List, which will display up to 1,000 records at a time, will list CDS Report Logs that meet the search criteria specified on the CDS Report Log Search dialog box. This list will provide the user with the capability to select a report Log and either view the details of the Report Log, or view the report corresponding to this Report Log, or view the errors generated by the execution corresponding to this Report Log, or Clear one or more of the Report logs and their underlying reporting data.

Menu:

File

Exit Selecting **File/Exit** will return the user to the *Monitoring and Noncompliance* main menu.

Edit

Detail Selecting **Edit/Detail** will invoke the CDS Report Log Detail dialog box (Exhibit 7-66) and display the detailed information of the Report Log selected. (If more than one row is selected the first row selected will be the one displayed in the Detail dialog box.)

Report Selecting **Edit/Report** will invoke the MS Access report that corresponds to the report type selected from the Report Log. (If more than one row is selected, the report corresponding to the first row selected will be displayed.) It is important to note that if a given Report Type has been run more than once with the same or overlapping criteria, the older report may not return exactly the same records it did when it was first run because only the most recent candidate records will be retained in the CDS candidate entities. For example, say a user on April 10 ran the Chem/Rad M&R compliance for all water systems in the state for nitrate for the first quarter of the year. Then, on April 11, five more nitrate results for the first quarter were entered into SDWIS/STATE. Then, on April 15, the user re-ran this same report. When the user views the log records, there will be two for the first quarter of the year. If the user picked the older log record for viewing, five M&R violations, which originally were reported during that run, would no longer be included in the report.

Errors Selecting **Edit/Errors** will invoke the CDS Execution Errors Report if it exists, which corresponds to the selected Report Log. (If more than one row is selected, the report corresponding to the first row selected will be displayed.)

Delete Selecting **Edit/Delete** will delete all selected Report Logs as well as any CDS report entity records (e.g., CDS_CANDIDATE_EXCEEDENCES, CDS_CANDIDATE_VIOLATIONS, CDS_CANDIDATE_MNTRG_ASSESSMENTS) that may be associated with the record(s) in the Report Log. No delete confirmation dialog box will be necessary.

Select All Selecting **Edit/Select All** will select all Report Logs on the list.

View

Search Selecting **View/Search** will invoke CDS Report Log Search.

Filter by Selecting **View/Filter by** will allow the user to filter by Report Type, User ID, Analyte, Analyte Group, Regulating Agency.

Sort Selecting **View/Sort** will invoke the standard Sort window.

Refresh Selecting **View/Sort** will retrieve the unfiltered list (original search criteria).

Protected Fields:

*Number of rows
resulting
from search*

Will show the total number of rows that met the search criteria.

*Number of rows
displayed*

Will show the total number of rows that are displayed in the list, which may be less than the number of rows that met the search criteria.

The CDS Report Log Detail window (Exhibit 7-66) will display the options that the user selected prior to executing when the report. Depending on the report type, some of the fields that are not relevant will either be blank or not be displayed as follows: ~~For example,~~

Either the Threshold Levels Selected group box or the Compliance Indicators Selected group box will be displayed. Likewise, either the Confirmation Schedule checkbox or the Create Chlorine/Chloramine MRDL checkbox will be displayed.

CDS Report Log Detail

Report Type: [Dropdown]

Report Executed by: XXXXXXXX Time of Report Execution: YYYY-MM-DD-HH.MI.SS.NNNNNN

Regulating Agency: XX

Analyte/Analyte Group

Analyte Code	XXXX	Name	XX
Analyte Group Code	XXXX	Name	XX

Duration

Data Entry Date Range Begin MM/DD/YYYY End MM/DD/YYYY

Sample Collection Date Range Monitoring Period Name XXXXXXXXXXXXXXXX

Monitoring Period Duration [Dropdown]

Applicable Period End Date Range

PN Required Date Range

Proof of PN Required Date Range

Confirmation Schedule

Threshold Levels Selected

<input type="checkbox"/> ACL	<input type="checkbox"/> MCL	<input type="checkbox"/> MCLG	<input type="checkbox"/> URTH	<input type="checkbox"/> Trigger Level
<input type="checkbox"/> WSF Max	<input type="checkbox"/> WSF Min	<input type="checkbox"/> RMDL	<input type="checkbox"/> PQR	<input type="checkbox"/> PLR
<input type="checkbox"/> MRDL	<input type="checkbox"/> MRDLG			

OK Help

Exhibit 7-66. CDS Report Log Detail

If one of the following is the Report Type of the selected log record, the software will display the Threshold Levels Selected group box and the Confirmation Schedule checkbox:

- Results Alert Report.
- MCL Compliance Check by CDS Setup.
- Chlorite/Chlorine Dioxide Exceedence Check by CDS Setup.
- Chem/Rad M&R Compliance Report.
- Public Notification Compliance Report.
- Possible Increased Monitoring Assessment Report.
- Possible Decreased Monitoring Assessment Report.

If one of the following is the Report Type of the selected log record, the software will display the Compliance Indicators Selected group box and the Create Chlorine/Chloramine MRDL checkbox:

- Lead & Copper Rule Compliance Report.
- Surface Water Treatment Compliance Report.
- D/DBP Compliance Report.
- User Defined Summary Compliance Report.

All of the fields in the window will be mapped from the CDS_REPORT_LOG entity.

Buttons:

OK Pressing this button will close this protected window and return the user to the CDS Report Log Maintenance List.

Help Pressing this button will invoke online Help for this window.

8.0 MIGRATION TO SDWIS/FED

The new rules have triggered changes to the *Migration to SDWIS/FED* component of SDWIS/STATE, as described below.

8.1 Migration to SDWIS/FED: Inventory

Presentation Type 3: The information in this section is not a comprehensive design of this function and only reflects Release 8.0 changes/new functionality. As such, normal text means new functionality (e.g., a new button, window, etc. is introduced); redline/redline strikeout indicates where the functionality of an existing object (such as a field, button, menu item, etc.) has changed.

8.1.1 Contacts

Two new attributes, COUNTRY_CODE and INTERNATIONAL_POSTAL_CODE, have been added to LEGAL_ENTITY to enable users to store international addresses. This subsection specifies changes to *Migration to SDWIS/FED* to enable the reporting of international addresses.

8.1.1.1 Form A1

Change the process of creating Form A1 transactions in *Migration to SDWIS/FED* so that:

- If COUNTRY_CODE is valued and is equal to “CA,” then:
 - A transaction for C0141—Zip Code is not created.
 - A transaction for new data element C0140—Country Code is created using the value stored in attribute COUNTRY_CODE in LEGAL_ENTITY.
 - A transaction for C0142—International Postal Code is created if INTERNATIONAL_POSTAL_CODE in LEGAL_ENTITY is valued.
- If COUNTRY_CODE is valued and is not equal to “US” or “CA,” then:
 - Do not create a transaction for C0139—State.
 - Do not create a transaction for C0141—Zip Code.
 - Do create a transaction for new data element C0140—Country Code using the value stored in attribute COUNTRY_CODE in LEGAL_ENTITY.

- Do create a transaction for C0142—International Postal Code if INTERNATIONAL_POSTAL_CODE in LEGAL_ENTITY is valued.

Note that the processing that determines if Form A1 transactions are needed will not change if Country Code is equal to “US” or is null.

8.1.1.2 Form A3

Change the process of creating Form A3 transactions in *Migration to SDWIS/FED* so that:

- If Country Code is valued and is equal to “CA,” then:
 - A transaction for C0315—Zip Code is not created
 - A transaction for new data element C0314—Country Code is created using the value stored in attribute COUNTRY_CODE in LEGAL_ENTITY.
 - A transaction for C0316—International Postal Code is created if INTERNATIONAL_POSTAL_CODE in LEGAL_ENTITY is valued.
- If COUNTRY_CODE is valued and is not equal to “US” or “CA,” then:
 - Do not create a transaction for C0313—State.
 - Do not create a transaction for C0315—Zip Code.
 - Do create a transaction for new data element C0314—Country Code using the value stored in attribute COUNTRY_CODE in LEGAL_ENTITY.
 - Do create a transaction for C0316—International Postal Code if INTERNATIONAL_POSTAL_CODE in LEGAL_ENTITY is valued.

Note that the processing that determines if Form A3 transactions are needed will not change if Country Code is equal to “US” or is null.

8.1.1.3 Form B4

Change the process of creating Form B4 transactions in *Migration to SDWIS/FED* so that:

- If Country Code is valued and is equal to “CA,” then:
 - A transaction for C0360—Zip Code is not created
 - A transaction for new data element C0361—Country Code is created using the value stored in attribute COUNTRY_CODE in LEGAL_ENTITY.
 - A transaction for C0362—International Postal Code is created if INTERNATIONAL_POSTAL_CODE in LEGAL_ENTITY is valued
- If Country Code is valued and is not equal to “US” or “CA,” then:
 - Do not create a transaction for C0359—State.
 - Do not create a transaction for C0360VZip Code.
 - Do create a transaction for new data element C0361VCountry Code using the value stored in attribute COUNTRY_CODE in LEGAL_ENTITY.
 - Do create a transaction for C0362—International Postal Code if INTERNATIONAL_POSTAL_CODE in LEGAL_ENTITY is valued.

Note that the processing that determines if Form B4 transactions are needed will not change if Country Code is equal to “US” or is null.

8.1.2 Milestones

Three changes need to be made in the way that milestones are selected and/or written to the Data Transfer File (DTF).

- Milestone Value (element C0815) is now an optional field when Milestone Code (C0805) is LSLR. Currently, the software requires Milestone Value (C0815) to be valued when Milestone Code (C0805) is Lead Service Line Replacement (LSLR).
- Milestone End Date (C804) may be reported only when Milestone Code (C805) = “DONE.” MILESTONE END DATE must be greater than the MILESTONE DATE. Report in the form “YYYYMMDD” or “MMDDYYYY” where:

YYYY	Calendar	Year.
MM		Calendar Month.
DD		Calendar Day.

- If the Primacy Agency is defined as type Regional (RG), the software will select milestones that otherwise meet reporting criteria for inclusion in the DTF and whose DATA_ORIGIN_CODE is equal to R. Otherwise, if the Primacy Agency is defined as type State (ST), the software will continue to select milestones whose DATA_ORIGIN_CODE is S that otherwise meet reporting criteria for inclusion in the DTF.

8.1.3 Site Visit

A new module will be added to *Migration to SDWIS/FED: Inventory* to enable users to report the site visits that they may maintain with SDWIS/STATE starting with Release 8.0. The Site Visits will be reported on a Form C3. This will require a new DTF_FORM_C3 entity (table TUPDTFC3) of the same structure as all other “TUP” tables.

The Migration to SDWIS/FED: Inventory window will be changed as follows:

- In the Migrate group box:
 - Change the label “Inventory and Milestone Events” to read “Also Migrate Milestone Events.”
 - Add a new checkbox below the “Also Migrate Milestone Events” checkbox with label “Also Migrate Site Visits.”
- Disable the Also Migrate Milestone Events and Also Migrate Site Visits checkboxes if the “Migrate Inventory Data” checkbox is not selected.

There are four acceptable combinations of checkbox selections:

- Inventory Data alone.
- Inventory Data and Milestone Events.
- Inventory Data and Site Visits.
- Inventory Data, Milestone Events and Site Visits.

No other combinations will be allowed.

If the user selects the Also Migrate Site Visits checkbox, *Migration to SDWIS/FED* will select all site visits for active and inactive public water systems (D_PWS_FEDERAL_TYPE_CODE

equal to C, NC, or NTNC) and creates DTF transactions in the following format, which is the only format by which data can be entered into the SDWIS/FED data base.

Each Data Transfer File record is 80 characters in length and has the following format as shown in Exhibit 8-1:

Definition	Positions	Example for Site Visit Transactions
Form ID	1 - 2	C3
Qualifier 1	3 - 11	PWS-ID
Qualifier 2	12 - 18	VISIT-ID
Qualifier 3	19 - 25	None
Action Code	26	I
Data Element Number	27 - 31	See below
Data Value	32 - 71	See below
Reserved for SDWIS/FED	72 - 74	
Batch Sequence Number	75 - 80	MMDDYY

FORM ID	DATA ADDRESS QUALIFIERS			ACT. CODE	DATA ELEM. NUM.	DATA VALUE	N/A	Batch Sequence Number
	QUAL 1	QUAL 2	QUAL 3					
1-2	3-11	12-18	19-25	26	27-31	32-71	72-74	75-80

Exhibit 8-1. C3 Data Transfer Format

Two transactions will be created for each Site Visit, for data element C0703, Visit Date, and one for data element C0705, Reason Code.

- The Site Visit's associated Water System Number (WATER_SYSTEM.NUMBER) is reported as Data Qualifier 1, in positions 3 through 11.
- The Site Visit Number (SITE_VISIT_EXTERNAL_SYSTEM_NUMBER) is reported as Data Qualifier 2 in positions 12 through 18 (this is also referred to as data element C0701) and should be unique for the water system.
- The date of the visit (SITE_VISIT.VISIT_DATE) is reported as element C0703 in the first of the two transactions in positions 32 through 39. It is to be reported in the form "YYYYMMDD" where:

YYYY	Calendar Year.
MM	Calendar Month.
DD	Calendar Day.

- The primary reason for the site visit (SITE_VISIT_REASON_CODE) is reported as element C0705 in the second of the two transactions in positions 32 through 35 (note that all Site Visit Reason Codes listed in section 4.1 will be valid with SDWIS/FED's release in February 2002).

The following example, Exhibit 8-2, of the transactions created for two Site Visit records, both for PWS ID "NE312342322." The first site visit was made on April 17, 2001 to conduct a sanitary survey (code SNSV). The second site visit was made on May 12, 2000 to perform a construction inspection (code CNST).

C3NE312342322	IC070320010417	20010815
C3NE312342322	IC0705SNSV	20010815
C3NE312342323	IC070320000512	20010815
C3NE312342323	IC0705CNST	20010815

Exhibit 8-2. Example Site Visit in C3 DTF

8.2 Migration to SDWIS/FED: Sampling

Since *SDWIS/STATE Release 5.3* (SDC-0055-075-DH-7067, September 1998), SDWIS/STATE has enabled users to migrate Lead 90th Percentile Sample Summaries and Unregulated Contaminant Monitoring (UCM) sample analytical results to SDWIS/FED. In accordance with reporting guidance under the Lead and Copper Rule, for *SDWIS/STATE Release 8.0*, this capability will be enhanced to also migrate Copper 90th Percentile Sample Summaries to SDWIS/FED. The Lead and Copper Rule has also triggered some modifications to the existing selection criteria for Lead 90th Percentile Sample Summaries to be migrated to SDWIS/FED.

Presentation Type 2: The information in this section reflects a Release 8.0 update to an existing documented design. As such, normal text means no change from the current 7.0 release; redline/redline strikeout indicates where the functionality of an existing object (such as a field, button, menu item, etc.) has changed or where new functionality has been added for Release 8.0.

The *Migration to SDWIS/FED: Sampling* component will do the following:

- Create an Insert transaction for a UCM, PB90, or CU90 result that has not previously been reported to SDWIS/FED (including those that the user tried to report but were rejected).
- Create a Modify transaction for any UCM, PB90, or CU90 result that has previously been reported to and accepted by SDWIS/FED and has subsequently been modified in SDWIS/STATE.
- Filter out (i.e., not create a DTF transaction for) any UCM, PB90, or CU90 result that has previously been reported to and accepted by SDWIS/FED and has not been subsequently modified in SDWIS/STATE.

Migration to SDWIS/FED: Sampling will continue (as has been the case since first introduced) to not create an error report. The edit checks will ensure that only good samples have been reported to the H1 DTF (that is Sample/Summary Results that will be accepted by SDWIS/FED) will be built into the online *Sampling*, *Sampling via EDI*, and *Migration to SDWIS/STATE: Sampling* components of SDWIS/STATE.

8.2.1 Migration to SDWIS/FED: Sampling Model Changes

The SDWISFED_BATCH entity will be modified to support migration of Copper 90th Percentile sample summaries and summary results to SDWIS/FED.

The following new field will be added to entity SDWISFED_BATCH:

- PB90_ALL_RESULTS -1, text, optional, permitted values of Y/N/spaces.
- The name of the current attribute PB90_UCM_INDICATOR_CODE (field PB90 UCM Ind Cd) will be changed to SELECTION_CODE (field Selection Code) to better describe the information it stores.
 - Change its existing permitted values and or descriptions as follows:
 - Change “B” to “C” and its description to “Batch run included CU90 sample summaries and summary results.”

- Change the description for “P” to “Batch run included PB90 sample summaries and summary results.”
- Change the description for “U” to “Batch run included UCM sample and sample results.”

See Appendix A for detailed information on this entity.

8.2.2 Migration to SDWIS/FED: Sampling Window

From the *Migration to SDWIS/FED* main menu, the user may select **Edit/Samples/Migration to SDWIS/FED**, as shown in Exhibit 8-3.

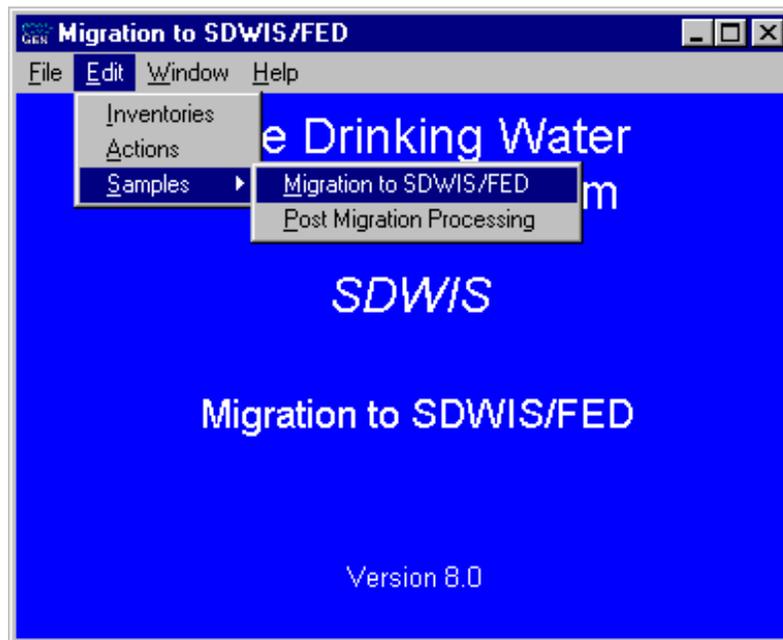


Exhibit 8-3. Migration to SDWIS/FED Main Menu

The **Migration to SDWIS/FED** submenu item will invoke the *Migration to SDWIS/FED: Sampling* window, as shown in Exhibit 8-4.

Lead 90th Percentile The user may select this checkbox to indicate that Lead 90th Percentile sample summary results should be evaluated as candidates to be reported to SDWIS/FED.

Send All [Lead 90th Percentiles]? The user may select this checkbox to indicate that all Lead 90th percentile sample summary results should be evaluated as candidates to be reported to SDWIS/FED. Users who wish to report all PB90 summary results, even those that do not exceed the lead action level, may elect to do so by checking this box.

This checkbox will be enabled only if the user has first selected the Lead 90th Percentile checkbox.

Copper 90th Percentile The user may select this checkbox to indicate that Copper 90th Percentile sample results that exceed the copper action level should be evaluated as candidates to be reported to SDWIS/FED.

Sample Collection Date Range From The user may enter a date using the calendar function.

For UCM samples, the date will indicate that only samples whose Collection Date (SBS_SAMPLE_COLLECTION_END_DATE) is on or after the date entered should be considered during processing.

For PB90 or CU90 Sample Summaries, the date will indicate that only summaries whose associated MONITORING_PERIOD_START_DATE is on or after the date entered should be considered during processing.

Sample Collection Date Range To The user may enter a date using the calendar function.

For UCM samples, the date will indicate that only samples whose Collection Date (SBS_SAMPLE_COLLECTION_END_DATE) is on or before the date entered should be considered during processing.

For PB90 or CU90 Sample Summaries, the date will indicate that only summaries whose associated MONITORING_PERIOD_END_DATE is on or before the date entered should be considered during processing.

Migration to SDWIS/STATE Processing Report Group Box:

View on Screen The user may check this checkbox to view the Migration to SDWIS/FED processing report in MS Word. The software will automatically check this field once *Migration to SDWIS/FED: Sampling* is done (a “batch run” is finished). Clicking **OK** again will trigger the display of processing report on-screen using MS Word.

Print to Device The user may check this checkbox to print the Migration to SDWIS/FED processing report in a networked printer. The software will automatically check this field once *Migration to SDWIS/FED: Sampling* is done. Clicking **OK** again will trigger the printing of the processing report.

Buttons:

OK Pressing **OK** will invoke the following checks:

- If the user has not selected at least one Result Selection group box selection (either UCM or Lead 90th Percentile, or Copper 90th Percentile) invoke exit state error message: **You must select a type of Result for processing to continue.** Return the cursor to the UCM selection indicator.
- Next, a Confirm Processing dialog box will be invoked with the following message: **Pressing OK may overwrite a previously created DTF file. Do you wish to continue?**
 - Pressing **Cancel** will allow the user to not continue and return to the Migration to SDWIS/FED: Sampling window with all data previously entered intact.
 - **Pressing Help** will invoke online Help for this window.
 - Pressing **OK** on the Confirm Processing dialog box will initiate the creation of a record in entity SDWISFED_BATCH (table TINBATCH) for each UCM, PB90, or CU90 option selected. (For example, if the user selects UCM and CU90, this would create two records in TINBATCH.). The SDWISFED_BATCH (table TINBATCH) will be valued according to the table in Exhibit 8-5. The software will then start the evaluation of

samples or sample summaries according to the specification described in subsequent paragraphs.

Attribute in SDWISFED BATCH (TINBATCH Table)	Specification for Valuing
TINBATCH_IS_NUMBER	Primary key increases by 1 for every record inserted into the TINBATCH table (TINBATCH_IS_NUMBER + 1)
DTF_FILE_STATUS	Indicates status of DTF file as follows: F Failed - The default status of a currently executing <i>Migration to SDWIS/FED: Sampling</i> batch run which remains F until the batch run has successfully completed execution at which time it is reset to P (pending). P Pending Acceptance - The status of a successfully completed instance of the execution of <i>Migration to SDWIS/FED: Sampling</i> (batch run). Only batch runs of status P, that is, those that have successfully completed execution, can be updated.
SELECTION_CODE	Three permitted values: P (PB90 Summary Results, C (CU90 Summary Results), and U (UCM Results)
PB90_ALL_RESULTS 1, text, optional	Permitted values of Y/N/spaces
FROM_DATE	Date entered by the user into the From Date field. It defines the earliest sample collection date for a UCM result or the earliest monitoring period begin date for a Sample Summary.
TO_DATE	Date entered by the user into the To Date field. It defines the latest sample collection date for a UCM result or the latest monitoring period end date for a Sample Summary.
DTF_CREATION_DATE_TS	Current Date/Timestamp.
BATCH_NUMBER	For Each record, batch number increases by 1. Batch number cannot be greater than 9999.

Exhibit 8-5. SDWISFED_BATCH (Table TINBATCH) Values

Attribute in SDWISFED BATCH (TINBATCH Table)	Specification for Valuing
TOTAL_OC_INSERT_COUNT	Total Organic Chemical (OC) UCM Insert Sample Results written to the DTF. This value is displayed in the SDWIS/STATE Migration to SDWIS/FED Sampling Results Summary Report beside the "UCM Organic" row under the "Insert" column.
TOTAL_OC_MODIFY_COUNT	Total Organic Chemical (OC) UCM Modify Sample Results written to the DTF. This value is displayed in the SDWIS/STATE Migration to SDWIS/FED Sampling Results Summary Report beside the "UCM Organic" row under the "Modify" column.
TOTAL_OC_ABOVE_DL_COUNT	Total Organic Chemical (OC) UCM Above Detection Limit Sample Results written to the DTF. This value is displayed in the SDWIS/STATE Migration to SDWIS/FED Sampling Results Summary Report with the "No. of Organic UCM Results > detection limit" prompt.
TOTAL_OC_HIGH_VALUE_COUNT	Total Organic Chemical (OC) UCM High Value Sample Results written to the DTF. This value is displayed in the SDWIS/STATE Migration to SDWIS/FED Sampling Results Summary Report with the "No. of Organic UCM Results > 5 ug/L" prompt.
TOTAL_IOC_INSERT_COUNT	Total IOC UCM/PB90/CU90 Insert Results written to the DTF. This value is displayed in the SDWIS/STATE Migration to SDWIS/FED Sampling Results Summary Report beside the "UCM Inorganic" row under the "Insert" column.
TOTAL_IOC_MODIFY_COUNT	Total IOC UCM/PB90/CU90 Modify Results written to the DTF. This value is displayed in the SDWIS/STATE Migration to SDWIS/FED Sampling Results Summary Report beside the "UCM Organic" row under the "Modify" column.

Exhibit 8-5. SDWISFED_BATCH (Table TINBATCH) Values (continued)

Attribute in SDWISFED BATCH (TINBATCH Table)	Specification for Valuing
TOTAL_IOC_ABOVE_DL_COUNT	Total Inorganic Chemical (IOC) UCM Results Above Detection Limit written to the DTF. This value is displayed in the SDWIS/STATE Migration to SDWIS/FED Sampling Results Summary Report with the “No. of Inorganic UCM Results > detection limit” prompt.
TOTAL_IOC_HIGH_VALUE_COUNT	Total IOC UCM/Pb90/CU90 High Value Sample Results (Number of Inorganic UCM > 5 ug/L OR Number of /Pb90 Samples > .015 mg/L OR Number of CU90 > 1.3 mg/l). This value is displayed in the SDWIS/STATE Migration to SDWIS/FED Sampling Results Summary Report with the “No. of Inorganic UCM Results > detection limit” prompt.
TOTAL_UCM_SAMPLES	Total number of UCM Samples (Number of Samples for UCM) considered for inclusion in the DTF for a given instance of executing Migration to SDWIS/FED: Sampling (batch run). (The number of samples considered for inclusion may change based on the date range that the user enters on the Migration to SDWIS/FED: Sampling window).
TOTAL_SAMPLES	The number of sample results (UCM) or summary results (PB90 or CU90) processed and successfully written to the DTF H1 file for an instance of executing Migration to SDWIS/FED: Sampling (batch run).
TOTAL_DTF_LINES	Total number of DTF Lines (rows) in a given H1 DTF (either PB90, CU90 or UCM).
LAST_SAMPLE_RESULT_IS_NUMBER	

Exhibit 8-5. SDWISFED_BATCH (Table TINBATCH) Values (continued)

Exit This button will be protected once processing has begun. Prior to the point that processing has started, pressing this button will close the window and clear all data that may have been entered.

Help Pressing this button will invoke online Help for this window.

8.2.2.1 UCM Processing

If the user selects the UCM checkbox, the following actions will occur.

8.2.2.1.1 UCM Processing for Inserts to SDWIS/FED

- The UCM processing software will select as candidates for reporting as *inserts* to SDWIS/FED those SBS_Sample Analytical Results and their parent SBS_Samples where
 - A. The SBS_Sample_Analytical_Result Data Quality Code is (“A” or “V”)
AND
 - B. The SBS_Sample_Analytical_Result measures some analyte that is reportable (meaning the Analyte Reportable Start Date is valued and the SBS_Sample_Analytical_Result’s parent SBS_Sample Collection End Date is on/after the Analyte Reportable Start Date; if the Analyte Reportable End Date is valued (37 of the analytes will have end dates), the Collection End Date would also need to be less than the Analyte Reportable End Date)
AND
 - C. The SBS_Sample Collection End Date falls inside (inclusively) the user specified Sample Collection Date Range on the Migration to SDWIS/FED: Sampling window
AND
 - D. Either
 - (1) SBS_Sample_Analytical_Result SDWISFED Status equals **spaces**
OR
 - (2) (SBS_Sample_Analytical_Result SDWISFED Status equals **DTF Created** AND SBS_Sample_Analytical_Result Transaction Type equals **I**)
OR
 - (3) (SBS_Sample_Analytical_Result SDWISFED Status equals **REJECTED** AND SBS_Sample_Analytical Result Transaction Type equals **I**).

- For each SBS_Sample Analytical_Result that meets the *insert* selection criteria, do the following:
 - A. If SBS_Sample_Analytical_Result External System Number equals 0, set it using CAB Determine Next RESN else if SBS_Sample_Analytical_Result External System Number > 0, just keep the value as is.
 - B. Set SBS_Sample_Analytical_Result Transaction Type to **I** (insert).
 - C. Set the SBS_Sample_Analytical_Result DTF Creation Date to the **current date**.
 - D. Set the SBS_Sample_Analytical_Result DTF Batch Number using CAB Determine Next DTF Batch Number.
 - E. Set SBS_Sample_Analytical_Result SDWIS/FED Status to “DTF CREATED.”

- Creating the H1 DTF:
 - A. Write the file named UMMDDYYYYHHMM.DTF to the following location: C:\SDWIS\MIGSDFED\SAMPLES
 - B. UCM sample results will accept either unit of measure of either ug/L or mg/L, therefore it is not necessary to convert to mg/L.
 - C. Write the summary files to the same subdirectory
 - D. If the SBS_Sample_Analytical_Result Less Than Indicator = Y, set the H1 DTF Result Sign to < and the Result Measure to 0.
 - E. If the SBS_Sample_Analytical_Result Less Than Indicator does not equal Y, set the H1 DTF Result Sign to = and the Result Measure to the value in SBS_Sample_Analytical_Result Concentration Measure.

8.2.2.1.2 UCM Processing for Reporting Modified Samples to SDWIS/FED

- Processing of UCM *modified* samples and sample results should follow processing of *new* samples and sample results in a continuous/seamless manner; the same row in the BATCH table will be used to populate the Sample_Result DTF Number, DTF Creation Date, etc.

- The UCM processing software should select as candidates for reporting as *modifies* to SDWIS/FED those SBS_Sample Analytical Results and their parent SBS_Samples where
 - A. The SBS_Sample_Analytical_Result Data Quality Code is (“A’ or “V”)
AND
 - B. The SBS_Sample Collection End Date falls inside (inclusively) the user specified Collection date range on the Migration to SDWIS/FED: Sampling window
AND

C. Either

(1) (SBS_Sample_Analytical_Result SDWISFED Status equals **ACCEPTED**
AND (SBS_Sample Last Update Timestamp
> SBS_Sample_Analytical_Result DTF Created Date OR
SBS_Sample_Analytical_Result Last Update Timestamp >
SBS_Sample_Analytical_Result DTF Created Date))

OR

(2) (SBS_Sample_Analytical_Result SDWISFED Status equals **DTF
Created** AND SBS_Sample_Analytical_Result Transaction Type equals
M)

OR

(3) (SBS_Sample_Analytical_Result SDWISFED Status equals **REJECTED**
AND SBS_Sample_Analytical Result Transaction Type equals **M** AND
(SBS_Sample Last Update Timestamp > SBS_Sample_Analytical_Result
DTF Created Date OR SBS_Sample_Analytical_Result Last Update
Timestamp > SBS_Sample_Analytical_Result DTF Created Date)).

- For each SBS_Sample Analytical_Result that meets the *modify* selection criteria, do the following:
 - A. Ensure that SBS_Sample_Analytical_Result External System Number > 0, but if not, do not write this one to the DTF—need to account for this remote possibility.
 - B. Set SBS_Sample_Analytical_Result Transaction Type to **M** (modify).
 - C. Set the SBS_Sample_Analytical_Result DTF Creation Date to the **current date**.
 - D. Set the SBS_Sample_Analytical_Result DTF Batch Number using CAB *Determine Next DTF Batch* Number.
 - E. Set SBS_Sample_Analytical_Result SDWIS/FED Status to “DTF CREATED.”
 - F. Ensure SBS_Sample_Analytical_Result UOM Code is still **MG/L**, since SDWIS/FED will only accept that Unit Of Measure--if not use same comparison used for the Insert.
 - G. Create a DTF transaction for the SBS_Sample_Analytical_Result and parent SBS_Sample.
- After reading and creating DTF transactions for all the appropriate results, *Migration to SDWIS/FED* would produce a Sampling Summary Report, **Exhibit 8-6**. At this point, the user would either send the DTF to SDWIS/FED for processing or determine that some errors exist in the DTF and not send it to SDWIS/FED. If the errors in the DTF were due to errors in the SDWIS/STATE data, then the user would need to correct the data in SDWIS/STATE and then re-run *Migration to SDWIS/FED: Sampling* with the same date range selected.

SAFE DRINKING WATER INFORMATION SYSTEM (SDWIS/STATE)			
MIGRATION TO SDWIS/FED SUMMARY			
** SAMPLING RESULTS **			
Processing Finish Date/Time : 07/13/2001 11:59			
Processing Mode : TRADITIONAL UPDATE			
Sample Results Type : UCM			
From Date : 01/01/2000			
To Date : 03/31/2000			
No. of UCM Samples	:	1385	
No. of UCM Sample Results	:	12338	
No. of PB90 Sample Results	:	0	
No. of CU90 Sample Results	:	0	
No. of Organic UCM Results > detection limit	:	110	
No. of Organic UCM Results > 5 ug/l	:	46	
No. of Inorganic UCM Results > detection limit	:	0 (excludes Sulfate)	
No. of Inorganic UCM Results > 5 ug/l	:	0 (excludes Sulfate)	
No. of PB90 Results > .015 mg/l	:	0	
No. of CU90 Results > 1.3 mg/l	:	0	
Sample Result Type	Insert	Modify	Total
-----	-----	-----	-----
UCM (Organic)	11573	0	11573
UCM (Inorganic)	765	0	765
PB90 Percentile	0	0	0
CU90 Percentile	0	0	0
-----	-----	-----	-----
Total Sample Results	12338	0	12338
Number of records/lines in DTF File			
Form ID	Created	Form Title	
-----	-----	-----	
H1	101480	UCM Results	
H1	0	PB90 Results	
H1	0	CU90 Results	
-----	-----	-----	
101480	Total Number of records/lines		

Exhibit 8-6. Migration to SDWIS/FED: Sampling Summary Report

8.2.2.2 PB90 Processing

The reporting requirements for lead 90th percentile sample summary results need to expand to address the following changes in Release 8.0:

- Lead 90th percentile results need to be sent for all large and medium supplies regardless of the result.
- For small supplies, the lead 90th percentile only needs to be sent if it exceeds the lead action level (0.015 mg/l).
- Alternatively, the user can indicate that all lead 90th percentile results be reported by selecting the new, PB90_ALL_RESULTS checkbox (PB90_ALL_RESULTS = Y).

The software will first read the PB90_ALL_RESULTS attribute. If it equals Y, it will bypass the following selection criteria. If it doesn't equal Y, it will use either the number of results used to determine the 90th percentile or the population of the water system to determine if the system is large or medium.

Specifically, if PB90_ALL_RESULTS is not equal to Y, it will:

Relative to selecting results for large and medium, the software will select a lead 90th percentile result if either the number of samples (TSASSR.SAMPLE_COUNT) is greater than or equal to 20 and the duration of the associated monitoring period is one year or three years (Monitoring Period TYPE_CODE is equal to YR or 3Y) or the number of samples is greater than or equal to 40 and the duration of the monitoring period is 6 months (TYPE_CODE = 6M) or the water system's population (TINWSYS D_POPULATION_COUNT) is greater than 3300.

Otherwise (small supply), if the action level (0.015 mg/l) is exceeded, report it to SDWIS/FED.

If the user selected the PB90 checkbox, the following actions will occur.

8.2.2.2.1 PB90 Processing for Inserts to SDWIS/FED

- The PB90 processing software should select as candidates for reporting as *inserts* to SDWIS/FED those SAMPLE_SUMMARY_RESULTS and their parent SAMPLE_SUMMARIES where:
 - A. The Sample_Summary references Analyte Code equal to (PB90 or 1030)
AND
 - B. The Sample_Summary_Compliance_Purpos_Indicator_Code is equal to "Y"

AND

C. The Sample_Summary_Result_Type_Code is equal to "90"

AND

D. The Sample_Summary_Result Data Quality Code is ("A" or "V")

AND

E. The Monitoring Period Start Date (CP_PRD_BEGIN_DT) associated with the Sample Summary is greater than or equal to the Analyte Reportable Start Date for PB90

AND

F. If the Analyte Reportable End Date for PB90 is valued, the Monitoring Period End Date (CP_PRD_END_DT) is equal to or less than the Analyte Reportable End Date for PB90

AND

G. The Start Date to End Date range of the Monitoring Period associated with the Sample Summary falls inside (inclusively) the user specified Sample Collection Date Range on the Migration to SDWIS/FED: Sampling window (**See Note 1)

AND

H. Either

A. Sample_Summary_Result SDWISFED Status equals **spaces**

OR

(2) (Sample_Summary_Result SDWISFED Status equals **DTF Created** AND Sample_Summary_Result Transaction Type equals **I**)

OR

(3) (Sample_Summary_Result SDWISFED Status equals **REJECTED** AND Sample_Summary_Result Transaction Type equals **I**).

If the PB90_ALL_RESULTS does not equal Y, apply the following additional selection criteria:

AND

I. Either

(1) MONITORING_PERIOD_TYPE_CODE is (**YR** or **3Y**) AND SAMPLE_SUMMARY_RESULT_COUNT_QTY is greater than or equal to **20**

OR

(2) MONITORING_PERIOD Type Code is **6M** AND SAMPLE_SUMMARY_RESULT_COUNT_QTY is greater than or equal to **40**

OR

(3) WATER_SYSTEM D Population Count is greater than **3300**

OR

- (4) If the SAMPLE_SUMMARY_RESULT_UOM_CODE is = "MG/L,"
then SAMPLE_SUMMARY_RESULT_MEASURE is > 0.015
OR
If the SAMPLE_SUMMARY_RESULT_UOM_CODE e is = "UG/L,"
then SAMPLE_SUMMARY_RESULT_MEASURE is > 15.

(Note 1)** For example if the user specifies a range of 01/01/1997 to 09/30/1997 on the Migration to SDWIS/FED: Sampling window, a Sample Summary whose Monitoring Period Start Date is 01/01/1997 and End Date is 06/30/1997 will meet the select criteria; but a Sample Summary whose Monitoring Period Start Date is 07/01/1997 and End Date is 12/31/1997 would not.

- For each SAMPLE_SUMMARY_RESULT that meets the *insert* selection criteria , do the following:
 - A. If SAMPLE_SUMMARY_RESULT External System Number equals 0, set it using CAB *Determine Next RESN*
else if SAMPLE_SUMMARY_RESULT External System Number > 0, just keep the value as is
 - B. Set SAMPLE_SUMMARY_RESULT Transaction Type to **I** (insert):
 - C. Set the SAMPLE_SUMMARY_RESULT DTF Creation Date to the **current date**.
 - D. Set the SAMPLE_SUMMARY_RESULT DTF Batch Number using CAB
 - E. Set SAMPLE_SUMMARY_RESULT SDWIS/FED Status to "DTF CREATED."

- Creating the H1 DTF:
 - A. Write the file named PMMDDYYYYHHMM.DTF to the following location:
C:\SDWIS\MIGSDFED\SAMPLES
 - B. Write the summary files to the same subdirectory
 - C. When creating the H1 DTF (H1 DTF for Sample Begin Date):
 - Set FORM_ID to H1.
 - Set ACTION_CODE to I (insert).
 - Set BATCH_NUMBER to SDWISFED_BATCH Batch Number (using CAB *Determine Next DTF Batch* Number).
 - Set DATA_QUALIFIER_1 to Water System Number.
 - Set DATA_QUALIFIER_2 to Sample Summary Result External System Number.
 - Set DATA_ELEMENT_NUMBER to C2103.
 - Set DATA_VALUE to Sample Begin Date using format YYYYMMDD (from Monitoring_Period_Begin_Date).

- Set ERROR_CODE to Blank.
- D. Create another H1 DTF (for Sample End Date) using the same setting except the following:
 - Set BATCH_NUMBER to same SDWISFED_BATCH Batch Number (do not increment this time).
 - Set DATA_ELEMENT_NUMBER to C2105.
 - Set DATA_VALUE to Sample End Date using format YYYYMMDD (from MONITORING_PERIOD_END_DATE).
- E. Create another H1 DTF (for analyte PB90) using the same setting except the following:
 - Set BATCH_NUMBER to same SDWISFED_BATCH Batch Number (do not increment this time).
 - Set DATA_ELEMENT_NUMBER to C2107.
 - Set DATA_VALUE to PB90.
- F. Create another H1 DTF (for Sample Summary Result Measure) using the same setting except the following:
 - Set BATCH_NUMBER to same SDWISFED_BATCH Batch Number (do not increment this time).
 - Set DATA_ELEMENT_NUMBER to C2111.
 - Set DATA_VALUE to SBS_Sample_Summary_Result_Measure (in mg/l).
If Sample_Summary_Result UOM Code is not **MG/L**,
Convert Sample_Summary_Result UOM Code to MG/L (Milligrams/Liter) and
Convert the reported measure (SAMPLE_SUMMARY_RESULT_MEASURE)
to the appropriate value based on the unit of measure in
SBS_Sample_Analytical_Result UOM Code.

8.2.2.2.2 PB90 Processing for Reporting Modified Samples to SDWIS/FED

- Processing of PB90 *modified* sample summaries and summary results should follow processing of new summaries and summary results in a continuous/seamless manner; the same row in the BATCH table will be used to populate the Summary_Result DTF Number, DTF Creation Date, etc..
- The PB90 processing software should select as candidates for reporting as *modifies* to SDWIS/FED those Sample_Summary_Results and their parent Sample_Summaries where
 - A. The Sample_Summary references Analyte Code equal to (PB90 or 1030)
AND
 - B. The Sample_Summary.Compliance_Purpos_Indicator_Code is equal to Y
AND
 - C. The Sample_Summary_Result.Type_Code is equal to "90"

AND

D. The Sample_Summary_Result Data Quality Code is (“A” or “V”)

AND

E. The Monitoring Period Start Date (**CP_PRD_BEGIN_DT**) associated with the Sample Summary is greater than or equal to the Analyte Reportable Start Date **for PB90**

AND

F. If the Analyte Reportable End Date **for PB90** is valued, the Monitoring Period End Date (**CP_PRD_END_DT**) is equal to or less than the Analyte Reportable End Date **for PB90**

AND

G. The Start Date to End Date range of the Monitoring Period associated with the Sample Summary falls inside (inclusively) the user specified Sample Collection Date Range on the Migration to SDWIS/FED: Sampling window

AND

H. Either

(1) (Sample_Summary_Result SDWISFED Status equals **ACCEPTED** AND (Sample_Summary Last Update Timestamp > Sample_Summary_Result DTF Created Date OR Sample_Summary_Result Last Update Timestamp > Sample_Summary_Result t DTF Created Date))

OR

(2) (Sample_Summary_Result SDWISFED Status equals **DTF Created** AND Sample_Summary_Result Transaction Type equals **M**)

OR

(3) (Sample_Summary_Result SDWISFED Status equals **REJECTED** AND Sample_Summary_Result Transaction Type equals **M** AND (Sample_Summary Last Update Timestamp > Sample_Summary_Result DTF Created Date OR Sample_Summary_Result Last Update Timestamp > Sample_Summary_Result DTF Created Date)).

If the PB90_ALL_RESULTS does not equal Y, apply the following additional selection criteria:

AND

I. Either

(1) MONITORING_PERIOD_TYPE_CODE is (**YR** or **3Y**) AND SAMPLE_SUMMARY_RESULT_COUNT_QTY is greater than or equal to **20**

OR

(2) Monitoring_Period Type Code is **6M** AND SAMPLE_SUMMARY_RESULT_COUNT_QTY is greater than or equal to **40**

OR

(3) Water_System D Population Count is greater than **3300**

OR

(4) If the SAMPLE_SUMMARY_RESULT_UOM_CODE is = "MG/L,"
then SAMPLE_SUMMARY_RESULT_MEASURE is > 0.015

OR

If the Sample_Summary_Result.UOM_Code is = "UG/L," then
Sample_Summary_Result.Measure is > 15.

- For each Sample_Summary_Result that meets the *modify* selection criteria, do the following:
 - A. Ensure that Sample_Summary_Result External System Number > 0, but if not, do not write this one to the DTF—need to account for this remote possibility.
 - B. Set Sample_Summary_Result Transaction Type to **M** (modify).
 - C. Set the Sample_Summary_Result Creation Date to the **current date**.
 - D. Set the Sample_Summary_Result DTF Batch Number using *CAB Determine Next DTF Batch* Number.
 - E. Set Sample_Summary_Result SDWIS/FED Status to "DTF CREATED."
 - F. Ensure Sample_Summary_Result UOM Code is still **MG/L**, since SDWIS/FED will only accept that Unit Of Measure—if not use same comparison used for the Insert.
 - G. Create a DTF transaction for the Sample_Summary_Result and parent Sample_Summary.

After reading and creating DTF transactions for all the appropriate results, *Migration to SDWIS/FED* is to produce a Summary Report. At this point, the user would either send the DTF to SDWIS/FED for processing or determine that some errors exist in the DTF and not send it to SDWIS/FED. If the errors in the DTF were due to errors in the SDWIS/STATE data, then the user would need to correct the data in SDWIS/STATE and then re-run Migration to SDWIS/FED: Sampling with the same date range selected.

8.2.2.3 CU90 Processing

CU90 processing is very similar to PB90 processing. To assist developers, testers, as well as users in being able to clearly distinguish how CU90 processing differs from PB90 processing, the redline strikeout in this section only indicates where the functionality for the new CU90 processing differs from the PB90 processing functionality. None of the functionality in this section has existed prior to Release 8.0.

The processing of copper 90th percentile summaries and sample summary results has many similarities to the logic described in PB90 processing.

If the user selected the CU90 checkbox, the following actions will occur.

8.2.2.3.1 CU90 Processing for *Inserts* to SDWIS/FED

- The CU90 processing software should select as candidates for reporting as *inserts* to SDWIS/FED those Sample_Summary_Results and their parent Sample_Summaries where:
 - A. The Sample_Summary references Analyte Code equal to (CU90 or 1022)
AND
 - B. The Sample_Summary.Compliance_Purpos_Indicator_Code is equal to Y
AND
 - C. The Sample_Summary_Result.Type_Code is equal to "90"
AND
 - D. The Sample_Summary_Result Data Quality Code is ("A" or "V")
AND
 - ~~E. The Monitoring Period Start Date (~~CP_PRD_BEGIN_DT~~) associated with the Sample Summary is greater than or equal to the Analyte Reportable Start Date for PB90~~
 - ~~AND~~
 - ~~F. if the Analyte Reportable End Date for PB90 is valued, the Monitoring Period End Date (~~CP_PRD_END_DT~~) is equal to or less than the Analyte Reportable End Date for PB90~~
[It is a safe assumption that all copper action level exceedence occurred as a result of the monitoring done under the LCR. In other words, leaving the reportable period out of the equation assumes that no one has entered copper 90th percentiles that were obtained prior to the effective date of the LCR.]
 - AND
 - G. The Start Date to End Date range of the Monitoring Period associated with the Sample Summary falls inside (inclusively) the user specified Sample Collection Date Range on the Migration to SDWIS/FED: Sampling window (**See Note 1)
 - AND
 - H. Either
 - A. Sample_Summary_Result SDWISFED Status equals **spaces**
OR
 - (2) (Sample_Summary_Result SDWISFED Status equals **DTF Created**
AND Sample_Summary_Result Transaction Type equals **I**)
OR
 - (3) (Sample_Summary_Result SDWISFED Status equals **REJECTED** AND
Sample_Summary_Result Transaction Type equals **I**)

~~If the PB90_ALL_RESULTS does not equal Y, apply the following additional selection criteria:~~

AND

I. Either

~~(1) Monitoring_Period_Type_Code is (~~YR~~ or ~~3Y~~) AND
SAMPLE_sUMMARY_rESULT_cOUNT_qTY is greater than or equal
to ~~20~~~~

~~OR~~

~~(2) Monitoring_Period_Type_Code is ~~6M~~ AND
SAMPLE_sUMMARY_rESULT_cOUNT_qTY is greater than or equal
to ~~40~~~~

~~OR~~

~~(3) Water_System_D_Population_Count is greater than ~~3300~~~~

~~OR~~

If the Sample_Summary_Result.UOM_Code is = "MG/L", then
Sample_Summary_Result.Measure is > 1.3 ~~0.015~~

OR

If the Sample_Summary_Result.UOM_Code is = "UG/L", then
Sample_Summary_Result.Measure is > 1300 ~~15~~

- For each Sample_Summary_Result that meets the *insert* selection criteria, do the following:
 - A. If Sample_Summary_Result External System Number equals 0, set it using CAB *Determine Next RESN*
Else if Sample_Summary_Result External System Number > 0, just keep the value as is
 - B. Set Sample_Summary_Result Transaction Type to **I** (insert).
 - C. Set the Sample_Summary_Result DTF Creation Date to the **current date**.
 - D. Set the Sample_Summary_Result DTF Batch Number using CAB *Determine Next DTF Batch Number*.
 - E. Set Sample_Summary_Result SDWIS/FED Status to 'DTF CREATED.'
- Creating the H1 DTF:
 - A. Write the file named PMMDDYYYYHHMM.DTF to the following location:
C:\SDWIS\MIGSDFED\SAMPLES.
 - B. Write the summary files to the same subdirectory.
 - C. When creating the H1 DTF (H1 DTF for Sample Begin Date):
 - Set FORM_ID to H1.
 - Set ACTION_CODE to I (insert).

- Set BATCH_NUMBER to SDWISFED_BATCH Batch Number (using CAB *Determine Next DTF Batch* Number).
 - Set DATA_QUALIFIER_1 to Water System Number.
 - Set DATA_QUALIFIER_2 to Sample Summary Result External System Number.
 - Set DATA_ELEMENT_NUMBER to C2103.
 - Set DATA_VALUE to Sample Begin Date using format YYYYMMDD (from Monitoring_Period Begin_Date).
 - Set ERROR_CODE to Blank.
- D. Create another H1 DTF (for Sample End Date) using the same setting except the following:
- Set BATCH_NUMBER to same SDWISFED_BATCH Batch Number (do not increment this time).
 - Set DATA_ELEMENT_NUMBER to C2105.
 - Set DATA_VALUE to Sample End Date using format YYYYMMDD (from Monitoring_Period End_Date).
- E. Create another H1 DTF (for analyte CU90) using the same setting except the following:
- Set BATCH_NUMBER to same SDWISFED_BATCH Batch Number (do not increment this time).
 - Set DATA_ELEMENT_NUMBER to C2107.
 - Set DATA_VALUE to CU90.
- F. Create another H1 DTF (for Sample Summary Result Measure) using the same setting except the following:
- Set BATCH_NUMBER to same SDWISFED_BATCH Batch Number (do not increment this time).
 - Set DATA_ELEMENT_NUMBER to C2111.
 - Set DATA_VALUE to SBS_Sample_Summary_Result Measure (in mg/l).
If Sample_Summary_Result UOM Code is not **MG/L**,
Convert Sample_Summary_Result UOM Code to MG/L (Milligrams/Liter) and
Convert the reported measure (SAMPLE_SUMMARY_RESULT_MEASURE)
to the appropriate value based on the unit of measure in
SBS_Sample_Analytical_Result UOM Code.

8.2.2.3.2 CU90 Processing for Reporting *Modified* Samples to SDWIS/FED

- Processing of CU90 *modified* sample summaries and summary results should follow processing of new summaries and summary results in a continuous/seamless manner; the same row in the BATCH table will be used to populate the Summary_Result DTF Number, DTF Creation Date, etc.

- The CU90 processing software should select as candidates for reporting as *modifies* to SDWIS/FED those Sample_Summary_Results and their parent Sample_Summaries where
 - A. The Sample_Summary references Analyte Code equal to (CU90 or 1022)
AND
 - B. The Sample_Summary.Compliance_Purpos_Indicator_Code is equal to Y
AND
 - C. The Sample_Summary_Result.Type_Code is equal to "90"
AND
 - D. The Sample_Summary_Result Data Quality Code is ("A" or "V")
AND
 - ~~E. The Monitoring Period Start Date (CP_PRD_BEGIN_DT) associated with the Sample Summary is greater than or equal to the Analyte Reportable Start Date for PB90
AND~~
 - ~~F. if the Analyte Reportable End Date for PB90 is valued, the Monitoring Period End Date (CP_PRD_END_DT) is equal to or less than the Analyte Reportable End Date for PB90
AND~~
 - G. The Start Date to End Date range of the Monitoring Period associated with the Sample Summary falls inside (inclusively) the user specified Sample Collection Date Range on the Migration to SDWIS/FED: Sampling window
AND
 - H. Either
 - (1) (Sample_Summary_Result SDWISFED Status equals **ACCEPTED** AND (Sample_Summary Last Update Timestamp > Sample_Summary_Result DTF Created Date OR Sample_Summary_Result Last Update Timestamp > Sample_Summary_Result t DTF Created Date))
 - OR
 - (2) (Sample_Summary_Result SDWISFED Status equals **DTF Created** AND Sample_Summary_Result Transaction Type equals **M**)
 - OR
 - (3) (Sample_Summary_Result SDWISFED Status equals **REJECTED** AND Sample_Summary_Result Transaction Type equals **M** AND (Sample_Summary Last Update Timestamp > Sample_Summary_Result DTF Created Date OR Sample_Summary_Result Last Update Timestamp > Sample_Summary_Result DTF Created Date)).
- ~~If the PB90_ALL_RESULTS does not equal Y, apply the following additional selection criteria:~~

AND

I. Either

~~(1) Monitoring_Period_Type_Code is (~~YR~~ or ~~3Y~~) AND
SAMPLE_sUMMARY_rESULT_cOUNT_qTY is greater than or equal
to ~~20~~~~

~~OR~~

~~(2) Monitoring_Period_Type_Code is ~~6M~~ AND
SAMPLE_sUMMARY_rESULT_cOUNT_qTY is greater than or equal
to ~~40~~~~

~~OR~~

~~(3) Water_System_D_Population_Count is greater than ~~3300~~~~

~~OR~~

If the Sample_Summary_Result.UOM_Code is = "MG/L," then
Sample_Summary_Result.Measure is > 1.3 ~~0.015~~

OR

If the Sample_Summary_Result.UOM_Code is = "UG/L," then
Sample_Summary_Result.Measure is > 1300 ~~15~~.

- For each Sample_Summary_Result that meets the *modify* selection criteria, do the following:
 - A. Ensure that Sample_Summary_Result External System Number > 0, but if not, do not write this one to the DTF—need to account for this remote possibility.
 - B. Set Sample_Summary_Result Transaction Type to **M** (modify).
 - C. Set the Sample_Summary_Result Creation Date to the **current date**.
 - D. Set the Sample_Summary_Result DTF Batch Number using CAB *Determine Next DTF Batch* Number.
 - E. Set Sample_Summary_Result SDWIS/FED Status to "DTF CREATED."
 - F. Ensure Sample_Summary_Result UOM Code is still **MG/L**, since SDWIS/FED will only accept that Unit Of Measure--if not use same comparison used for the Insert.
 - G. Create a DTF transaction for the Sample_Summary_Result and parent Sample_Summary.

8.2.3 Post Migration to SDWIS/FED: Sampling Processing

Once the user's DTF files have been applied to the SDWIS/FED database and the user has received the SDWIS/FED processing Error Report, it will be necessary to update the SDWIS/STATE database as appropriate.

8.2.3.1 Updating Rejected Results

The user receives an error report with errors from SDWIS/FED. The user would correct the errors in the SDWIS/STATE application. Once all errors have been corrected, the user would then need to recreate a DTF file using the same date range, and resubmit that new (much smaller) DTF file to SDWIS/FED. For each SDWIS/STATE sample analytical result or sample summary result that SDWIS/FED rejects (as shown in the SDIWS/FED Error Report), the user will need to use online *Sampling* to update the results (change the SAMPLE ANALYTICAL RESULT SDWIS/FED Status Code to “Rejected” in either the Chemical Sample Analytical Result window or the Sample Summary Result dialog box). This would also be a good time to fix whatever the error is in the sample or result that prevented SDWIS/FED from accepting it.

If no errors exist, the user would go to the next step. The anticipation is that the number of rejected results per Error Report will be relatively small.

8.2.3.2 Updating Accepted Results

From the *Migration to SDWIS/FED* main menu, the user will select **Edit/Samples/Post Migration Processing** to invoke the Post SDWIS/FED Processing Batch Selection List window, as shown in Exhibit 8-7.

The columns in this section and their mapping to the following attributes in entity SDWISFED_BATCH are as follows:

- Batch No. - TINBATCH_IS_NUMBER
- DTF Creation Date - DTF_CREATION_DATE_TS - Date
- DTF Creation Time - DTF_CREATION_DATE_TS - Time
- Selected Date Range From - FROM_DATE
- Selected Date Range To - TO_DATE
- PB90/CU90/UCM - Local 4-char variable used to display either (“PB90” or “CU90” or “UCM”) depending on value in SDWISFED_BATCH Selection Code-PB90-UCM Indicator Code)
- All PB90 Results? - PB90_ALL_RESULTS_IND
- Total Samples - TOTAL_SAMPLES
- DTF File Status - DTF_FILE_STATUS

Batch No	DTF Creation Date	DTF Creation Time	Selection DateRange From	Selection DateRange To	PB90 /CU90 /UCM	All PB90 Results?	Total Samples	DTF File Status
////9	MM-DD-YYYY	HH:MM:SS	MM-DD-YYYY	MM-DD-YYYY	XXXX	X	////9	X
////9	MM-DD-YYYY	HH:MM:SS	MM-DD-YYYY	MM-DD-YYYY	XXXX	X	////9	X
////9	MM-DD-YYYY	HH:MM:SS	MM-DD-YYYY	MM-DD-YYYY	XXXX	X	////9	X
////9	MM-DD-YYYY	HH:MM:SS	MM-DD-YYYY	MM-DD-YYYY	XXXX	X	////9	X
////9	MM-DD-YYYY	HH:MM:SS	MM-DD-YYYY	MM-DD-YYYY	XXXX	X	////9	X
////9	MM-DD-YYYY	HH:MM:SS	MM-DD-YYYY	MM-DD-YYYY	XXXX	X	////9	X
////9	MM-DD-YYYY	HH:MM:SS	MM-DD-YYYY	MM-DD-YYYY	XXXX	X	////9	X
////9	MM-DD-YYYY	HH:MM:SS	MM-DD-YYYY	MM-DD-YYYY	XXXX	X	////9	X
////9	MM-DD-YYYY	HH:MM:SS	MM-DD-YYYY	MM-DD-YYYY	XXXX	X	////9	X
////9	MM-DD-YYYY	HH:MM:SS	MM-DD-YYYY	MM-DD-YYYY	XXXX	X	////9	X
////9	MM-DD-YYYY	HH:MM:SS	MM-DD-YYYY	MM-DD-YYYY	XXXX	X	////9	X
////9	MM-DD-YYYY	HH:MM:SS	MM-DD-YYYY	MM-DD-YYYY	XXXX	X	////9	X
////9	MM-DD-YYYY	HH:MM:SS	MM-DD-YYYY	MM-DD-YYYY	XXXX	X	////9	X
////9	MM-DD-YYYY	HH:MM:SS	MM-DD-YYYY	MM-DD-YYYY	XXXX	X	////9	X
////9	MM-DD-YYYY	HH:MM:SS	MM-DD-YYYY	MM-DD-YYYY	XXXX	X	////9	X
////9	MM-DD-YYYY	HH:MM:SS	MM-DD-YYYY	MM-DD-YYYY	XXXX	X	////9	X

Prev Next Accept Cancel Help

Exhibit 8-7. Post SDWIS/FED Batch Selection

The user would see a list of batch numbers with the date and time they were run, as well as other attributes that would help them indicate which run they were processing. The user would select ONE of these batch numbers and click the **Accept** button.

Buttons:

Accept Clicking this button will cause the software to check the selected batch run's DTF File Status. If its value is not "P." provide exit state error message: **Only sample result batches that have a DTF status 'P' (pending) may be accepted.**

Otherwise, the software will find all sample results or summary results of the type indicated by the batch record (e.g., if Selection Code is equal to PB90, only look for Sample Summaries where associated Analyte Code = PB90) with the SDWIS/FED Status of **DTF CREATED** (**REJECTED** would be excluded) and the selected Batch Number, and change their SDWIS/FED Status to **ACCEPTED**. Also, the software will update field DTF File Status for the selected SDWIS/FED BATCH/TINBATCH record as well as that of the previous SDWIS/FED BATCH/TINBATCH record of the same type. When determining whether to change the status of a previous batch to D, the software should only consider a batch of the same type (UCM, PB90 or CU90). If a previous batch of the same type is pending, then change it to D and

erase its associated DTF and RPT. If a previous batch of the same type is not pending, then leave it and its associated DTF and RPT alone.

The DTF File Status can have one of the four values: *F*, *P*, *D*, or *A*.

- F The DTF File Status attribute will be valued with an “F” from the start of the processing until the last Sample is written. At this point, it would be changed to a “P” for Pending SDWIS/FED Acceptance. It will remain an “F” if the program abnormally terminates.
- P The DTF File Status will be valued with a “P” to describe a batch run that was successfully completed and whose DTF may have already been transferred to SDWIS/FED. If this is the case, then it is advisable to indicate to SDWIS/STATE that the sample results in this batch run were accepted by SDWIS/FED by clicking on the **Accept** button.
- A DTF File Status of “A” will appear when the user highlights the batch run number in the Post SDWIS/FED Batch Selection window whose DTF File Status is *P* and press **Accept**. This means that you have indicated to SDWIS/STATE that the batch run has been accepted by SDWIS/FED.
- D DTF File Status of “D” will be assigned for previous batch runs that were not accepted (dry runs). This status will be automatically assigned to Pending (*P*) batch runs that were not accepted (*A*) before a new batch run was executed using Migration to SDWIS/FED: Sampling. When the batch run is set to *D*, the DTF that was created with it will be deleted.

Dry Runs—If a user creates a DTF file, and then decides not to process it, the next running of the DTF (for the same Samples) would over-write the previous DTF file. This process would also change the DTF File Status from “P” to “D” for Deleted (or Dry Run). The previous Batch Number record would no longer need to have a Post SDWIS/FED Process.

Cancel Pressing this button will close the window and return the user to the Migration to SDWIS/FED main menu.

Help Pressing this button will invoke online Help for this window.

8.2.3.3 Restart Possibilities

If the DTF Creation fails during the process (DTF File Status is F), the batch run must be restarted or invalidated. To do this, the user will select **Edit/Samples/Migration to SDWIS/FED** (in the Migration to SDWIS/FED main window) to invoke the Failed Batch Run dialog box. This dialog box will have **Restart** and **Cancel** buttons.

- Pressing **Restart** on the Failed Batch Run dialog box will run the failed batch run again starting from the point of termination (The software will restart where it left off).
- Pressing **Cancel** on the Failed Batch Run dialog box will reset the batch run to *D* (dry run), delete the DTF created during that batch run, and run the migration process with a fresh start.

8.3 Migration to SDWIS/FED: Actions

Presentation Type 3: The information in this section is not a comprehensive design of this function and only reflects Release 8.0 changes/new functionality. As such, normal text means new functionality (e.g., a new button, window, etc. is introduced); redline/redline strikeout indicates where the functionality of an existing object (such as a field, button, menu item, etc.) has changed.

Relative to the changes EPA made to the reporting requirements for Lead & Copper Rule violations, EPA decided that *Migration to SDWIS/FED: Actions* does not need to check for those violation types that are not to be reported to SDWIS/FED after January 11, 2002. That is to say that *Migration to SDWIS/FED: Actions* will create transactions for violations that reference violation types 54, 55, 60, 61, and 62 even though SDWIS/FED will, beginning January 12, 2002, return an error message for these (and currently will return a warning message).

8.3.1 Violations

Several changes are to be made to *Migration to SDWIS/FED: Actions*. The following are the changes needed in the processes that create violation transactions, i.e., Form D1 transactions.

8.3.1.1 Select Violations Based on Correlations Between Data Origin and Government Agency Type

For Release 8.0, add to the criteria for selecting a violation a step that ensures the Data Origin Code for a violation matches the type of primacy agency as follows:

- If the Data Origin Code is set to EPA Region (i.e., D_DATA_ORIGIN_CODE in VIOLATION is equal to “R”) and the Primacy Agency is defined as type EPA Region (i.e., TYPE_CODE is equal to “RG” for the GOVERNMENT_AGENCY record who’s PRIMACY_INDICATOR_CODE is equal to “Y”), OR
- If the Data Origin Code is set to State (i.e., D_DATA_ORIGIN_CODE in VIOLATION is equal to “S”) and the Primacy Agency is defined as type State (i.e., TYPE_CODE is equal to “ST” for the GOVERNMENT_AGENCY record who’s PRIMACY_INDICATOR_CODE is equal to “Y”).
 - Then continue with other selection criteria.
 - Otherwise, do not create transactions for the violation.

8.3.1.2 Valuing Data Element C1103 - Violation Contaminant or Rule Code

For Release 8.0, there will be a change in how *Migration to SDWIS/FED: Actions* determines the appropriate value for C1103 - Contaminant/Rule Code. Previously, it simply used Analyte Code of the Analyte record associated to the VIOLATION. If the Violation was not associated to an Analyte, it did not create a C1103 transaction.

For Release 8.0, *Migration to SDWIS/FED: Actions* will instead use the Analyte Code from the Analyte record associated to the violation’s Violation Type (this is a new relationship for Release 8.0). If the violation’s Violation Type is not associated to an Analyte, it will revert to its current method—i.e, supply the Analyte Code of the Analyte associated to the violation, or, if no Analyte associated, not create a C1103 transaction.

8.3.1.3 Reporting Violation Compliance Period Begin and End Date

With Release 8.0, the way data elements C1107—Compliance Period Begin Date and C1109—Compliance Period End Date is to be changed. These data elements/transactions are to be valued as follows in Release 8.0.

If the FED_REPORT_PERIOD_TYPE (new attribute) for the Violation Type associated to the violation is equal to “CP,” then populate these transactions the same way they are valued in Release 7.0. However, if the FED_REPORT_PERIOD_TYPE is equal to “VP,” value C1107 with the date supplied in the PERIOD_BEGIN_DATE and do not create a transaction for C1109—Compliance Period End Date. Use the same conversion process as is used when value with COMP_PRD_BEGIN_DT (i.e., C1107 format is as follows: CCYYMMDD).

8.3.1.4 Packaged Violation Reporting

For Release 8.0, users can package violations. A violation that is packaged is known not by its relationship to other violations but rather by having its PACKAGE_NUMBER valued (i.e., greater than zero—this is a new attribute in VIOLATION for Release 8.0).

Add a step to the violation selection criteria in *Migration to SDWIS/FED: Actions* so that, if the PACKAGE_NUMBER for an otherwise selected violation is greater than zero and its REPORT_PACKAGED_VIO_TO_FED_FLG is equal to “N,” do not select it for reporting to SDWIS/FED.

8.3.1.5 PN Violation Reporting

Under the revised PN rule, primacy agencies have to report the following information to SDWIS/FED when there is a PN violation for the public notice (i.e., type 75 and 76):

- Date of the PN violation;
- Link to the underlying NPDWR violation (for type 75 violations); and

To accomplish this, for violations of type 75, create a new P5000 transaction record as shown in Exhibit 8-8 and print it immediately following the other transactions for the PN Violation.

Columns 1-2	Columns 3-11	Columns 12-18	Columns 19-25	Columns 26-31	Columns 32-71
D1	PWS ID	VIO ID	blank	IP5000	VIO ID of Originating Vio

Exhibit 8-8. PN Violation Reporting

8.3.1.6 Do Not Create SE ID for Certain Violation Types Even if Violation References a WSF

Do not create a transaction for C1143, SE ID unless Violation Type is 01, 02, 03 or 04. This is based on SDWIS/FED SIR #1793 which says, “The DTFWriter software shall reject an SE-ID (C1143) if entered on the Violation Data - D1 screen when violation type is not equal to 01, 02, 03, or 04.”¹²

¹²Note that primacy agencies require that they be able to enter Water System Facilities (SE ID) for many other violation types so this should not be enforced in SDWIS/STATE Violation Maintenance (although it currently is enforced for some Violation Types).

Additionally, do not create a transaction for C1143, SE ID if the violation is part of a package (PACKAGE_NUMBER is greater than zero) regardless of the Violation Type.

Remove the following edit check: If a violation of type 21 - 26, 51 - 65, 71 or 72 is supplied with a sampling point, reject the Violation.

8.3.2 Enforcement Actions

8.3.2.1 Select Enforcement Actions Based on Correlations Between Data Origin and Government Agency Type

For Release 8.0, add to the criteria for selecting an enforcement action a step that ensures the Data Origin Code for an enforcement action matches the type of primacy agency as follows:

- If the Data Origin Code is set to EPA Region (i.e., D_DATA_ORIGIN_CODE in ENFORCEMENT_ACTION is equal to “R”) and the Primacy Agency is defined as type EPA Region (i.e., TYPE_CODE is equal to “RG” for the GOVERNMENT_AGENCY record whose PRIMACY_INDICATOR_CODE is equal to “Y”), OR
- If the Data Origin Code is set to State (i.e., D_DATA_ORIGIN_CODE in ENFORCEMENT_ACTION is equal to “S”) and the Primacy Agency is defined as type State (i.e., TYPE_CODE is equal to “ST” for the GOVERNMENT_AGENCY record whose PRIMACY_INDICATOR_CODE is equal to “Y”)
 - Then continue with other selection criteria.
- Otherwise, do not create transactions for the enforcement action.

8.3.2.2 Reporting Enforcement Actions Associated to Packaged Violations

As indicated above, for Release 8.0, users can package violations. In addition to not creating Form D1 transaction for certain violations in a package, *Migration to SDWIS/FED: Actions* should also not create Enforcement Action transactions for these violations.

In particular, add a step to the enforcement action selection criteria in *Migration to SDWIS/FED: Actions* so that, if the PACKAGE_NUMBER for a violation associated to the enforcement action is greater than zero and the REPORT_PACKAGED_VIO_TO_FED_FLG is equal to “N,” do not create transactions for the enforcement action that would associate it to that particular violation. Note that if the above is true for an enforcement action but that enforcement action is also associated to either a violation that is not part of a package or to one that is part of package but its REPORT_PACKAGED_VIO_TO_FED_FLG is equal to “Y,”

Migration to SDWIS/FED: Actions is to create transactions for that enforcement action, including the Y5000 record that associates the enforcement action to the violation.

APPENDIX A

SDWIS/STATE Release 8.0 Entities of Interest

Type	Name
Subject Area	+ -OGWDW_PWSS_PROGRAM_V08.00D
Subject Area	+ -COMPLIANCES
Subject Area	+ -ACTIONS
Entity Type	ACTION_TYPE ...
Entity Type	ASSISTANCE_ACTION ...
Entity Type	WATER_SYSTEM_ASSIST_ACTION_ASGMT ...
	+ -
Subject Area	+ -COMPLIANCE_SCHEDULES
Entity Type	ACTIVITY_TYPE ...
Entity Type	+ -COMPLIANCE_SCHEDULE
Attribute	I TENSCHD_IS_NUMBER (Number, 7, Mandatory, Designed)
Attribute	I TENSCHD_ST_CODE (Text, 2, Mandatory, Basic)
Attribute	SEQUENCE_NUMBER (Number, 5, Mandatory, Basic)
Attribute	ST_ASGND_ID_NO (Text, 10, Optional, Basic)
Attribute	TYPE_CODE_CV (Text, 4, Optional, Basic)
Attribute	EFFECTIVE_DATE (Date, 8, Optional, Basic)
Attribute	STATUS_CODE (Text, 1, Optional, Basic)
Attribute	STATUS_DATE (Date, 8, Optional, Basic)
Attribute	CLOSED_DATE (Date, 8, Optional, Basic)
Attribute	DESCRIPTION_TEXT (Text, 2000, Optional, Basic)
Attribute	D_USERID_CODE (Text, 8, Mandatory, Basic)
Attribute	D_LAST_UPDATE_TIMESTAMP (Timestamp, 20, Mandatory, Basic)
Relationship	Sometimes IS_THE_RESULT_OF One SITE_VISIT
Relationship	Sometimes IS_PUT_INTO_EFFECT_BY One ENFORCEMENT_ACTION
Relationship	Sometimes IS_COMPOSED_OF One or More SCHEDULE_ACTIVITY

Exhibit A-1. SDWIS/STATE Release 8.0 Entities of Interest

Relationship				Sometimes IS_ESTABLISHED_BY One GOVERNMENT_AGENCY
Relationship				Sometimes IS_ADMINISTERED_BY One INDIVIDUAL
Relationship				Always REFLECTS_REQUIREMENTS_FOR One WATER_SYSTEM
				+ -
Entity Type				+ -SCHEDULE_ACTIVITY
Attribute				I TENSCHAT_IS_NUMBER (Number, 7, Mandatory, Designed)
Attribute				I TENSCHAT_ST_CODE (Text, 2, Mandatory, Basic)
Attribute				DUE_DATE (Date, 8, Optional, Basic)
Attribute				REPORTED_DATE (Date, 8, Optional, Basic)
Attribute				PROJECTED_DATE (Date, 8, Optional, Basic)
Attribute				ACHIEVED_DATE (Date, 8, Optional, Basic)
Attribute				RESPONSIBLE_PARTY (Text, 20, Optional, Basic)
Attribute				COMMENT_TEXT (Text, 2000, Optional, Basic)
Attribute				D_USERID_CODE (Text, 8, Mandatory, Basic)
Attribute				D_LAST_UPDATE_TIMESTAMP (Timestamp, 20, Mandatory, Basic)
Relationship				Always IS_DEFINED_BY One ACTIVITY_TYPE
Relationship				Always BE_PART_OF One COMPLIANCE_SCHEDULE
Relationship				Sometimes IS_REPRESENTED_IN One or More DEFICIENCY_SCHEDULE_ACTY_ASGMT
Relationship				Sometimes TRIGGERS One VIOLATION
				+ -
				+ -
Subject Area				+ -ENFORCEMENT
Entity Type				ENFORCEMENT_ACTION ...
Entity Type				ENFORCEMENT_ACTION_STATUS ...
Entity Type				ENFORCEMENT_CASE ...
Entity Type				ENF_VIOLATION_CRITERION ...

Exhibit A-1. SDWIS/STATE Release 8.0 Entities of Interest (Continued)

Entity Type				PUBLIC_NOTIFICATION_ACTIVITY ...
Entity Type				+ -STANDARD_RESPONSE
Attribute				I TENSTRSP_IS_NUMBER (Number, 7, Mandatory, Designed)
Attribute				I TENSTRSP_ST_CODE (Text, 2, Mandatory, Basic)
Attribute				NAME (Text, 40, Optional, Basic)
Attribute				D_LAST_UPDT_TS (Timestamp, 20, Mandatory, Basic)
Attribute				D_USERID_CODE (Text, 8, Mandatory, Basic)
Attribute				TYPE_CODE (Text, 1, Optional, Basic)
Attribute				COMPLIANCE_SCHEDULE_TYPE_CODE_CV (Text, 4, Optional, Basic)
Attribute				COMPLIANCE_SCHEDULE_STATUS_CODE (Text, 1, Optional, Basic)
Attribute				EFFECTIVE_DATE_DAYS (Number, 3, Optional, Basic)
Relationship				Sometimes IS_APPLIED_BY One GOVERNMENT_AGENCY
Relationship				Sometimes IS_REFERENCED_IN One or More STANDARD_RESP_ACTION_TYPE_ASGMT
Relationship				Sometimes APPLIES One or More STANDRD_RESP_ACTIVITY_TYPE_ASGMT
				+ -
Entity Type				+ -STANDARD_RESP_ACTION_TYPE_ASGMT
Attribute				STATUS_DAYS (Number, 3, Optional, Basic)
Attribute				STATUS (Text, 1, Optional, Basic)
Attribute				D_LAST_UPDT_TS (Timestamp, 20, Mandatory, Basic)
Attribute				D_USERID_CODE (Text, 8, Mandatory, Basic)
Relationship				I Always APPLIES One ACTION_TYPE
Relationship				I Always REFERENCES One STANDARD_RESPONSE
				+ -
Entity Type				+ -STANDRD_RESP_ACTIVITY_TYPE_ASGMT
Attribute				PROOF_OF_PN_DUE_DAYS (Number, 3, Optional, Basic)

Exhibit A-1. SDWIS/STATE Release 8.0 Entities of Interest (Continued)

Attribute				DUE_DATE_DAYS (Number, 3, Optional, Basic)
Attribute				D_LAST_UPDT_TS (Timestamp, 20, Mandatory, Basic)
Attribute				D_USERID_CODE (Text, 8, Mandatory, Basic)
Attribute				PROJECTED_DATE_DAYS (Number, 3, Optional, Basic)
Relationship				I Always IS_APPLIED_IN One STANDARD_RESPONSE
Relationship				I Always INCLUDES One ACTIVITY_TYPE
				+ -
Entity Type				VIOLATION_ENF_ACTION_ASGMT ...
				+ -
Subject Area				+ -REVIEWS_AUDITS_AND_EVALUATIONS
Entity Type				+ -DEFICIENCY
Attribute				I TINDEFCY_IS_NUMBER (Number, 7, Mandatory, Designed)
Attribute				I TINDEFCY_ST_CODE (Text, 2, Mandatory, Basic)
Attribute				SEVERITY (Text, 3, Optional, Basic)
Attribute				SANITARY_SURVEY_CATEGORY (Text, 2, Optional, Basic)
Attribute				DETERMINATION_DATE (Date, 8, Optional, Basic)
Attribute				WATER_SYSTEM_NOTIFIED_DATE (Date, 8, Optional, Basic)
Attribute				RESOLVED_DATE (Date, 8, Optional, Basic)
Attribute				DESCRIPTION_TEXT (Text, 50, Optional, Basic)
Attribute				DESCRIPTION_CV (Text, 4, Optional, Basic)
Attribute				D_USERID_CODE (Text, 8, Mandatory, Basic)
Attribute				EXTERNAL_SYSTEM_NUMBER (Number, 5, Optional, Basic)
Attribute				D_LAST_UPDT_TS (Timestamp, 20, Mandatory, Basic)
Attribute				COMMENTS (Text, 2000, Optional, Basic)
Relationship				Sometimes IS_REPRESENTED_IN One or More SITE_VISIT_DEFICIENCY_ASGMT

Exhibit A-1. SDWIS/STATE Release 8.0 Entities of Interest (Continued)

Relationship				Sometimes IS_ASSESSED_AT One WATER_SYSTEM_FACILITY
Relationship				Sometimes IS_ADDRESSED_BY One or More DEFICIENCY_SCHEDULE_ACTY_ASGMT
Relationship				Always INCURRED_BY One WATER_SYSTEM
Relationship				Sometimes CAUSES One or More VIOLATION
				+ -
Entity Type				+ -DEFICIENCY_SCHEDULE_ACTY_ASGMT
Attribute				D_LAST_UPDATE_TIMESTAMP (Timestamp, 20, Mandatory, Basic)
Attribute				D_USERID_CODE (Text, 8, Mandatory, Basic)
Relationship				I Always REPRESENTS One SCHEDULE_ACTIVITY
Relationship				I Always REPRESENTS_THE_REDRESS_OF One DEFICIENCY
				+ -
Entity Type				+ -SITE_VISIT
Attribute				I TINVISIT_IS_NUMBER (Number, 7, Mandatory, Designed)
Attribute				I TINVISIT_ST_CODE (Text, 2, Mandatory, Basic)
Attribute				STATUS (Text, 1, Optional, Basic)
Attribute				VISIT_DATE (Date, 8, Optional, Basic)
Attribute				REASON_CODE (Text, 4, Optional, Basic)
Attribute				WATER_SYSTEM_NOTIFIED_DATE (Date, 8, Optional, Basic)
Attribute				FREQUENCY_NUMBER (Number, 3, Optional, Basic)
Attribute				FREQUENCY_PERIOD (Text, 2, Optional, Basic)
Attribute				NEXT_DUE_DATE (Date, 8, Optional, Basic)
Attribute				HIGHEST_DEFICIENCY (Text, 3, Optional, Basic)
Attribute				EXTERNAL_SYSTEM_NUMBER (Number, 5, Optional, Basic)
Attribute				SAN_SURVEY_ELEMENT_SOURCE (Text, 1, Optional, Basic)
Attribute				SAN_SURVEY_ELEMENT_TREATMENT (Text, 1, Optional, Basic)

Exhibit A-1. SDWIS/STATE Release 8.0 Entities of Interest (Continued)

Attribute				SAN_SURVEY_ELEM_DISTRI	B_SYSTEM (Text, 1, Optional, Basic)
Attribute				SAN_SURVEY_ELEM_FIN_WA	TOR_STORAG (Text, 1, Optional, Basic)
Attribute				SAN_SURVEY_ELEMENT_PUM	PS (Text, 1, Optional, Basic)
Attribute				SAN_SURVEY_ELEMENT_MR	_AND_DV (Text, 1, Optional, Basic)
Attribute				SAN_SURVEY_ELEMENT_WS	_MGT_OPS (Text, 1, Optional, Basic)
Attribute				SAN_SURVEY_ELEM_OPTR	_COMP_EVAL (Text, 1, Optional, Basic)
Attribute				SAN_SURVEY_ELEMENT_O	THER (Text, 1, Optional, Basic)
Attribute				COMMENT_TEXT	(Text, 2000, Optional, Basic)
Attribute				D_LAST_UPDATE_TIME	STAMP (Timestamp, 20, Mandatory, Basic)
Attribute				D_USERID_CODE	(Text, 8, Mandatory, Basic)
Relationship				Always EXAMINES One	WATER_SYSTEM
Relationship				Always IS_SPONSORED	_BY One GOVERNMENT_AGENCY
Relationship				Sometimes RESULTS_IN	One COMPLIANCE_SCHEDULE
Relationship				Sometimes IS_REPRE	SENTED_IN One or More SITE_VISIT_INDIVIDUAL_ASGMT
Relationship				Sometimes RESULTS_IN	One or More SITE_VISIT_DEFICIENCY_ASGMT
				+ -	
Entity Type				+ -SITE_VISIT_DEFICI	ENCY_ASGMT
Attribute				D_LAST_UPDT_TS	(Timestamp, 20, Mandatory, Basic)
Attribute				D_USERID_CODE	(Text, 8, Mandatory, Basic)
Relationship				I Always REPRESENTS	One DEFICIENCY
Relationship				I Always IS_THE_RES	ULT_OF One SITE_VISIT
				+ -	
Entity Type				+ -SITE_VISIT_INDIV	IDUAL_ASGMT
Attribute				D_LAST_UPDATE_TIME	STAMP (Timestamp, 20, Mandatory, Basic)
Attribute				D_USERID_CODE	(Text, 8, Mandatory, Basic)
Relationship				I Always CHARACTER	IZES One SITE_VISIT

Exhibit A-1. SDWIS/STATE Release 8.0 Entities of Interest (Continued)

Relationship		I Always INCLUDES One INDIVIDUAL
		+ -
		+ -
Subject Area		+ -VIOLATIONS
Entity Type		SIGNIFICANT_NON_COMPLIER ...
Entity Type		+ -VIOLATION
Attribute		I TMNVIOL_IS_NUMBER (Number, 7, Mandatory, Designed)
Attribute		I TMNVIOL_ST_CODE (Text, 2, Mandatory, Basic)
Attribute		EXTERNAL_SYSTEM_NUMBER (Number, 5, Mandatory, Basic)
Attribute		FED_FISCAL_YEAR (Number, 4, Mandatory, Basic)
Attribute		D_CURRENT_STATUS_TYPE_CODE (Text, 2, Mandatory, Basic)
Attribute		ANALYSIS_RESULT_TEXT (Text, 16, Optional, Basic)
Attribute		ANALYSIS_RESULT_MEASURE (Number, 15, Optional, Basic)
Attribute		ANALYSIS_RESULT_UOM_CODE (Text, 9, Optional, Basic)
Attribute		TICKLER_INDICATOR_CODE (Text, 1, Optional, Basic)
Attribute		TICKLER_INDICATOR_DATE (Date, 8, Optional, Basic)
Attribute		D_TIER_LEVEL_NUMBER (Text, 1, Optional, Basic)
Attribute		DETERMINATION_DATE (Date, 8, Mandatory, Basic)
Attribute		REMARKS_TEXT (Text, 2000, Optional, Basic)
Attribute		D_SYSTEM_GENERATED_INDICATOR_COD (Text, 1, Optional, Basic)
Attribute		D_FIRST_IDENTIFIED_TIMESTAMP (Timestamp, 20, Mandatory, Basic)
Attribute		D_LAST_UPDATE_TIMESTAMP (Timestamp, 20, Mandatory, Basic)
Attribute		D_USERID_CODE (Text, 8, Mandatory, Basic)
Attribute		D_DATA_ORIGIN_CODE (Text, 1, Optional, Basic)
Attribute		COMP_PRD_BEGIN_DT (Date, 8, Optional, Basic)
Attribute		COMP_PRD_END_DT (Date, 8, Optional, Basic)

Exhibit A-1. SDWIS/STATE Release 8.0 Entities of Interest (Continued)

Attribute			MCL_VIOLATED_TEXT (Text, 16, Optional, Basic)
Attribute			MCL_VIOLATED_UOM_CODE (Text, 9, Optional, Basic)
Attribute			PERIOD_BEGIN_DATE (Date, 8, Optional, Basic)
Attribute			PERIOD_END_DATE (Date, 8, Optional, Basic)
Attribute			PACKAGE_NUMBER (Number, 7, Optional, Basic)
Attribute			TIER_LEVEL (Text, 1, Optional, Basic)
Attribute			REPORT_PACKAGED_VIO_TO_FED_FLG (Text, 1, Optional, Basic)
Relationship			Sometimes IS_THE_RESULT_OF One ANALYTE_LEVEL_RULE_ASGMT
Relationship			Sometimes IS_CONTAINED_WITHIN One ENFORCEMENT_CASE
Relationship			Always IS_ISSUED_BY One GOVERNMENT_AGENCY
Relationship			Sometimes HAS One or More VIOLATION_STATUS
Relationship			Always INCURRED_BY One WATER_SYSTEM
Relationship			Sometimes IS One or More VIOLATION_ENF_ACTION_ASGMT
Relationship			Sometimes IS_ASSIGNED_TO One or More VIOLATION_CODE_OF_REG_ASGMT
Relationship			Sometimes IS_BASED_UPON One RULE_WS_MP_ASGMT
Relationship			I Always IS_CATEGORIZED_BY One VIOLATION_TYPE
Relationship			Sometimes IS_THE_RESULT_OF One SAMPLE_SCHEDULE
Relationship			Sometimes IS_THE_RESULT_OF One or More SAMPLE_ANALYTICAL_RESULT
Relationship			Sometimes OCCURS_IN_OR_IS_FOR One MONITORING_PERIOD
Relationship			Sometimes IS_DUE_TO_THE_PRESENCE_OF One ANALYTE
Relationship			Sometimes FAILS_TO_MEET_THE_PARAMETERS_OF One RULE
Relationship			Sometimes IS_A_MEMBER_OF One VIOLATION_GROUP
Relationship			Sometimes PN_IS_ORIGINATING_ONE_FOR_MANY One or More VIOLATION
Relationship			Sometimes PN_REFERENCES_ORIGINAL_ONE One VIOLATION
Relationship			Sometimes INDICATES_FAILURE_TO_MONITOR_AT One or More VIOLATION_SAMPLING_POINT_ASGMT

Exhibit A-1. SDWIS/STATE Release 8.0 Entities of Interest (Continued)

Relationship				Sometimes IS_THE_RESULT_OF One MDBP_SUMMARY
Relationship				Sometimes IS_THE_RESULT_OF One FACILITY_ANALYTE_LEVEL
Relationship				Sometimes MAY_BE_INCURRED_AT One WATER_SYSTEM_FACILITY
Relationship				Sometimes IS_TRIGGERED_BY One DEFICIENCY
Relationship				Sometimes IS_THE_FAILURE_TO_COMPLY_WITH One or More
PUBLIC_NOTIFICATION_ACTIVITY				
Relationship				Sometimes IS_THE_FAILURE_TO_COMPLY_WITH One or More SCHEDULE_ACTIVITY
				+ -
Entity Type				VIOLATION_CODE_OF_REG_ASGMT ...
Entity Type				+ -VIOLATION_GROUP
Attribute				I TMNVGRP_IS_NUMBER (Number, 7, Mandatory, Designed)
Attribute				I TMNVGRP_ST_CODE (Text, 2, Mandatory, Basic)
Attribute				GROUP_NUMBER (Number, 5, Optional, Basic)
Attribute				FED_FISCAL_YEAR (Number, 4, Optional, Basic)
Attribute				D_USERID_CODE (Text, 8, Mandatory, Basic)
Attribute				D_LAST_UPDATE_TIMESTAMP (Timestamp, 20, Mandatory, Basic)
Relationship				Sometimes INCLUDES One or More VIOLATION
Relationship				Always IS_A_RESULT_OF One ANALYTE_GROUP
Relationship				Sometimes IS_THE_RESULT_OF One SAMPLE_SCHEDULE_GROUP
				+ -
Entity Type				+ -VIOLATION_SAMPLING_POINT_ASGMT
Attribute				D_LAST_UPDATE_TIMESTAMP (Timestamp, 20, Mandatory, Basic)
Attribute				D_USERID_CODE (Text, 8, Mandatory, Basic)
Relationship				I Always REPRESENTS_FAILURE_TO_MONITOR_IN One VIOLATION
Relationship				I Always INCLUDES_LOCATION_OF One SAMPLING_POINT
				+ -

Exhibit A-1. SDWIS/STATE Release 8.0 Entities of Interest (Continued)

Entity Type	VIOLATION_STATUS ...
Entity Type	+ -VIOLATION_TYPE
Operation	CHECK_VIOLATION_TYPE_CODE (Instance)
Operation	IDENTIFY_VIOLATION_TYPE (Instance)
Operation	LIST_VIOLATION_TYPE (Type)
Operation	MODIFY_VIOLATION_TYPE (Instance)
Operation	READ_VIOLATION_TYPE (Instance)
Operation	REMOVE_VIOLATION_TYPE (Instance)
Attribute	I TMNVTYPE_IS_NUMBER (Number, 7, Mandatory, Designed)
Attribute	I TMNVTYPE_ST_CODE (Text, 2, Mandatory, Basic)
Attribute	TYPE_CODE (Text, 2, Mandatory, Basic)
Attribute	NAME (Text, 40, Mandatory, Basic)
Attribute	CATEGORY_CODE (Text, 3, Mandatory, Basic)
Attribute	SAMPLE_TYPE_CODE (Text, 2, Optional, Basic)
Attribute	SEVERITY_LEVEL (Text, 2, Optional, Basic)
Attribute	TIER_LEVEL_NUMBER (Text, 1, Optional, Basic)
Attribute	REPORT_EA_TO_FED (Text, 1, Optional, Basic)
Attribute	D_LAST_UPDATE_TIMESTAMP (Timestamp, 20, Mandatory, Basic)
Attribute	D_USERID_CODE (Text, 8, Mandatory, Basic)
Attribute	FED_REPORT_PERIOD_TYPE (Text, 2, Optional, Basic)
Relationship	Sometimes CATEGORIZES One or More VIOLATION
Relationship	Sometimes SUPPORTS One or More VIOLATION_TYPE_RULE_ASGMT
Relationship	Sometimes IS_REFERENCED_IN One or More VIOLATION_TYPE_ANALYTE_ASGMT
Relationship	Sometimes SUPPLIES_THE_TYPE_OF_VIO_FOR One or More MONITORING_REQUIREMNT
Relationship	Sometimes GETS_RPTBL_FED_ANLYT_COD_FROM One ANALYTE
Relationship	Sometimes SUPPLIES_THE_M_AND_R_GUIDANCE_TO One or More FACILITY_ANALYTE_LEVEL

Exhibit A-1. SDWIS/STATE Release 8.0 Entities of Interest (Continued)

Relationship		Sometimes SUPPLIES_THE_LEVEL_GUIDANCE_TO One or More FACILITY_ANALYTE_LEVEL
		+ -
Entity Type		VIOLATION_TYPE_ANALYTE_ASGMT ...
		+ -
		+ -
Subject Area		+ -CONTROLLING_INSTRUMENTS
Entity Type		CALC_MCL_VALUE_MP_AVG_ASGMT ...
Entity Type		CCR_SCHEDULE ...
Entity Type		+CDS_CANDIDATE_EXCEEDENCE
Attribute		ITCDSCAEX_IS_NUMBER (Number, 7, Mandatory, Designed)
Attribute		ITCDSCAEX_ST_CODE (Text, 2, Mandatory, Basic)
Attribute		SAR_TSASAR_IS_NUMBER (Number, 7, Optional, Designed)
Attribute		SAR_TSASAR_ST_CODE (Text, 2, Optional, Basic)
Attribute		SSR_TSASSR_IS_NUMBER (Number, 7, Optional, Designed)
Attribute		SSR_TSASSR_ST_CODE (Text, 2, Optional, Basic)
Attribute		PWS_TINWSYS_IS_NUMBER (Number, 7, Optional, Designed)
Attribute		PWS_TINWSYS_ST_CODE (Text, 2, Optional, Basic)
Attribute		WSF_TINWSF_IS_NUMBER (Number, 7, Optional, Designed)
Attribute		WSF_TINWSF_ST_CODE (Text, 2, Optional, Basic)
Attribute		SP_TSASMPPT_IS_NUMBER (Number, 7, Optional, Designed)
Attribute		SP_TSASMPPT_ST_CODE (Text, 2, Optional, Basic)
Attribute		ALRA_TMNALRA_IS_NUMBER (Number, 7, Optional, Designed)
Attribute		ALRA_TMNALRA_ST_CODE (Text, 2, Optional, Basic)
Attribute		FANL_TSAFANL_IS_NUMBER (Number, 7, Optional, Designed)
Attribute		ALRA_FANL_LEVEL_TYPE (Text, 4, Optional, Basic)
Attribute		ALRA_FANL_MEASURE_TEXT (Text, 16, Optional, Basic)

Exhibit A-1. SDWIS/STATE Release 8.0 Entities of Interest (Continued)

Attribute		ALRA_FANL_UOM_CODE (Text, 9, Optional, Basic)
Attribute		ANALYTE_CODE (Text, 4, Optional, Basic)
Attribute		ANALYTE_NAME (Text, 40, Optional, Basic)
Attribute		MP_TMNMPRD_IS_NUMBER (Number, 7, Optional, Designed)
Attribute		MP_TMNMPRD_ST_CODE (Text, 2, Optional, Basic)
Attribute		MONITORING_PERIOD_DURATION (Text, 3, Optional, Basic)
Attribute		MONITORING_PERIOD_BEGIN_DATE (Date, 8, Optional, Basic)
Attribute		MONITORING_PERIOD_END_DATE (Date, 8, Optional, Basic)
Attribute		MONITORING_PERIOD_NAME (Text, 12, Optional, Basic)
Attribute		PWS_NUMBER (Text, 12, Optional, Basic)
Attribute		PWS_NAME (Text, 40, Optional, Basic)
Attribute		PWS_FED_PRIMARY_SOURCE_CODE (Text, 3, Optional, Basic)
Attribute		PWS_FEDERAL_TYPE_CODE (Text, 4, Optional, Basic)
Attribute		PWS_POPULATION_COUNT (Number, 10, Optional, Basic)
Attribute		PWS_ACTIVITY_STATUS_CODE (Text, 1, Optional, Basic)
Attribute		PWS_ACTIVITY_DATE (Date, 8, Optional, Basic)
Attribute		WSF_STATE_ASGN_ID (Text, 12, Optional, Basic)
Attribute		WSF_NAME (Text, 40, Optional, Basic)
Attribute		WSF_TYPE_CODE (Text, 2, Optional, Basic)
Attribute		WSF_ACTIVITY_DATE (Date, 8, Optional, Basic)
Attribute		WSF_WATER_TYPE_CODE (Text, 3, Optional, Basic)
Attribute		WSF_AVAILABILITY_CODE (Text, 1, Optional, Basic)
Attribute		WSF_EXTERNAL_SYSTEM_NUMBER (Number, 5, Optional, Basic)
Attribute		SP_IDENTIFICATION_CODE (Text, 11, Optional, Basic)
Attribute		SP_DESCRIPTION (Text, 20, Optional, Basic)

Exhibit A-1. SDWIS/STATE Release 8.0 Entities of Interest (Continued)

Attribute		SP_TYPE_CODE (Text, 2, Optional, Basic)
Attribute		SP_SOURCE_TYPE_CODE (Text, 2, Optional, Basic)
Attribute		SP_POST_DISINFECTION_INDICATOR (Text, 1, Optional, Basic)
Attribute		SP_PROCESS_PHASE_INDICATOR_CODE (Text, 1, Optional, Basic)
Relationship		Sometimes IS_CAUSED_BY One CDS_SAMPLE_RESULT
Relationship		Sometimes IS_CAUSED_BY One CDS_SAMPLE_SUMMARY_RESULT
Relationship		Always IS_DETERMINED_AND_GROUPED_BY One CDS_REPORT_LOG
Relationship		Sometimes IS_CAUSED_BY One CDS_MDBP_SUMMARY
	+-	
Entity Type	+-	CDS_CANDIDATE_MNTRNG_ASSESSMENT
Attribute		ITCDSMNAS_IS_NUMBER (Number, 7, Mandatory, Designed)
Attribute		ITCDSMNAS_ST_CODE (Text, 2, Mandatory, Basic)
Attribute		PWS_TINWSYS_IS_NUMBER (Number, 7, Optional, Designed)
Attribute		PWS_TINWSYS_ST_CODE (Text, 2, Optional, Basic)
Attribute		WSF_TINWSF_IS_NUMBER (Number, 7, Optional, Designed)
Attribute		WSF_TINWSF_ST_CODE (Text, 2, Optional, Basic)
Attribute		SP_TSASMPPT_IS_NUMBER (Number, 7, Optional, Designed)
Attribute		SP_TSASMPPT_ST_CODE (Text, 2, Optional, Basic)
Attribute		ALRA_TMNALRA_IS_NUMBER (Number, 7, Optional, Designed)
Attribute		ALRA_TMNALRA_ST_CODE (Text, 2, Optional, Basic)
Attribute		MONITORING_ASSESSMENT_FLAG (Text, 1, Optional, Basic)
Attribute		SCH_TMNSASCH_IS_NUMBER (Number, 7, Optional, Designed)
Attribute		SCH_TMNSASCH_ST_CODE (Text, 2, Optional, Basic)
Attribute		ALRA_LEVEL_TYPE (Text, 4, Optional, Basic)
Attribute		ALRA_MEASURE_TEXT (Text, 16, Optional, Basic)
Attribute		ALRA_UOM_CODE (Text, 9, Optional, Basic)

Exhibit A-1. SDWIS/STATE Release 8.0 Entities of Interest (Continued)

Attribute		ANALYTE_TSAANLYT_IS_NUMBER (Number, 7, Optional, Designed)
Attribute		ANALYTE_TSAANLYT_ST_CODE (Text, 2, Optional, Basic)
Attribute		ANALYTE_CODE (Text, 4, Optional, Basic)
Attribute		ANALYTE_NAME (Text, 40, Optional, Basic)
Attribute		PWS_NUMBER (Text, 12, Optional, Basic)
Attribute		PWS_NAME (Text, 40, Optional, Basic)
Attribute		PWS_FED_PRIMARY_SOURCE_CODE (Text, 3, Optional, Basic)
Attribute		PWS_FEDERAL_TYPE_CODE (Text, 4, Optional, Basic)
Attribute		PWS_POPULATION_COUNT (Number, 10, Optional, Basic)
Attribute		PWS_ACTIVITY_STATUS_CODE (Text, 1, Optional, Basic)
Attribute		PWS_ACTIVITY_DATE (Date, 8, Optional, Basic)
Attribute		WSF_STATE_ASGN_ID (Text, 12, Optional, Basic)
Attribute		WSF_NAME (Text, 40, Optional, Basic)
Attribute		WSF_TYPE_CODE (Text, 2, Optional, Basic)
Attribute		WSF_ACTIVITY_DATE (Date, 8, Optional, Basic)
Attribute		WSF_WATER_TYPE_CODE (Text, 3, Optional, Basic)
Attribute		WSF_AVAILABILITY_CODE (Text, 1, Optional, Basic)
Attribute		WSF_EXTERNAL_SYSTEM_NUMBER (Number, 5, Optional, Basic)
Attribute		SP_IDENTIFICATION_CODE (Text, 11, Optional, Basic)
Attribute		SP_DESCRIPTION (Text, 20, Optional, Basic)
Attribute		SP_TYPE_CODE (Text, 2, Optional, Basic)
Attribute		SP_SOURCE_TYPE_CODE (Text, 2, Optional, Basic)
Attribute		SP_POST_DISINFECT_INDICATOR (Text, 1, Optional, Basic)
Attribute		SP_PROCESS_PHASE_INDICATOR_CODE (Text, 1, Optional, Basic)
Relationship		Always DETERMINED_AND_GROUPED_BY One CDS_REPORT_LOG

Exhibit A-1. SDWIS/STATE Release 8.0 Entities of Interest (Continued)

Relationship		Sometimes IS_SUPPORTED_BY One or More CDS_SCHEDULE
Relationship		Sometimes USES One or More CDS_SAMPLE_RESULT
Relationship		Sometimes USES One or More CDS_SAMPLE_SUMMARY_RESULT
	+-	
Entity Type	+-	CDS_CANDIDATE_VIOLATION
Attribute		ITCDSVIOL_IS_NUMBER (Number, 7, Mandatory, Designed)
Attribute		ITCDSVIOL_ST_CODE (Text, 2, Mandatory, Basic)
Attribute		PWS_TINWSYS_IS_NUMBER (Number, 7, Optional, Designed)
Attribute		PWS_TINWSYS_ST_CODE (Text, 2, Optional, Basic)
Attribute		WSF_TINWSF_IS_NUMBER (Number, 7, Optional, Designed)
Attribute		WSF_TINWSF_ST_CODE (Text, 2, Optional, Basic)
Attribute		MP_TMNMPRD_IS_NUMBER (Number, 7, Optional, Designed)
Attribute		MP_TMNMPRD_ST_CODE (Text, 2, Optional, Basic)
Attribute		VIOLATION_TYPE_CODE (Text, 2, Optional, Basic)
Attribute		VIOLATION_TYPE_NAME (Text, 40, Optional, Basic)
Attribute		VIOLATION_TYPE_SEVERITY_LEVEL (Text, 2, Optional, Basic)
Attribute		ANALYTE_TSAANLYT_IS_NUMBER (Number, 7, Optional, Designed)
Attribute		ANALYTE_TSAANLYT_ST_CODE (Text, 2, Optional, Basic)
Attribute		ANALYTE_CODE (Text, 4, Optional, Basic)
Attribute		ANALYTE_NAME (Text, 40, Optional, Basic)
Attribute		VIO_TO_FED_REPORTED_ANLALYTE_CD (Text, 4, Optional, Basic)
Attribute		ANLGP_TSAANLGP_IS_NUMBER (Number, 7, Optional, Designed)
Attribute		ANLGP_TSAANLGP_ST_CODE (Text, 2, Optional, Basic)
Attribute		ANLGP_CODE (Text, 4, Optional, Basic)
Attribute		ANLGP_NAME (Text, 20, Optional, Basic)

Exhibit A-1. SDWIS/STATE Release 8.0 Entities of Interest (Continued)

Attribute ||| MP_COMPLIANCE_PRD_BEGIN_DATE (Date, 8, Optional, Basic)
Attribute ||| MP_COMPLIANCE_PRD_END_DATE (Date, 8, Optional, Basic)
Attribute ||| MP_MONITORING_PERIOD_DURATION (Text, 3, Optional, Basic)
Attribute ||| MP_MONITORING_PERIOD_NAME (Text, 12, Optional, Basic)
Attribute ||| VIOL_ANALYSIS_RESULT_TEXT (Text, 16, Optional, Basic)
Attribute ||| VIOL_ANALYSIS_RESULT_UOM_CODE (Text, 9, Optional, Basic)
Attribute ||| VIOL_MCL_VALUE_NUMBER_OF_RESULTS (Number, 4, Optional, Basic)
Attribute ||| VIOL_D_DATA_ORIGIN_CODE (Text, 1, Optional, Basic)
Attribute ||| VIOL_BASED_ON_SCHEDULE_GROUP_IND (Text, 1, Optional, Basic)
Attribute ||| VIOL_MCL_VIOLATED_TEXT (Text, 16, Optional, Basic)
Attribute ||| VIOL_MCL_VIOLATED_UOM_CODE (Text, 9, Optional, Basic)
Attribute ||| PWS_NUMBER (Text, 12, Optional, Basic)
Attribute ||| PWS_NAME (Text, 40, Optional, Basic)
Attribute ||| PWS_FED_PRIMARY_SOURCE_CODE (Text, 3, Optional, Basic)
Attribute ||| PWS_FEDERAL_TYPE_CODE (Text, 4, Optional, Basic)
Attribute ||| PWS_POPULATION_COUNT (Number, 10, Optional, Basic)
Attribute ||| PWS_ACTIVITY_STATUS_CODE (Text, 1, Optional, Basic)
Attribute ||| PWS_ACTIVITY_DATE (Date, 8, Optional, Basic)
Attribute ||| WSF_STATE_ASGN_ID (Text, 12, Optional, Basic)
Attribute ||| WSF_NAME (Text, 40, Optional, Basic)
Attribute ||| WSF_TYPE_CODE (Text, 2, Optional, Basic)
Attribute ||| WSF_ACTIVITY_DATE (Date, 8, Optional, Basic)
Attribute ||| WSF_WATER_TYPE_CODE (Text, 3, Optional, Basic)
Attribute ||| WSF_AVAILABILITY_CODE (Text, 1, Optional, Basic)
Attribute ||| WSF_EXTERNAL_SYSTEM_NUMBER (Number, 5, Optional, Basic)

Exhibit A-1. SDWIS/STATE Release 8.0 Entities of Interest (Continued)

Attribute		SSMPA_APPLICABLE_PRD_BEGIN_DATE (Date, 8, Optional, Basic)
Attribute		SSMPA_APPLICABLE_PRD_END_DATE (Date, 8, Optional, Basic)
Attribute		TMNVTYPE_IS_NUMBER (Number, 7, Optional, Designed)
Attribute		TMNVTYPE_ST_CODE (Text, 2, Optional, Basic)
Attribute		VTYPE_CATEGORY_CODE (Text, 3, Optional, Basic)
Attribute		VIOL_MNR_NUMBER_OF_RESULTS (Number, 5, Optional, Basic)
Attribute		ORIG_TMNVOL_IS_NO (Number, 7, Optional, Designed)
Attribute		ORIG_TMNVOL_ST_CO (Text, 2, Optional, Basic)
Attribute		ORIG_VI_VTYP_IS_NO (Number, 7, Optional, Designed)
Attribute		ORIG_VI_VTYP_ST_CO (Text, 2, Optional, Basic)
Relationship		Sometimes IS_CAUSED_BY One CDS_MDBP_SUMMARY
Relationship		Sometimes IS_THE_FAILURE_TO_COMPLY_WITH One CDS_PN_ACTIVITY
Relationship		Sometimes IS_CAUSED_BY_NOT_SATISFYING One CDS_SCHEDULE
Relationship		Sometimes IS_CAUSED_BY One or More CDS_SAMPLE_RESULT
Relationship		Sometimes HAS_SAMPLE_COUNT_CONTAINED_IN One CDS_SAMPLE_SUMMARY_RESULT
Relationship		Sometimes IS_DETERMINED_AND_GROUPED_BY One CDS_REPORT_LOG
Relationship		Sometimes SPECIFIES_FAILURE_TO_SAMPLE_IN One or More CDS_SAMPLING_POINT_SUBSCHEDULE
	+-	
Entity Type	+-	CDS_FACILTY_ANALYTE_LEVEL
Attribute		TCDFANL_IS_NUMBER (Number, 7, Mandatory, Designed)
Attribute		TCDFANL_ST_CODE (Text, 2, Mandatory, Basic)
Attribute		PWS_TINWSYS_IS_NUMBER (Number, 7, Optional, Designed)
Attribute		PWS_TINWSYS_ST_CODE (Text, 2, Optional, Basic)
Attribute		PWS_NUMBER (Text, 12, Optional, Basic)

Exhibit A-1. SDWIS/STATE Release 8.0 Entities of Interest (Continued)

Attribute		PWS_NAME (Text, 40, Optional, Basic)
Attribute		PWS_FED_PRIMARY_SOURCE_CODE (Text, 3, Optional, Basic)
Attribute		PWS_FEDERAL_TYPE_CODE (Text, 4, Optional, Basic)
Attribute		PWS_POPULATION_COUNT (Number, 10, Optional, Basic)
Attribute		PWS_ACTIVITY_STATUS_CODE (Text, 1, Optional, Basic)
Attribute		PWS_ACTIVITY_DATE (Date, 8, Optional, Basic)
Attribute		WSF_TINWSF_IS_NUMBER (Number, 7, Optional, Designed)
Attribute		WSF_TINWSF_ST_CODE (Text, 2, Optional, Basic)
Attribute		WSF_STATE_ASGN_ID (Text, 12, Optional, Basic)
Attribute		WSF_NAME (Text, 40, Optional, Basic)
Attribute		WSF_TYPE_CODE (Text, 2, Optional, Basic)
Attribute		WSF_ACTIVITY_DATE (Date, 8, Optional, Basic)
Attribute		WSF_WATER_TYPE_CODE (Text, 3, Optional, Basic)
Attribute		WSF_AVAILABILITY_CODE (Text, 1, Optional, Basic)
Attribute		WSF_EXTERNAL_SYSTEM_NUMBER (Number, 5, Optional, Basic)
Attribute		ANALYTE_TSAANLYT_IS_NUMBER (Number, 7, Optional, Designed)
Attribute		ANALYTE_TSAANLYT_ST_CODE (Text, 2, Optional, Basic)
Attribute		ANALYTE_CODE (Text, 4, Optional, Basic)
Attribute		ANALYTE_NAME (Text, 40, Optional, Basic)
Attribute		EFFECTIVE_BEGIN_DATE (Date, 8, Optional, Basic)
Attribute		EFFECTIVE_END_DATE (Date, 8, Optional, Basic)
Attribute		CONTROL_LEVEL_TYPE (Text, 3, Optional, Basic)
Attribute		CONTROL_LEVEL_TEXT (Text, 16, Optional, Basic)
Attribute		UOM_CODE (Text, 9, Optional, Basic)
Attribute		DAYS_TO_MONITOR_PER_MONTH (Number, 2, Optional, Basic)

Exhibit A-1. SDWIS/STATE Release 8.0 Entities of Interest (Continued)

Attribute		SAMPLES_REQUIRED_PER_DAY (Number, 5, Optional, Basic)
Attribute		INDIV_FILTER_MNTRNG_REQD_FLAG (Text, 1, Optional, Basic)
Attribute		SUMMARY_TYPE_CODE_CV (Text, 4, Optional, Basic)
Attribute		M_R_TMNVTYPE_IS_NUMBER (Number, 7, Optional, Designed)
Attribute		M_R_TMNVTYPE_ST_CODE (Text, 2, Optional, Basic)
Attribute		M_R_VIO_TYPE_CODE (Text, 2, Optional, Basic)
Attribute		M_R_VIO_TYPE_NAME (Text, 40, Optional, Basic)
Attribute		M_R_VIO_TYPE_SEVERITY_LEVEL (Text, 2, Optional, Basic)
Attribute		LEVEL_TMNVTYPE_IS_NUMBER (Number, 7, Optional, Designed)
Attribute		LEVEL_TMNVTYPE_ST_CODE (Text, 2, Optional, Basic)
Attribute		LEVEL_M_R_VIO_TYPE_CODE (Text, 2, Optional, Basic)
Attribute		LVL_VTYP_NAME (Text, 40, Optional, Basic)
Attribute		LEVEL_M_R_VIO_TYPE_SEVERITY (Text, 2, Optional, Basic)
Relationship		Sometimes IS_DETERMINED_AND_GROUPED_BY One CDS_REPORT_LOG
Relationship		Sometimes KEEPS_LEVEL_AND_VIO_TYPE_FOR One or More CDS_MDBP_SUMMARY
	+-	
Entity Type	+-	CDS_MDBP_SUMMARY
Attribute		TCDMDBPS_IS_NUMBER (Number, 7, Mandatory, Designed)
Attribute		TCDMDBPS_ST_CODE (Text, 2, Mandatory, Basic)
Attribute		PWS_TINWSYS_IS_NUMBER (Number, 7, Optional, Designed)
Attribute		PWS_TINWSYS_ST_CODE (Text, 2, Optional, Basic)
Attribute		PWS_NUMBER (Text, 12, Optional, Basic)
Attribute		PWS_NAME (Text, 40, Optional, Basic)
Attribute		PWS_FED_PRIMARY_SOURCE_CODE (Text, 3, Optional, Basic)
Attribute		PWS_FEDERAL_TYPE_CODE (Text, 4, Optional, Basic)

Exhibit A-1. SDWIS/STATE Release 8.0 Entities of Interest (Continued)

Attribute		PWS_POPULATION_COUNT (Number, 10, Optional, Basic)
Attribute		PWS_ACTIVITY_STATUS_CODE (Text, 1, Optional, Basic)
Attribute		PWS_ACTIVITY_DATE (Date, 8, Optional, Basic)
Attribute		WSF_TINWSF_IS_NUMBER (Number, 7, Optional, Designed)
Attribute		WSF_TINWSF_ST_CODE (Text, 2, Optional, Basic)
Attribute		WSF_STATE_ASGN_ID (Text, 12, Optional, Basic)
Attribute		WSF_NAME (Text, 40, Optional, Basic)
Attribute		WSF_TYPE_CODE (Text, 2, Optional, Basic)
Attribute		WSF_ACTIVITY_DATE (Date, 8, Optional, Basic)
Attribute		WSF_WATER_TYPE_CODE (Text, 3, Optional, Basic)
Attribute		WSF_AVAILABILITY_CODE (Text, 1, Optional, Basic)
Attribute		WSF_EXTERNAL_SYSTEM_NUMBER (Number, 5, Optional, Basic)
Attribute		ANALYTE_TSAANLYT_IS_NUMBER (Number, 7, Optional, Designed)
Attribute		ANALYTE_TSAANLYT_ST_CODE (Text, 2, Optional, Basic)
Attribute		ANALYTE_CODE (Text, 4, Optional, Basic)
Attribute		ANALYTE_NAME (Text, 40, Optional, Basic)
Attribute		MP_TMNMPRD_IS_NUMBER (Number, 7, Optional, Designed)
Attribute		MP_TMNMPRD_ST_CODE (Text, 2, Optional, Basic)
Attribute		MONITORING_PERIOD_DURATION (Text, 3, Optional, Basic)
Attribute		MONITORING_PERIOD_BEGIN_DATE (Date, 8, Optional, Basic)
Attribute		MONITORING_PERIOD_END_DATE (Date, 8, Optional, Basic)
Attribute		MONITORING_PERIOD_NAME (Text, 12, Optional, Basic)
Attribute		TYPE_CODE_CV (Text, 4, Optional, Basic)
Attribute		REPORTED_DATE (Date, 8, Optional, Basic)
Attribute		SAMPLES_REQUIRED (Number, 5, Optional, Basic)

Exhibit A-1. SDWIS/STATE Release 8.0 Entities of Interest (Continued)

Attribute		SAMPLES_COLLECTED (Number, 5, Optional, Basic)
Attribute		MR_COMPLIANCE_INDICATOR (Text, 3, Optional, Basic)
Attribute		LEVEL_COMPLIANCE_INDICATOR (Text, 1, Optional, Basic)
Attribute		TOTAL_SAMPLES_BEYOND_MSR_LVL (Number, 5, Optional, Basic)
Attribute		PERCENT_SAMPLES_BEYOND_MSR_LVL (Number, 6, Optional, Basic)
Attribute		PERCENT_SAMPMS_BYND_MSR_LVL_TXT (Text, 7, Optional, Basic)
Attribute		HIGHEST_MEASURE (Number, 5, Optional, Basic)
Attribute		MONITORING_PERIOD_AVG_MEASURE (Number, 7, Optional, Basic)
Attribute		HIGHEST_MSR_TXT (Text, 6, Optional, Basic)
Attribute		MONITORING_PERIOD_AVG_MSR_TXT (Text, 8, Optional, Basic)
Attribute		RUNNING_ANNUAL_AVERAGE_MEASURE (Number, 7, Optional, Basic)
Attribute		RUNNING_ANNUAL_AVERAGE_MSR_TXT (Text, 8, Optional, Basic)
Attribute		Q1_IFT (Text, 1, Optional, Basic)
Attribute		Q2_IFT (Text, 1, Optional, Basic)
Attribute		Q3_IFT (Text, 1, Optional, Basic)
Attribute		Q4_IFT (Text, 1, Optional, Basic)
Attribute		Q5_IFT (Text, 1, Optional, Basic)
Attribute		Q6_IFT (Text, 1, Optional, Basic)
Attribute		Q7_IFT (Text, 1, Optional, Basic)
Relationship		Sometimes WRITES_ADVISORIES_TO One or More CDS_REPORT_EXECUTION_ERRORS
Relationship		Sometimes TRIGGERS One or More CDS_CANDIDATE_VIOLATION
Relationship		Always TAKES_LEVEL_AND_VIO_TYPE_FROM One CDS_FACILITY_ANALYTE_LEVEL
Relationship		Sometimes TRIGGERS One CDS_CANDIDATE_EXCEEDENCE
	+-	

Exhibit A-1. SDWIS/STATE Release 8.0 Entities of Interest (Continued)

Entity Type || +-CDS_PN_ACTIVITY
Attribute ||| TCDPNACT_IS_NUMBER (Number, 7, Mandatory, Designed)
Attribute ||| TCDPNACT_ST_CODE (Text, 2, Mandatory, Basic)
Attribute ||| PN_REQUIRED_DATE (Date, 8, Optional, Basic)
Attribute ||| PN_PERFORMED_DATE (Date, 8, Optional, Basic)
Attribute ||| PROOF_OF_PN_DUE_DATE (Date, 8, Optional, Basic)
Attribute ||| PROOF_OF_PN_RECEIVED_DATE (Date, 8, Optional, Basic)
Attribute ||| RESPONSIBLE_PARTY (Text, 20, Optional, Basic)
Attribute ||| EA_ACTYP_LOCATION_TYPE_CODE (Text, 1, Optional, Basic)
Attribute ||| EA_ACTYP_FORMAL_TYPE_CODE (Text, 1, Optional, Basic)
Attribute ||| EA_ACTYP_SUB_CATEGORY_CODE (Text, 1, Optional, Basic)
Attribute ||| ACTIV_NAME (Text, 40, Optional, Basic)
Relationship ||| Sometimes TRIGGERS One CDS_CANDIDATE_VIOLATION
|| +-
Entity Type || +-CDS_REPORT_EXECUTION_ERRORS
Attribute ||| I TCDSREER_IS_NUMBER (Number, 7, Mandatory, Basic)
Attribute ||| I TCDSREER_ST_CODE (Text, 2, Mandatory, Basic)
Attribute ||| ERROR_CODE (Text, 4, Optional, Basic)
Attribute ||| ERROR_MESSAGE (Text, 133, Optional, Basic)
Relationship ||| Sometimes KEEPS_ADVISORIES_FOR One CDS_MDBP_SUMMARY
Relationship ||| Always IS_ENCOUNTERED_AND_GROUPED_BY One CDS_REPORT_LOG
|| +-
Entity Type || +-CDS_REPORT_LOG
Attribute ||| I TCDSRLOG_IS_NUMBER (Number, 7, Mandatory, Designed)
Attribute ||| I TCDSRLOG_ST_CODE (Text, 2, Mandatory, Basic)

Exhibit A-1. SDWIS/STATE Release 8.0 Entities of Interest (Continued)

Attribute		REPORT_RUN_USERID (Text, 8, Mandatory, Basic)
Attribute		REPORT_RUN_TS (Timestamp, 20, Mandatory, Basic)
Attribute		REPORT_TYPE (Text, 3, Mandatory, Basic)
Attribute		ANALYTE_TSAANLYT_IS_NUMBER (Number, 7, Optional, Designed)
Attribute		ANALYTE_TSAANLYT_ST_CODE (Text, 2, Optional, Basic)
Attribute		ANALYTE_CODE (Text, 4, Optional, Basic)
Attribute		ANALYTE_NAME (Text, 40, Optional, Basic)
Attribute		ANLGP_TSAANLGP_IS_NUMBER (Number, 7, Optional, Designed)
Attribute		ANLGP_TSAANLGP_ST_CODE (Text, 2, Optional, Basic)
Attribute		ANLGP_CODE (Text, 4, Optional, Basic)
Attribute		ANLGP_NAME (Text, 20, Optional, Basic)
Attribute		ACL_SELECTED_INDICATOR (Text, 1, Optional, Basic)
Attribute		MCL_SELECTED_INDICATOR (Text, 1, Optional, Basic)
Attribute		MCLG_SELECTED_INDICATOR (Text, 1, Optional, Basic)
Attribute		URTH_SELECTED_INDICATOR (Text, 1, Optional, Basic)
Attribute		TRIGGER_LEVEL_SELECTED_INDICATOR (Text, 1, Optional, Basic)
Attribute		WSF_MAX_SELECTED_INDICATOR (Text, 1, Optional, Basic)
Attribute		WSF_MIN_SELECTED_INDICATOR (Text, 1, Optional, Basic)
Attribute		RMDL_SLEECTED_INDICATOR (Text, 1, Optional, Basic)
Attribute		PQL_SELECTED_INDICATOR (Text, 1, Optional, Basic)
Attribute		PLR_SELECTED_INDICATOR (Text, 1, Optional, Basic)
Attribute		PBCU_TAP_COMPLIANCE_CHECK_IND (Text, 1, Optional, Basic)
Attribute		CONFIRMATION_SCHEDULE_CHECK_IND (Text, 1, Optional, Basic)
Attribute		GOVAG_TINLGENT_IS_NUMBER (Number, 7, Optional, Designed)
Attribute		GOVAG_TINLGENT_ST_CODE (Text, 2, Optional, Basic)

Exhibit A-1. SDWIS/STATE Release 8.0 Entities of Interest (Continued)

Attribute		GOVAG_NAME (Text, 40, Optional, Basic)
Attribute		MP_TMNMPRD_IS_NUMBER (Number, 7, Optional, Designed)
Attribute		MP_TMNMPRD_ST_CODE (Text, 2, Optional, Basic)
Attribute		MONITORING_PERIOD_NAME (Text, 12, Optional, Basic)
Attribute		MONITORING_PERIOD_TYPE_CD (Text, 3, Optional, Basic)
Attribute		MONITORING_PERIOD_BEGIN_DATE (Date, 8, Optional, Basic)
Attribute		MONITORING_PERIOD_END_DATE (Date, 8, Optional, Basic)
Attribute		DATA_ENTRY_BEGIN_DATE (Date, 8, Optional, Basic)
Attribute		DATA_ENTRY_END_DATE (Date, 8, Optional, Basic)
Attribute		SAMPLE_COLLECTION_BEGIN_DATE (Date, 8, Optional, Basic)
Attribute		SAMPLE_COLLECTION_END_DATE (Date, 8, Optional, Basic)
Attribute		SSMPA_APPLICABLE_PRD_BEGIN_DATE (Date, 8, Optional, Basic)
Attribute		SSMPA_APPLICABLE_PRD_END_DATE (Date, 8, Optional, Basic)
Attribute		RTN_SCHEDULE_CHECK_IND (Text, 1, Optional, Basic)
Relationship		Sometimes DETERMINES_AND_GROUPS One or More CDS_FACILTY_ANALYTE_LEVEL
Relationship		Sometimes DETERMINES_AND_GROUPS One or More CDS_CANDIDATE_EXCEEDENCE
Relationship		Sometimes DETERMINES_AND_GROUPS One or More CDS_CANDIDATE_VIOLATION
Relationship		Sometimes ENCOUNTERS_AND_GROUPS One or More CDS_REPORT_EXECUTION_ERRORS
Relationship		Sometimes DETERMINES_AND_GROUPS One or More CDS_CANDIDATE_MNTRNG_ASSESSMENT
	+	
Entity Type	+	CDS_SAMPLE_RESULT
Attribute		ITCDSSAR_IS_NUMBER (Number, 7, Mandatory, Designed)
Attribute		ITCDSSAR_ST_CODE (Text, 2, Mandatory, Basic)
Attribute		SAR_TSASAR_IS_NUMBER (Number, 7, Optional, Designed)
Attribute		SAR_TSASAR_ST_CODE (Text, 2, Optional, Basic)

Exhibit A-1. SDWIS/STATE Release 8.0 Entities of Interest (Continued)

Attribute		SMP_TSASAMPL_IS_NUMBER (Number, 7, Optional, Designed)
Attribute		SMP_TSASAMPL_ST_CODE (Text, 2, Optional, Basic)
Attribute		PWS_TINWSYS_IS_NUMBER (Number, 7, Optional, Designed)
Attribute		PWS_TINWSYS_ST_CODE (Text, 2, Optional, Basic)
Attribute		WSF_TINWSF_IS_NUMBER (Number, 7, Optional, Designed)
Attribute		WSF_TINWSF_ST_CODE (Text, 2, Optional, Basic)
Attribute		SP_TSASMPPT_IS_NUMBER (Number, 7, Optional, Designed)
Attribute		SP_TSASMPPT_ST_CODE (Text, 2, Optional, Basic)
Attribute		LAB_TSALAB_IS_NUMBER (Number, 7, Optional, Designed)
Attribute		LAB_TSALAB_ST_CODE (Text, 2, Optional, Basic)
Attribute		ANALYTE_TSAANLYT_IS_NUMBER (Number, 7, Optional, Designed)
Attribute		ANALYTE_TSAANLYT_ST_CODE (Text, 2, Optional, Basic)
Attribute		ANALYTE_CODE (Text, 4, Optional, Basic)
Attribute		ANALYTE_NAME (Text, 40, Optional, Basic)
Attribute		MP_TMNMPRD_IS_NUMBER (Number, 7, Optional, Designed)
Attribute		MP_TMNMPRD_ST_CODE (Text, 2, Optional, Basic)
Attribute		MP_BEGIN_DATE (Date, 8, Optional, Basic)
Attribute		MP_END_DATE (Date, 8, Optional, Basic)
Attribute		MP_DURATION (Text, 3, Optional, Basic)
Attribute		MP_NAME (Text, 12, Optional, Basic)
Attribute		SAR_DATA_QUALITY_CODE (Text, 1, Optional, Basic)
Attribute		SAR_DETECTION_LIMIT_NUMBER (Number, 15, Optional, Basic)
Attribute		SAR_DETECTION_LIMIT_UOM_CODE (Text, 9, Optional, Basic)
Attribute		SAR_LESS_THAN_INDICATOR (Text, 1, Optional, Basic)
Attribute		SAR_LESS_THAN_CODE (Text, 3, Optional, Basic)

Exhibit A-1. SDWIS/STATE Release 8.0 Entities of Interest (Continued)

Attribute		SAR_REPORTED_MEASURE (Text, 16, Optional, Basic)
Attribute		SAR_CONCENTRATION_MEASURE (Number, 15, Optional, Basic)
Attribute		SAR_UOM_CODE (Text, 9, Optional, Basic)
Attribute		SAR_RAD_COUNTING_ERROR (Number, 8, Optional, Basic)
Attribute		SMP_LAB_SAMPLE_ASGN_ID (Text, 20, Optional, Basic)
Attribute		SMP_STATE_SAMPLE_ASGN_ID (Text, 20, Optional, Basic)
Attribute		SMP_SAMPLE_TYPE_CODE (Text, 2, Optional, Basic)
Attribute		SMP_COLLECTION_DATE (Date, 8, Optional, Basic)
Attribute		SMP_COLLECTION_TIME (Time, 6, Optional, Basic)
Attribute		SMP_COMPLIANCE_PURPOSE_IND_CODE (Text, 1, Optional, Basic)
Attribute		SMP_INFORMAL_COLLECTOR (Text, 40, Optional, Basic)
Attribute		SMP_REPLACEMENT_INDICATOR_CODE (Text, 1, Optional, Basic)
Attribute		PWS_NUMBER (Text, 12, Optional, Basic)
Attribute		PWS_NAME (Text, 40, Optional, Basic)
Attribute		PWS_FED_PRIMARY_SOURCE_CODE (Text, 3, Optional, Basic)
Attribute		PWS_FEDERAL_TYPE_CODE (Text, 4, Optional, Basic)
Attribute		PWS_POPULATION_COUNT (Number, 10, Optional, Basic)
Attribute		PWS_ACTIVITY_STATUS_CODE (Text, 1, Optional, Basic)
Attribute		PWS_ACTIVITY_DATE (Date, 8, Optional, Basic)
Attribute		WSF_STATE_ASGN_ID (Text, 12, Optional, Basic)
Attribute		WSF_NAME (Text, 40, Optional, Basic)
Attribute		WSF_TYPE_CODE (Text, 2, Optional, Basic)
Attribute		WSF_ACTIVITY_DATE (Date, 8, Optional, Basic)
Attribute		WSF_WATER_TYPE_CODE (Text, 3, Optional, Basic)
Attribute		WSF_AVAILABILITY_CODE (Text, 1, Optional, Basic)
Attribute		WSF_EXTERNAL_SYSTEM_NUMBER (Number, 5, Optional, Basic)

Exhibit A-1. SDWIS/STATE Release 8.0 Entities of Interest (Continued)

Attribute		SP_IDENTIFICATION_CODE (Text, 11, Optional, Basic)
Attribute		SP_DESCRIPTION (Text, 20, Optional, Basic)
Attribute		SP_TYPE_CODE (Text, 2, Optional, Basic)
Attribute		SP_SOURCE_TYPE_CODE (Text, 2, Optional, Basic)
Attribute		SP_POST_DISINFECTION_INDICATOR (Text, 1, Optional, Basic)
Attribute		SP_PROCESS_PHASE_INDICATOR_CODE (Text, 1, Optional, Basic)
Attribute		LAB_NAME (Text, 40, Optional, Basic)
Attribute		LAB_STATE_ASSIGNED_ID_NUMBER (Text, 10, Optional, Basic)
Attribute		LAB_FEDERAL_ID_NUMBER (Text, 10, Optional, Basic)
Attribute		SAR_D_LAST_UPDT_TS (Timestamp, 20, Optional, Basic)
Relationship		Sometimes IS_THE_CAUSE_OF One CDS_CANDIDATE_EXCEEDENCE
Relationship		Sometimes CAUSES One CDS_CANDIDATE_VIOLATION
Relationship		Sometimes SUPPORTS One CDS_CANDIDATE_MNTRNG_ASSESSMENT
	+-	
Entity Type	+-	CDS_SAMPLE_SUMMARY_RESULT
Attribute		ITCDSMPSM_IS_NUMBER (Number, 7, Mandatory, Designed)
Attribute		ITCDSMPSM_ST_CODE (Text, 2, Mandatory, Basic)
Attribute		SSR_TSASSR_IS_NUMBER (Number, 7, Optional, Designed)
Attribute		SSR_TSASSR_ST_CODE (Text, 2, Optional, Basic)
Attribute		SSM_TSASMPSM_IS_NUMBER (Number, 7, Optional, Designed)
Attribute		SSM_TSASMPSM_ST_CODE (Text, 2, Optional, Basic)
Attribute		PWS_TINWSYS_IS_NUMBER (Number, 7, Optional, Designed)
Attribute		PWS_TINWSYS_ST_CODE (Text, 2, Optional, Basic)
Attribute		LAB_TSALAB_IS_NUMBER (Number, 7, Optional, Designed)
Attribute		LAB_TSALAB_ST_CODE (Text, 2, Optional, Basic)
Attribute		SSM_COLLECTION_START_DATE (Date, 8, Optional, Basic)

Exhibit A-1. SDWIS/STATE Release 8.0 Entities of Interest (Continued)

Attribute		SSM_COLLECTION_END_DATE (Date, 8, Optional, Basic)
Attribute		SSM_SUMMARY_RECEIVED_DATE (Date, 8, Optional, Basic)
Attribute		SSM_COMPLIANCE_PURPOSE_IND_CODE (Text, 1, Optional, Basic)
Attribute		SSM_COMMENT_TEXT (Text, 180, Optional, Basic)
Attribute		PWS_NUMBER (Text, 12, Optional, Basic)
Attribute		PWS_NAME (Text, 40, Optional, Basic)
Attribute		PWS_FEDERAL_TYPE_CODE (Text, 4, Optional, Basic)
Attribute		PWS_FED_PRIMARY_SOURCE_CODE (Text, 3, Optional, Basic)
Attribute		PWS_ACTIVITY_STATUS_CODE (Text, 1, Optional, Basic)
Attribute		PWS_ACTIVITY_DATE (Date, 8, Optional, Basic)
Attribute		PWS_POPULATION_COUNT (Number, 10, Optional, Basic)
Attribute		ANALYTE_TSAANLYT_IS_NUMBER (Number, 7, Optional, Designed)
Attribute		ANALYTE_TSAANLYT_ST_CODE (Text, 2, Optional, Basic)
Attribute		ANALYTE_CODE (Text, 4, Optional, Basic)
Attribute		ANALYTE_NAME (Text, 40, Optional, Basic)
Attribute		MP_TMNMPRD_IS_NUMBER (Number, 7, Optional, Designed)
Attribute		MP_TMNMPRD_ST_CODE (Text, 2, Optional, Basic)
Attribute		MP_BEGIN_DATE (Date, 8, Optional, Basic)
Attribute		MP_END_DATE (Date, 8, Optional, Basic)
Attribute		MP_DURATION (Text, 3, Optional, Basic)
Attribute		MP_NAME (Text, 12, Optional, Basic)
Attribute		LAB_NAME (Text, 40, Optional, Basic)
Attribute		LAB_STATE_ASSIGNED_ID_NUMBER (Text, 10, Optional, Basic)
Attribute		LAB_FEDERAL_ID_NUMBER (Text, 10, Optional, Basic)
Attribute		SSR_DATA_QUALITY_CODE (Text, 1, Optional, Basic)
Attribute		SSR_TYPE_CODE (Text, 2, Optional, Basic)

Exhibit A-1. SDWIS/STATE Release 8.0 Entities of Interest (Continued)

Attribute ||| SSR_COUNT_QTY (Number, 10, Optional, Basic)
Attribute ||| SSR_MEASURE (Number, 15, Optional, Basic)
Attribute ||| SSR_MEASURE_TEXT (Text, 16, Optional, Basic)
Attribute ||| SSR_UOM_CODE (Text, 9, Optional, Basic)
Attribute ||| SSR_D_LAST_UPDT_TS (Timestamp, 20, Optional, Basic)
Relationship ||| Sometimes IS_THE_CAUSE_OF One CDS_CANDIDATE_EXCEEDENCE
Relationship ||| Sometimes CONTAINS_SAMPLE_COUNT_OF One CDS_CANDIDATE_VIOLATION
Relationship ||| Sometimes SUPPORTS One CDS_CANDIDATE_MNTRNG_ASSESSMENT
||+-
Entity Type ||+-CDS_SAMPLING_POINT_SUBSCHEDULE
Attribute ||| I TCDSPSUB_IS_NUMBER (Number, 7, Mandatory, Designed)
Attribute ||| I TCDSPSUB_ST_CODE (Text, 2, Mandatory, Basic)
Attribute ||| SP_IDENTIFICATION_CODE (Text, 11, Optional, Basic)
Attribute ||| SP_DESCRIPTION (Text, 20, Optional, Basic)
Attribute ||| SP_TYPE_CODE (Text, 2, Optional, Basic)
Attribute ||| SP_SOURCE_TYPE_CODE (Text, 2, Optional, Basic)
Attribute ||| SP_POST_DISINFECTION_IND_CODE (Text, 1, Optional, Basic)
Attribute ||| SP_PROCESS_PHASE_IND_CODE (Text, 1, Optional, Basic)
Attribute ||| SP_SUBSCHED_COUNT (Number, 4, Optional, Basic)
Relationship ||| Sometimes REFLECTS_A_FAILURE_TO_SAMPLE_FOR One CDS_CANDIDATE_VIOLATION
Relationship ||| Sometimes HAS_A_SUBCOUNT_REQUIREMENT_FOR One CDS_SCHEDULE
||+-
Entity Type ||+-CDS_SCHEDULE
Attribute ||| I TCDSASCH_IS_NUMBER (Number, 7, Mandatory, Designed)
Attribute ||| I TCDSASCH_ST_CODE (Text, 2, Mandatory, Basic)

Exhibit A-1. SDWIS/STATE Release 8.0 Entities of Interest (Continued)

Attribute		PWS_TINWSYS_IS_NUMBER (Number, 7, Optional, Designed)
Attribute		PWS_TINWSYS_ST_CODE (Text, 2, Optional, Basic)
Attribute		PWS_NUMBER (Text, 12, Optional, Basic)
Attribute		PWS_NAME (Text, 40, Optional, Basic)
Attribute		PWS_FED_PRIMARY_SOURCE_CODE (Text, 3, Optional, Basic)
Attribute		PWS_FEDERAL_TYPE_CODE (Text, 4, Optional, Basic)
Attribute		PWS_POPULATION_COUNT (Number, 10, Optional, Basic)
Attribute		PWS_ACTIVITY_STATUS_CODE (Text, 1, Optional, Basic)
Attribute		PWS_ACTIVITY_DATE (Date, 8, Optional, Basic)
Attribute		WSF_TINWSF_IS_NUMBER (Number, 7, Optional, Designed)
Attribute		WSF_TINWSF_ST_CODE (Text, 2, Optional, Basic)
Attribute		WSF_STATE_ASGN_ID (Text, 12, Optional, Basic)
Attribute		WSF_NAME (Text, 40, Optional, Basic)
Attribute		WSF_TYPE_CODE (Text, 2, Optional, Basic)
Attribute		WSF_ACTIVITY_DATE (Date, 8, Optional, Basic)
Attribute		WSF_WATER_TYPE_CODE (Text, 3, Optional, Basic)
Attribute		WSF_AVAILABILITY_CODE (Text, 1, Optional, Basic)
Attribute		WSF_EXTERNAL_SYSTEM_NUMBER (Number, 5, Optional, Basic)
Attribute		MNR_TMNMNR_IS_NUMBER (Number, 7, Optional, Designed)
Attribute		MNR_TMNMNR_ST_CODE (Text, 2, Optional, Basic)
Attribute		MNR_SAMPLE_TYPE_CODE (Text, 2, Optional, Basic)
Attribute		MNR_SAMPLE_COUNT (Number, 4, Optional, Basic)
Attribute		MNR_SAMPLE_COUNT_UNIT_CODE (Text, 3, Optional, Basic)
Attribute		SCH_TMNSASCH_IS_NUMBER (Number, 7, Optional, Designed)
Attribute		SCH_TMNSASCH_ST_CODE (Text, 2, Optional, Basic)
Attribute		SCH_BEGIN_DATE (Date, 8, Optional, Basic)

Exhibit A-1. SDWIS/STATE Release 8.0 Entities of Interest (Continued)

Attribute		SCH_END_DATE (Date, 8, Optional, Basic)
Attribute		SCH_SEASONAL_PERIOD_BEGIN (Text, 5, Optional, Basic)
Attribute		SCH_SEASONAL_PERIOD_END (Text, 5, Optional, Basic)
Attribute		SCH_STATE_SEASONAL_PERIOD_BEGIN (Text, 5, Optional, Basic)
Attribute		SCH_STATE_SEASONAL_PERIOD_END (Text, 5, Optional, Basic)
Attribute		SCH_STATE_YEAR (Number, 1, Optional, Basic)
Attribute		SCH_INITIAL_MP_BEGIN_DAT (Date, 8, Optional, Basic)
Attribute		SCH_MONITORING_ASSESSMENT_FLAG (Text, 1, Optional, Basic)
Attribute		ANALYTE_TSAANLYT_IS_NUMBER (Number, 7, Optional, Designed)
Attribute		ANALYTE_TSAANLYT_ST_CODE (Text, 2, Optional, Basic)
Attribute		ANALYTE_CODE (Text, 4, Optional, Basic)
Attribute		ANALYTE_NAME (Text, 40, Optional, Basic)
Attribute		ANLGP_TSAANLGP_IS_NUMBER (Number, 7, Optional, Designed)
Attribute		ANLGP_TSAANLGP_ST_CODE (Text, 2, Optional, Basic)
Attribute		ANLGP_CODE (Text, 4, Optional, Basic)
Attribute		ANLGP_NAME (Text, 20, Optional, Basic)
Relationship		Sometimes CAUSES_WHEN_NOT_SATISFIED One CDS_CANDIDATE_VIOLATION
Relationship		Sometimes SUPPORTS One CDS_CANDIDATE_MNTRNG_ASSESSMENT
Relationship		Sometimes SPECIFIES_SUBCOUNT_REQUIREMNT_AT One or More
		CDS_SAMPLING_POINT_SUBSCHEDULE
	+-	
Entity Type	+-	CDS_SETUP_EXECUTION_LOG
Attribute		I PROCESS_ID (Text, 5, Mandatory, Basic)
Attribute		PROCESS_NAME (Text, 133, Mandatory, Basic)
Attribute		REFERENCE_TIMESTAMP (Timestamp, 20, Optional, Basic)
Attribute		REFERENCE_IS_NUMBER_PRIMARY (Number, 9, Optional, Basic)

Exhibit A-1. SDWIS/STATE Release 8.0 Entities of Interest (Continued)

Attribute		REFERENCE_IS_NUMBER_SECONDARY (Number, 9, Optional, Basic)
Attribute		PROCESSING_REPORT_RECORD_COUNT (Number, 5, Optional, Basic)
Attribute		CURRENT_CDS_PROCESSING_RRT_NAME (Text, 100, Optional, Basic)
	+-	
Entity Type		DEVIATION ...
Entity Type		DEVIATION_EVENT ...
Entity Type		DEVIATION_SCHEDULE ...
Entity Type		EXCEPTION_ANALYTE ...
Entity Type		+ -FACILITY_ANALYTE_LEVEL
Attribute		I TMNFANL_IS_NUMBER (Number, 7, Mandatory, Designed)
Attribute		EFFECTIVE_BEGIN_DATE (Date, 8, Optional, Basic)
Attribute		EFFECTIVE_END_DATE (Date, 8, Optional, Basic)
Attribute		CONTROL_LEVEL_TYPE (Text, 3, Optional, Basic)
Attribute		CONTROL_LEVEL_TEXT (Text, 16, Optional, Basic)
Attribute		UOM_CODE (Text, 9, Optional, Basic)
Attribute		D_LAST_UPDT_TS (Timestamp, 20, Mandatory, Basic)
Attribute		D_USERID_CODE (Text, 8, Mandatory, Basic)
Attribute		DAYS_TO_MONITOR_PER_MONTH (Number, 2, Optional, Basic)
Attribute		SAMPLES_REQUIRED_PER_DAY (Number, 5, Optional, Basic)
Attribute		INDIV_FILTER_MNTRNG_REQD_FLAG (Text, 1, Optional, Basic)
Attribute		SUMMARY_TYPE_CODE_CV (Text, 4, Optional, Basic)
Attribute		MDBP_SUMMARY_CHECK_FLAG (Text, 1, Optional, Basic)
Relationship		Always ESTABLISHES_PERMITTED_LEVEL_FOR One ANALYTE
Relationship		Always ESTABLISHES_PERMITTED_LEVEL_FOR One WATER_SYSTEM_FACILITY
Relationship		Sometimes PROVIDES_LOCATION_AND_ANALYTE_TO One or More MDBP_SUMMARY
Relationship		Sometimes TAKES_M_AND_R_GUIDANCE_FROM One VIOLATION_TYPE

Exhibit A-1. SDWIS/STATE Release 8.0 Entities of Interest (Continued)

Relationship			Sometimes TAKES_LEVEL_GUIDANCE_FROM One VIOLATION_TYPE
Relationship			Sometimes TRIGGERS_CREATION_OF One or More VIOLATION
			+ -
Entity Type			+ -MCL_VALUE
Attribute			I TMNCMCLV_IS_NUMBER (Number, 7, Mandatory, Designed)
Attribute			CALCULATED_VALUE (Number, 15, Optional, Basic)
Attribute			CALCULATED_VALUE_TEXT (Text, 16, Optional, Basic)
Attribute			UOM_CODE (Text, 9, Optional, Basic)
Attribute			NUMBER_OF_RESULTS_USED (Number, 3, Optional, Basic)
Attribute			D_LAST_UPDT_TS (Timestamp, 20, Mandatory, Basic)
Attribute			D_USERID_CODE (Text, 8, Mandatory, Basic)
Attribute			DATE_REPORTED (Date, 8, Optional, Basic)
Attribute			PRECURSOR_ACHVD_REMOVAL_RATIO_NU (Number, 4, Optional, Basic)
Attribute			PRECURSOR_ACHVD_REMOVAL_RATIO_TX (Text, 5, Optional, Basic)
Relationship			Always CALCULATED_FROM_TYPE_STORED_IN One ANALYTE_LEVEL_RULE_ASGMT
Relationship			Always REPRESENTS_VALUE_FOR One SAMP_SCHEDULE_MNTRG_PERIOD_ASGMT
Relationship			Sometimes IS_REPRESENTED_IN One or More CALC_MCL_VALUE_MP_AVG_ASGMT
			+ -
Entity Type			MONITORING_CONDITION ...
Entity Type			+ -MONITORING_PERIOD_AVERAGE
Attribute			I TMNMPAVG_IS_NUMBER (Number, 7, Mandatory, Designed)
Attribute			APPLICABLE_PERIOD_BEGIN_DATE (Date, 8, Optional, Basic)
Attribute			APPLICABLE_PERIOD_END_DATE (Date, 8, Optional, Basic)
Attribute			MCL_COMPLIANCE_METHOD (Text, 3, Optional, Basic)
Attribute			MEASURE (Number, 15, Optional, Basic)

Exhibit A-1. SDWIS/STATE Release 8.0 Entities of Interest (Continued)

Attribute			MEASURE_TEXT (Text, 16, Optional, Basic)
Attribute			UOM_CODE (Text, 9, Optional, Basic)
Attribute			TOTAL_DAYS (Number, 5, Optional, Basic)
Attribute			NUMBER_OF_RESULTS_USED (Number, 5, Optional, Basic)
Attribute			D_LAST_UPDT_TS (Timestamp, 20, Mandatory, Basic)
Attribute			D_USERID_CODE (Text, 8, Mandatory, Basic)
Attribute			DATE_REPORTED (Date, 8, Optional, Basic)
Attribute			PRECURSOR_ACHVD_REMOVAL_RATIO_NU (Number, 4, Optional, Basic)
Attribute			PRECURSOR_ACHVD_REMOVAL_RATIO_TX (Text, 5, Optional, Basic)
Relationship			Sometimes IS_REPRESENTED_IN One or More CALC_MCL_VALUE_MP_AVG_ASGMT
Relationship			Sometimes IS_CALCULATED_FROM One or More SAMPLE_ANALYTICAL_RESULT
Relationship			Always REFLECTS_THE_MP_AVG_VALUE_FOR One SAMP_SCHEDULE_MNTRG_PERIOD_ASGMT
			+ -
Entity Type			MONITORING_REQMT_CONDITION_ASGMT ...
Entity Type			MONITORING_REQUIREMENT_LOCATION ...
Entity Type			+ -MONITORING_REQUIREMNT
Attribute			I TMNMNR_IS_NUMBER (Number, 7, Mandatory, Designed)
Attribute			I TMNMNR_ST_CODE (Text, 2, Mandatory, Basic)
Attribute			END_DATE (Date, 8, Optional, Basic)
Attribute			BEGIN_DATE (Date, 8, Optional, Basic)
Attribute			SAMPLE_TYPE_CODE (Text, 2, Mandatory, Basic)
Attribute			SAMPLE_COUNT (Number, 4, Mandatory, Basic)
Attribute			SAMPLE_COUNT_UNIT_CODE (Text, 3, Mandatory, Basic)
Attribute			SAMPLE_UNIT_COUNT (Text, 3, Optional, Basic)
Attribute			MINIMUM_REPETITION_COUNT (Number, 3, Optional, Basic)
Attribute			MINIMUM_REPETITION_UNIT_CODE (Text, 3, Optional, Basic)

Exhibit A-1. SDWIS/STATE Release 8.0 Entities of Interest (Continued)

Attribute			SAMPLE_SCHEDULE_BEGIN_UNIT_CODE (Text, 2, Optional, Basic)
Attribute			DESCRIPTION_TEXT (Text, 2000, Optional, Basic)
Attribute			D_LAST_UPDATE_TIMESTAMP (Timestamp, 20, Mandatory, Basic)
Attribute			D_USERID_CODE (Text, 8, Mandatory, Basic)
Relationship			Sometimes SPECIFIES_THE_ASSESSMENT_OF One ANALYTE
Relationship			Sometimes IS_TRIGGERED_BY One ANALYTE_LEVEL_RULE_ASGMT
Relationship			Sometimes IS_ESTABLISHED_BY One CODE_OF_REGULATION
Relationship			Sometimes IS_ESTABLISHED_BY One GOVERNMENT_AGENCY
Relationship			Sometimes IS_QUALIFIED_BY One or More MONITORING_REQMT_CONDITION_ASGMT
Relationship			Sometimes IS_SPECIFIED_FOR One or More MONITORING_REQUIREMENT_LOCATION
Relationship			Sometimes IS_ESTABLISHED_FOR One RULE
Relationship			Sometimes RESULTS_IN One or More SAMPLE_SCHEDULE
Relationship			Sometimes SPECIFIES_THE_ASSESSMENT_OF One ANALYTE_GROUP
Relationship			Sometimes RESULTS_IN One or More SAMPLE_SCHEDULE_GROUP
Relationship			Sometimes IS_ADDRESSED_IN One or More MONITORING_WAIVER
Relationship			Sometimes KNOWS_THE_VIO_TYPE_FROM One VIOLATION_TYPE
			+ -
Entity Type			MONITORING_WAIVER ...
Entity Type			+ -SAMPLE_SCHEDULE
Attribute			I TMNSASCH_IS_NUMBER (Number, 7, Mandatory, Designed)
Attribute			I TMNSASCH_ST_CODE (Text, 2, Mandatory, Basic)
Attribute			REASON_TEXT (Text, 2000, Optional, Basic)
Attribute			BEGIN_DATE (Date, 8, Mandatory, Basic)
Attribute			END_DATE (Date, 8, Optional, Basic)
Attribute			START_DAY (Number, 2, Optional, Basic)
Attribute			START_MONTH (Number, 2, Optional, Basic)

Exhibit A-1. SDWIS/STATE Release 8.0 Entities of Interest (Continued)

Attribute	END_DAY (Number, 2, Optional, Basic)
Attribute	END_MONTH (Number, 2, Optional, Basic)
Attribute	CORRECTIVE_ACTION_INDICATOR_CODE (Text, 1, Optional, Basic)
Attribute	DEVIATION_INDICATOR_CODE (Text, 1, Optional, Basic)
Attribute	WATER_SYSTEM_NOTIFIED_DATE (Date, 8, Optional, Basic)
Attribute	INITIAL_MONITORING_PRD_BEGIN_DAT (Date, 8, Optional, Basic)
Attribute	D_SYSTEM_GENERATED_INDICATOR_COD (Text, 1, Optional, Basic)
Attribute	D_INITIAL_TIMESTAMP (Timestamp, 20, Mandatory, Basic)
Attribute	D_LAST_UPDATE_TIMESTAMP (Timestamp, 20, Mandatory, Basic)
Attribute	D_USERID_CODE (Text, 8, Mandatory, Basic)
Attribute	STATE_START_DAY (Number, 2, Optional, Basic)
Attribute	STATE_START_MONTH (Number, 2, Optional, Basic)
Attribute	STATE_END_DAY (Number, 2, Optional, Basic)
Attribute	STATE_END_MONTH (Number, 2, Optional, Basic)
Attribute	STATE_YEAR (Number, 1, Optional, Basic)
Attribute	MONITORING_ASSESSMENT_FLAG (Text, 1, Optional, Basic)
Attribute	CDS_SETUP_PROCESSED_FLAG (Text, 1, Optional, Basic)
Attribute	SCHEDULE_ASSESSED_TIMESTAMP (Timestamp, 20, Optional, Basic)
Attribute	TCR_STREAMNESS_REQD_INDICATOR (Text, 1, Optional, Basic)
Relationship	Sometimes IS_THE_RESULT_OF One DEVIATION
Relationship	Sometimes IS_SUPERSEDED_BY One DEVIATION
Relationship	Always ASSIGNS One MONITORING_REQUIREMNT
Relationship	Always APPLIES One WATER_SYSTEM
Relationship	Sometimes ASSIGNS One or More SCHEDULE_AOP_ASGMT
Relationship	Sometimes IS_DETAILED_BY One or More SAMPLE_SCHEDULE_DATE
Relationship	Sometimes RESULTS One or More VIOLATION

Exhibit A-1. SDWIS/STATE Release 8.0 Entities of Interest (Continued)

Relationship		Sometimes IS_PRECIPITATED_BY One SAMPLE_ANALYTICAL_RESULT
Relationship		Sometimes HAS_MONITRNG_RQTS_REPRESENTED_IN One or More
SAMP_SCHEDULE_MNTRG_PERIOD_ASGMT		
Relationship		Sometimes IS_A_MEMBER_OF One SAMPLE_SCHEDULE_GROUP
Relationship		Sometimes SPECIFIES_SUBSAMPLING_RQT_IN One or More SAMPLING_POINT_SUBSCHEDULE
Relationship		Sometimes IS_SPECIFIED_FOR One WATER_SYSTEM_FACILITY
Relationship		Sometimes IS_THE_PRINCIPAL_SCHEDULE_OF One or More SCHEDULE_PACKAGE
Relationship		Sometimes IS_THE_SUPPORTING_SCHEDULE_OF One or More SCHEDULE_PACKAGE
	+ -	
Entity Type		SAMPLE_SCHEDULE_DATE ...
Entity Type		+ -SAMPLE_SCHEDULE_GROUP
Attribute		I TMNSSGRP_IS_NUMBER (Number, 7, Mandatory, Designed)
Attribute		I TMNSSGRP_ST_CODE (Text, 2, Mandatory, Basic)
Attribute		REASON_TEXT (Text, 2000, Optional, Basic)
Attribute		BEGIN_DATE (Date, 8, Mandatory, Basic)
Attribute		END_DATE (Date, 8, Optional, Basic)
Attribute		START_DAY (Number, 2, Optional, Basic)
Attribute		START_MONTH (Number, 2, Optional, Basic)
Attribute		END_DAY (Number, 2, Optional, Basic)
Attribute		END_MONTH (Number, 2, Optional, Basic)
Attribute		INITIAL_MONITORING_PRD_BEGIN_DAT (Date, 8, Optional, Basic)
Attribute		STATE_START_DAY (Number, 2, Optional, Basic)
Attribute		STATE_START_MONTH (Number, 2, Optional, Basic)
Attribute		STATE_END_DAY (Number, 2, Optional, Basic)
Attribute		STATE_END_MONTH (Number, 2, Optional, Basic)

Exhibit A-1. SDWIS/STATE Release 8.0 Entities of Interest (Continued)

Attribute			STATE_YEAR (Number, 1, Optional, Basic)
Attribute			D_INITIAL_TIMESTAMP (Timestamp, 20, Mandatory, Basic)
Attribute			D_LAST_UPDATE_TIMESTAMP (Timestamp, 20, Mandatory, Basic)
Attribute			D_USERID_CODE (Text, 8, Mandatory, Basic)
Attribute			CDS_SETUP_PROCESSED_FLAG (Text, 1, Optional, Basic)
Relationship			Always APPLIES One WATER_SYSTEM
Relationship			Always ASSIGNS One MONITORING_REQUIREMNT
Relationship			Sometimes INCLUDES One or More SAMPLE_SCHEDULE
Relationship			Sometimes HAS_HIDDEN_SCHEDULES_CLOSED_FOR One or More EXCEPTION_ANALYTE
Relationship			Sometimes RESULTS_IN One or More VIOLATION_GROUP
Relationship			Sometimes IS_SPECIFIED_FOR One WATER_SYSTEM_FACILITY
Relationship			Sometimes SPECIFIES_SUBSAMPLING_RQT_IN One or More
SAMPLING_PT_SCHED_GRP_SUBSCHED			
Relationship			Sometimes IS_THE_SUPPORTING_SKED_GRP_OF One or More SCHEDULE_GROUP_PACKAGE
Relationship			Sometimes IS_THE_PRINCIPAL_SCHEDULE_OF One or More SCHEDULE_GROUP_PACKAGE
			+ -
Entity Type			SAMPLING_PLAN ...
Entity Type			SAMPLING_PLAN_SAMPLE_POINT_ASGMT ...
Entity Type			+ -SAMPLING_POINT_SUBSCHEDULE
Attribute			I TMNSPSUB_IS_NUMBER (Number, 7, Mandatory, Designed)
Attribute			SUBCOUNT (Number, 4, Optional, Basic)
Attribute			D_LAST_UPDATE_TIMESTAMP (Timestamp, 20, Mandatory, Basic)
Attribute			D_USERID_CODE (Text, 8, Mandatory, Basic)
Relationship			Always REFLECTS_PARTIAL_MON_RQT_FOR One SAMPLE_SCHEDULE
Relationship			Always REFERENCES_AS_SAMPLING_LOCATION One SAMPLING_POINT
Relationship			Sometimes MONITRNG_RQTS_REPRESENTED_IN One or More SAMPLING_POINT_SUB_SSMPA

Exhibit A-1. SDWIS/STATE Release 8.0 Entities of Interest (Continued)

			+ -	
Entity Type			+ -	-SAMPLING_POINT_SUB_SSMPA
Attribute				APPLICABLE_PERIOD_BEGIN_DATE (Date, 8, Optional, Basic)
Attribute				APPLICABLE_PERIOD_END_DATE (Date, 8, Optional, Basic)
Attribute				APP_PER_GAP_BEGIN_DATE (Date, 8, Optional, Basic)
Attribute				APP_PER_GAP_END_DATE (Date, 8, Optional, Basic)
Attribute				D_FIRST_IDENTIFIED_TIMESTAMP (Timestamp, 20, Mandatory, Basic)
Attribute				D_LAST_UPDT_TS (Timestamp, 20, Mandatory, Basic)
Attribute				D_USERID_CODE (Text, 8, Mandatory, Basic)
Relationship				I Always REPRESENTS_MONITORING_RQTS_OF One SAMPLING_POINT_SUBSCHEDULE
Relationship				I Always REPRESENTS_THE_DURATION_OF One SAMP_SCHEDULE_MNTRG_PERIOD_ASGMT
Relationship				Sometimes SUPPLIES_NONTCR_MNTRG_PRDCTY_FOR One or More
SAMPLE_ANALYTICAL_RESULT				
			+ -	
Entity Type			+ -	-SAMPLING_PT_SCHED_GRP_SUBSCHED
Attribute				I TMNSPSGS_IS_NUMBER (Number, 7, Mandatory, Designed)
Attribute				SUBCOUNT (Number, 4, Optional, Basic)
Attribute				D_LAST_UPDATE_TIMESTAMP (Timestamp, 20, Mandatory, Basic)
Attribute				D_USERID_CODE (Text, 8, Mandatory, Basic)
Relationship				Always REFLECTS_PARTIAL_MON_RQT_FOR One SAMPLE_SCHEDULE_GROUP
Relationship				Always REFERENCES_AS_SAMPLING_LOCATION One SAMPLING_POINT
			+ -	
Entity Type			+ -	-SAMP_SCHEDULE_MNTRG_PERIOD_ASGMT
Attribute				APPLICABLE_PERIOD_BEGIN_DATE (Date, 8, Optional, Basic)
Attribute				APPLICABLE_PERIOD_END_DATE (Date, 8, Optional, Basic)
Attribute				APP_PER_GAP_BEGIN_DATE (Date, 8, Optional, Basic)

Exhibit A-1. SDWIS/STATE Release 8.0 Entities of Interest (Continued)

Attribute		APP_PER_GAP_END_DATE (Date, 8, Optional, Basic)
Attribute		D_FIRST_IDENTIFIED_TIMESTAMP (Timestamp, 20, Mandatory, Basic)
Attribute		D_LAST_UPDT_TS (Timestamp, 20, Mandatory, Basic)
Attribute		D_USERID_CODE (Text, 8, Mandatory, Basic)
Relationship		I Always REPRESENTS_MONITORING_RQTS_OF One SAMPLE_SCHEDULE
Relationship		I Always REPRESENTS_THE_DURATION_OF One MONITORING_PERIOD
Relationship		Sometimes SUPPLIES_NONTCR_MNTRG_PRDCTY_FOR One or More
SAMPLE_ANALYTICAL_RESULT		
Relationship		Sometimes SUPPLIES_NONTCR_MNTRG_PRDCTY_FOR One or More SAMPLE_SUMMARY
Relationship		Sometimes RESULTS_IN One MCL_VALUE
Relationship		Sometimes HAS_A_MP_AVG_VALUE_STORED_IN One MONITORING_PERIOD_AVERAGE
Relationship		Sometimes HAS_DURATION_REPRESENTED_IN One or More SAMPLING_POINT_SUB_SMPA
	+ -	
Entity Type		SCHEDULE_AOP_ASGMT ...
Entity Type	+ -	SCHEDULE_GROUP_PACKAGE
Attribute		TYPE (Text, 1, Optional, Basic)
Attribute		D_LAST_UPDT_TS (Timestamp, 20, Mandatory, Basic)
Attribute		D_USERID_CODE (Text, 8, Mandatory, Basic)
Relationship		I Always REFERENCES_SUPPORTNG_SCHEDULE_IN One SAMPLE_SCHEDULE_GROUP
Relationship		I Always REFERENCES_PRINCIPAL_SCHEDULE_IN One SAMPLE_SCHEDULE_GROUP
	+ -	
Entity Type	+ -	SCHEDULE_PACKAGE
Attribute		TYPE (Text, 1, Optional, Basic)
Attribute		D_LAST_UPDT_TS (Timestamp, 20, Mandatory, Basic)
Attribute		D_USERID_CODE (Text, 8, Mandatory, Basic)

Exhibit A-1. SDWIS/STATE Release 8.0 Entities of Interest (Continued)

Relationship		I Always REFERENCES_PRINCIPAL_SCHEDULE_IN One SAMPLE_SCHEDULE
Relationship		I Always REFERENCES_SUPPORTNG_SCHEDULE_IN One SAMPLE_SCHEDULE
	+ -	
Entity Type		VULNERABILITY_ASSESSMENT ...
Entity Type		VULNER_ASSESSMNT_GEO_AREA_ASGMT ...
Entity Type		VUL_ASSESSMNT_ANALYTE_ASGMT ...
Entity Type		WAIVER_SAMPLING_POINT_ASGMT ...
Entity Type		WAIVER_WATER_SYSTEM_ASGMT ...
	+ -	
Subject Area	+ -	INVENTORIES
Subject Area		GEOGRAPHIC_AREAS ...
Subject Area		POPULATION_GROUPS ...
Subject Area		TREATMENTS ...
Subject Area		WATER_SYSTEMS ...
Subject Area		WATER_SYSTEM_FACILITIES ...
	+ -	
Subject Area	+ -	LEGAL_ENTITIES
Entity Type		D_USER ...
Entity Type		GOVERNMENT_AGENCY ...
Entity Type		INDIVIDUAL ...
Entity Type		INDIVIDUAL_GOVT_AGENCY_ASGMT ...
Entity Type		LEGAL_ENTITY ...
	+ -	
Subject Area	+ -	LOOKUP_TABLES
Entity Type		CODE ...
Entity Type		D_PWS_RULE_TABLE ...

Exhibit A-1. SDWIS/STATE Release 8.0 Entities of Interest (Continued)

Entity Type	ENTITY_INTERNAL_SYSTEM_NUMBER ...
Entity Type	EXTERNAL_SYSTEM_NUMBER ...
Entity Type	OS2_USERID ...
Entity Type	PERMITTED_VALUE ...
Entity Type	+ -SDWISFED_BATCH
Attribute	I TINBATCH_IS_NUMBER (Number, 7, Mandatory, Designed)
Attribute	DTF_FILE_STATUS (Text, 1, Optional, Basic)
Attribute	SELECTION_CODE (Text, 1, Optional, Basic)
Attribute	FROM_DATE (Date, 8, Optional, Basic)
Attribute	TO_DATE (Date, 8, Optional, Basic)
Attribute	DTF_CREATION_DATE_TS (Timestamp, 20, Optional, Basic)
Attribute	BATCH_NUMBER (Number, 6, Optional, Basic)
Attribute	TOTAL_UCM_SAMPLES (Number, 9, Optional, Basic)
Attribute	TOTAL_DTF_LINES (Number, 9, Optional, Basic)
Attribute	TOTAL_OC_ABOVE_DL_COUNT (Number, 9, Optional, Basic)
Attribute	TOTAL_OC_HIGH_VALUE_COUNT (Number, 9, Optional, Basic)
Attribute	TOTAL_OC_MODIFY_COUNT (Number, 9, Optional, Basic)
Attribute	TOTAL_OC_INSERT_COUNT (Number, 9, Optional, Basic)
Attribute	TOTAL_IOC_ABOVE_DL_COUNT (Number, 9, Optional, Basic)
Attribute	TOTAL_IOC_HIGH_VALUE_COUNT (Number, 9, Optional, Basic)
Attribute	TOTAL_IOC_MODIFY_COUNT (Number, 9, Optional, Basic)
Attribute	TOTAL_IOC_INSERT_COUNT (Number, 9, Optional, Basic)
Attribute	TOTAL_SAMPLES (Number, 9, Optional, Basic)
Attribute	LAST_SAMPLE_RESULT_IS_NUMBER (Number, 7, Optional, Basic)
Attribute	D_LAST_UPDATE_TIMESTAMP (Timestamp, 20, Mandatory, Basic)
Attribute	D_USERID_CODE (Text, 8, Mandatory, Basic)

Exhibit A-1. SDWIS/STATE Release 8.0 Entities of Interest (Continued)

Attribute		PB90_ALL_RESULTS_IND (Text, 1, Optional, Basic)
		+ -
		+ -
Subject Area		MIGRATION ...
Subject Area	+	-PROGRAMS_AND_PLANS
Entity Type		+ -ANALYTE_LEVEL_RULE_ASGMT
Attribute		I TMNALRA_IS_NUMBER (Number, 7, Mandatory, Designed)
Attribute		I TMNALRA_ST_CODE (Text, 2, Mandatory, Basic)
Attribute		THRESHOLD_TYPE_CODE (Text, 4, Optional, Basic)
Attribute		MEASURE_LEVEL_TYPE_CODE (Text, 4, Optional, Basic)
Attribute		MEASURE (Number, 15, Optional, Basic)
Attribute		UOM_CODE (Text, 9, Optional, Basic)
Attribute		BEGIN_DATE (Date, 8, Mandatory, Basic)
Attribute		END_DATE (Date, 8, Optional, Basic)
Attribute		D_LAST_UPDT_TS (Timestamp, 20, Mandatory, Basic)
Attribute		D_USERID_CODE (Text, 8, Mandatory, Basic)
Attribute		MEASURE_TEXT (Text, 16, Optional, Basic)
Attribute		MCL_COMPLIANCE_METHOD (Text, 3, Optional, Basic)
Relationship		Always SPECIFIES One ANALYTE
Relationship		Always IS_ESTABLISHED_BY One RULE
Relationship		Sometimes IS_ESTABLISHED_BY One DEVIATION
Relationship		Sometimes TRIGGERS One or More MONITORING_REQUIREMNT
Relationship		Sometimes RESULTS_IN One or More VIOLATION
Relationship		Sometimes PROVIDES_METHOD_FOR_CALCULATING One or More MCL_VALUE
		+ -

Exhibit A-1. SDWIS/STATE Release 8.0 Entities of Interest (Continued)

Entity Type		CODE_OF_REGULATION ...
Entity Type		GOVERNMENT_AGENCY_PROGRAM_ASGMT ...
Entity Type		LEAD_AND_COPPER_WQP ...
Entity Type		MONITORING_PERIOD ...
Entity Type		PROGRAM ...
Entity Type		PROGRAM_LEGAL_ENTITY_CONTACT ...
Entity Type		PROGRAM_PROJECT_ASSIGNMENT ...
Entity Type		PROJECT ...
Entity Type		PROJECT_LEGAL_ENTITY_CONTACT ...
Entity Type		RULE ...
Entity Type		RULE_GOVERNMENT_AGENCY_ASGMT ...
Entity Type		RULE_SUPERCESSION_ASGMT ...
Entity Type		RULE_WS_MP_ASGMT ...
Entity Type		STATUTE ...
Entity Type		STATUTE_AMENDMENT_ASGMT ...
Entity Type		VIOLATION_TYPE_RULE_ASGMT ...
	+-	
Subject Area	+ -	-SAMPLING
Subject Area	+ -	-ANALYTES
Entity Type		ANALYTE ...
Entity Type		ANALYTE_GROUP ...
Entity Type		ANALYTE_GROUP_ASGMT ...
	+-	
Subject Area	+ -	-LABORATORIES
Entity Type		LABORATORY ...
Entity Type		LAB_ANALYTE_METHOD_ASGMT ...

Exhibit A-1. SDWIS/STATE Release 8.0 Entities of Interest (Continued)

Entity Type				LAB_LEGAL_ENTITY_ASGMT ...
				+ -
Subject Area				+ -SAMPLES
Entity Type				COLLECTOR ...
Entity Type				+ -MICROBIOLOGICAL_SAMPLE
Attribute				FIELD_FREE_CHLORINE_RESIDUAL_MSR (Number, 4, Optional, Basic)
Attribute				FIELDTOTAL_CHLORINE_RESIDUAL_MSR (Number, 4, Optional, Basic)
Attribute				FIELD_TEMPERATURE_MEASURE (Number, 3, Optional, Basic)
Attribute				TEMP_MEASUREMENT_TYPE_CODE (Text, 1, Optional, Basic)
Attribute				FIELD_TURBIDITY_MEASURE (Number, 5, Optional, Basic)
Attribute				FIELD_PH_MEASURE (Number, 4, Optional, Basic)
Attribute				FIELD_FLOW_RATE (Number, 7, Optional, Basic)
Attribute				D_LAST_UPDT_TS (Timestamp, 20, Mandatory, Basic)
Attribute				D_USERID_CODE (Text, 8, Mandatory, Basic)
Relationship				I Always IS_A One SAMPLE
				+ -
Entity Type				+ -MILESTONE_EVENT
Attribute				I TFRMEVNT_IS_NUMBER (Number, 7, Mandatory, Designed)
Attribute				PLANNED_DATE (Date, 8, Optional, Basic)
Attribute				REASON_CODE (Text, 5, Optional, Basic)
Attribute				STATUS_CODE (Text, 2, Optional, Basic)
Attribute				FEDERAL_FISCAL_YEAR_NUMBER (Number, 2, Optional, Basic)
Attribute				TYPE_CODE (Text, 4, Mandatory, Basic)
Attribute				COMMENT_TEXT (Text, 2000, Optional, Basic)
Attribute				ACTUAL_DATE (Date, 8, Optional, Basic)
Attribute				MEASURE (Number, 15, Optional, Basic)

Exhibit A-1. SDWIS/STATE Release 8.0 Entities of Interest (Continued)

Attribute				STATE_ASGN_IDENTIFICATION_CODE (Text, 12, Optional, Basic)
Attribute				D_GENERATED_ID_SOURCE_CODE (Text, 1, Optional, Basic)
Attribute				D_DATA_ORIGIN_CODE (Text, 1, Optional, Basic)
Attribute				D_FIRST_IDENTIFIED_TIMESTAMP (Timestamp, 20, Mandatory, Basic)
Attribute				D_LAST_UPDATE_TIMESTAMP (Timestamp, 20, Mandatory, Basic)
Attribute				D_USERID_CODE (Text, 8, Mandatory, Basic)
Attribute				EXTERNAL_SYSTEM_NUMBER (Number, 5, Optional, Basic)
Attribute				STATE_ASGN_SCHEDULE_NUMBER (Number, 3, Mandatory, Basic)
Attribute				STATUS (Text, 1, Optional, Basic)
Attribute				STATUS_DATE (Date, 8, Optional, Basic)
Attribute				END_DATE (Date, 8, Optional, Basic)
Relationship				I Always DOCUMENTS One WATER_SYSTEM
Relationship				Sometimes IS_TRIGGERED_BY_EXCEEDENCE_IN One SAMPLE_SUMMARY
			+ -	
Entity Type				+ -SAMPLE
Attribute				I TSASAMPL_IS_NUMBER (Number, 7, Mandatory, Designed)
Attribute				I TSASAMPL_ST_CODE (Text, 2, Mandatory, Basic)
Attribute				LAB_ASSIGNED_ID_NUMBER (Text, 20, Optional, Basic)
Attribute				STATE_ASGN_IDENTIFICATION_NUMBER (Text, 20, Optional, Basic)
Attribute				TYPE_CODE (Text, 2, Optional, Basic)
Attribute				COMPLIANCE_PERIOD_DATE (Date, 8, Optional, Basic)
Attribute				REPEAT_LOCATION_TYPE_CODE (Text, 2, Optional, Basic)
Attribute				COMPOSITE_INDICATOR_CODE (Text, 1, Optional, Basic)
Attribute				RAD_QUARTER_CODE (Number, 1, Optional, Basic)
Attribute				COMPOSITE_DATE (Date, 8, Optional, Basic)
Attribute				MICROBE_UOM_CODE (Text, 9, Optional, Basic)

Exhibit A-1. SDWIS/STATE Release 8.0 Entities of Interest (Continued)

Attribute	COLLECTION_START_DATE (Date, 8, Optional, Basic)
Attribute	COLLECTION_START_TIME (Time, 6, Optional, Basic)
Attribute	COLLECTION_END_DATE (Date, 8, Optional, Basic)
Attribute	COLLECTION_END_TIME (Time, 6, Optional, Basic)
Attribute	LABORATORY_RECEIVED_DATE (Date, 8, Optional, Basic)
Attribute	LEAD_AND_COPPER_SAMPLE_TYPE_CODE (Text, 3, Optional, Basic)
Attribute	MICROBIO_SAMPLE_INDICATOR_CODE (Text, 1, Optional, Basic)
Attribute	COMPLIANCE_PURPOS_INDICATOR_CODE (Text, 1, Optional, Basic)
Attribute	REJECTION_REASON_CODE (Text, 2, Optional, Basic)
Attribute	INFORMAL_COLLECTOR (Text, 40, Optional, Basic)
Attribute	COMMENT_TEXT (Text, 2000, Optional, Basic)
Attribute	D_CATEGORY_FLOW_CODE (Text, 2, Optional, Basic)
Attribute	D_FISCAL_YEAR_NUMBER (Number, 2, Optional, Basic)
Attribute	D_GENERATED_ID_SOURCE_CODE (Text, 1, Optional, Basic)
Attribute	D_DATA_ORIGIN_CODE (Text, 1, Optional, Basic)
Attribute	D_FIRST_IDENTIFIED_TIMESTAMP (Timestamp, 20, Mandatory, Basic)
Attribute	D_LAST_UPDT_TS (Timestamp, 20, Mandatory, Basic)
Attribute	D_USERID_CODE (Text, 8, Mandatory, Basic)
Attribute	REPLACEMENT_INDICATOR_CODE (Text, 1, Optional, Basic)
Relationship	Sometimes IS_COLLECTED_BY One COLLECTOR
Relationship	Sometimes IS_ANALYZED_BY One LABORATORY
Relationship	Sometimes IS_A One MICROBIOLOGICAL_SAMPLE
Relationship	Sometimes IS_TAKEN_AT One SAMPLING_POINT
Relationship	Sometimes ASSOCIATES_TO One or More SAMPLE
Relationship	Sometimes IS_ASSOCIATED_WITH One SAMPLE
Relationship	Sometimes IS_ASSESSED_FOR One or More SAMPLE_ANALYTICAL_RESULT

Exhibit A-1. SDWIS/STATE Release 8.0 Entities of Interest (Continued)

Relationship				Sometimes IS_DRAWN_USING One STANDARD_METHOD_NUMBER
Relationship				Sometimes IS_PROVIDED_BY One WATER_SYSTEM
Relationship				Sometimes IS_COLLECTED_BY One INDIVIDUAL
			+ -	
Entity Type				SAMPLING_POINT ...
Entity Type				SAMPLING_POINT_HISTORY ...
			+ -	
Subject Area			+ -	SAMPLE_ANALYTICAL_RESULTS
Entity Type			+ -	MDBP_SUMMARY
Attribute				ITSAMDBPS_IS_NUMBER (Number, 7, Mandatory, Designed)
Attribute				ITSAMDBPS_ST_CODE (Text, 2, Mandatory, Basic)
Attribute				TYPE_CODE_CV (Text, 4, Optional, Basic)
Attribute				REPORTED_DATE (Date, 8, Optional, Basic)
Attribute				SAMPLES_REQUIRED (Number, 5, Optional, Basic)
Attribute				SAMPLES_COLLECTED (Number, 5, Optional, Basic)
Attribute				MR_COMPLIANCE_INDICATOR (Text, 3, Optional, Basic)
Attribute				LEVEL_COMPLIANCE_INDICATOR (Text, 1, Optional, Basic)
Attribute				TOTAL_SAMPLES_BEYOND_MSR_LVL (Number, 5, Optional, Basic)
Attribute				PERCENT_SAMPLES_BEYOND_MSR_LVL (Number, 6, Optional, Basic)
Attribute				PERCENT_SAMPS_BYND_MSR_LVL_TXT (Text, 7, Optional, Basic)
Attribute				HIGHEST_MEASURE (Number, 5, Optional, Basic)
Attribute				HIGHEST_MSR_TXT (Text, 6, Optional, Basic)
Attribute				MONITORING_PERIOD_AVG_MEASURE (Number, 7, Optional, Basic)
Attribute				MONITORING_PERIOD_AVG_MSR_TXT (Text, 8, Optional, Basic)
Attribute				RUNNING_ANNUAL_AVERAGE_MEASURE (Number, 7, Optional, Basic)
Attribute				RUNNING_ANNUAL_AVERAGE_MSR_TXT (Text, 8, Optional, Basic)

Exhibit A-1. SDWIS/STATE Release 8.0 Entities of Interest (Continued)

Attribute			Q1_IFT_MONITORED_INDICATOR (Text, 1, Optional, Basic)
Attribute			Q2_IFT_RECORDED_INDICATOR (Text, 1, Optional, Basic)
Attribute			Q3_IFT_EQUIPMENT_INDICATOR (Text, 1, Optional, Basic)
Attribute			Q4_IFT_GREATER_1_0_INDICATOR (Text, 1, Optional, Basic)
Attribute			Q5_IFT_GREATER_0_5_INDICATOR (Text, 1, Optional, Basic)
Attribute			Q6_IFT_GREATER_1_DUR_3_MON_IND (Text, 1, Optional, Basic)
Attribute			Q7_IFT_GREATER_2_0_DUR_2_MON_IND (Text, 1, Optional, Basic)
Attribute			COMMENT_TEXT (Text, 2000, Optional, Basic)
Attribute			D_LAST_UPDT_TS (Timestamp, 20, Mandatory, Basic)
Attribute			D_USERID_CODE (Text, 8, Mandatory, Basic)
Attribute			MPA_UOM_CODE (Text, 9, Optional, Basic)
Attribute			RAA_UOM_CODE (Text, 9, Optional, Basic)
Relationship			Always TAKES_LOCATION_AND_ANALYTE_FROM One FACILITY_ANALYTE_LEVEL
Relationship			Always RECEIVES_PERIODICITY_FROM One MONITORING_PERIOD
Relationship			Sometimes RECORDS_COLLECTION_OF_SAMPLES_AT One SAMPLING_POINT
Relationship			Sometimes IS_ASSESSED_BY One LABORATORY
Relationship			Sometimes IS_ASSESSED_BY One INDIVIDUAL
Relationship			Sometimes TRIGGERS_CREATION_OF One or More VIOLATION
		+-	
Entity Type			MICROBIAL_ANALYTICAL_RESULT ...
Entity Type			+ -SAMPLE_ANALYTICAL_RESULT
Attribute			I TSASAR_IS_NUMBER (Number, 7, Mandatory, Designed)
Attribute			I TSASAR_ST_CODE (Text, 2, Mandatory, Basic)
Attribute			EXTRACTION_TIME (Time, 6, Optional, Basic)
Attribute			EXTRACTION_DATE (Date, 8, Optional, Basic)
Attribute			DETECTION_LIMIT_NUMBER (Number, 15, Optional, Basic)

Exhibit A-1. SDWIS/STATE Release 8.0 Entities of Interest (Continued)

Attribute	DETECTION_LIMIT_UOM_CODE (Text, 9, Optional, Basic)
Attribute	MICRO_RSLT_INDICATOR (Text, 1, Optional, Basic)
Attribute	ANALYSIS_START_DATE (Date, 8, Optional, Basic)
Attribute	ANALYSIS_START_TIME (Time, 6, Optional, Basic)
Attribute	ANALYSIS_COMPLETE_DATE (Date, 8, Optional, Basic)
Attribute	ANALYSIS_COMPLETE_TIME (Time, 6, Optional, Basic)
Attribute	STATE_NOTIFICATION_DATE (Date, 8, Optional, Basic)
Attribute	WATER_SYSTEM_NOTIFICATION_DATE (Date, 8, Optional, Basic)
Attribute	LESS_THAN_CODE (Text, 3, Optional, Basic)
Attribute	LESS_THAN_INDICATOR (Text, 1, Optional, Basic)
Attribute	DATA_QUALITY_CODE (Text, 1, Optional, Basic)
Attribute	DATA_QUALITY_REASON_TEXT (Text, 1000, Optional, Basic)
Attribute	DATA_QUALITY_REASON_CODE (Text, 2, Optional, Basic)
Attribute	REPORTED_MEASURE (Text, 16, Optional, Basic)
Attribute	RAD_COUNTING_ERROR (Number, 8, Optional, Basic)
Attribute	CONCENTRATION_MEASURE (Number, 15, Optional, Basic)
Attribute	UOM_CODE (Text, 9, Optional, Basic)
Attribute	D_LAST_UPDT_TS (Timestamp, 20, Mandatory, Basic)
Attribute	D_USERID_CODE (Text, 8, Mandatory, Basic)
Attribute	EXTERNAL_SYSTEM_NUMBER (Number, 5, Optional, Basic)
Attribute	TRANSACTION_TYPE (Text, 1, Optional, Basic)
Attribute	DTF_BATCH_NUMBER (Number, 6, Optional, Basic)
Attribute	DTF_CREATION_DATE_TS (Timestamp, 20, Optional, Basic)
Attribute	SDWISFED_STATUS (Text, 1, Optional, Basic)
Attribute	USER_ASSIGNED_SSMIPA_INDICATOR (Text, 1, Optional, Basic)
Relationship	Always MEASURES One ANALYTE

Exhibit A-1. SDWIS/STATE Release 8.0 Entities of Interest (Continued)

Relationship					Sometimes IS_A One MICROBIAL_ANALYTICAL_RESULT
Relationship					Always IS_AN_ASSESSMENT_OF One SAMPLE
Relationship					Sometimes IS_DERIVED_USING One STANDARD_METHOD_NUMBER
Relationship					Sometimes RECEIVES_PERIODICITY_FROM One MONITORING_PERIOD
Relationship					Sometimes RESULTS_IN One VIOLATION
Relationship					Sometimes PRECIPITATES One or More SAMPLE_SCHEDULE
Relationship					Sometimes GETS_MNTRG_PERIODICITY_FROM One
SAMP_SCHEDULE_MNTRG_PERIOD_ASGMT					
Relationship					Sometimes CONTRIBUTES_TO_CALCULATION_OF One MONITORING_PERIOD_AVERAGE
Relationship					Sometimes GETS_MNTRG_PERIODICITY_FROM One SAMPLING_POINT_SUB_SMPA
					+ -
Entity Type					SAMPLE_SUMMARY ...
Entity Type					SAMPLE_SUMMARY_RESULT ...
					+ -
					+ -
Subject Area		TECHNOLOGIES ...			
Subject Area		UPLOAD ...			
					+ -

Exhibit A-1. SDWIS/STATE Release 8.0 Entities of Interest (Continued)

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APPENDIX B-1

Federally Valid Country Codes

Code	Country Name	Code	Country Name
AA	Aruba	BK	Bosnia and Herzegovina
AC	Antigua and Barbuda	BL	Bolivia
AF	Afghanistan	BM	Burma
AG	Algeria	BN	Benin
AJ	Azerbaijan	BO	Belarus
AL	Albania	BP	Solomon Islands
AM	Armenia	BR	Brazil
AN	Andorra	BS	Bassas da India
AO	Angola	BT	Bhutan
AR	Argentina	BU	Bulgaria
AS	Australia	BV	Bouvet Island
AT	Ashmore and Cartier Islands	BX	Brunei
AU	Austria	BY	Burundi
AV	Anguilla	CA	Canada
AY	Antarctica	CB	Cambodia
BA	Bahrain	CD	Chad
BB	Barbados	CE	Sri Lanka
BC	Botswana	CF	Congo
BD	Bermuda	CG	Zaire
BE	Belgium	CH	China
BF	The Bahamas	CI	Chile
BG	Bangladesh	CJ	Cayman Islands
BH	Belize	CK	Cocos (Keeling) Islands

Exhibit B-1. Federally Valid Country Codes

Code	Country Name	Code	Country Name
CM	Cameroon	EZ	Czech Republic
CN	Comoros	FG	French Guiana
CO	Colombia	FI	Finland
CR	Coral Sea Islands	FJ	Fiji
CS	Costa Rica	FK	Falkland Islands (Islas Malvinas)
CT	Central African Republic	FO	Faroe Islands
CU	Cuba	FP	French Polynesia
CV	Cape Verde	FR	France
CW	Cook Islands	FS	French Southern and Antarctic Lands
CY	Cyprus	GA	The Gambia
DA	Denmark	GB	Gabon
DJ	Djibouti	GG	Georgia
DO	Dominica	GH	Ghana
DR	Dominican Republic	GI	Gibraltar
EC	Ecuador	GJ	Grenada
EG	Egypt	GK	Guernsey
EI	Ireland	GL	Greenland
EK	Equatorial Guinea	GM	Germany
EN	Estonia	GO	Glorioso Islands
ER	Eritrea	GP	Guadeloupe
ES	El Salvador	GR	Greece
ET	Ethiopia	GT	Guatemala
EU	Europa Island		

Exhibit B-1. Federally Valid Country Codes (Continued)

Code	Country Name	Code	Country Name
GV	Guinea	JM	Jamaica
GY	Guyana	JN	Jan Mayen
GZ	Gaza Strip	JO	Jordan
HA	Haiti	JU	Juan de Nova Island
HK	Hong Kong	KE	Kenya
HM	Heard Island and McDonald Islands	KG	Kyrgyzstan
HO	Honduras	KN	Korea, Democratic People's Republic of
HR	Croatia	KQ	Kingman Reef
HU	Hungary	KR	Kiribati
IC	Iceland	KS	Korea, Republic of
ID	Indonesia	KT	Christmas Island
IM	Isle of Man	KU	Kuwait
IN	India	KZ	Kazakhstan
IO	British Indian Ocean Territory	LA	Laos
IP	Clipperton Island	LE	Lebanon
IR	Iran	LG	Latvia
IS	Israel	LH	Lithuania
IT	Italy	LI	Liberia
IV	Cote D'Ivoire	LO	Slovakia
IZ	Iraq	LS	Liechtenstein
JA	Japan	LT	Lesotho
JE	Jersey	LU	Luxembourg
LY	Libya	NE	Niue

Exhibit B-1. Federally Valid Country Codes (Continued)

Code	Country Name	Code	Country Name
MA	Madagascar	NF	Norfolk Island
MB	Martinique	NG	Niger
MC	Macau	NH	Vanuatu
MD	Moldova	NI	Nigeria
MF	Mayotte	NL	Netherlands
MG	Mongolia	NO	Norway
MH	Montserrat	NP	Nepal
MI	Malawi	NR	Nauru
MK	Macedonia	NS	Suriname
ML	Mali	NT	Netherlands Antilles
MN	Monaco	NU	Nicaragua
MO	Morocco	NZ	New Zealand
MP	Mauritius	PA	Paraguay
MR	Mauritania	PC	Pitcairn Islands
MT	Malta	PE	Peru
MU	Oman	PF	Paracel Islands
MV	Maldives	PG	Spratly Islands
MW	Montenegro	PK	Pakistan
MX	Mexico	PL	Poland
MY	Malaysia	PM	Panama
MZ	Mozambique	PO	Portugal
NC	New Caledonia	PP	Papua New Guinea
PU	Guinea-Bissau	SV	Svalbard

Exhibit B-1. Federally Valid Country Codes (Continued)

Code	Country Name	Code	Country Name
QA	Qatar	SW	Sweden
RE	Reunion	SX	South Georgia and South Sandwich Islands
RO	Romania	SY	Syria
RP	Philippines	SZ	Switzerland
RS	Russia	TC	United Arab Emirates
RW	Rwanda	TD	Trinidad and Tobago
SA	Saudi Arabia	TE	Tromelin Island
SB	St. Pierre and Miquelon	TH	Thailand
SC	St. Kitts and Nevis	TI	Tajikistan
SE	Seychelles	TK	Turks and Caicos Islands
SF	South Africa	TL	Tokelau
SG	Senegal	TN	Tonga
SH	St. Helena	TO	Togo
SI	Slovenia	TP	Sao Tome and Principe
SL	Sierra Leone	TS	Tunisia
SM	San Marino	TU	Turkey
SN	Singapore	TV	Tuvalu
SO	Somalia	TW	Taiwan
SP	Spain	TX	Turkmenistan
SR	Serbia	TZ	Tanzania
ST	St. Lucia	UG	Uganda
SU	Sudan	UK	United Kingdom
UP	Ukraine	WA	Namibia

Exhibit B-1. Federally Valid Country Codes (Continued)

Code	Country Name	Code	Country Name
US	United States	WE	West Bank
UV	Burkina	WF	Wallis and Futuna
UY	Uruguay	WI	Western Sahara
UZ	Uzbekistan	WS	Western Samoa
VC	St. Vincent and the Grenadines	WZ	Swaziland
VE	Venezuela	YM	Yemen
VI	British Virgin Islands	ZA	Zambia
VM	Vietnam	ZI	Zimbabwe
VT	Vatican City		

Exhibit B-1. Federally Valid Country Codes (Continued)

APPENDIX B-2

List of New/Changed Analytes

The additions to the Analyte table shown in Exhibit B-2.1 and changes to existing Analyte records shown in Exhibit B-2.3 will appear in your Analyte table when you install Release 8.0. You may wish to note the records identified as duplicates in Exhibit B-2.2. However, these records will not be removed from the Analyte table because of referential integrity issues.				
Analyte Code	Analyte Name	Synonymous Name	Chemical Type	CAS Registry No.
0999	Chlorine		WQ	7782-50-5
1000	Total Chlorine	Chloramide, Chloramine	WQ	10599-90-3
1001	Combined Chlorine		WQ	
1004	Bromide	Bromine	IOC	24959-67-9
1039	Perchlorate	Perchlorate ion	OC	14797-73-0
1048	Total Hardness (Gr/Gal)		IOC	
1062	Total Extractable Hydrocarbons in Diesel Oil		OC	
1065	Total Extractable Hydrocarbons in Waste Oil		OC	
2004	Alachlor ESA	Lasso, Alachlor; Alamex; Alochlor; Metachlor; Methachlor	OC	15972-60-8
2009	4,4-DDE	Dichlorodipenyldichloroethylene	OC	72-55-9
2096	RDX	Cyclotrimethylenetrinitramine, Cyclonite	OC	121-82-4

Exhibit B-2.1. List of Analytes To Be Added

The additions to the Analyte table shown in Exhibit B-2.1 and changes to existing Analyte records shown in Exhibit B-2.3 will appear in your Analyte table when you install Release 8.0. You may wish to note the records identified as duplicates in Exhibit B-2.2. However, these records will not be removed from the Analyte table because of referential integrity issues.				
Analyte Code	Analyte Name	Synonymous Name	Chemical Type	CAS Registry No.
2100	DPCA mono Acid Degradate		OC	
2101	DPCA di Acid Degradate		OC	
2102	Disulfoton	Solvirex; Thiodemeton	OC	298-04-4
2103	Diuron	DMU; DCMU	OC	330-54-1
2104	Fonofos	Diphonate; Dyfonate; Dyfonate(R); Fonophos	OC	944-22-9
2108	Acifluorfen	5-[2-chloro-4-(trifluoromethyl)phenoxy]-2-nitrobenzoic acid; Carbofluorfen	OC	50594-66-6
2109	3,4-Dichlorobenzoic Acid		OC	51-44-5
2275	Trans-permethrin	biopermethrin; Permethrin-trans; Cyclopropanecarboxylic acid	OC	51877-74-8
2283	Linuron	Lorox; N'-(3,4-Dichlorophenyl)-N-methoxy-N-methylurea; methoxydiuron	OC	330-55-2
2289	Propanil	3',4'-dichloropropionanilide	OC	709-98-8

Exhibit B-2.1. List of Analytes To Be Added (Continued)

The additions to the Analyte table shown in Exhibit B-2.1 and changes to existing Analyte records shown in Exhibit B-2.3 will appear in your Analyte table when you install Release 8.0. You may wish to note the records identified as duplicates in Exhibit B-2.2. However, these records will not be removed from the Analyte table because of referential integrity issues.				
Analyte Code	Analyte Name	Synonymous Name	Chemical Type	CAS Registry No.
2297	Fluometuron	1,1-Dimethyl-3-(alpha, alpha, alpha-trifluoro-m-tolyl) urea	OC	2164-17-2
2301	Siduron	Tupersan; N-(2-methylcyclohexyl)-N'-phenylurea	OC	
2303	Thidiazuron	Dropp; N-phenyl-N'-1,2,3-thiadiazol-5-yl-urea	OC	51707-55-2
2315	1-Methyl-Naphthalene	alpha-methyl naphthalene	OC	90-12-0
2458	Methyl Iodide	Iodomethane; Halon 10001; Monoiodomethane	OC	74-88-4
2467	Methacrylonitrile	2-Methyl-2-Propenenitrile; Isopropene Cyanide	OC	126-98-7
2919	Dissolved Organic Carbon (DOC)		OC	
2923	Specific Ultraviolet Absorbance (SUVA)		WQ	
2963	Meta and Para Xylene		OC	
3200	Aeromonas Hydrophila		MOR	
3201	Aeromonas		MOR	

Exhibit B-2.1. List of Analytes To Be Added (Continued)

The additions to the Analyte table shown in Exhibit B-2.1 and changes to existing Analyte records shown in Exhibit B-2.3 will appear in your Analyte table when you install Release 8.0. You may wish to note the records identified as duplicates in Exhibit B-2.2. However, these records will not be removed from the Analyte table because of referential integrity issues.

Analyte Code	Analyte Name	Synonymous Name	Chemical Type	CAS Registry No.
3210	Helicobacter pylori		MOR	
3300	Cyanobacteria (blue green algae)		MOR	
3310	Algae Toxins		MOR	
3400	Echoviruses		MOR	
3410	Coxsackieviruses		MOR	
3420	Caliciviruses		MOR	
3430	Adenoviruses		MOR	
3500	Mircrosporidia		MOR	

Exhibit B-2.1. List of Analytes To Be Added (Continued)

The additions to the Analyte table shown in Exhibit B-2.1 and changes to existing Analyte records shown in Exhibit B-2.3 will appear in your Analyte table when you install Release 8.0. You may wish to note the records identified as duplicates in Exhibit B-2.2. However, these records will not be removed from the Analyte table because of referential integrity issues.

Analyte Code	Analyte Name	Modification
2329	Dibromoacetic Acid	Duplicate- Use 2454
2331	Dichloroacetic Acid	Duplicate- Use 2451
2335	Monochloroacetic Acid	Duplicate- Use 2450
2337	Trichloroacetic Acid	Duplicate- Use 2452
2338	Monobromoacetic Acid	Duplicate- Use 2453
2339	Bromochloroacetic Acid	Duplicate- Use 2455

Exhibit B-2.2 List of Analytes Duplicated in the Analyte Table
and Not Recommended for Use

The additions to the Analyte table shown in Exhibit B-2.1 and changes to existing Analyte records shown in Exhibit B-2.3 will appear in your Analyte table when you install Release 8.0. You may wish to note the records identified as duplicates in Exhibit B-2.2. However, these records will not be removed from the Analyte table because of referential integrity issues.				
Analyte Code	Analyte Name	Synonymous Name	CAS Registry No.	Modification
1006	Chloramine	chloramide, ClH ₂ N	10599-90-3	Name Correction, Add Synonym
1008	Chlorine Dioxide		10049-04-4	Name Correction
1009	Chlorite	Chlorous acid, ClHO ₂	14998-27-7	Add Synonym
1012	Chlorine		7782-50-5	Name Correction
1018	Carbon, Total			Name Correction
2006	des-ethyl-atrazine	6-chloro-N-(1-methylethyl)-1,3,5-triazine-2,4-diamine; desisopropyl propazine	6190-65-4	Add CAS Add Synonym
2007	des-isopropyl-atrazine	desethyl simazine; 6-chloro-N-ethyl-1,3,5-triazine-2,4-diamine	1007-28-9	Add CAS Add Synonym
2023	Propoxur	Isocarb; Baygon; o-Isopropoxyphenyl Methylcarbamate	114-26-1	Add CAS Add Synonym

Exhibit B-2.3 List of Analytes To Be Modified

The additions to the Analyte table shown in Exhibit B-2.1 and changes to existing Analyte records shown in Exhibit B-2.3 will appear in your Analyte table when you install Release 8.0. You may wish to note the records identified as duplicates in Exhibit B-2.2. However, these records will not be removed from the Analyte table because of referential integrity issues.				
Analyte Code	Analyte Name	Synonymous Name	CAS Registry No.	Modification
2024	Methiocarb	Methiocarb; Draza; Mesurol; 3,5-dimethyl-4-(methylthio)phenol methylcarbamate; Mercaptodimethur	2032-65-7	Add CAS Add Synonym
2027	Acetochlor	Harness; Acenit; MON-097; Top Hand; 2-Chloro-2'-methyl-6'-ethyl-N-ethoxymethyl-acetanilide	34256-82-1	Add CAS Add Synonym
2028	Paraquat	N,N'-dimethyl-gamma,gamma'-bipyridylum; methyl viologen (2+); Prelude; Grammoxone	4685-14-7	Add CAS Add Synonym
2029	Prometon	Pramitol; 6-methoxy-N,N'-bis(1-methylethyl)-1,3,5-Triazine-2,4-diamine	1610-18-0	Add CAS Add Synonym
2030	p-Isopropyltoluene	p-cymene		Add Synonym
2038	PAHs	4-Aminohippuric Acid; N-(4-aminobenzoyl)-glycine	61-78-9	Add CAS Add Synonym

Exhibit B-2.3 List of Analytes To Be Modified (Continued)

The additions to the Analyte table shown in Exhibit B-2.1 and changes to existing Analyte records shown in Exhibit B-2.3 will appear in your Analyte table when you install Release 8.0. You may wish to note the records identified as duplicates in Exhibit B-2.2. However, these records will not be removed from the Analyte table because of referential integrity issues.				
Analyte Code	Analyte Name	Synonymous Name	CAS Registry No.	Modification
2054	Cyazine (Bladex)		21725-46-2	Add CAS
2060	Isofenphos (Ofanol)		628-63-7	Add CAS
2073	Phosdrin		298-01-1	Add CAS
2078	SEE 3015 Cryptosporidium			Name Correction
2081	Amyl Acetate	Amylactic ester	628-63-7	Add CAS
2086	Chlorobutane, 1	monochlorobutane	25154-42-1	Add CAS
2087	Chlorohexane, 1	n-Hexyl Chloride Chlorohexane	544-10-5	Add CAS Add Synonyms
2098	Bromacil	5-bromo-6-methyl-3-(1-methylpropyl)uracil	314-40-9	Add CAS Add Synonyms
2099	DCPA			
2105				
2106				
2200	2-nitroaniline		88-74-4	Add CAS

Exhibit B-2.3 List of Analytes To Be Modified (Continued)

The additions to the Analyte table shown in Exhibit B-2.1 and changes to existing Analyte records shown in Exhibit B-2.3 will appear in your Analyte table when you install Release 8.0. You may wish to note the records identified as duplicates in Exhibit B-2.2. However, these records will not be removed from the Analyte table because of referential integrity issues.				
Analyte Code	Analyte Name	Synonymous Name	CAS Registry No.	Modification
2201	3-nitroaniline	1-Amino-3-nitrobenzene	99-09-2	Add CAS Add synonym
2203	4-nitroaniline		100-01-6	Add CAS
2206	dichlorprop	alpha-(2,4-Dichlorophenoxy)propionic acid	120-36-5	Add CAS Add synonym
2207	Benfluraliln (Benefin)	Balan; Benefex; N-butyl-N-ethyl-alpha,alpha,alpha-trifluoro-2-6-dinitro-p-toluidine	1861-40-1	Add CAS Add Synonym
2209	Bromoxynil	broxynil; MB 10064; Brominil; Bucril; Brominal; Torch; Bronate	1689-84-5	Add CAS Add Synonym
2233	2-methylphenol	o-cresol	95-48-7	Add CAS Add Synonym
2234	2-chloroethylvinyl Ether		110-75-8	Add CAS
2235	4-methylphenol	p-cresol	106-44-5	Add CAS Add Synonym

Exhibit B-2.3 List of Analytes To Be Modified (Continued)

The additions to the Analyte table shown in Exhibit B-2.1 and changes to existing Analyte records shown in Exhibit B-2.3 will appear in your Analyte table when you install Release 8.0. You may wish to note the records identified as duplicates in Exhibit B-2.2. However, these records will not be removed from the Analyte table because of referential integrity issues.				
Analyte Code	Analyte Name	Synonymous Name	CAS Registry No.	Modification
2239	4-chloroaniline	p-Chlorophenylamine	106-47-8	Add CAS Add Synonym
2244	bis(2-chloroisopropyl) Ether	Bis(2-chloro-1-methylethyl) ether	108-60-1	Add CAS Add Synonym
2250	bis(2-chloroethoxy) Methane	Bis(2-chloroethyl) formal	111-91-1	Add CAS Add Synonym
2276	4-bromophenyl phenyl Ether	1-bromo-4-phenoxybenzene	101-55-3	Add CAS Add Synonym
2318	4-chloro-phenyl phenyl Ether	4-Chlorophenyl phenyl ether	7005-72-3	Add CAS Add Synonym
2274	Hexachlorobenzene (HCB)	perchlorobenzene	118-74-1	Name Correction Add CAS Add Synonym
2399	Aroclor 1262 (PCB)			Name Correction
2401	Dichlorobenzenes, Total			Name Correction
2605	Phorate (Thimet)			Name Correction
2910	Phenols, Total			Name Correction

Exhibit B-2.3 List of Analytes To Be Modified (Continued)

The additions to the Analyte table shown in Exhibit B-2.1 and changes to existing Analyte records shown in Exhibit B-2.3 will appear in your Analyte table when you install Release 8.0. You may wish to note the records identified as duplicates in Exhibit B-2.2. However, these records will not be removed from the Analyte table because of referential integrity issues.

Analyte Code	Analyte Name	Synonymous Name	CAS Registry No.	Modification
2920	Total Organic Carbon (TOC)			Name Correction
2727	Thiobencarb (Bolero)			Code Correction, Previously Listed as 2627
2955	Xylenes, Total			Name Correction
4044	Potassium-40, Total			Name Correction

Exhibit B-2.3 List of Analytes To Be Modified (Continued)

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APPENDIX B-3

List of Analyte Levels To Be Modified or Added

The Analyte Level Rule Asgmt (TMNALRA) table is under the control of the SDWIS/STATE Administrator and, therefore, will not be automatically updated by schema migration. SDWIS/STATE Administrators will need to use the Analyte Level Maintenance function to make the following modifications and additions to the Analyte Level Rule Asgmt (TMNALRA) table after installation of Release 8.0 but prior to letting users have access to the new software. These modifications will be necessary in order for *CDS Setup* and the new CDS Reports (that target the new rules) to work correctly.

Analyte Code	Analyte Name	Level	Measure	Measure Unit	MCL Compliance Method	Begin Date	End Date	Rule
0999	Chlorine	MRDL	4.0	mg/l		01/01/2002		DBP1
0999	Chlorine	MRDG	4	mg/l		01/01/2002		DBP1
1004	Bromide	TRL	0.05	mg/l		01/01/2002		DBP1
1006	Chloramine	MRDL	4.0	mg/l		01/01/2002		DBP1
1006	Chloramine	MRDG	4	mg/l		01/01/2002		DBP1
1008	Chlorine Dioxide	MRDL	0.8	mg/l		01/01/2002		DBP1
1008	Chlorine Dioxide	TRL	0.8	mg/l		01/01/2002		DBP1
1009	Chlorite	TRL	0.8	mg/l		01/01/2002		DBP1
1009	Chlorite	MCL	1.0	mg/l		01/01/2002		DBP1
1009	Chlorite	MCLG	0.8	mg/l		01/01/2002		DBP1
1011	Bromate	MCL	0.010	mg/l		01/01/2002		DBP1

Exhibit B-3.1 List of Analyte Levels To Be Modified or Added

The Analyte Level Rule Asgmt (TMNALRA) table is under the control of the SDWIS/STATE Administrator and, therefore, will not be automatically updated by schema migration. SDWIS/STATE Administrators will need to use the Analyte Level Maintenance function to make the following modifications and additions to the Analyte Level Rule Asgmt (TMNALRA) table after installation of Release 8.0 but prior to letting users have access to the new software. These modifications will be necessary in order for *CDS Setup* and the new CDS Reports (that target the new rules) to work correctly.

Analyte Code	Analyte Name	Level	Measure	Measure Unit	MCL Compliance Method	Begin Date	End Date	Rule
1011	Bromate	MCLG	0	mg/l		01/01/2002		DBP1
1011	Bromate	TRL	0.010	mg/l		01/01/2002		DBP1
1094	Asbestos	RMDL	0.01	MFL		07/30/1992		PH2
2451	Dichloroacetic Acid	MCLG	0	mg/l		01/01/2002		DBP1
2452	Trichloroacetic Acid	MCLG	0	mg/l		01/01/2002		DBP1
2456	HAA5	MCL	0.060	mg/l		01/01/2002		DBP1
2456	HAA5	TRL	0.030	mg/l		01/01/2002		DBP1
2941	Chloroform	MCLG	0	mg/l		01/01/2002		DBP1
2943	Bromodichloromethane	MCLG	0	mg/l		01/01/2002		DBP1
2942	Bromoform	MCLG	0	mg/l		01/01/2002		DBP1
2944	Dibromochloromethane	MCLG	0.06	mg/l		01/01/2002		DBP1
2949	THM Maximum Potential	ACL					12/31/2001	THM

Exhibit B-3.1 List of Analyte Levels To Be Modified or Added (Continued)

The Analyte Level Rule Asgmt (TMNALRA) table is under the control of the SDWIS/STATE Administrator and, therefore, will not be automatically updated by schema migration. SDWIS/STATE Administrators will need to use the Analyte Level Maintenance function to make the following modifications and additions to the Analyte Level Rule Asgmt (TMNALRA) table after installation of Release 8.0 but prior to letting users have access to the new software. These modifications will be necessary in order for *CDS Setup* and the new CDS Reports (that target the new rules) to work correctly.

Analyte Code	Analyte Name	Level	Measure	Measure Unit	MCL Compliance Method	Begin Date	End Date	Rule
2950	TTHM	MCL					12/31/2003	THM
2950	TTHM	TRL	0.040	mg/l		01/01/2002		DBP1
2950	TTHM	MRDL	0.0005	mg/l		01/01/2002		DBP1
2950	TTHM	MCL	0.080	mg/l		01/01/2004		
4000	Gross Alpha	TRL	5	pCi/L		12/08/2003		RADR
4010	Radium 226 & 228	MCLG	0	pCi/L		12/08/2003		RADR

Exhibit B-3.1 List of Analyte Levels To Be Modified or Added (Continued)

The following table list records in the ALRA table that developers recommend SDWIS/STATE Administrators delete. There are currently no regulatory or system needs for these records. Some of these records were used at one time in past releases, but are no longer needed for that purpose.

Analyte Code	Analyte Name	Level	Measure	Measure Unit	MCL Compliance Method	Begin Date	End Date	Rule
0200	Surface Water Treatment Rule (SWTR)	PRL				12/31/1991		SWTR
1024	Cyanide	PRL				07/17/1992	12/31/1992	PH2
1036	Nickel	PRL				07/17/1992	12/31/1992	PH2
1055	Sulfate	ACL	250	mg/l		12/31/1990		PH2
1074	Antimony	PRL				01/01/1993		PH2
1075	Beryllium	PRL				07/17/1992	12/31/1992	PH2
1085	Tallium	PRL				07/17/1992	12/31/1992	PH2
2030	p-IsoPropyltoulene	PRL				01/01/1988		PH1
2031	Dalapon	PRL				07/17/1992	12/31/1992	PH2
2032	Diquat	PRL				07/17/1992	12/31/1992	PH2
2033	Endothall	PRL				07/17/1992	12/31/1992	PH2
2034	Glyphosate	PRL				07/17/1992	12/31/1992	PH2

Exhibit B-3.2 List of Analyte Levels To Be Deleted

The following table list records in the ALRA table that developers recommend SDWIS/STATE Administrators delete. There are currently no regulatory or system needs for these records. Some of these records were used at one time in past releases, but are no longer needed for that purpose.

Analyte Code	Analyte Name	Level	Measure	Measure Unit	MCL Compliance Method	Begin Date	End Date	Rule
2035	Di-(2-ethylhexyl) adipate	PRL				07/17/1992	12/31/1992	PH2
2036	Oxamyl (Vydate)	PRL				07/17/1992	12/31/1992	PH2
2037	Simazine	PRL				07/17/1992	12/31/1992	PH2
2039	Di-(2-ethylhexyl) phthalate	PRL				07/17/1992	12/31/1992	PH2
2040	Pichloram	PRL				07/17/1992	12/31/1992	PH2
2041	Dinoseb	PRL				07/17/1992	12/31/1992	PH2
2042	Hexachlorocyclopentadiene	PRL				07/17/1992	12/31/1992	PH2
2063	2,3,7,8 TCCD (Dioxin)	PRL				07/17/1992	12/31/1992	PH2
2066	3-Hydroxycarbofuran	PRL				01/30/1991		PH2
2070	Dieldrin	PRL				01/30/1991		PH2
2076	Butachlor	PRL				01/30/1991		PH2
2214	Bromomethane	ACL	0.1	Mg/l		12/31/1990		PH1
2216	Chloroethane	PRL				01/01/1988		PH1

Exhibit B-3.2 List of Analyte Levels To Be Deleted (Continued)

The following table list records in the ALRA table that developers recommend SDWIS/STATE Administrators delete. There are currently no regulatory or system needs for these records. Some of these records were used at one time in past releases, but are no longer needed for that purpose.

Analyte Code	Analyte Name	Level	Measure	Measure Unit	MCL Compliance Method	Begin Date	End Date	Rule
2274	Hexachlorobenzene	PRL				07/17/1992	12/31/1992	PH2
2306	Benzo(A)pyrene	PRL				07/17/1992	12/31/1992	PH2
2452	Trichloroacetic Acid	MCLG	0.3	Mg/l		12/31/1990	12/31/1992	DBP1
2356	Aldrin	PRL				01/30/1991		PH2
2378	1,2,4 Trichlorobenzene	PRL				01/09/1989	12/31/1992	PH1
2380	cis-1,2-Dichlorethylene	PRL				01/09/1989	12/31/1992	PH1
2408	Dibromomethane	PRL				01/01/1988		PH1
2410	1,1-Dichloropropene	PRL				01/01/1988		PH1
2412	1,3-Dichloropropane	PRL				01/01/1988		PH1
2413	1,3-Dichloropropene	PRL				01/01/1988		PH1
2416	2,2-Dichloropropane	PRL				01/01/1988		PH1
2418	1,2,4-Trimethylbenzene	PRL				01/01/1988		PH1
2420	1,2,3-Trichlorobenzene	PRL				01/01/1988		PH1

Exhibit B-3.2 List of Analyte Levels To Be Deleted (Continued)

The following table list records in the ALRA table that developers recommend SDWIS/STATE Administrators delete. There are currently no regulatory or system needs for these records. Some of these records were used at one time in past releases, but are no longer needed for that purpose.

Analyte Code	Analyte Name	Level	Measure	Measure Unit	MCL Compliance Method	Begin Date	End Date	Rule
2422	n-Butlybenzene	PRL				01/01/1988		PH1
2426	tert-Butlybenzene	PRL				01/01/1988		PH1
2428	sec-Butlybenzene	PRL				01/01/1988		PH1
2931	Dibromochloropropane (DBCP)	PRL				01/09/1989	12/31/1992	PH1
2941	Chloroform	ACL				01/01/1988		PH1
2942	Bromoform	ACL				12/31/1990		PH1
2943	Bromodichloromethane	ACL				01/01/1988		PH1
2944	Chlorodibromomethane	ACL				01/01/1988		PH1
2946	Ethylene Dibromide (EDB)	PRL				01/09/1989	12/31/1992	PH1
2964	Dichlormethane	PRL				01/09/1989	12/31/1992	PH1
2967	m-Dichlorbenzene	ACL				12/31/1990		PH1
2968	o-Dichlorbenzene	PRL				01/09/1989	12/31/1992	PH1
2978	1,1-Dichloroethane	PRL				01/01/1988		PH1

Exhibit B-3.2 List of Analyte Levels To Be Deleted (Continued)

The following table list records in the ALRA table that developers recommend SDWIS/STATE Administrators delete. There are currently no regulatory or system needs for these records. Some of these records were used at one time in past releases, but are no longer needed for that purpose.

Analyte Code	Analyte Name	Level	Measure	Measure Unit	MCL Compliance Method	Begin Date	End Date	Rule
2979	trans-1,2-dichlorethlyene	PRL				01/09/1989	12/31/1992	PH1
2983	1,2-Dichloropropane	PRL				01/09/1989	12/31/1992	PH1
2985	1,1,2-Trichlorethane	PRL				01/09/1989	12/31/1992	PH1
2987	Tetrachlorethylene	PRL				01/09/1989	12/31/1992	PH1
2988	1,1,2,2-Tetrachlorethane	PRL				01/01/1988		PH1
2989	Monochlorbenzene	PRL				01/09/1989	12/31/1992	PH1
2991	Toulene	PRL				01/09/1989	12/31/1992	PH1
2992	Ethylbenzene	PRL				01/09/1989	12/31/1992	PH1
2993	Bromobenzene	PRL				01/01/1988		PH1
2994	Isopropylbenzene	PRL				01/01/1988		PH1
2996	Styrene	PRL				01/09/1989	12/31/1992	PH1
2998	N-Propylbenzene	PRL				01/01/1988		PH1
2U15	15 Unregulated Phase 1 VOCs	PRL				01/01/1975		PH1

Exhibit B-3.2 List of Analyte Levels To Be Deleted (Continued)

The following table list records in the ALRA table that developers recommend SDWIS/STATE Administrators delete. There are currently no regulatory or system needs for these records. Some of these records were used at one time in past releases, but are no longer needed for that purpose.

Analyte Code	Analyte Name	Level	Measure	Measure Unit	MCL Compliance Method	Begin Date	End Date	Rule
2U34	34 Unregulated Phase 1 VOCs	PRL				01/01/1975		PH1
2U36	36 Unregulated Phase 1 VOCs	PRL				01/01/1975		PH1
2R07	7 Regulated Phase 1 VOCs	PRL				01/01/1975		PH1
2R08	Regulated Phase 1 VOCs	PRL				01/01/1975		PH1

Exhibit B-3.2 List of Analyte Levels To Be Deleted (Continued)

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APPENDIX B-4

List of New/Changed Analyte Method Pairings

The additions to the Analyte Methods shown in Exhibit B-4 will appear in your Analyte Method Asmgt table (TSASMAA) when you install SDWIS/STATE Release 8.0.

EPA 552.1	2456 Total HAA5	SM 4500-Cl D	1001 Combined Chlorine
EPA 552.1	2450 Monochloroacetic Acid	SM 4500-Cl F	1001 Combined Chlorine
EPA 552.1	2451 Dichloroacetic Acid	SM 4500-Cl G	1001 Combined Chlorine
EPA 552.1	2452 Trichloroacetic Acid	SM 4500-Cl D	1006 Chloramines
EPA 552.1	2453 Monobromoacetic Acid	SM 4500-Cl F	1006 Chloramines
EPA 552.1	2454 Dibromoacetic Acid	SM 4500-Cl G	1006 Chloramines
EPA 552.2	2456 Total HAA5	SM 4500-Cl D	1006 Free Residual Chlorine
EPA 552.2	2450 Monochloroacetic Acid	SM 4500-Cl F	1006 Free Residual Chlorine
EPA 552.2	2451 Dichloroacetic Acid	SM 4500-Cl G	1006 Free Residual Chlorine
EPA 552.2	2452 Trichloroacetic Acid	SM 4500-Cl H	1006 Free Residual Chlorine
EPA 552.2	2453 Monobromoacetic Acid	SM 4500-ClO ₂ D	1008 Chlorine Dioxide
EPA 552.2	2454 Dibromoacetic Acid	SM 4500-ClO ₂ E	1008 Chlorine Dioxide
SM6251 B	2456 Total HAA5	SM 5310 B	2920 Total Organic Carbon (TOC)
SM6251 B	2450 Monochloroacetic Acid		
SM6251 B	2451 Dichloroacetic Acid	SM 5310 C	2920 Total Organic Carbon (TOC)
SM6251 B	2452 Trichloroacetic Acid		
SM6251 B	2453 Monobromoacetic Acid	SM 5310 D	2920 Total Organic Carbon (TOC)
SM6251 B	2454 Dibromoacetic Acid		
EPA 300.1	1011 Bromate	SM 5310 B	2919 Dissolved Organic Carbon (DOC)
EPA 300.1	1004 Bromide		
EPA 300.0	1009 Chlorite	SM 5310 C	2919 Dissolved Organic Carbon (DOC)
EPA 300.1	1009 Chlorite		
SM4500E	1009 Chlorite	SM 5310 D	2919 Dissolved Organic Carbon (DOC)
EPA 300.1	1007 Chlorate		
SM 4500-Cl D	1000 Total Chlorine	EPA 310.1	1927 Alkalinity
SM 4500-Cl E	1000 Total Chlorine	USGS 1-1030-85	1927 Alkalinity
SM 4500-Cl F	1000 Total Chlorine	SM 5910B	2922UV Absorption at 254 NM (UV ₂₅₄)
SM 4500-Cl G	1000 Total Chlorine		
SM 4500-Cl I	1000 Total Chlorine		

Exhibit B-4. List of Analyte Method Pairings

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APPENDIX B-5

List of New/Changed Violation Types

Violation Code and Name		Severity Level	PN Tier Level		MTF Type	Analyte Code
			O l d	N e w		
Migration to SDWIS/FED (MTF) Type: VP= Violation Period, C= Compliance Period Severity Level: MJ= Major, MN= Minor, AC= Acute, NC= Non-Acute, MX= Single Sample Exceeding Maximum Limit, 95= Less than 95 Percent of Monthly Samples Meet Limit						
01	MCL, Single Sample		2	1	CP	
02	MCL, Average		2	2	CP	
03	Monitoring, Regular, Major	MJ	2	3	CP	
03	Monitoring, Regular, Minor	MN	2	3	CP	
04	Monitoring, Check/Repeat/Confirmation, Major	MJ	2	3	CP	
04	Monitoring, Check/Repeat/Confirmation, Minor	MN	2	3	CP	
05	Notification, State				CP	
06	Notification, Public				CP	
07	Treatment Techniques		1	2	CP	
08	Variance/Exemption/Other Compliance				CP	
09	Record Keeping				CP	
10	Operations Report				CP	
11	Max. Residual Disinfectant Lvl. MRDL (Acute)	AC		1	CP	
11	Max. Residual Disinfectant Lvl. MRDL (Non-Acute)	NC		2	CP	
12	Qualified Treatment Plant Operators (DBP)				CP	
21	MCL, Acute (TCR)		1	1	CP	3100
22	MCL, Monthly (TCR)		1	2	CP	3100
23	Monitoring, Routine Major (TCR)		2	3	CP	3100
24	Monitoring, Routine Minor (TCR)		2	3	CP	3100
25	Monitoring, Repeat Major (TCR)		2	3	CP	3100

Exhibit B-5. List of New/Changed Violation Types

Violation Code and Name		Severity Level	PN Tier Level		MTF Type	Analyte Code
			Old	New		
Migration to SDWIS/FED (MTF) Type: VP= Violation Period, C= Compliance Period Severity Level: MJ= Major, MN= Minor, AC= Acute, NC= Non-Acute, MX= Single Sample Exceeding Maximum Limit, 95= Less than 95 Percent of Monthly Samples Meet Limit						
26	Monitoring, Repeat Minor (TCR)		2	3	CP	3100
27	Monitoring and Reporting (DBP), Major	MJ		3	CP	
27	Monitoring and Reporting (DBP), Minor	MN		3	CP	
28	Sanitary Survey (TCR)				CP	
29	Response to Individual Filter Trigger Monitoring and Reporting (IESWTR)			3	CP	0300
31	Monitoring, Routine/Repeat (SWTR-Unfiltered), Major	MJ	2	3	CP	0200
31	Monitoring, Routine/Repeat (SWTR-Unfiltered), Minor	MN	2	3	CP	0200
36	Monitoring, Routine/Repeat (SWTR-Filtered), Major	MJ	2	3	CP	0200
36	Monitoring, Routine/Repeat (SWTR-Filtered), Minor	MN	2	3	CP	0200
37	Failure to Profile or Consult w/State (Disinfection Change)				CP	0300
38	Monitoring and Reporting (IESWTR)			3	CP	0300
41	Treatment Technique (SWTR), Single Sample	MX	1	2	CP	0200
41	Treatment Technique (SWTR), Monthly Samples	95	1	2	CP	0200
41	Treatment Technique (SWTR)		1	2	CP	0200
42	Failure to Filter (SWTR)		1	2	VP	0200
43	Treatment Technique, Exceedance of 1 NTU (IESWTR)			2	CP	0300
44	Treatment Technique, > 5% Exceed .3 NTU (IESWTR)			2	CP	0300

Exhibit B-5. List of New/Changed Violation Types (Continued)

Violation Code and Name		Severity Level	PN Tier Level		MTF Type	Analyte Code
			O l d	N e w		
Migration to SDWIS/FED (MTF) Type: VP= Violation Period, C= Compliance Period Severity Level: MJ= Major, MN= Minor, AC= Acute, NC= Non-Acute, MX= Single Sample Exceeding Maximum Limit, 95= Less than 95 Percent of Monthly Samples Meet Limit						
46	Treatment Technique, DBP Precursor (DBP) (TOC)			2	CP	0400
47	Treatment Technique, Construction of an Uncovered Finished Storage Facility				VP	0300
48	Treatment Technique, Failure to meet Cryptosporidium Site Specific Conditions				VP	0300
51	Initial Tap Sampling for Pb and Cu		2	3	VP	5000
52	Follow-up and Routine Tap Sampling		2	3	VP	5000
53	Initial Water Quality Parameter WQP M&R		2	3	CP	5000
54	Follow-up & Routine E.P. WQP M&R		Replace with Type 53			
55	Follow-up & Routine Tap WQP M&R		Replace with Type 53			
56	Initial, Follow-up, or Routine SOWT M&R		2	3	VP	5000
57	OCCT Study Recommendation			3	VP	5000
58	OCCT Installation/Demonstration		1	2	VP	5000
59	WQP Entry Point Non-Compliance		1	2	CP	5000
60	WQP Tap Non-Compliance		Replace with Type 53			
61	SOWT Recommendation		Replace with Type 53			
62	SOWT Installation		Replace with Type 53			
63	MPL Non-Compliance		1	2	VP	
64	Lead Service Line Replacement (LSLR)		1	2	CP	5000
65	Public Education			2	VP	5000
71	CCR Report Violation			3	VP	6000

Exhibit B-5. List of New/Changed Violation Types (Continued)

Violation Code and Name		Severity Level	PN Tier Level		MTF Type	Analyte Code
			O l d	N e w		
Migration to SDWIS/FED (MTF) Type: VP= Violation Period, C= Compliance Period Severity Level: MJ= Major, MN= Minor, AC= Acute, NC= Non-Acute, MX= Single Sample Exceeding Maximum Limit, 95= Less than 95 Percent of Monthly Samples Meet Limit						
72	CCR Adequacy, Delivery/Content			3	VP	6000
75	Public Notification Rule -Linked to Violation			3	VP	7000
76	Public Notification Rule -Not Linked to Violation			3	VP	7000

Exhibit B-5. List of New/Changed Violation Types (Continued)

APPENDIX B-6

List of New/Changed Standard Method Numbers/Names

Method Code	Method Name
SM 6251 B	Liquid/Liquid Extraction/ Gas Chromotography/ Electron Capture
EPA 300.1	Determination of Inorganic Anions in Drinking Water by Ion Chromatography
SM 4500E	Low Level Amperometric Titration
SM 4500-D	4500 D Amperometric Titration
SM 4500-Cl E	Chlorine Residual by Low Level Amperometric Titration
SM 4500-Cl F	Chlorine Residual by DPD Ferrous Titration
SM 4500-Cl G	Chlorine Residual by DPD Colorimetric Method
SM 4500-Cl H	Chlorine Residual by Syringaldazine (FACTS)
SM 4500-Cl I	Chlorine Residual by Iodometric Electrode Technique
SM 4500-ClO ₂ E	Chlorine Dioxide by the Amperometric Method II
SM 5310 B	High-Temperature Combustion Method
SM 5310 C	Persulfate-Ultraviolet or Heated-Persulfate Oxidation Method
SM 5310 D	Wet-Oxidation Method

Exhibit B-6. List of New/Changed Standard Method Numbers/Names

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APPENDIX B-7

Additions to Violation Type Analyte Assignment/Table TMNVTAA

The following records will be added to the VIOLATION_TYPE_ANALYTE_ASGMT entity (table TMNVTAA) for Release 8.0 in order to support the new IESWTR, D/DBP, and PN Rules.

The additions to entity VIOLATION_TYPE_ANALYTE_ASGMT shown in Exhibit B-7 will appear in your VIOLATION_TYPE_ANALYTE_ASGMT table (TMNVTAA) when you install Release 8.0.

TMNVTYPE		TSAANLYT	
TYPE_CODE	SEVERITY_LEVEL	CODE	NAME
01		1009	CHLORITE
01		1011	BROMATE
01		2456	TOTAL HALOACETIC ACIDS (HAA5)
27	MJ	1011	BROMATE
27	MJ	1004	BROMIDE
27	MJ	1006	CHLORAMINES
27	MJ	0999	CHLORINE
27	MJ	1008	CHLORINE DIOXIDE
27	MJ	1009	CHLORITE
27	MJ	2456	TOTAL HALOACETIC ACIDS (HAA5)
27	MJ	2920	CARBON, TOTAL ORGANIC (TOC)
27	MJ	2950	TOTAL TRIHALOMETHANES
27	MN	1011	BROMATE
27	MN	1004	BROMIDE
27	MN	1006	CHLORAMINES
27	MN	0999	CHLORINE
27	MN	1008	CHLORINE DIOXIDE

Exhibit B-7. Additions to Violation Type Analyte Assignment/Table TMNVTAA

TMNVTYPE		TSAANLYT	
TYPE_CODE	SEVERITY_LEVEL	CODE	NAME
27	MN	1009	CHLORITE
27	MN	2456	TOTAL HALOACETIC ACIDS (HAA5)
27	MN	2920	CARBON, TOTAL ORGANIC (TOC)
27	MN	2950	TOTAL TRIHALOMETHANES
38	MJ	0100	TURBIDITY
38	MN	0100	TURBIDITY
43		0100	TURBIDITY
44		0100	TURBIDITY
76		7500	PUBLIC NOTICE RULE

Exhibit B-7. Additions to Violation Type Analyte Assignment/Table TMNVTAA
 (Continued)

APPENDIX B-8

List of New Rules

The additions to the Rules shown in Exhibit B-8 will appear in your Rule table (TMNRULE) when you install Release 8.0.

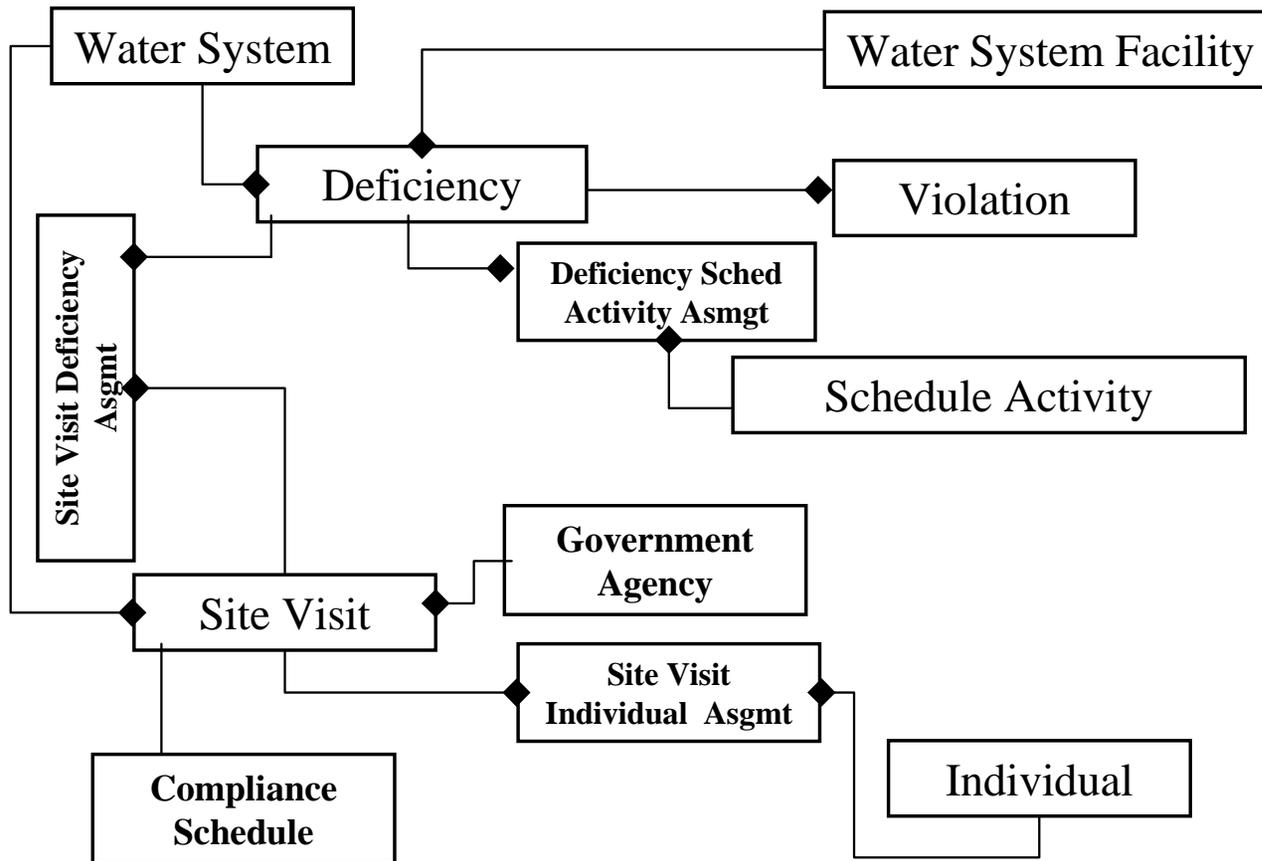
Rule Code	Rule
AR	Arsenic Rule
DBP2	Stage 2 Disinfectant/Disinfection By-Products Rule
FBR	Filter Backwash Rule
GWR	Groundwater Rule
LT1R	Long Term 1 Surface Water Treatment Rule
LT2R	Long Term 2 Surface Water Treatment Rule
PNR	Public Notice Rule, Revised
RADR	Radionuclide Rule, Revised
RADN	Radon

Exhibit B-8. List of New Rules

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APPENDIX C

Entity Relationship Diagram for Site Visits and Deficiency Entities



Note this diagram does not display all relationships for all entities shown--just the relationships for these two entities.

Exhibit C-1. Entity Relationship Diagram for Site Visits and Deficiency Entities

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APPENDIX D-1

Update Sample Schedules Due to Inventory Change

D-1. Update Sample Schedules Due to Inventory Change (Section 3.6.1)

Redlined and ~~redlined~~-strikeout indicate changes to the Release 7.0 design to be made for Release 8.0.

This process is split into three subprocesses:

- Water System Changes.

The driver for this subprocess is the Water System table.

The record key for this subprocess will be D_Last_Update_Timestamp and TINWSYS_IS_NUMBER columns.

The sort order for this process will be D_Last_Update_Timestamp ascending and TINWSYS_IS_NUMBER ascending.

- Water System Facility Changes.

The driver for this subprocess is the Water System Facility table.

The record key for this subprocess will be D_Last_Update_Timestamp and TINWSF_IS_NUMBER columns.

The sort order for this process will be D_Last_Update_Timestamp ascending and TINWSF_IS_NUMBER ascending.

- Sampling Point Changes.

The driver for this subprocess is the Sampling Point table.

The record key for this subprocess will be D_Last_Update_Timestamp and TSASMPPT_IS_NUMBER columns.

The sort order for this process will be D_Last_Update_Timestamp ascending and TSASMPPT_IS_NUMBER ascending.

A. Water System Changes

This subprocess is driven by changes to the water system. This subprocess will obtain the referenced timestamp and referenced TINWSYS_IS_NUMBER from the CDS Setup Execution Log. The subprocess will read each water system that has a last update timestamp value that is greater than the referenced timestamp value corresponding to the process; or each water system that has a LAST_UPDATE_TIMESTAMP value that is equal to the referenced timestamp value and the TINWSYS_IS_NUMBER is greater than the referenced IS_NUMBER. This subprocess will always read the water systems sorted by LAST_UPDATE_TIMESTAMP, ascending and TINWSYS_IS_NUMBER, ascending. For

every one of these water systems, the subprocess will read the WATER_SYSTEM_HISTORY table associated with this water system, sorted by the LAST_UPDATE_TIMESTAMP of the WATER_SYSTEM_HISTORY table, where the LAST_UPDATE_TIMESTAMP of the WATER_SYSTEM_HISTORY table is greater than the referenced timestamp in the CDS Setup Execution Log corresponding to this subprocess. If there are one or more history records returned, the one with the earliest timestamp will be used to determine what was changed since the last time *CDS Setup* ran. If there are no history records, then it is inferred that the water system is newly created or has not changed since it entered the database. Based on the comparison between the snapshot in the history record and the Water System table, the changes are determined and the changes are processed as follows:

- If a water system's classification has changed from any one of the three public types (community; non-transient, non-community; or transient, non-community) to non-public, this process will set the Effective End Date as follows for all non-TCR Sample Schedules for the water system that have an open or future Effective End Date (i.e., Effective End Date is null or is greater than the current date):
 - to the current date if the Effective Begin Date is less than the current date or
 - to the Effective Begin Date minus one day if the Effective Begin Date is equal to or later than the current date.

The process will also send the following message to the CDS Setup Processing Report:
"The classification of [insert water system number] - [insert water system name] has changed from public to non-public. As a consequence, CDS Setup has closed all current and future, non-TCR Sample Schedules for this water system."

- If a water system's classification changes from transient, non-community to either non-transient, non-community or community; the process will send the following message to the CDS Setup Processing Report: *"The classification of [insert water system number] - [insert water system name] has changed from transient, non-community to either non-transient, non-community or community water system. Please verify that all appropriate sample schedules have been entered for it."*
- If a water system's classification changes from non-public to any one of the three public types, the process will send the following message to the CDS Setup Processing Report: *"The classification of [insert water system number] - [insert water system name] has changed from non-public to public. Please verify that all appropriate sample schedules have been entered for it."*
- If a water system is deleted (which actually does not delete the water system record but changes its status from active (A) to inactive (I) and changes its Historic Indicator Code

to historic (H)), this process will set the Effective End Date as follows for all non-TCR Sample Schedules for the water system that have an open or future Effective End Date (i.e., Effective End Date is null or is greater than the current date):

- to the current date if the Effective Begin Date is less than the current date or
- to the Effective Begin Date minus one day if the Effective Begin Date is equal to or later than the current date.

The process will also send the following message to the CDS Setup Processing Report:
“Water System [insert water system number] - [insert water system name] was deleted. As a consequence, CDS Setup has closed all current and future, non-TCR Sample Schedules for this water system.”

- If the Water System’s activity status is changed from active to inactive, this process will set the Effective End Date as follows for all non-TCR Sample Schedules for the water system that have an open or future Effective End Date (i.e., Effective End Date is null or is greater than the current date):
 - to the Activity Date (which, in this case is the date of inactivity) if the Effective Begin Date is less than the date of inactivity or
 - to the Effective Begin Date minus one day if the Effective Begin Date is equal to or later than the date of inactivity.

The process will also send the following message to the CDS Setup Processing Report:
“Water System [insert water system number] - [insert water system name] was inactivated. As a consequence, CDS Setup has closed all non-TCR Sample Schedules for this water system that were current or future relative to the inactivity date entered.”

- If the Water System’s activity status is changed from inactive to active, the process will send the following message to the CDS Setup Processing Report: *“Water system [insert water system number] - [insert water system name] was changed from inactive to active. Please verify that all appropriate sample schedules have been entered for it.”*
- If the Water System is newly added, the process will send the following message to the CDS Setup Processing Report: *“Water system [insert water system number] - [insert water system name] was added to SDWIS/STATE. Please verify that all appropriate sample schedules have been entered for it.”*

B. Water System Facility Changes

This subprocess is driven by changes to Water System Facility. The subprocess will read each water system facility that has a LAST UPDATE TIMESTAMP value that is greater than the reference timestamp value on the CDS Setup Execution Log corresponding to the process; or each water system facility that has a last update time stamp value that is equal to the reference timestamp value and TINWSF_IS_NUMBER is greater than the reference IS_NUMBER. This subprocess will always read the water system facilities sorted by LAST UPDATE TIMESTAMP ascending and TINWSF_IS_NUMBER ascending. For every one of these water system facilities the subprocess would read the WATER_SYSTEM_FACILITY_HISTORY table associated with this water system facility sorted by the LAST UPDATE TIMESTAMP of the water system facility history table, where the last update timestamp of the water system facility history table is greater than the reference timestamp in the CDS Setup Execution Log corresponding to this subprocess. If there are one or more history records returned, the one with the earliest timestamp will be used to determine what was changed since the last time *CDS Setup* ran. If there are no history records, then it is inferred that the water system facility is newly created. Based on the comparison between the snapshot in the history record and the Water System Facility table, the changes are determined and the changes are processed as follows.

- If a Water System Facility's activity status is changed from active to inactive, this process will set the Effective End Date as follows for all non-TCR Sample Schedules associated to the water system facility that have an open or future Effective End Date (i.e., Effective End Date is null or is greater than the current date):
 - to the WSF Activity Date (which, in this case, is the date of inactivity) if the Effective Begin Date is less than the date of inactivity or
 - to the Effective Begin Date minus one day if the Effective Begin Date is equal to or later than the date of inactivity.

The process will also send the following message to the CDS Setup Processing Report:
"Water System Facility [insert State Assigned Identification Code], which is part of Water System [insert water system number] - [insert water system name], was inactivated. As a consequence, CDS Setup has closed all non-TCR Sample Schedules for this water system facility that were current or future relative to the inactivity date entered."

- If a Water System Facility's activity status is changed from inactive to active, the process will send the following message to the CDS Setup Processing Report: "Water System Facility [insert State Assigned Identification Code], which is part of Water System [insert water system number] - [insert water system name], was changed from

inactive to active. Please verify that all appropriate sample schedules have been entered for it.”

- If a Water System Facility is newly added, the process will send the following message to the CDS Setup Processing Report: *“Water System Facility [insert State Assigned Identification Code], which is part of Water System [insert water system number] - [insert water system name], was added to SDWIS/STATE. Please verify that all appropriate sample schedules have been entered for it.”*
- If a Water System Facility is deleted, this process does not need to do anything since a Water System Facility cannot be deleted without first deleting all Sampling Points that are associated to it. A Sampling Point cannot be deleted until all Sample Schedules and Samples associated to it are first deleted.

C. Sampling Point Changes

This subprocess is driven by changes to the Sampling Point Entity type. The subprocess will read each Sampling Point that has a last UPDT_TS value that is greater than the reference timestamp value on the CDS Setup Execution Log corresponding to the process, or Each sampling point that has a last updt ts value that is equal to the reference timestamp value and a TSASMPPT_IS_NUMBER greater than the reference _IS_NUMBER. This subprocess will always read the sampling points sorted by LAST UPDATE TIMESTAMP ascending and TSASMPPT_IS_NUMBER ascending. For every one of these sampling points the subprocess would read the Sampling Point History table associated with this sampling point, sorted by the LAST_UPDATE time stamp of the sampling point history table, where the LAST_UPDATE_TIMESTAMP of the sampling point history table is greater than the reference timestamp in the CDS Setup Execution Log corresponding to this subprocess. If there are one or more history records returned, the one with the smallest timestamp would be used to determine what was changed since the last time *CDS Setup* ran. If there are no history records, then it is inferred that the sampling point is newly created. Based on the comparison between the snapshot in the history record and the Water System Facility table, the changes are determined and the changes are processed as follows:

- If a Sampling Point’s activity status is changed from active to inactive, this process will set the Effective End Date as follows for all non-TCR Sample Schedules associated to the Sampling Point through a Sampling Point Subschedule that have an open or future Effective End Date (i.e., Effective End Date is null or is greater than the current date):
 - to the Sampling Point Activity Date (which, in this case, is the date of inactivity) if the Effective Begin Date is less than the date of inactivity or

- to the Effective Begin Date minus one day if the Effective Begin Date is equal to or later than the date of inactivity.

The process will also send the following message to the CDS Setup Processing Report: *“Sampling Point [insert Identification Code], which is associated to Water System Facility [insert State Assigned Identification Code] and Water System [insert water system number] - [insert water system name], was inactivated. As a consequence, CDS Setup has closed all non-TCR Sample Schedules for this sampling point that were current or future relative to the inactivity date entered.”*

- If a Sampling Point’s activity status is changed from inactive to active and the Sampling Point is an entry point (type equal to EP), the process will send the following message to the CDS Setup Processing Report: *“Sampling Point [insert Identification Code], which is associated to Water System Facility [insert State Assigned Identification Code]and Water System [insert water system number] - [insert water system name], was changed from inactive to active. Please verify that all appropriate sample schedules have been entered for it.”*
- If a Sampling Point is newly added and the Sampling Point is an entry point (type equal to EP), the process will send the following message to the CDS Setup Processing Report: *“Sampling Point [insert Identification Code], which is associated to Water System Facility [insert State Assigned Identification Code]and Water System [insert water system number] - [insert water system name], was added to SDWIS/STATE. Please verify that all appropriate sample schedules have been entered for it.”*
- If a Sampling Point is deleted, this process does not need to do anything since a Sampling Point cannot be deleted until all Sample Schedules and Samples associated to it are first deleted.

After setting Effective End Dates as specified above, these processes will also delete Sample Schedule Monitoring Period Assignments (SSMPA) and Sub SSMPAs that are associated to these schedules and have a applicable period begin date after the Effective End Date of the schedule. Before deleting these records, the process will:

- Update the Last Update Timestamp of Results and Sample Summary Results associated to the about-to-be-deleted SSMPA (note that any result that is associated to an about-to-be-deleted Sub SSMPA will also be associated to an about-to-be-deleted SSMPA).
- Delete MCL Values and Monitoring Period Averages associated to the about-to-be-deleted SSMPA.

APPENDIX D-2

Associate Monitoring Periods to Sample Schedules

D-2. Associate Monitoring Periods to Sample Schedules (Section 3.6.2)

Redlined and ~~redlined-strikeout~~ in all Appendix D detailed designs indicate changes to existing logic in the Release 7.0 design as well as new logic to be added for Release 8.0.

Check-Point Restart Issues: This process will be driven by changes to both the Sample Schedule table and the Monitoring Period table and therefore needs to split into two subprocesses.

- Find New/Changed Monitoring Periods (to associate to Sample Schedules).

The driver for this subprocess is the Monitoring Period table.

The record key for this subprocess is the composite of D_Last_Update_Timestamp and the TMNMPRD_IS_NUMBER columns.

The sort order for this subprocess will be D_Last_Update_Timestamp ascending and TMNMPRD_IS_NUMBER ascending.

- Find New/Changed Sample Schedules (to associate to Monitoring Periods).

The driver for this subprocess is the Sample Schedule table.

The record key for this subprocess is the composite of D_Last_Update_Timestamp and the TMNSASCH_IS_NUMBER columns.

The sort order for this subprocess will be D_Last_Update_Timestamp ascending and TMNSASCH_IS_NUMBER ascending.

Subprocess A. Associate New or Changed Monitoring Periods to Sample Schedules

The first five steps identify monitoring periods that need to be linked to non-TCR schedules.

1. Create a log in the CDS Execution Log indicating the process start time.
2. Identify Monitoring Periods whose Last Update Timestamp is greater than the last time the CDS Setup program was run and whose Monitoring Period End Date = > CDS History Date.
3. If it identifies one or more Monitoring Periods, the process will sort order the Monitoring Periods identified by Monitoring Period Begin Date ascending, Monitoring Period End Date ascending.
4. For each Monitoring Period, the process will then identify and associate (or re-associate) the monitoring period to every Sample Schedule where:

- a. The Sample Schedule is not for total coliform (Analyte Code associated to the Monitoring Requirement referenced by the Sample Schedule is not equal to “3100”) AND
- b. Sample Schedule’s Effective End Date is blank/null or is **greater than or equal to** the CDS History Date AND
- c. Sample Schedule’s Periodicity (Sample Count Unit Code of the referenced Monitoring Requirement) is the same as the duration (Type Code) of the Monitoring Period AND
- d. Sample Schedule’s Effective End Date is open or is greater than or equal to the Monitoring Period’s Begin Date AND
- e. Sample Schedule’s Effective Begin Date is less than or equal to the Monitoring Period’s End Date AND
- f. Sample Schedule’s Initial Monitoring Period Begin Date is equal to the Begin Date of the Monitoring Period OR (the Begin Date of the Monitoring Period minus the Initial Monitoring Period Begin Date) divided by the Periodicity of the Sample Schedule is a positive whole number AND
- g. The Sample Schedule’s periodicity is NOT “1T = One Time” AND
- h. The Sample Schedule meets any one of the following conditions:
 - i. The Sample Schedule’s Seasonal Period is blank/null (all four fields - note that Sample Schedule Maintenance requires that either all or none be valued) OR
 - ii. The Seasonal Period Begin Month is less than the Seasonal Period End Month OR (the Seasonal Period Begin Month is equal to the Seasonal Period End Month and the Seasonal Period Begin Day is less than the AOP End Day) AND
 - (1) the Seasonal Period Begin Month and Day are less than or equal to the Month and Day of the Monitoring Period End Date AND
 - (2) the Seasonal Period End Month and Day are greater than or equal to the Month and Day of the Monitoring Period Begin Date AND

- (3) if the year of the Sample Schedule's Effective End Date is equal to the year of the Monitoring Period End Date, the Seasonal Period Begin Month and Day are less than or equal to the Month and Day of the Sample Schedule Effective End Date AND
 - (4) if the year of the Sample Schedule's Effective Begin Date is equal to the year of the Monitoring Period Begin Date, the Seasonal Period End Month and Day are greater than or equal to the Month and Day of the Sample Schedule Effective Begin Date.
- iii. OR (i.e., AOP Begin Month and Day are after AOP End Month and Day)
- (1) the Seasonal Period Begin Month and Day are less than or equal to the Month and Day of the Monitoring Period End Date OR
 - (2) the Seasonal Period End Month and Day are greater than or equal to the Month and Day of the Monitoring Period Begin Date
5. In addition to associating (or re-associating) the Monitoring Period to the Sample Schedule, this process will:
- a. **Identify the Sampling Point Subschedules, if any, relevant to the Sample Schedule and associate the Monitoring Period to each of the subschedules identified.**
 - b. **Create and associate the SAMPLING_POINT_SUB_SSMAs (table TMNSPUBA) to the parent SSMPA.**
 - c. Value the Last Update Timestamp for the SSMPA with the current date and time (updating the Last Update Timestamp for an SSMPA record must be consistently done throughout the CDS Setup processes because this data and time triggers some of the CDS Setup processes).
 - d. Update the Sample Schedule's CDS Setup Processed Flag to "Y". If the Sample Schedule belongs to a Sample Schedule Group, update the Sample Schedule Group's CDS Setup Processed Flag to "Y".
 - e. Calculate the SSMPA Dates and populate them as follows (the SSMPA Dates more exactly define the period during which a sample must be collected in order

to satisfy a Sample Schedule. They take into consideration the overlap of three periods: the Effective Period of the Schedule, the Monitoring Period and the optional Seasonal Collection Period):

- i. If the Monitoring Period is greater than one year in duration (not equal to YR, 6M,QT, MN, WK, DL, 4H, or HR):
 - (1) populate the SSMPA Begin Date with the greatest (latest date) of the following:
 - (a) the Begin Date of the Monitoring Period OR
 - (b) the Effective Begin Date of the Sample Schedule.
 - (2) populate the SSMPA End Date with the least (earliest date) of the following:
 - (a) the End Date of the Monitoring Period OR
 - (b) the Effective End Date of the Sample Schedule
- ii. If the Monitoring Period is one year or less in duration (equal to YR, 6M, QT, MN, WK, DL, 4H, or HR)
 - (1) And if the Monitoring Period spans across years;
 - (a) Split the Monitoring Period into two periods: the first period is from the Begin Date of the Monitoring Period to the end of that particular year and the second period is from the beginning of the next year to the End Date of the Monitoring Period.

For Example :

If the Monitoring Period is from 10/01/1999 to 03/31/2000. The period will be broken down as,
Period 1 – 10/01/1999 to 12/31/1999
Period 2 – 01/01/2000 to 03/31/2000

Calculation of Seasonal Period Begin Date

- (b) If Seasonal Period Begin MM/DD falls within Period 1, then:
 - (i) Use the year of Period 1 in combination with the Seasonal Period Begin Month and Day to make the Seasonal Period Begin Date
- (c) else if Seasonal Period Begin MM/DD falls within Period 2, then:
 - (i) Use the year of Period 2 in combination with Seasonal Period Begin Month and Day to make the Seasonal Period Begin Date
- (d) else if Seasonal Period Begin MM/DD is less than Monitoring Period Begin Date (MM/DD) then:
 - (i) Use the year of Monitoring Period Begin Date in combination with Seasonal Period Begin Month and Day to make the Seasonal Period Begin Date
- (e) else if Seasonal Period Begin MM/DD is greater than Monitoring Period Begin Date (MM/DD) then:
 - (i) Use the year of Monitoring Period Begin Date - 1 year in combination with Seasonal Period Begin Month and Day to make the Seasonal Period Begin Date.

Calculation of Seasonal Period End Date

- (f) If Seasonal Period End MM/DD falls within Period 1, then:
 - (i) Use the year of Period 1 in combination with the Seasonal Period End Month and Day to make the Seasonal Period End Date

- (g) else if Seasonal Period End MM/DD falls within Period 2, then:
 - (i) Use the year of Period 2 in combination with Seasonal Period End Month and Day to make the Seasonal Period End Date
 - (h) else if Seasonal Period End MM/DD is greater than Monitoring Period End Date (MM/DD) then:
 - (i) Use the year of Monitoring Period End Date in combination with Seasonal Period End Month and Day to make the Seasonal Period End Date
 - (i) else if Seasonal Period End MM/DD is less than Monitoring Period End Date (MM/DD) then:
 - (i) Use the year of Monitoring Period End Date + 1 year in combination with Seasonal Period End Month and Day to make the Seasonal Period End Date
- (2) If the Monitoring Period does not span across years (that is, its Begin and End Dates both fall inside the calendar year), determine the Seasonal Period Begin and End Dates as follows:

Calculation of Seasonal Period Begin Date

- (a) If Seasonal Period Begin MM/DD falls within Monitoring Period, then:
 - (i) Use the year of Monitoring Period in combination with the Seasonal Period Begin Month and Day to make the Seasonal Period Begin Date
- (b) else if Seasonal Period Begin MM/DD is less than Monitoring Period Begin Date (MM/DD) then:

- (i) Use the year of Monitoring Period Begin Date in combination with Seasonal Period Begin Month and Day to make the Seasonal Period Begin Date
- (c) else if Seasonal Period Begin MM/DD is greater than Monitoring Period Begin Date (MM/DD) then:
 - (i) Use the year of Monitoring Period Begin Date - 1 year in combination with Seasonal Period Begin Month and Day to make the Seasonal Period Begin Date.

Calculation of Seasonal Period End Date

- (d) If Seasonal Period End MM/DD falls within Monitoring Period, then:
 - (i) Use the year of Monitoring Period in combination with the Seasonal Period End Month and Day to make the Seasonal Period End Date
 - (e) else if Seasonal Period End MM/DD is greater than Monitoring Period End Date (MM/DD) then:
 - (i) Use the year of Monitoring Period End Date in combination with Seasonal Period End Month and Day to make the Seasonal Period End Date
 - (f) else if Seasonal Period End MM/DD is less than Monitoring Period End Date (MM/DD) then:
 - (i) Use the year of Monitoring Period End Date + 1 year in combination with Seasonal Period End Month and Day to make the Seasonal Period End Date
- (3) Then, populate the SSMPA Applicable Period Begin Date with the greatest (latest date) of the following:
- (a) the Begin Date of the Monitoring Period OR

- (b) the Effective Begin Date of the Sample Schedule OR
 - (c) the Seasonal Period Begin Date as calculated above.
- (4) populate the SSMPA Applicable Period End Date with the least (earliest date) of the following:
- (a) the End Date of the Monitoring Period OR
 - (b) the Effective End Date of the Sample Schedule OR
 - (c) the Seasonal Period End Date as calculated above.

Special Case: The possibility exists that a seasonal period spans across different years; that is, its Begin MM/DD is greater than its End MM/DD. In some cases the seasonal period intersects the Monitoring Period in two places. Hence the Monitoring Period is split into three segments, out of which the first and the last segments overlap the seasonal period while the middle segment does not. This non-overlapping period is called the “gap period” SSMPA has two attributes, APP PER_GAP_BEGIN_DATE and APP PER_GAP_END_DATE to capture this gap period. SSMPA Applicable Period Begin Date will be calculated as the greatest (latest) date of the Monitoring Period Begin Date and the Sample Schedule Effective Begin Date. The SSMPA Applicable Period End Date will be the least (earliest) date of the Sample Schedule Effective End Date and the Monitoring Period End Date. The gap period will be a subset within this date range and will mark the non-overlap period for calculation of effective days within an SSMPA. This will be used to average the sample results for Running Annual Average and associating results to SSMPA.

Subprocess B. Associate New or Changed Sample Schedules to Monitoring Periods

Steps 6 through 8 identify non-TCR schedules that need to be linked to monitoring periods.

6. Identify Sample Schedules whose:
- a. Last Update Timestamp is greater than the last time CDS Setup was run AND
 - b. Monitoring Requirement is not for total coliform (analyte code not equal to “3100”) AND

- c. Effective End is blank/null or > CDS History Date
7. For each Sample Schedule identified, the process will associate (or re-associate) it to every Monitoring Period where:
- a. the duration (Type Code) of the Monitoring Period is the same as the Sample Schedule's Periodicity (Sample Count Unit Code of the referenced Monitoring Requirement) AND
 - b. the Sample Schedule's Effective End Date is open or the Monitoring Period's Begin Date is less than or equal to the Sample Schedule's Effective End Date AND
 - c. the Monitoring Period's End Date is greater than or equal to the Sample Schedule's Effective Begin Date AND
 - d. the Monitoring Period's End Date is greater than the CDS History Date AND
 - e. the Begin Date of the Monitoring Period is equal to the Sample Schedule's Initial Monitoring Period Begin Date OR (the Begin Date of the Monitoring Period minus the Initial Monitoring Period Begin Date) divided by the Periodicity of the Sample Schedule is a positive whole number AND
 - f. The Sample Schedule's periodicity is NOT equal to "1t = One Time" AND
 - g. Any one of the following combinations is satisfied:
 - i. The Sample Schedule's Seasonal Period is blank/null (all four fields - note that Sample Schedule Maintenance requires that either all or none be valued) OR
 - ii. The Sample Schedule's Seasonal Period Begin Month is less than the Sample Schedule's Seasonal Period End Month OR (the Sample Schedule's Seasonal Period Begin Month is equal to the Sample Schedule's Seasonal Period End Month and the Begin Day is less than the End Day) AND
 - (1) (the Sample Schedule's Seasonal Period Begin Month and Day are less than or equal to the Month and Day of the Monitoring Period End Date) AND

- (2) the Sample Schedule's Seasonal Period End Month and Day are greater than or equal to the Month and Day of the Monitoring Period Begin Date) AND
- (3) if the year of the Sample Schedule's Effective End Date is equal to the year of the Monitoring Period End Date, the Seasonal Period Begin Month and Day are less than or equal to the Month and Day of the Sample Schedule Effective End Date AND
- (4) if the year of the Sample Schedule's Effective Begin Date is equal to the year of the Monitoring Period Begin Date, the Sample Schedule's Seasonal Period End Month and Day are greater than or equal to the Month and Day of the Sample Schedule Effective Begin Date.

iii. OR (i.e., Sample Schedule's Seasonal Period Begin Month and Day are after Sample Schedule's Seasonal Period End Month and Day)

- (1) the Sample Schedule's Seasonal Period Begin Month and Day are less than or equal to the Month and Day of the Monitoring Period End Date OR
- (2) the Sample Schedule's Seasonal Period End Month and Day are greater than or equal to the Month and Day of the Monitoring Period Begin Date.

8. In addition to associating (or re-associating) the Monitoring Period to the Sample Schedule [*Developer Note: The following action block, "SSMPA Creation/Update," is also used in the "Assign Sample Analytical Results to Sample Schedule Monitoring Period Assignments" process below.*]:

- a. **Identify the Sampling Point Subschedules, if any, relevant to the Sample Schedule and associate the Monitoring Period to each of the Sub-Schedules identified.**
- b. **Create and associate the SAMPLING_POINT_SUB_SSMPAs (table TMNSPUBA) to the parent SSMPA.**

- c. Value the Last Update Timestamp for the SSMPA with the current date and time (updating the Last Update Timestamp for an SSMPA record must be consistently done throughout the CDS Setup processes because this data and time triggers some of the CDS Setup processes).
- d. Update the Sample Schedule's CDS Setup Processed Flag to 'Y'. If the Sample Schedule belongs to a Sample Schedule Group, update the Sample Schedule Group's CDS Setup Processed Flag to 'Y'.
- e. Calculate the SSMPA Dates and populate them as follows:
 - i. Repeat Step 5 (eb)

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APPENDIX D-3

Process MCL, ACL, FANL Max or TRL Additions or Modifications

D-3. Process MCL, ACL, FANL Max or TRL Additions or Modifications (Section 3.6.3)

Redlined and ~~redlined strikeout~~ in all Appendix D detailed designs indicate changes to existing logic in the Release 7.0 design as well as new logic to be added for Release 8.0.

This process consists of two sub-processes:

- Process MCL, ACL, or TRL Additions or Modifications.
- Process FANL Max Additions or Modifications.

Process MCL, ACL, or TRL Additions or Modifications

Check-Point Restart Issues: This process will be driven by changes to the TMNALRA table.

The record key for this subprocess is the composite of D_Last_Update_Timestamp and the TMNALRA_IS_NUMBER columns.

The sort order for this subprocess will be D_Last_Update_Timestamp ascending and TMNALRA_IS_NUMBER ascending.

9. Create a log in the CDS Execution Log indicating the process start time.
10. Read each Analyte Level Rule Assignment (ALRA) where:
 - a. the Last Update Timestamp is greater than the last time CDS Setup was run
AND
 - b. the Threshold Type Code is "MCL," "ACL," or "TRL."
11. For each qualifying ALRA,
 - a. If the Threshold Type Code is equal to "MCL," set the SSMPA Last Update Timestamp to the current date and time where the Analyte referenced by the Monitoring Requirement referenced by the Sample Schedule referenced by the SSMPA is equal to the Analyte referenced by the "MCL" and SSMPA's Applicable Period Begin Date is greater than or equal to ALRA's Begin Date.

If Monitoring Assessment Flag = X, skip
Else set the Monitoring Assessment Flag (in Sample Schedule) to spaces where the Analyte referenced by the Monitoring Requirement referenced by the Sample Schedule is equal to the Analyte referenced by the "MCL."

- b. Else if the Threshold Type Code is equal to “ACL” or “TRL,”

If Monitoring Assessment Flag = X, skip

Else set the Monitoring Assessment Flag (in Sample Schedule) to spaces where the Analyte referenced by the Monitoring Requirement referenced by the Sample Schedule is equal to the Analyte referenced by the “ACL” or “TRL” respectively and Sample Schedule’s Begin Date is greater than or equal to ALRA’s Begin Date.

Immediately after the conclusion of subprocess Process MCL, ACL, or TRL Additions or Modifications, begin the next subprocess.

Process FANL Max Additions or Modifications

Check-Point Restart Issues: This process will be driven by changes to the TMNFANL table.

The record key for this subprocess is the composite of D_Last_Update_Timestamp and the TMNFANL_IS_NUMBER columns.

The sort order for this subprocess will be D_Last_Update_Timestamp ascending and TMNFANL_IS_NUMBER ascending.

1. Create a log in the CDS Execution Log indicating the process start time.
2. Read each Facility Analyte Level (FANL) where:
 - a. the Last Update Timestamp is greater than the last time CDS Setup was run
AND
 - b. the Level_Type is “MAX.”
3. For each qualifying FANL, set the SSMPA Last Update Timestamp to the current date and time where the Analyte referenced by the Monitoring Requirement referenced by the Sample Schedule referenced by the SSMPA is equal to the Analyte referenced by the FANL and SSMPA’s Applicable Period Begin Date is greater than or equal to FANL’s Effective Begin Date.

APPENDIX D-4

Disassociate Sample Analytical Results from Sample Schedule
Monitoring Period Assignments and Sampling Point Sub-SSMPAs

D-4. Disassociate Sample Analytical Results from Sample Schedule Monitoring Period Assignments and Sampling Point Sub-SSMPAs (Section 3.6.4)

Redlined and redlined strikeout in all Appendix D detailed designs indicate changes to existing logic in the Release 7.0 design as well as new logic to be added for Release 8.0.

Check-Point Restart Issues: This process will be driven by changes to ~~both the SSMPA table and the TSASAR tables~~ the SSMPA, the TSASAMPL and the TSASAR tables.

- Disassociate Results from Changed SSMPAs and Sampling Point Sub-SSMPAs.
The driver for this subprocess is the SSMPA table.
The record key for this subprocess is the composite of D_Last_Update_Timestamp, the SSMPA_TMNSASCH_IS_NUMBER and SSMPA_TMNMPRD_IS_NUMBER columns.
The sort order for this subprocess will be D_Last_Update_Timestamp ascending, SSMPA_TMNSASCH_IS_NUMBER ascending, and SSMPA_TMNMPRD_IS_NUMBER ascending.
- Disassociate New/Changed Results from SSMPAs and Sampling Point Sub-SSMPAs.
The driver for this subprocess is the Sample Analytical Result table.
The record key for this subprocess is the composite of D_Last_Update_Timestamp and the TSASAR_IS_NUMBER columns.
The sort order for this subprocess will be D_Last_Update_Timestamp ascending and TSASAR_IS_NUMBER ascending.
- Disassociate New/Changed Samples and Results from SSMPAs and Sampling Point Sub-SSMPAs.
The driver for this subprocess is the Sample table.
The record key for this subprocess is the composite of D_Last_Update_Timestamp and the TSASAMPL_IS_NUMBER columns.
The sort order for this subprocess will be D_Last_Update_Timestamp ascending and TSASAMPL_IS_NUMBER ascending.

Subprocess A. Disassociate Sample Analytical Results from Changed SSMPAs

4. Create a log in the CDS Execution Log indicating the process start time.
5. Identify SSMPAs whose Last Update Timestamp is greater than the last time the CDS Setup program was run.

6. For each SSMPA identified, update the Last Update Timestamp and disassociate results where the Sample Analytical Result is associated to the SSMPA AND the Sample Analytical Result's User Assigned SSMPA Indicator is not equal to "Y." For each result being disassociated from the SSMPA, disassociate it first from any associated Sampling Point Sub-SSMPAs.

Subprocess B. Disassociate Changed Sample Analytical Results from SSMPAs

7. Create a log in the CDS Execution Log indicating the process start time.
8. Identify Sample Analytical Results whose Last Update Timestamp is greater than the last time the CDS Setup program was run AND the Sample Analytical Result's User Assigned SSMPA Indicator is not equal to "Y."
9. For each identified result, first update the Last Update Timestamp of the related SSMPA (as mentioned earlier, this Last Update Timestamp triggers other CDS Setup processes) and then disassociate the Result from the SSMPA and from an associated Sampling Point Sub-SSMPA, if currently associated to one.

Subprocess C. Disassociate Changed Samples and associated Sample Analytical Results from SSMPAs

10. Create a log in the CDS Execution Log indicating the process start time.
11. Identify Samples whose Last Update Timestamp is greater than the last time the CDS Setup program was run.
12. For each Sample Analytical Result where the Sample Analytical Result's User Assigned SSMPA Indicator is not equal to "Y" AND is associated with the parent Sample identified, first update the Last Update Timestamp of the related SSMPA (as mentioned earlier, this Last Update Timestamp triggers other CDS Setup processes) and then disassociate the Result from the SSMPA and from an associated Sampling Point Sub-SSMPA, if currently associated to one.

APPENDIX D-5

Calculate Total Trihalomethane, Total Haloacetic Acid, Combined Nitrate = Nitrite,
Individual Nitrate, Individual Nitrite, Combined Radium,
and Gross Alpha Excluding Uranium Results

D-5. Calculate Total Trihalomethane, and Total Haloacetic Acid, Combined Nitrate = Nitrite, Individual Nitrate, Individual Nitrite, Combined Radium, and Gross Alpha Excluding Uranium Results (Section (3.6.5))

Redlined and ~~redlined~~ ~~strikeout~~ in all Appendix D detailed designs indicate changes to existing logic in the Release 7.0 design as well as new logic to be added for Release 8.0.

Check-Point Restart Issues: This process will be driven by changes to the TSASAR table.

13. Calculate Totals for New or Changed SARs.

The driver for this subprocess is the TSASAR table.

The record key for this subprocess is the composite of D_Last_Update_Timestamp and the TSASAR_IS_NUMBER columns.

The sort order for this subprocess will be D_Last_Update_Timestamp ascending and TSASAR_IS_NUMBER ascending.

The following logic can be used to create a total trihalomethanes result:

1. Create a log in the CDS Execution Log indicating the process start time.
2. Read each sample where:
 - a. the Last Update Timestamp or related result's Last Update Timestamp is greater than the last time the CDS Setup program was run; AND
 - b. Collection End Date is greater than or equal to the CDS History Date; AND
 - c. related Water System Facility Type Code is equal to "DS"; AND
 - d. Rejection Reason Code is blank; AND
 - e. Compliance Purpose Indicator Code is equal to "Y" AND
 - f. Sample Type is equal to routine (RT) or maximum residence time (MR); AND
 - g. it does not have a result where
 - i. the referenced analyte code is equal to "2950" AND
 - ii. the User ID is not equal to "CDSSETUP" AND

- h. at least one result where:
 - i. the referenced analyte code is equal to any one of the four trihalomethane analytes (2941, 2942, 2943, or 2944); AND
 - ii. the Data Quality Code is equal to accepted (A) or validated (V).

For each sample selected above:

- 3. Read the Concentration, and UOM Code, Less Than Ind, and Detection Lim UOM Code for each result where:
 - a. the analyte code referenced is 2941 or 2942 or 2943 or 2944; AND
 - b. Data Quality Code is equal to accepted (A) or validated (V).
- 4. If the Less Than Ind is “Y” for all, user-entered results:
 - a. If the **Detection Lim UOM Code** is not the same for all results,
 - i. Convert the Detection Limit Num of the other results to the same Detection Lim UOM Code unit for the first result as follows:

Detectn Lim UOM Code of Other Results	Detectn Lim UOM Code of 1st Result	Multiplier
MG/L	UG/L	1000
MG/L	NG/L	1000000
UG/L	MG/L	0.001
UG/L	NG/L	1000
NG/L	MG/L	0.000001
NG/L	UG/L	0.001

- ii. Create a (or revise the existing) result for total trihalomethanes as indicated in Table TTHM1 and associate it to the current sample.
- iii. If conversion cannot be accomplished because one or more Detectn Lim UOM Codes do not correlate to the table, write the following message to the CDS Setup Processing Report and then go to the next sample:

“Could not calculate a needed result for the following sample: Lab Sample No. [sbs sample.lab assigned id number], collected on [collection-end_date] from water system [water system.number] - [water system.name], water system facility [water system facility.state asgn identification code], and sampling point [sampling point.identification code] because encountered improper unit of measure for the result.”

- b. If the Detection Lim UOM Code is the same for all results, create (or revise the existing) result for total trihalomethanes as indicated in Table TTHM1 and associate it to the current sample.

5. If the Less Than Ind is not “Y” for all, user-entered results:

- a. If the UOM Code for all results where Less Than Ind does not equal “Y” read are not equal, then convert to the same UOM Code as the UOM Code for the first individual result where Less Than Ind does not equal “Y” as follows (note that, for a less than detect result, the UOM Code is often left blank which is the reason for adding the clause “where Less Than Ind does not equal ‘Y’”):

UOM Code of Other Results	UOM Code of 1st Result	Multiplier
MG/L	UG/L	1000
MG/L	NG/L	1000000
UG/L	MG/L	0.001
UG/L	NG/L	1000
NG/L	MG/L	0.000001
NG/L	UG/L	0.001

If conversion cannot be accomplished because one or more UOM Codes do not correlate to the table, write the following message to the CDS Setup Processing Report and then go to the next sample:

“Could not calculate a needed result for the following sample: Lab Sample No. [sbs sample.lab assigned id number], collected on [collection-end_date] from water system [water system.number] - [water system.name], water system facility [water system facility.state asgn identification code], and sampling point [sampling point.identification code] because encountered improper unit of measure for the result.”

- b. Otherwise, create (or replace existing) result for Total Trihalomethanes (code 2950) as follows (only populate the fields indicated):

Table TTHM1	
Field Name	Specification for Populating
LESS_THAN_CODE	If every individual trihalomethane result for sample has "MRL", then set to "MRL"; if every one has "MDL", then set to "MDL"; otherwise set to spaces.
LESS_THAN_IND	If every individual trihalomethane result for the sample has "Y", then set to "Y". Otherwise set to "N".
DATA_QUALITY_CODE	Set to "A".
REPORTED_MSR	Convert Concentration as calculated below to text in the same way the online system currently populates this field.
CONCENTRATION_MSR	Sum of the Concentration Measures for the individual haloacetic acids. If a result is marked as less than detect, use zero for that result regardless of the value entered into concentration_msr.
UOM_CODE	Set to UOM_CODE of first individual trihalomethane with a UOM Code.
D_LAST_UPDT_TS	Current Date and Time
D_USERID_CODE	CDSSETUP
TSAANLYT_IS_NUMBER	351
TSAANLYT_ST_CODE	HQ
TSASMN_IS_NUMBER	If every individual trihalomethane result for sample references same Method Number, then set to same Method Number. Otherwise set to null.
TSASMN_ST_CODE	
TSASAMPL_IS_NUMBER	Same Sample referenced by individual trihalomethane result.
TSASAMPL_ST_CODE	
TMNMPRD_IS_NUMBER	If all the individual trihalomethane results reference the same Monitoring Period, then reference the same. Otherwise set to null.
TMNMPRD_ST_CODE	
SSMPA_SASCH_IS_NO	Do not need to relate the new result to an SSMPA because, if appropriate, this will be done by a subsequent process.
SSMPA_SASCH_ST_CO	
SSMPA_MPRD_IS_NO	
SSMPA_MPRD_ST_CO	

The following logic can be used to create a total haloacetic acid result:

1. Read each sample where:
 - a. the Last Update Timestamp or related result's Last Update Timestamp is greater than the last time the CDS Setup program was run; AND
 - b. Collection End Date is greater than or equal to the CDS History Date; AND
 - c. Rejection Reason Code is blank; AND
 - d. Compliance Purpose Indicator Code is equal to "Y" AND
 - e. Sample Type is equal to routine (RT) or maximum residence time (MR); AND
 - f. it does not have a result where
 - i. the referenced analyte code is equal to "2456" AND
 - ii. the User ID is not equal to "CDSSETUP"

AND

 - g. at least one result where:
 - i. the referenced analyte code is equal to any one of the five haloacetic acid analytes (2450, 2451, 2452, 2453, or 2454); AND
 - ii. the Data Quality Code is equal to accepted (A) or validated (V).

For each sample selected above:

2. Read the Concentration and UOM Code for each result where:
 - a. the analyte code referenced is 2450 or 2451 or 2452 or 2453 or 2454
 - b. the Data Quality Code is equal to accepted (A) or validated (V).
3. If the Less Than Ind is "Y" for all, user-entered results:
 - a. If the **Detection Lim UOM Code** is not the same for all results,

- i. Convert the Detection Limit Num of the other results to the same Detection Lim UOM Code unit for the first result as follows:

Detectn Lim UOM Code of Other Results	Detectn Lim UOM Code of 1st Result	Multiplier
MG/L	UG/L	1000
MG/L	NG/L	1000000
UG/L	MG/L	0.001
UG/L	NG/L	1000
NG/L	MG/L	0.000001
NG/L	UG/L	0.001

- ii. Create a (or revise the existing) result for total haloacetic acid as indicated in Table HAA1 and associate it to the current sample.
- iii. If conversion cannot be accomplished because one or more Detectn Lim UOM Codes do not correlate to the table, write the following message to the CDS Setup Processing Report and then go to the next sample:

“Could not calculate a needed result for the following sample:
 Lab Sample No. [sbs sample.lab assigned id number], collected
 on [collection-end_date] from water system [water
 system.number] - [water system.name], water system facility
 [water system facility.state asgn identification code], and
 sampling point [sampling point.identification code] because
 encountered improper unit of measure for the result.”

- b. If the Detection Lim UOM Code is the same for all results, create (or revise the existing) result for total haloacetic acids as indicated in Table HAA1 and associate it to the current sample.
4. If the Less Than Ind is not “Y” for all, user-entered results:
- a. If the UOM Code for all results where Less Than Ind does not equal “Y” read are not equal, then convert to the same UOM Code as the UOM Code for the first individual result where Less Than Ind does not equal “Y” as follows:

UOM Code of Other Results	UOM Code of 1st Result	Multiplier
MG/L	UG/L	1000
MG/L	NG/L	1000000
UG/L	MG/L	0.001
UG/L	NG/L	1000
NG/L	MG/L	0.000001
NG/L	UG/L	0.001

If conversion cannot be accomplished because one or more UOM Codes do not correlate to the table, write the following message to the CDS Setup Processing Report and then go to the next sample:

“Could not calculate a needed result for the following sample: Lab Sample No. [sbs sample.lab assigned id number], collected on [collection-end_date] from water system [water system.number] - [water system.name], water system facility [water system facility.state asgn identification code], and sampling point [sampling point.identification code] because encountered improper unit of measure for the result.”

- b. Otherwise, create (or replace existing) result for Total Haloacetic Acides (code 2456) as follows (only populate the fields indicated):

Table HAA1	
Field Name	Specification for Populating
LESS_THAN_CODE	If every individual trihalomethane result for sample has “MRL”, then set to “MRL”; if every one has “MDL”, then set to “MDL”; otherwise set to spaces.
LESS_THAN_IND	If every individual trihalomethane result for the sample has “Y”, then set to “Y”. Otherwise set to “N”.
DATA_QUALITY_CODE	Set to “A”
REPORTED_MSR	Convert Concentration as calculated below to text in the same way the online system currently populates this field.
CONCENTRATION_MSR	Sum of the Concentration Measures for the individual haloacetic acids. If a result is marked as less than detect, use zero for that result regardless of the value entered into concentration_msr.

Table HAA1	
Field Name	Specification for Populating
UOM_CODE	Set to UOM_CODE of first individual haloacetic acid with a UOM Code.
D_LAST_UPDT_TS	Current Date and Time
D_USERID_CODE	CDSSETUP
TSAANLYT_IS_NUMBER	812
TSAANLYT_ST_CODE	HQ
TSASMN_IS_NUMBER	If every individual haloacetic acid result for sample references same Method Number, then set to same Method Number. Otherwise set to null.
TSASMN_ST_CODE	
TSASAMPL_IS_NUMBER	Same Sample referenced by individual haloacetic acid result.
TSASAMPL_ST_CODE	
TMNMPRD_IS_NUMBER	If all the individual haloacetic acid results reference the same Monitoring Period, then reference the same. Otherwise set to null.
TMNMPRD_ST_CODE	
SSMPA_SASCH_IS_NO	Do not need to relate the new result to an SSMPA because, if appropriate, this will be done by a subsequent process.
SSMPA_SASCH_ST_CO	
SSMPA_MPRD_IS_NO	
SSMPA_MPRD_ST_CO	

The following logic is to be used to create a combine nitrate + nitrite result:

1. Read each sample where:
 - a. the Last Update Timestamp or related result's Last Update Timestamp is greater than the last time the CDS Setup program was run; AND
 - b. Collection End Date is greater than or equal to the CDS History Date; AND
 - c. Rejection Reason Code is blank; AND
 - d. Compliance Purpose Indicator Code is equal to "Y" AND
 - e. Sample Type is equal to routine (RT) or confirmation (CO); AND
 - f. A result for both analyte code 1041 and 1040 where the Data Quality Code is equal to accepted (A) or validated (V) for both; AND

- g. Either:
 - i. it does not have a result for analyte code "1038" or
 - ii. it does have a result for analyte code "1038" where the User ID is equal to "CDSSETUP".

For each sample selected above:

- 2. Read the Concentration, UOM Code, Less Than Ind, Detection Limit Num, Detection Lim UOM Code for each result where:
 - a. the analyte code referenced is 1041 or 1040
 - b. the Data Quality Code is equal to accepted (A) or validated (V).
- 3. If the Less Than Ind is "Y" for both results:
 - a. If the Detection Lim UOM Code is not the same for both results,
 - i. Convert the Detection Limit Num of the second result to the same Detection Lim UOM Code unit for the first result as follows:

Detectn Lim UOM Code of 2 nd Result	Detectn Lim UOM Code of 1 st Result	Multiplier
MG/L	UG/L	1000
MG/L	NG/L	1000000
UG/L	MG/L	0.001
UG/L	NG/L	1000
NG/L	MG/L	0.000001
NG/L	UG/L	0.001

- ii. Create a (or revise the existing) result for 1038 as indicated in Table N1 and associate it to the current sample.
- iii. If conversion cannot be accomplished because one or both Detectn Lim UOM Codes do not correlate to the table, write the following message to the CDS Setup Processing Report and then go to the next sample:

"Could not calculate a needed result for the following sample:
Lab Sample No. [sbs sample.lab assigned id number], collected

on [collection-end_date] from water system [water system.number] - [water system.name], water system facility [water system facility.state asgn identification code], and sampling point [sampling point.identification code] because encountered improper unit of measure for the result.”

- b. If the Detection Lim UOM Code is the same for both results, create (or revise the existing) result for 1038 as indicated in Table N1 and associate it to the current sample.
4. If the Less Than Ind is “Y” for one of the results and not “Y” for the other, create (or revise the existing) result for 1038 as indicated in Table N2 and associate it to the current sample.
5. If the LESS_THAN_IND is not “Y” for either 1041 or 1040.
- a. If the UOM Code is not the same for both results,
 - i. Convert the Concentration_Msr of the second result to the same units as the first as follows:

UOM Code of 2 nd Result	UOM Code of 1 st Result	Multiplier
MG/L	UG/L	1000
MG/L	NG/L	1000000
UG/L	MG/L	0.001
UG/L	NG/L	1000
NG/L	MG/L	0.000001
NG/L	UG/L	0.001

- ii. Create a (or revise the existing) result for 1038 as indicated in Table N3 and associate it to the current sample.
- iii. If conversion cannot be accomplished because one or both UOM Codes do not correlate to the table, write the following message to the CDS Setup Processing Report and then go to the next sample:

“Could not calculate a needed result for the following sample:
Lab Sample No. [sbs sample.lab assigned id number], collected on [collection-end_date] from water system [water system.number] - [water system.name], water system facility

[water system facility.state asgn identification code], and sampling point [sampling point.identification code] because encountered improper unit of measure for the result.”

- b. If the UOM Code is the same for both units, create a (or revise the existing) result for 1038 as indicated in Table N3 and associate it to the current sample.

Use the same general logic as described above to create a result for nitrate (1040) except replace references to 1040 with 1038 references to 1038 with 1040.

Use the same general logic as described above to create a result for nitrite (1041) except replace references to 1041 with 1038 and references to 1038 with 1041.

Table N1	
Field Name	Specification for Populating
LESS_THAN_CODE	If the results for the two, user-entered results have “MRL”, then set to “MRL”; if both have “MDL”, then set to “MDL”; otherwise set to “MDL”
LESS_THAN_IND	Set to “Y”
DETECTN_LIMIT_NUM	Set to the larger of the DETECTN_LIMIT_NUM for the two user-entered results
DETECTN_LIM_UOM_CD	Set to DETECTN_LIM_UOM_CD of first, user-entered result.
DATA_QUALITY_CODE	Set to “A”
REPORTED_MSR	Set to “0”
CONCENTRATION_MSR	Set to 0
UOM_CODE	Set to UOM_CODE of the first, user-entered, result
D_LAST_UPDT_TS	Current Date and Time
D_USERID_CODE	CDSSETUP
TMNMPRD_IS_NUMBER	If both user-entered results reference the same Monitoring Period, then reference the same. Otherwise set to null.
TMNMPRD_ST_CODE	
SSMPA_SASCH_IS_NO	Do not need to relate the new result to an SSMPA because, if appropriate, this will be done by a subsequent process.
SSMPA_SASCH_ST_CO	
SSMPA_MPRD_IS_NO	
SSMPA_MPRD_ST_CO	

Table N2	
Field Name	Specification for Populating
LESS_THAN_CODE	If the results for the two, user-entered, results have "MRL", then set to "MRL"; if both have "MDL", then set to "MDL"; otherwise set to null
LESS_THAN_IND	Set to null
DETECTN_LIMIT_NUM	Set to null
DETECTN_LIM_UOM_CD	Set to null
DATA_QUALITY_CODE	Set to "A"
REPORTED_MSR	
CONCENTRATION_MSR	Use zero for concentration msr for the result that is less than detection. If calculating a result for 1038, then = sum of the Concentration Msr for 1040 and 1041 If calculating a result for 1040, then = Concentration Msr for 1038 - Concentration Msr for 1041 If calculating a result for 1041, then = Concentration Msr for 1038 - Concentration Msr for 1040
UOM_CODE	Set to UOM_CODE of the user-entered result where its LESS_THAN_IND is NOT equal to Y.
D_LAST_UPDT_TS	Current Date and Time
D_USERID_CODE	CDSSETUP
TMNMPRD_IS_NUMBER	If both user-entered results reference the same Monitoring Period, then reference the same. Otherwise set to null.
TMNMPRD_ST_CODE	
SSMPA_SASCH_IS_NO	Do not need to relate the new result to an SSMPA because, if appropriate, this will be done by a subsequent process.
SSMPA_SASCH_ST_CO	
SSMPA_MPRD_IS_NO	
SSMPA_MPRD_ST_CO	

Table N3	
Field Name	Specification for Populating
LESS_THAN_CODE	If the results for the two, user-entered, results have "MRL", then set to "MRL"; if both have "MDL", then set to "MDL"; otherwise set to null
LESS_THAN_IND	Set to null
DETECTN_LIMIT_NUM	Set to null
DETECTN_LIM_UOM_CD	Set to null
DATA_QUALITY_CODE	Set to "A"
REPORTED_MSR	Convert Concentration as calculated below to text
CONCENTRATION_MSR	If calculating a result for 1038, then = sum of the Concentration Msr for 1040 and 1041 If calculating a result for 1040, then = Concentration Msr for 1038 - Concentration Msr for 1041 If calculating a result for 1041, then = Concentration Msr for 1038 - Concentration Msr for 1040
UOM_CODE	Set to UOM_CODE of the user-entered result
D_LAST_UPDT_TS	Current Date and Time
D_USERID_CODE	CDSSETUP
TMNMPRD_IS_NUMBER	If both results reference the same Monitoring Period, then reference the same. Otherwise set to null.
TMNMPRD_ST_CODE	
SSMPA_SASCH_IS_NO	Do not need to relate the new result to an SSMPA because, if appropriate, this will be done by a subsequent process.
SSMPA_SASCH_ST_CO	
SSMPA_MPRD_IS_NO	
SSMPA_MPRD_ST_CO	

The following logic is to be used to create a combined radium result (i.e., analyte code 4010):

1. Read each sample where:
 - a. the Last Update Timestamp or related result's Last Update Timestamp is greater than the last time the CDS Setup program was run; AND
 - b. Collection End Date is greater than or equal to the CDS History Date; AND
 - c. Rejection Reason Code is blank; AND

- d. Compliance Purpose Indicator Code is equal to “Y” AND
- e. Sample Type is equal to routine (RT) or confirmation (CO); AND
- f. There are results for both analyte code 4020 (radium 226) and 4030 (radium 228) where the Data Quality Code is equal to accepted (A) or validated (V) for both; AND
- g. Either:
 - i. There is not a result for analyte code 4010 (combined radium) or
 - ii. There is a result for analyte code 4010 where the User ID is equal to “CDSSETUP”.

For each sample selected above:

- 2. Read the Concentration, UOM Code, Less Than Ind, Detection Limit Num, Detection Lim UOM Code for each result where:
 - a. the analyte code referenced is 4020 or 4030
 - b. the Data Quality Code is equal to accepted (A) or validated (V).
- 3. If the Less Than Ind is “Y” for both results:
 - a. If the Detection Lim UOM Code is not the same for both results, write the following message to the CDS Setup Processing Report and then go to the next sample:

“Could not calculate a needed result for the following sample: Lab Sample No. [sbs sample.lab assigned id number], collected on [collection-end_date] from water system [water system.number] - [water system.name], water system facility [water system facility.state asgn identification code], and sampling point [sampling point.identification code] because encountered improper unit of measure for the result.”
 - b. If the Detection Lim UOM Code is the same for both results, create (or revise the existing) result for 4010 as indicated in Table RA1 and associate it to the current sample.

4. If the Less Than Ind is “Y” for one of the results and not “Y” for the other, create (or revise the existing) result for 4010 as indicated in Table RA2 and associate it to the current sample.
5. If the LESS_THAN_IND is not “Y” for either result.
 - a. If the UOM Code is not the same for both results, write the following message to the CDS Setup Processing Report and then go to the next sample:

“Could not calculate a needed result for the following sample: Lab Sample No. [sbs sample.lab assigned id number], collected on [collection-end_date] from water system [water system.number] - [water system.name], water system facility [water system facility.state asgn identification code], and sampling point [sampling point.identification code] because encountered improper unit of measure for the result.”
 - b. If the UOM Code is the same for both units, create a (or revise the existing) result for 4010 as indicated in Table RA3 and associate it to the current sample.

Table RA1	
Field Name	Specification for Populating
LESS_THAN_CODE	If the results for the two, user-entered results have “MRL”, then set to “MRL”; if both have “MDL”, then set to “MDL”; otherwise set to “MDL”
LESS_THAN_IND	Set to “Y”
DETECTN_LIMIT_NUM	Set to the larger of the DETECTN_LIMIT_NUM for the two user-entered results
DETECTN_LIM_UOM_CD	Set to DETECTN_LIM_UOM_CD of first, user-entered result.
DATA_QUALITY_CODE	Set to “A”
REPORTED_MSR	Set to “0”
CONCENTRATION_MSR	Set to 0
UOM_CODE	Set to UOM_CODE of the first, user-entered, result
D_LAST_UPDT_TS	Current Date and Time
D_USERID_CODE	CDSSETUP
TMNMPRD_IS_NUMBER	If both user-entered results reference the same Monitoring Period, then reference the same. Otherwise set to null.
TMNMPRD_ST_CODE	
SSMPA_SASCH_IS_NO	Do not need to relate the new result to an SSMPA because, if appropriate, this will be done by a subsequent process.
SSMPA_SASCH_ST_CO	
SSMPA_MPRD_IS_NO	
SSMPA_MPRD_ST_CO	

Table RA2	
Field Name	Specification for Populating
LESS_THAN_CODE	If the results for the two, user-entered, results have "MRL", then set to "MRL"; if both have "MDL", then set to "MDL"; otherwise set to null
LESS_THAN_IND	Set to null
DETECTN_LIMIT_NUM	Set to null
DETECTN_LIM_UOM_CD	Set to null
DATA_QUALITY_CODE	Set to "A"
REPORTED_MSR	Set to the REPORTED_MSR of the user-entered result where its LESS_THAN_IND is NOT equal to Y.
CONCENTRATION_MSR	Set to the CONCENTRATION_MSR of the user-entered result where its LESS_THAN_IND is NOT equal to Y.
UOM_CODE	Set to UOM_CODE of the user-entered result where its LESS_THAN_IND is NOT equal to Y.
D_LAST_UPDT_TS	Current Date and Time
D_USERID_CODE	CDSSETUP
TMNMPRD_IS_NUMBER	If both user-entered results reference the same Monitoring Period, then reference the same. Otherwise set to null.
TMNMPRD_ST_CODE	
SSMPA_SASCH_IS_NO	Do not need to relate the new result to an SSMPA because, if appropriate, this will be done by a subsequent process.
SSMPA_SASCH_ST_CO	
SSMPA_MPRD_IS_NO	
SSMPA_MPRD_ST_CO	

Table RA3	
Field Name	Specification for Populating
LESS_THAN_CODE	If the results for the two, user-entered, results have "MRL", then set to "MRL"; if both have "MDL", then set to "MDL"; otherwise set to null
LESS_THAN_IND	Set to null
DETECTN_LIMIT_NUM	Set to null
DETECTN_LIM_UOM_CD	Set to null
DATA_QUALITY_CODE	Set to "A"
REPORTED_MSR	Convert Concentration as calculated below to text
CONCENTRATION_MSR	Equal to the sum of the Concentration Msr for 4020 and 4030
UOM_CODE	Set to UOM_CODE of the first, user-entered result
D_LAST_UPDT_TS	Current Date and Time
D_USERID_CODE	CDSSETUP
TMNMPRD_IS_NUMBER	If both results reference the same Monitoring Period, then reference the same. Otherwise set to null.
TMNMPRD_ST_CODE	
SSMPA_SASCH_IS_NO	Do not need to relate the new result to an SSMPA because, if appropriate, this will be done by a subsequent process.
SSMPA_SASCH_ST_CO	
SSMPA_MPRD_IS_NO	
SSMPA_MPRD_ST_CO	

The following logic is to be used to create a gross alpha excluding uranium result (analyte code 4000):

1. Read each sample where:
 - a. the Last Update Timestamp or related result's Last Update Timestamp is greater than the last time the CDS Setup program was run; AND
 - b. Collection End Date is greater than or equal to the CDS History Date; AND
 - c. Rejection Reason Code is blank; AND
 - d. Compliance Purpose Indicator Code is equal to "Y" AND
 - e. Sample Type is equal to routine (RT) or confirmation (CO); AND
 - f. There are results for both analyte code 4002 (gross alpha including uranium) and 4006 (combined uranium) where the Data Quality Code is equal to accepted

(A) or validated (V) for both; AND

- g. Either:
 - i. There is not a result for analyte code 4000 (gross alpha excluding uranium) or
 - ii. There is a result for analyte code 4000 where the User ID is equal to "CDSSETUP".

For each sample selected above:

2. Read the Concentration, UOM Code, Less Than Ind, Detection Limit Num, Detection Lim UOM Code for each result where:
 - a. the analyte code referenced is 4002 or 4006
 - b. the Data Quality Code is equal to accepted (A) or validated (V).
3. If the Less Than Ind is "Y" for both results:
 - a. If the Detection Lim UOM Code is not the same for both results, write the following message to the CDS Setup Processing Report and then go to the next sample:

"Could not calculate a needed result for the following sample: Lab Sample No. [sbs sample.lab assigned id number], collected on [collection-end_date] from water system [water system.number] - [water system.name], water system facility [water system facility.state asgn identification code], and sampling point [sampling point.identification code] because encountered improper unit of measure for the result."
 - b. If the Detection Lim UOM Code is the same for both results, create (or revise the existing) result for 4000 as indicated in Table GA1 and associate it to the current sample.
4. If the Less Than Ind is "Y" for one of the results and not "Y" for the other, create (or revise the existing) result for 4000 as indicated in Table GA2 and associate it to the current sample.

5. If the LESS_THAN_IND is not “Y” for either result.
- a. If the UOM Code is not the same for both results, write the following message to the CDS Setup Processing Report and then go to the next sample:

“Could not calculate a needed result for the following sample: Lab Sample No. [sbs sample.lab assigned id number], collected on [collection-end_date] from water system [water system.number] - [water system.name], water system facility [water system facility.state asgn identification code], and sampling point [sampling point.identification code] because encountered improper unit of measure for the result.”
 - b. If the UOM Code is the same for both units, create a (or revise the existing) result for 4000 as indicated in Table GA3 and associate it to the current sample.

Table GA1	
Field Name	Specification for Populating
LESS_THAN_CODE	If the results for the two, user-entered results have “MRL”, then set to “MRL”; if both have “MDL”, then set to “MDL”; otherwise set to “MDL”
LESS_THAN_IND	Set to “Y”
DETECTN_LIMIT_NUM	Set to the larger of the DETECTN_LIMIT_NUM for the two user-entered results
DETECTN_LIM_UOM_CD	Set to DETECTN_LIM_UOM_CD of first, user-entered result.
DATA_QUALITY_CODE	Set to “A”
REPORTED_MSR	Set to “0”
CONCENTRATION_MSR	Set to 0
UOM_CODE	Set to UOM_CODE of the first, user-entered, result
D_LAST_UPDT_TS	Current Date and Time
D_USERID_CODE	CDSSETUP
TMNMPRD_IS_NUMBER	If both user-entered results reference the same Monitoring Period, then reference the same. Otherwise set to null.
TMNMPRD_ST_CODE	
SSMPA_SASCH_IS_NO	Do not need to relate the new result to an SSMPA because, if appropriate, this will be done by a subsequent process.
SSMPA_SASCH_ST_CO	
SSMPA_MPRD_IS_NO	
SSMPA_MPRD_ST_CO	

Table GA2	
Field Name	Specification for Populating
LESS_THAN_CODE	If the results for the two, user-entered, results have "MRL", then set to "MRL"; if both have "MDL", then set to "MDL"; otherwise set to null
LESS_THAN_IND	If the 4002 result's LESS_THAN_IND is NOT equal to Y, Set to null. If the 4002 result's LESS_THAN_IND is equal to Y, set to Y.
DETECTN_LIMIT_NUM	Set to null
DETECTN_LIM_UOM_CD	Set to null
DATA_QUALITY_CODE	Set to "A"
REPORTED_MSR	Set to Concentration Msr after calculation.
CONCENTRATION_MSR	If the 4002 result's LESS_THAN_IND is NOT equal to Y, Set to the CONCENTRATION_MSR of the 4002 result If the 4002 result's LESS_THAN_IND is equal to Y, set to zero.
UOM_CODE	Set to UOM_CODE of the user-entered result where its LESS_THAN_IND is NOT equal to Y.
D_LAST_UPDT_TS	Current Date and Time
D_USERID_CODE	CDSSETUP
TMNMPRD_IS_NUMBER	If both user-entered results reference the same Monitoring Period, then reference the same. Otherwise set to null.
TMNMPRD_ST_CODE	
SSMPA_SASCH_IS_NO	Do not need to relate the new result to an SSMPA because, if appropriate, this will be done by a subsequent process.
SSMPA_SASCH_ST_CO	
SSMPA_MPRD_IS_NO	
SSMPA_MPRD_ST_CO	

Table GA3	
Field Name	Specification for Populating
LESS_THAN_CODE	If the results for the two, user-entered, results have "MRL", then set to "MRL"; if both have "MDL", then set to "MDL"; otherwise set to null
LESS_THAN_IND	Set to null
DETECTN_LIMIT_NUM	Set to null
DETECTN_LIM_UOM_CD	Set to null
DATA_QUALITY_CODE	Set to "A"
REPORTED_MSR	Convert Concentration as calculated below to text
CONCENTRATION_MSR	Equal to the Concentration Msr for 4002 minus the Concentration Measure for 4006 unless the product is negative, in which case set to zero.
UOM_CODE	Set to UOM_CODE of the first, user-entered result
D_LAST_UPDT_TS	Current Date and Time
D_USERID_CODE	CDSSETUP
TMNMPRD_IS_NUMBER	If both results reference the same Monitoring Period, then reference the same. Otherwise set to null.
TMNMPRD_ST_CODE	
SSMPA_SASCH_IS_NO	Do not need to relate the new result to an SSMPA because, if appropriate, this will be done by a subsequent process.
SSMPA_SASCH_ST_CO	
SSMPA_MPRD_IS_NO	
SSMPA_MPRD_ST_CO	

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APPENDIX D-6

Associate Sample Analytical Results to Sample Schedule
Monitoring Period Assignments and Sampling Point Sub-SSMPAs

D-6. Associate Sample Analytical Results to Sample Schedule Monitoring Period Assignments and Sampling Point Sub-SSMPAs (Section 3.6.6)

Redlined and ~~redlined-strikeout~~ in all Appendix D detailed designs indicate changes to existing logic in the Release 7.0 design as well as new logic to be added for Release 8.0.

Check-Point Restart Issues: This process will be driven by changes to the SSMPA, the TSASAMPL and the TSASAR tables. This process needs to be split into three subprocesses:

- *Subprocess A. Associate New SSMPAs and Sampling Point Sub-SSMPAs to SARs.*

The driver for this subprocess is the SSMPA table.

The record key for this subprocess is the composite of D_Last_Update_Timestamp and the TMNSASCH_IS_NUMBER and the TMNMPRD_IS_NUMBER columns.

The sort order for this subprocess will be D_Last_Update_Timestamp ascending and TMNSASCH_IS_NUMBER and TMNMPRD_IS_NUMBER ascending.

- *Subprocess B. Associate New or Changed Sample Analytical Results to SSMPAs and Sampling Point Sub-SSMPAs.*

The driver for this subprocess is the Sample Analytical Result table.

The record key for this subprocess is the composite of D_Last_Update_Timestamp and the TSASAR_IS_NUMBER columns.

The sort order for this subprocess will be D_Last_Update_Timestamp ascending and TSASAR_IS_NUMBER ascending.

- *Subprocess C. Associate Sample Analytical Results of New or Changed Samples to SSMPAs and Sampling Point Sub-SSMPAs.*

The driver for this subprocess is the Sample table.

The record key for this subprocess is the composite of D_Last_Update_Timestamp and the TSASAMPL_IS_NUMBER columns.

The sort order for this subprocess will be D_Last_Update_Timestamp ascending and TSASAMPL_IS_NUMBER ascending.

- *Subprocess A. Associate New SSMPAs and Sampling Point Sub-SSMPAs to Results.*

1. Create a log in the CDS Execution Log indicating the process start time.
2. Identify SSMPAs whose Last Update Timestamp is greater than the last time the CDS Setup program was run.

To each SSMPA, assign all applicable Results as follows:

3. For each SSMPA, ~~if the schedule's Sampling point is an entry point or point of maximum residence (Type Code for the Sampling Point associated to the parent Sample for the Result is equal to "EP" or "MR"), then associate (or re-associate) results (SARs) to the SSMPA where:~~

a. ~~the Result's parent Sample is for the same sampling point as the Sample Schedule referenced by the SSMPA AND~~

[Developer Note: The following action block, "Determine and Create SAR association to SSMPA," is reused below.]

b. The Result's Analyte code is equal to the Analyte code referenced by the Sample Schedule, AND

c. The Result's Data Quality Code is accepted (A) or validated (V); AND

d. The Result's "User Assigned SSMPA" is NOT equal to "Y"; AND

e. The Result's parent Sample's Compliance Purpose Indicator Code is equal to "Y", AND

f. The Result's parent Sample is a Sample Type of routine (RT) or maximum residence time (MR); AND

g. The Result's parent Sample's Rejection Reason Code is blank; AND

h. The Result's parent Sample's Collection End Date is greater than or equal to the CDS History Date, AND

i. The Result's parent sample was collected during the applicable period for the SSMPA (Collection End Date between SSMPA Applicable Period Begin Date and Applicable Period End Date), AND

j. The Result's parent Sample was collected during the season indicated by the Sample Schedule's Seasonal Period

[Developer Note: This is similar to an action block that runs during the Assign Sample Schedules to Monitoring Periods. It is necessary to also run it here to ensure that, for schedules calling for greater than annual periodicity but having

a seasonal collection period, only the results of a sample collected during the seasonal collection period are associated to the SSMPA or Sampling Point Sub-SSMPAs . This really is only needed for Sample Schedule's whose periodicity is greater than annual but it does not hurt to run it for all.]

The detailed specifications are as follows:

- i. if the Seasonal Period Begin Month and Day are before the Seasonal Period End Month and Day for the Sample Schedule, then:
 - the Month and Day of the Sample Collection End Date is greater than or equal to the Seasonal Period Begin Month and Day and less than or equal to the Seasonal Period End Month and Day
- ii if the Seasonal Period Begin Month and Day are after the Seasonal Period End Month and Day for the Sample Schedule, then either the Month and Day of the parent Sample's Collection End Date:
 - (1) is greater than or equal to the Seasonal Period Begin Month and Day and less than or equal to December 31 OR
 - (2) is greater than or equal to January 1 and less than or equal to the Seasonal Period End Month and Day

AND

- k. One of the following combinations exists:

TSASAMPL		TMNMNR
TYPE_CODE	LD_COP_SAMP_TYP_CD	SAMPLE_TYPE_CODE
RT	Null/Blank	RT
MR	Null/Blank	RT
RT	AT	SORT
RT	FSD	SORT
RT	Null/Blank	IN
RT	FSD	FR
RT	Null/Blank	FR
RT	Null/Blank	FE

- I. In addition to associating the Result to the SSMPA:
 - a. identify the Subschedule SSMPA associated to the same sampling point as the Result's parent Sample. If found, associate the Result to the Subschedule SSMPA AND
 - b. set the Last Update Timestamp for the SSMPA and the Sampling Point Sub-SSMPA to the current date and time (whether the link previously existed or not) AND
 - c. link the Result directly to the Monitoring Period referenced by the SSMPA AND
 - d. determine if the next appropriate monitoring period exists for the Sample Schedule (using logic described above under **Associate Monitoring Periods to Sample Schedules**)
 - i. If it exists, go on to the next result (note that the **Associate CDS Setup-Created Monitoring Periods to Sample Schedules** process will link the Sample Schedule to the next monitoring period)
 - ii. If it does not exist,

- (1) then create the next appropriate monitoring period as follows:
 - (a) Begin Date = End Date of current monitoring period plus 1 day.
 - (b) End Date = Begin Date from above plus periodicity of Sample Schedule (TMNMNR-Sample Count Unit Code) minus 1 day.
 - (c) Duration (Type Code) = code for the periodicity of the Sample Schedule.
 - (d) Name = name created by action block used in Violation maintenance when creating a new monitoring period.
 - (e) User ID = "CDSSETUP."
- (2) And then go on to the next result

- ~~2. If the sampling point (for the Schedule that is associated to the SSMPA) is NOT an entry point nor point of maximum residence (Type Code for the Sampling Point associated to the parent Sample for the Result is NOT equal to "EP" nor "MR"), then associate (or re-associate) all applicable results (SARs) to the SSMPA where:
 - ~~a. the Result's parent Sample is for the same water system facility as the the Sample Schedule referenced by the SSMPA AND run the "Determine and Create SAR association to SSMPA" action block described above.~~~~
3. If no more Result meets the above specifications, then stop processing for that SSMPA and go to the next SSMPA.

Subprocess C. Associate Sample Analytical Results of New or Changed Samples to SSMPAs and Sampling Point Sub-SSMPAs.

1. Create a log in the CDS Execution Log indicating the process start time.
2. Identify results that meet the following criteria:
 - a. Whose Last Update Timestamp or whose parent sample's Last Update Timestamp is greater than the last time the *CDS Setup* program was run AND

- b. Whose Data Quality Code is accepted (A) or validated (V) AND
- c. Whose User Assigned SSMPA is NOT equal to "Y" AND
- d. Whose parent Sample's Compliance Purpose Indicator Code is equal to "Y" AND
- e. Whose parent Sample is a Sample Type of routine (RT) or maximum residence time (MR) AND
- f. Whose parent Sample's Rejection Reason Code is blank AND
- g. Whose parent Sample's Collection End Date is greater than or equal to the CDS History Date.

Then the process will attempt to assign each result to a Monitoring Period Sample Schedule Assignment as follows:

- 1. For each result, ~~if the parent sample's sampling point is an entry point or point of maximum residence (Type Code for the Sampling Point associated to the parent Sample for the Result is equal to "EP" or "MR"), then associate (or re-associate) the result to the SSMPA where:~~
 - a. ~~the Sample Schedule referenced by the SSMPA is for the same sampling point as the Result's parent Sample AND~~

[Developer Note: The following action block, which is still part of Subprocess A, "Associate New SSMPAs and Sampling Point Sub-SSMPAs to SARs," is reused below.]

- b. the Sample Schedule referenced by the SSMPA references a Monitoring Requirement for the same analyte as the Result AND
- c. the sample was collected during the applicable period for the SSMPA (Collection End Date between SSMPA Applicable Period Begin Date and Applicable Period End Date) AND
- d. the parent Sample for the Result was collected during the season indicated by the Sample Schedule's Seasonal Period

[Developer Note: This is similar to an action block that runs during the Assign Sample Schedules to Monitoring Periods. It is necessary to also run it here to

ensure that, for schedules calling for greater than annual periodicity but having a seasonal collection period, only sample collected during the seasonal collection period are associated to the SSMPA or Sampling Point Sub-SSMPAs. This really is only needed for Sample Schedule's whose periodicity is greater than annual but it does not hurt to run it for all.]

The detailed specifications are as follows:

- i. if the Seasonal Period Begin Month and Day are before the Seasonal Period End Month and Day for the Sample Schedule, then:
 - the Month and Day of the Sample Collection End Date is greater than or equal to the Seasonal Period Begin Month and Day and less than or equal to the Seasonal Period End Month and Day
- ii. if the Seasonal Period Begin Month and Day are after the Seasonal Period End Month and Day for the Sample Schedule, then either the Month and Day of the parent Sample's Collection End Date:
 - (1) is greater than or equal to the Seasonal Period Begin Month and Day and less than or equal to December 31 OR
 - (2) is greater than or equal to January 1 and less than or equal to the Seasonal Period End Month and Day.

AND

- e. One of the following combinations exists:

TSASAMPL		TMNMNR
TYPE_CODE	LD_COP_SAMP_TYP_CD	SAMPLE_TYPE_CODE
RT	Null/Blank	RT
MR	Null/Blank	RT
RT	AT	SO RT
RT	FSD	IN RT
RT	Null/Blank	IN
RT	FSD	FR
RT	Null/Blank	FR
RT	Null/Blank	FE

2. In addition to associating the Result to the SSMPA,
 - a. identify the Subschedule SSMPA associated to the same sampling point as the Result's parent Sample. If found, associate the Result to the Subschedule SSMPA AND
 - b. set the Last Update Timestamp for the SSMPA and the Sampling Point Sub-SSMPA to the current date and time (whether the link previously existed or not) AND
 - c. link the Result directly to the Monitoring Period referenced by the SSMPA AND
 - d. determine if the next appropriate monitoring period exists for the Sample Schedule (using logic described above under **Associate Monitoring Periods to Sample Schedules**)
 - i. If it exists, go on to the next result (note that the **Associate CDS Setup-Created Monitoring Periods to Sample Schedules** process will link the Sample Schedule to the next monitoring period)
 - ii. If it does not exist,

- (1) then create the next appropriate monitoring period as follows:
 - (a) Begin Date = End Date of current monitoring period plus 1 day
 - (b) End Date = Begin Date from above plus periodicity of Sample Schedule (TMNMNR-Sample Count Unit Code) minus 1 day
 - (c) Duration (Type Code) = code for the periodicity of the Sample Schedule
 - (d) Name = name created by action block used in Violation maintenance when creating a new monitoring period
 - (e) User ID = "CDSSETUP"
- (2) And then go on to the next result.

2. ~~If the sampling point (for the parent Sample) is NOT an entry point nor point of maximum residence (Type Code for the Sampling Point associated to the parent Sample for the Result is NOT equal to "EP" nor "MR"), then associate (or re-associate) the result to the SSMPA where:~~

~~the Sample Schedule referenced by the SSMPA is for the same Water System Facility as the Result's parent Sample AND run the "Determine and Create SSMPA association to SAR" action block previously described.~~

3. If no SSMPA meets the above specifications, then stop processing for that result and go to the next result (users may want to develop an Ms Access report that lists all routine results that are not associated to a SSMPA so that they can investigate whether they have a missing Sample Schedule or Monitoring Period or both).

Subprocess C. Associate Sample Analytical Results of New or Changed Samples to SSMPAs and Sampling Point Sub-SSMPAs.

1. Create a log in the CDS Execution Log indicating the process start time.
2. Identify Samples whose Last Update Timestamp is greater than the last time the CDS Setup program was run.

3. For each identified Sample, use logic described above under *Associate New or Changed Sample Analytical Results SSMPAs and Sampling Point Sub-SSMPA* to assign the associated Sample Analytical Results to the appropriate SSMPA and Sampling Point Sub-SSMPA.

APPENDIX D-7

Aggregate Lead and Copper 90th Percentile Data

D-7. Aggregate Lead and Copper 90th Percentile Data (Section 3.6.8)

Redlined and ~~redlined~~ ~~strikeout~~ in all Appendix D detailed designs indicate changes to existing logic in the Release 7.0 design as well as new logic to be added for Release 8.0.

Check-Point Restart Issues: This process will be driven by changes to the TSASAR table.

4. Calculate Aggregates for New or Changed SARs.

The driver for this subprocess is the TSASAR table.

The record key for this subprocess is the composite of D_Last_Update_Timestamp and the TSASAR_IS_NUMBER columns.

The sort order for this subprocess will be D_Last_Update_Timestamp ascending and TSASAR_IS_NUMBER ascending.

A. Use these detailed specifications to determine whether and how to calculate lead 90th percentile values for those Sample Schedule Monitoring Period Assignments that are related to Lead Tap Water Sample Schedules.

1. Create a log in the CDS Execution Log indicating the process start time.
2. Read each SSMPA where
 - a. its Last Update Timestamp is greater than the last run date & time for the *CDS Setup* process (note that the Last Update Timestamp for a SSMPA record gets updated when a new result is added or an existing result is modified) AND
 - b. SSMPA is associated to a Sample Schedule where:
 - i. the Analyte Code referenced by the referenced Monitoring Requirement is equal to "1030" AND
 - ii. ~~the Sample Type Code for the~~ referenced Monitoring Requirement's Violation Type is equal to 51 or 52 ~~"IN" (initial tap) or "FR" (follow-up or routine)~~ and
3. For each unique Sample Schedule Monitoring Period Assignment record identified, determine whether a user-entered (USERID < > CDSSETUP), lead 90th percentile sample summary already exists for the same water system and monitoring period as referenced by the SSMPA. If so, do not calculate 90th percentile values and go on to

next SSMPA. If not, calculate lead 90th percentile values and create or modify existing lead sample summary.

(Developer Note: The detailed logic follows.)

- a. If Sample Summary exists where:
 - i. Water System Facility referenced by the Sample Summary is equal to Water System referenced by the SSMPA (through the related Sample Schedule) AND
 - ii. Monitoring Period referenced by the Sample Summary is equal to the Monitoring Period referenced by the SSMPA AND
 - iii. The Code for the Analyte referenced by the Sample Summary is equal to PB90 AND
 - iv. The User ID for the Sample Summary is NOT equal to CDSSETUP

Then skip SSMPA and go to next SSMPA.

- b. Else go to the “Lead 90th Percentile Values Routine.”

Lead 90th Percentile Values Routine

1. Read and temporarily store each result where:
 - a. result references the current SSMPA AND
 - b. analyte code referenced by the result is equal to 1030 (lead).
2. Count the number of results and store as 90_Count (this will be the value for sample_summary_result count_qty).
3. Determine the earliest Collection_End_Date of Samples for SARs and store it as Collection_Begin_Date for the Summary (this will be the value for sample_summary sample_collection_start_date).
4. Determine the latest Collection_End_Date of Samples for SARs and store it as Collection_End_Date for the Sample Summary (this will be the value for sample_summary sample_collection_end_date).

5. If all results analyzed by same Lab, store Lab IS Number as Lab_IS_Number and Lab_ST_Code as Lab_St_Code.
6. Convert all results to milligrams per liter:
 - a. If UOM is UG/L—divide concentration by 1,000.
 - b. If UOM is NG/L—divide by 1,000,000.
 - c. If UOM is MG/L—leave as is.
 - d. If UOM is null and Less_Than_IND is equal to Y, no conversion needed, treat result as a zero.
 - e. If UOM is any other—write result's Sample's **Water System No., Lab Sample No., Collection Date (from field Collection End Date)** WSF St Asgn ID, **Sampling Point,** and the Result's Monitoring Period Name, and message "Could not complete copper 90th percentile aggregation for following sample result: ~~Water System Facility and Monitoring Period~~ because encountered improper unit of measure for a copper result" to CDS Setup Processing Report; stop the Lead 90th Percentile Values Routine for that SSMPA; move on to the next SSMPA. A sample of the expanded information appears at the end of this section.
 - f. Sort order the results (concentration) from least to greatest and sequentially number the sorted results starting with the lowest results (maximum 500).
 - g. Multiply the total number of lead results (90_Count) times 0.9 and store product (called 90th_Sample here).
 - h. If 90th_Sample is an integer, locate numbered result that is equal to 90th_Sample and store it as the lead 90th percentile value (90_Value).
 - i. If 90th_Sample is *not* an integer, store result of sample that is same as integer portion of 90th_Sample as 90_Lower and store result of sample that is 1+ the integer portion of 90th_Sample and call it 90_Upper; then calculate the difference between the two results (90_Upper minus 90_Lower); then multiply the difference times the decimal portion of 90th_Sample; then add this sum to 90_Lower and save as 90_Value.

7. If there is an existing Sample Summary record for the same WSF and Monitoring Period, then update existing Sample_Summary and Sample_Summary_Result records as follows. If there is not an existing Sample Summary record for same WSF and Monitoring Period, then create new Sample_Summary and Sample_Summary_Result records as follows:

Source of Data or Value	Destination	
	Entity	Attribute
Collection_Begin_Date variable	SAMPLE_SUMMARY	COLLECTION_STRT_DT
Collection_End_Date variable	SAMPLE_SUMMARY	COLLECTION_END_DT
Set to "Y"	SAMPLE_SUMMARY	COMPL_PURP_IND_CD
Current date and time	SAMPLE_SUMMARY	D_LAST_UPDT_TS
Set to "CDSSETUP"	SAMPLE_SUMMARY	D_USERID_CODE
IS_Number for PB90	SAMPLE_SUMMARY	TSAANLYT_IS_NUMBER
ST_Code for PB90	SAMPLE_SUMMARY	TSAANLYT_ST_CODE
Monitoring Period being evaluated	SAMPLE_SUMMARY	TMNMPRD_IS_NUMBER
Monitoring Period being evaluated	SAMPLE_SUMMARY	TMNMPRD_ST_CODE
Water System being evaluated	SAMPLE_SUMMARY	TINWSYS_IS_NUMBER
Water System being evaluated	SAMPLE_SUMMARY	TINWSYS_ST_CODE
Water System Facility being evaluated	SAMPLE_SUMMARY	TINWSF_IS_NUMBER
Water System Facility being evaluated	SAMPLE_SUMMARY	TINWSF_ST_CODE
Lab_IS_Number variable	SAMPLE_SUMMARY	TSALAB_IS_NUMBER
Lab_ST_Code variable	SAMPLE_SUMMARY	TSALAB_ST_CODE
Set to "90"	SAMPLE_SUMMARY _RESULT	TYPE_CODE
90_Count variable	SAMPLE_SUMMARY _RESULT	COUNT_QTY
90_Value variable	SAMPLE_SUMMARY _RESULT	MEASURE
Set to "MG/L"	SAMPLE_SUMMARY _RESULT	UOM_CODE
Current date and time	SAMPLE_SUMMARY _RESULT	D_LAST_UPDT_TS
Set to "CDSSETUP"	SAMPLE_SUMMARY _RESULT	D_USERID_CD
To reference record created in SAMPLE_SUMMARY	SAMPLE_SUMMARY _RESULT	TSASMPISM_IS_NUMBER
To reference record created in SAMPLE_SUMMARY	SAMPLE_SUMMARY _RESULT	TSASMPISM_ST_CODE

Source of Data or Value	Destination	
	Entity	Attribute
Set to "A"	SAMPLE_SUMMARY_RESULT	DATA_QUALITY_CODE
Set to IS_Number of SSMPA to which current summary is associated	SAMPLE_SUMMARY	SSMPA_SASCH_IS_NO SSMPA_MPRD_IS_NO
Set to ST_Code of SSMPA to which current summary is associated	SAMPLE_SUMMARY	SSMPA_SASCH_ST_CO SSMPA_MPRD_ST_CO

End of "Lead 90th Percentile Values Routine"

B. Use these detailed specifications to determine whether and how to calculate lead copper 90th percentile values for those Sample Schedule Monitoring Period Assignments that are related to Copper Tap Water Sample Schedules.

1. Read each Sample SSMPA where:
 - a. the Last Update Timestamp is greater than the last run date & time for the CDS Setup process (note that the Last Update Timestamp for a SSMPA record gets updated when a new result is added or an existing result is modified) AND
 - b. SSMPA is associated to a Sample Schedule where:
 - i. the Analyte Code referenced by the referenced Monitoring Requirement is equal to "1022" AND
 - ii. ~~the Sample Type Code for the referenced Monitoring Requirement's Violation Type is equal to 51 or 52 "IN" (initial tap) or "FR" (follow-up or routine)~~
2. For each unique Sample Schedule Monitoring Period Assignment record identified, determine whether a user-entered (USERID < > CDSSETUP) copper 90th percentile sample summary already exists for the same water system and monitoring period as referenced by the SSMPA. If so, do not calculate 90th percentile values and go on to the next SSMPA. If not, calculate copper 90th percentile values and create or modify existing copper sample summary.

(Developer Note: The detailed logic follows.)

- a. If Sample Summary exists where:
 - i. Water System Facility referenced by the Sample Summary is equal to Water System referenced by the SSMPA (through the related Sample Schedule) AND
 - ii. Monitoring Period referenced by the Sample Summary is equal to the Monitoring Period referenced by the SSMPA AND
 - iii. The Code for the Analyte referenced by the Sample Summary is equal to "CU90" AND
 - iv. The User ID for the Sample Summary is NOT equal to "CDSSETUP"
 - b. Then skip SSMPA and go to next SSMPA.
3. If not, then go to the "Copper 90th Percentile Values Routine"

Copper 90th Percentile Values Routine

1. Read and temporarily store each result where:
 - a. result references the current SSMPA AND
 - b. analyte code referenced by the result is equal to 1022 (copper).
2. Count the number of results and store as 90_Count (this will be the value for sample_summary_result count_qty).
3. Determine the earliest Collection_End_Date of Samples for SARs and store it as Collection_Begin_Date for the Summary (this will be the value for sample_summary sample_collection_start_date).
4. Determine the latest Collection_End_Date of Samples for SARs and store it as Collection_End_Date for the Sample Summary (this will be the value for sample_summary sample_collection_end_date).
5. If all results analyzed by same Lab, store Lab IS Number as Lab_IS_Number and Lab_ST_Code as Lab_St_Code.

6. Convert all results to milligrams per liter:
 - a. If UOM is UG/L—divide concentration by 1,000.
 - b. If UOM is NG/L—divide by 1,000,000.
 - c. If UOM is MG/L—leave as is.
 - d. If UOM is spaces and Sample Result Less Than Indicator is Y—leave as is.
 - e. If UOM is any other—write result's Sample's **Water System No., Lab Sample No., Collection Date (from field Collection End Date)** WSF St Asgn ID, **Sampling Point,** and the Result's Monitoring Period Name, and message "Could not complete copper 90th percentile aggregation for following sample result: ~~Water System Facility and Monitoring Period~~ because encountered improper unit of measure for a copper result" to CDS Setup Processing Report; stop the Copper 90th Percentile Values Routine for that SSMPA; move on to the next SSMPA. A sample of the expanded information appears at the end of this section.
 - f. Sort order the results (concentration) from least to greatest and sequentially number the sorted results starting with the lowest results (maximum 500).
 - g. Multiply the total number of copper results (90_Count) times 0.9 and store product (called "90th_Sample" here).
 - h. If 90th_Sample is an integer, locate numbered result that is equal to 90th_Sample and store it as the copper 90th percentile value (90_Value).
 - i. If 90th_Sample is *not* an integer, store result of sample that is same as integer portion of 90th_Sample as 90_Lower and store result of sample that is 1+ the integer portion of 90th_Sample and call it 90_Upper, then calculate the difference between the two results (90_Upper minus 90_Lower), then multiply the difference times the decimal portion of 90th_Sample; then add this sum to 90_Lower and save as 90_Value.
7. If there is an existing Sample Summary record for the same WSF and Monitoring Period, then update existing Sample_Summary and Sample_Summary_Result records as follows. If there is not an existing Sample Summary record for same WSF and Monitoring Period, then create new Sample_Summary and Sample_Summary_Result records as follows:

Source of Data or Value	Destination	
	Entity	Attribute
Collection_Begin_Date variable	SAMPLE_SUMMARY	COLLECTION_STRT_DT
Collection_End_Date variable	SAMPLE_SUMMARY	COLLECTION_END_DT
Set to "Y"	SAMPLE_SUMMARY	COMPL_PURP_IND_CD
Current date and time	SAMPLE_SUMMARY	D_LAST_UPDT_TS
Set to "CDSSETUP"	SAMPLE_SUMMARY	D_USERID_CODE
IS_Number for CU90	SAMPLE_SUMMARY	TSAANLYT_IS_NUMBER
ST_Code for CU90	SAMPLE_SUMMARY	TSAANLYT_ST_CODE
Monitoring Period being evaluated	SAMPLE_SUMMARY	TMNMPRD_IS_NUMBER
Monitoring Period being evaluated	SAMPLE_SUMMARY	TMNMPRD_ST_CODE
Water System being evaluated	SAMPLE_SUMMARY	TINWSYS_IS_NUMBER
Water System being evaluated	SAMPLE_SUMMARY	TINWSYS_ST_CODE
Water System Facility being evaluated	SAMPLE_SUMMARY	TINWSF_IS_NUMBER
Water System Facility being evaluated	SAMPLE_SUMMARY	TINWSF_ST_CODE
Lab_IS_Number variable	SAMPLE_SUMMARY	TSALAB_IS_NUMBER
Lab_ST_Code variable	SAMPLE_SUMMARY	TSALAB_ST_CODE
Set to "90"	SAMPLE_SUMMARY_RESULT	TYPE_CODE
90_Count variable	SAMPLE_SUMMARY_RESULT	COUNT_QTY
90_Value variable	SAMPLE_SUMMARY_RESULT	MEASURE
Set to "MG/L"	SAMPLE_SUMMARY_RESULT	UOM_CODE
Current date and time	SAMPLE_SUMMARY_RESULT	D_LAST_UPDT_TS
Set to "CDSSETUP"	SAMPLE_SUMMARY_RESULT	D_USERID_CD
To reference record created in SAMPLE_SUMMARY	SAMPLE_SUMMARY_RESULT	TSASMPISM_IS_NUMBER
To reference record created in SAMPLE_SUMMARY	SAMPLE_SUMMARY_RESULT	TSASMPISM_ST_CODE
Set to "A"	SAMPLE_SUMMARY_RESULT	DATA_QUALITY_CODE
Set to IS_Number of SSMPA to which current summary is associated	SAMPLE_SUMMARY	SSMPA_SASCH_IS_NO SSMPA_MPRD_IS_NO

Source of Data or Value	Destination	
	Entity	Attribute
Set to ST_Code of SSMIPA to which current summary is associated	SAMPLE_SUMMARY	SSMPA_SASCH_ST_CO SSMPA_MPRD_ST_CO

End of "Copper 90th Percentile Values Routine"

00:00:03*** Start Process - Aggregate Lead and Copper 90th Percentile Data

PROCESS NAME--AGGREGATE LEAD AND COPPER 90TH PERCENTILE DATA
 REASON TEXT--ENCOUNTERED IMPROPER UNIT OF MEASURE FOR A LEAD
 RESULT

SAMPLE RESULT UNIQUE IDENTIFIER--

WATER SYS NO. --ND0003456 WSF ST ASGN ID-- WL001

SAMPLING PT - C1286 LAB SAMPLE NO. - T3090

COL DATE--06/07/2001 MONITORING PERIOD NAME-- FEB01

Sample CDS Setup Processing Report for Aggregate Lead and Copper 90th Percentile Process

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APPENDIX D-8

Assign Sample Summaries to Sample Schedule Monitoring Period Assignments

D-8. Assign Sample Summaries to Sample Schedule Monitoring Period Assignments (Section 3.6.9)

Redlined and ~~redlined~~ ~~strikeout~~ in all Appendix D detailed designs indicate changes to existing logic in the Release 7.0 design as well as new logic to be added for Release 8.0.

Check-Point Restart Issues:

This process will be driven by changes to both the SSMPA table and the TSASMPSM/TSASSR tables.

This Process needs to be split into two subprocesses:

- Associate New/Changed Sample Summaries to SSMPAs.

The driver for this subprocess is the Sample Summary table.

The record key for this subprocess is the composite of D_Last_Update_Timestamp and the TSASSM_IS_NUMBER columns.

The sort order for this subprocess will be D_Last_Update_Timestamp ascending and TSASSM_IS_NUMBER ascending.

- Associate New or Changed SSMPAs to Sample Summaries.

The driver for this subprocess is the SSMPA table.

The record key for this subprocess is the composite of D_Last_Update_Timestamp and the TMNSASCH_IS_NUMBER and the TMNMPRD_IS_NUMBER columns.

The sort order for this subprocess will be D_Last_Update_Timestamp ascending and TMNSASCH_IS_NUMBER and TMNMPRD_IS_NUMBER ascending.

This process might require a secondary Reference_IS_NUMBER in the CDS_SETUP_EXECUTION_LOG table.

Subprocess A. Associate New/ Changed Sample Summaries to SSMPAs.

1. Create a log in the CDS Execution Log indicating the process start time.
2. Identify Sample Summary or Sample Summary Result records for lead or copper 90th percentile values that have been added or modified since the last time the CDS Setup application was run and which were not created by the CDS software, and which are for monitoring periods that end on or after the CDS History Date.
3. For each Sample Summary Result identified:

- a. Identify the Monitoring Period associated to the Sample Summary for the Sample Summary Result
- b. Determine if the Monitoring Period is associated, through a SSMPA record, to a Sample Schedule which:
 - i. is for the same Water System Facility as the Sample Summary (mandatory as of Release 7.0 for Lead or Copper Sample Summary) AND
 - ii. is for Analyte Code 1030 if the Analyte associated to the parent Sample Summary is PB90 or is for Analyte Code 1022 if the parent Sample Summary is CU90 AND
 - iii. has a Monitoring Requirement ~~Sample Type Code equal to IN or FR~~ that references Violation Type 51 or 52.
- c. If it finds such an association, then it will associate the Sample Summary Result to the same SSMPA and go to the next Sample Summary Result.
- d. If it does not find such an association, then go on to the next Sample Summary Result.

Subprocess B. Associate New SSMPAs to Sample Summaries.

1. Create a log in the CDS Setup Execution Log indicating the process start time.
2. Identify SSMPA records associated to schedules that are for Analyte Code 1030 or for Analyte Code 1022 and have a Monitoring Requirement ~~Sample Type Code equal to IN or FR~~ that references Violation Type 51 or 52 and that have been added or modified since the last time the CDS Setup application was run.
3. For each SSMPA identified, this process will:
 - a. Identify all the Sample Summary Results that
 - i. are for the same Water System Facility as the Sample Schedule that is associated to the SSMPA AND

- ii. is associated to the Monitoring Period that is associated to the SSMPA
AND
 - iii. the Analyte of the Summary is PB90 if the analyte of the Schedule is 1030 or CU90 if the analyte of the Schedule is 1022.
- b. If it finds such a Sample Summary Result, then it will associate the Sample Summary Result to the SSMPA and go to the next Sample Summary Result.
4. If it does not find such any more Sample Summary Results, then go on to the next SSMPA.

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APPENDIX D-9

Calculate Monitoring Period Averages

D-9. Calculate Monitoring Period Averages (Section 3.6.10)

Redlined and ~~redlined~~ ~~strikeout~~ in all Appendix D detailed designs indicate changes to existing logic in the Release 7.0 design as well as new logic to be added for Release 8.0.

When this process changes or creates a record, value the D_USERID_CODE with CDSSETUP.

Check-Point Restart Issues: Calculate Monitoring Period Averages for New/Changed SSMPAs.

The driver for this subprocess is the SSMPA table.

The record key for this subprocess is the composite of D_Last_Update_Timestamp and the TMNSASCH_IS_NUMBER and the TMNMPRD_IS_NUMBER columns.

The sort order for this subprocess will be D_Last_Update_Timestamp ascending and TMNSASCH_IS_NUMBER and TMNMPRD_IS_NUMBER ascending.

This process might require a secondary Reference_IS_NUMBER in the CDS_SETUP_EXECUTION_LOG table.

5. Creates a log in the CDS Execution Log indicating the process start time.
6. Identify SSMPA records for which monitoring period averages may need to be calculated, i.e., ~~Candidate SSMPA records~~ are newly created SSMPAs and those associated to new sample analytical results, modified samples/results, new schedules, etc.

[Developer Note: The CDS software will identify these by checking the Last Update Timestamp of SSMPA records.]

7. Determines if a current MCL exists for the analyte and, if so, reads its unit of measure and MCL_COMPLIANCE_METHOD value. "Current MCL" means the MCL is in effect on the first day of the monitoring period to which the average applies. Usually this is equivalent to the Begin Date of the Monitoring Period but it could be the Effective Begin Date or the Seasonal Period Begin Month and Day of the Sample Schedule if either are after the Begin Day of the Monitoring Period. *[Note, it is still appropriate to see if an MCL does exist and then convert to its UOM. If it doesn't exist, process will use the UOM of the first result instead. If there is no result, the process bypasses the conversion and sets the UOM to null.]*

[Developer Note: The CDS software will use SSMPA Applicable Period Begin Date which takes into consideration all three dates.]

~~If the analyte has no current MCL, the process stops for that particular SSMPA and moves to the next one. CDS will only calculate monitoring period averages for analytes that have an MCL in the database.~~

8. Identifies all results already associated to the retrieved SSMPA. [These associations have been created by process *Associate Sample Analytical Results to Sample Schedule Monitoring Period Assignments*. As a result, the results linked to the SSMPA are accepted or validated “for compliance” parent sample of type routine or maximum residence time, and whose rejection reason is not valued.]

Second, for each identified result, the software identifies all Confirmation sample results that are associated to the result’s parent sample.

Temporarily store each Sample Analytical Result that references the current SSMPA

AND

Temporarily store each Sample Analytical Result where:

The parent Sample references one of the SBS Sample’s read in the first step

AND

Its parent Sample’s Compliance Purpose Indicator Code is equal to “Y” AND

Its parent Sample is a Sample Type of confirmation (CO) AND

Its parent Sample’s Rejection Reason Code is blank AND

It references the same Analyte code as the related

Its Data Quality Code is accepted (A) or validated (V)

Store the following information for each sample result read:

Store a concentration (numeric - 16(9)) as follows:

If the Sample Analytical Result concentration_measure is (null or 0.0), then store 0.0

If the Sample Analytical Result concentration_measure is > 0.0, then store concentration_measure

9. If the unit of measure for a sample analytical result is not the same as the unit of measure for the analyte’s current MCL, the unit of measure for the result is converted to the same as that associated with the analyte’s current MCL. The value for measure is likewise converted. (These conversions are not actually made to the data in the Sample

Analytical Result (TSASAR) table; the data in this table remain as originally entered.) Note that, if the Less Than Ind is Y, no conversion is necessary. Instead use zero for that result. If there is no MCL for the current analyte, use the UOM Code recorded for the first result. If the first result is less than detect (i.e., Less Than Ind is Y), use the Detection LIM UOM Code. If there is no result, no conversion is necessary.

10. It converts all the results to the same units as the current MCL for the analyte or, if there is no MCL, convert to the same units as the UOM Code or Detection LIM UOM Code for the first result, depending on whether the first result is not less than detect or is less than detect, respectively. Use conversion table below if the unit of measure for a result is not the same as the desired unit of measure ~~for its MCL~~. However, if the unit of measure for a result is the same as the desired unit of measure ~~for its MCL~~ or the Less Than IND is Y for the result, do not convert it.

From UOM	To UOM	Multiplier
MG/L	UG/L	1000
MG/L	NG/L	1000000
UG/L	MG/L	0.001
UG/L	NG/L	1000
NG/L	MG/L	0.000001
NG/L	UG/L	0.001

11. Calculate an average by adding all the results identified and dividing the sum by the number of results. Note that when there is more than one confirmation result or one confirmation result and more than one routine result (both uncommon situations), the average will not be precisely right but, once rounded (which is done by the next process), the calculated average will be the same as the precise average.
12. Finally, create a new or modify an existing record as follows:

Monitoring Period Average Attributes	Source
Average Measure	Product of averaging calculation
UOM Code	UOM Code of current MCL record in Analyte Level Rule Assignment or, if no MCL, UOM of FANL-MAX for same analyte and facility. If no MCL or FANL-MAX, UOM of first result used to calculate the average. If no result, set to MG/l.
MCL Compliance Method	MCL Compliance Method of current MCL record in Analyte Level Rule Assignment. Value with RAA if no MCL.
Measure Text	Measure Text (new attribute) in Analyte Level Rule Assignment. Will be used by the Calculate MCL Values process to round to same significant digits as the MCL. If no MCL, set to Measure Text for the FANL-MAX that is for the same analyte and facility. If there is neither a MCL or FANL-MAX, set to null (spaces).
Total Days	Days between (TMNSSMPA Begin Date and TMNSSMPA End Date) plus 1 minus days between (TMNSSMPA App Per Gap Begin Date minus TMNSSMPA App Per Gap End Date).
Number of Results Used	Number of results that met the criteria and that are used in the calculation
Applicable Period Begin Date	TMNSSMPA Applicable Period Begin Date
Applicable Period End Date	TMNSSMPA Applicable Period End Date
Last Update Timestamp	Current Date and Time

If there are no results related to a Sample Schedule Monitoring Period Assignment record, the Calculate Monitoring Period Averages creates a Monitoring Period Average record anyway using the following values:

Monitoring Period Average Attributes	Source
Average Measure	0.0
UOM Code	UOM Code of current MCL record in Analyte Level Rule Assignment or, if no MCL, UOM of FANL-MAX for same analyte and facility. If no MCL or FANL-MAX, set to UOM of first result used in calculation. If no result, set to null.
MCL Compliance Method	MCL Value Method of current MCL record in Analyte Level Rule Assignment. If no MCL, set to RAA.
MCL Text	Measure Text (new attribute) in Analyte Level Rule Assignment. Will be used by the Calculate MCL Values process to round to same significant digits as the MCL. If no MCL, set to Measure Text for the FANL-MAX that is for the same analyte and facility. If there is neither a MCL or FANL-MAX, set to null (spaces).
Total Days	0
Number of Results Used	0
Applicable Period Begin Date	TMNSSMPA Applicable Period Begin Date
Applicable Period End Date	TMNSSMPA Applicable Period End Date
Last Update Timestamp	Current Date and Time

It is necessary to create Monitoring Period Averages even when there are no results for two reasons:

- so that, when calculating MCL Values using the running annual average method, a value will be calculated for a Monitoring Period during which no result was collected; AND
- so that, when a result for a quarter is added to the database late and the running annual average method applies, the Calculate MCL Values process will not only

know to recalculate the MCL value for that quarter but also for any subsequent quarters to which that Monitoring Period Average applies.

The results of these calculations will be stored in new entity "Monitoring Period Average" (table TMNMPAVG).

After processing all SSMPAs as indicated above, initial the following, new Calculate Precursor Achieved Removal Ratio process.

1. Read each Finished TOC schedule associated to a SSMPA processed above during this run of CDS Setup. A Finished TOC Schedule is one where:
 - a. the Analyte Code associated to the Monitoring Requirement is equal to "2920" AND
 - b. the the Sample Type of the Monitoring Requirement associated to the Sample Schedule is "RT" AND
 - c. the Type Code of the Water System Facility referenced by the Sample Schedule is equal to "DS" or "TP" AND
 - d. the Sample Schedule is associated, through the Schedule Package entity, to a Sample Schedule where:
 - i. the Analyte Code associated to the Monitoring Requirement is equal to "2920" AND
 - ii. the the Sample Type of the Monitoring Requirement associated to the Sample Schedule is "RT" AND
 - iii. the Type Code of the Water System Facility referenced by the Sample Schedule is not equal to "DS" or "TP"AND
 - e. the Sample Schedule is associated, through the Schedule Package entity, to a Sample Schedule where:
 - i. the Analyte Code associated to the Monitoring Requirement is equal to "1067" or "1927" AND

- ii. the Sample Type of the Monitoring Requirement associated to the Sample Schedule is “RT” AND
 - iii. the Type Code of the Water System Facility referenced by the Sample Schedule is not equal to “DS” or “TP.”
- 2. For each Finished TOC Sample Schedule, read the SSMPAs corresponding to each of the schedules in the Schedule Package that are associated to the Finished TOC Sample Schedule and are associated to the same monitoring period as the current SSMPA.

(In the following discussion, a “Raw” schedule is one associated to a WSF that is NOT type DS or TP. A “Finished” is one that is associated with a WSF that is type DS or TP.)
- 3. Determine the RAW TOC average by averaging the MP Averages of all Raw TOC schedules in this Scheduled Package. The read for these is as follows:
 - a. Read each Sample Schedule associated to the current Sample Schedule (the one associated to the SSMPA being processed) through Schedule Package where:
 - i. the the Sample Type of the Monitoring Requirement associated to the Sample Schedule is “RT” AND
 - ii. the Analyte Code associated to the Monitoring Requirement is equal to “2920” AND
 - iii. the Type Code of the Water System Facility referenced by the Sample Schedule is not “DS” or “TP”
 - b. For each Sample Schedule selected/read, read and temporarily store its Monitoring Period Average. Before temporarily storing the average, convert it to MG/L using the following table. (Note that many times there will only be one Raw TOC MP Average for a given Schedule Package.)

From UOM	To UOM	Multiplier
MG/L	UG/L	1000
MG/L	NG/L	1000000
UG/L	MG/L	0.001
UG/L	NG/L	1000
NG/L	MG/L	0.000001
NG/L	UG/L	0.001

4. Determine the RAW Alkalinity average by averaging the MP Averages of all Raw Alkalinity Sample Schedules in the Scheduled Package. The read for these is as follows:
 - a. Read each Sample Schedule associated to the current Sample Schedule (the one associated to the SSMPA being processed) through Schedule Package where:
 - i. the Sample Type of the Monitoring Requirement associated to the Sample Schedule is "RT" AND
 - ii. the Analyte Code associated to the Monitoring Requirement is equal to "1067" or "1927" AND
 - iii. the Type Code of the Water System Facility referenced by the Sample Schedule is not "DS" or "TP."
 - b. For each Sample Schedule selected/read, read and temporarily store its Monitoring Period Average. Before temporarily storing the average, convert it to MG/L using the above table. (Note that many times there will only be one Raw Alkalinity MP Average for a given Schedule Package.)

Treat a MP Average for either analyte code as the same. In other words, if there are two Raw Alkalinity Schedules, one referencing Analyte Code 1927 (and therefore having a MP Average for 1927) and the other for Analyte Code 1067 (and therefore having a MP Average for 1067), use MP Average for both analytes when calculating an alkalinity average.
5. Value the Precursor Achieved Removal Ratio attributes (field names PRC_ACH_RMVL_RA_NO and PRC_ACH_RMVL_RA_TX, the first a numeric field, the second a text field for displaying the value on the Results Averages

Maintenance window) in the Monitoring Period Average for the Finished TOC Sample Schedule as follows:

- a. Value both as 0.0:
 - i. If the Number of Results Used attribute in the MP Average for the Finished TOC schedule is equal to zero
 - ii. Or if the Number of Results Used attribute in the MP Average for all the Raw TOC schedules are equal to zero
 - iii. Or if the Number of Results Used attribute in the MP Average for all the Raw Alkalinity schedules are equal to zero.
- b. Else value both as 1.0:
 - i. If the calculated average of the Monitoring Period Averages for Raw TOC schedules is less than 2.0.
 - ii. Or if the Monitoring Period Average TOC for the Finished schedule is less than 2.0.
- c. Else set both to
“Actual TOC Removal Percentage”/“Required TOC Removal Percentage”

Where:

- i. The “Required TOC Removal Percentage” is derived from the following matrix, using the Average Raw TOC and Average Raw Alkalinity results calculated above.

Required TOC Removal in Percent			
Average Raw TOC (mg/l)	Calculated Average Raw Alkalinity (mg/l)		
	0 to 60	> 60 to 120	> 120
2.0 to 4.0	35.0	25.0	15.0
> 4.0 to 8.0	45.0	35.0	25.0
> 8.0	50.0	40.0	30.0

ii. And the “Actual TOC Removal Percentage” is calculated as follows:

$$(1 - (\text{Finished TOC Average} / \text{Raw TOC Average})) * 100$$

APPENDIX D-10

Calculate MCL Values

D-10. Calculate MCL Values (Section 3.6.11)

~~Redlined and redlined-strikeout~~ in all Appendix D detailed designs indicate changes to existing logic in the Release 7.0 design as well as new logic to be added for Release 8.0.

When this process changes or creates a record, value the D_USERID_CODE with CDSSETUP.

Check-Point Restart Issues: Calculate MCL Values for New or Changed SSMPAs.

The driver for this subprocess is the MPA table.

The record key for this subprocess is the composite of D_Last_Update_Timestamp and the TMNSASCH_IS_NUMBER and the TMNMPRD_IS_NUMBER columns.

The sort order for this subprocess will be D_Last_Update_Timestamp ascending and TMNSASCH_IS_NUMBER and TMNMPRD_IS_NUMBER ascending.

This process might require a secondary Reference_IS_NUMBER in the CDS_SETUP_EXECUTION_LOG table.

6. Create a log in the CDS Execution Log indicating the process start time.
7. Read the Monitoring Period Average record whose:
 - a. Last_Update_Timestamp is greater than the last time the *CDS Setup* process was run AND
 - b. total_days do not equal 0 or (total_days equal 0 and applicable_period_end_date is less than the current date)¹ AND
 - c. USERID not equal to CDSSETUP (to prevent selecting and overriding a user-specified Monitoring Average which will in turn, prevent the overriding the Running Annual Average (in entity CALCULATED MCL VALUE))
8. If MCL Value Method (from Monitoring Period Average) is equal to RAA, then:
 - a. Read periodicity (sample_count_unit_code) of the Monitoring Requirement related to the Monitoring Period Average through the Sample Schedule, through

¹If we do not limit the Calculate MCL Values to Monitoring Periods that either have a result in or have ended without a result, our software will calculate MCL Values for that Monitoring Period and our MCL Compliance Check will erroneously determine MCL violations for future Monitoring Periods.

the Sample Schedule Monitoring Period Assignment that is related to the Monitoring Period Average

- b. If periodicity is QT, MN, WK, DL, 4H, or HR, then
- i. Call the current Monitoring Period Average the “End Monitoring Period Average” AND
 - ii. Invoke the “Running Annual Average Method” action block:

“Running Annual Average Method” Action Block

- (1) If the USER ID for the MCL Value associated to the same SSMPA as the ‘End Monitoring Period Average’ is not equal to ‘CDSSETUP’, do not calculate a MCL Value for this SSMPA.
- (2) Else, read Average Measure and Total Days for the End Monitoring Period Average and every other Monitoring Period Average whose:
 - (a) Applicable Period Begin Date is greater than the Applicable Period End Date of the End Monitoring Period Average minus one year AND
 - (b) Applicable Period End Date is less than the Applicable Period End Date of the End Monitoring Period Average.
 - (c) Sum the Total Days from each Monitoring Period Average

- (i) If the sum of Total Days is greater than zero, then calculate the weighted Average as

$$\frac{\sum (\text{MPA Average Measure} * \text{Total Days})}{\text{Total Days}} \text{ AND}$$

- 1) If the sample analytical result (TSASAR) analyte is 2920 or 1004, do not compare against the MCL Value for rounding. For all other analyte codes, round the weighted average to the same significant digits as the MCL using the MCL Text

value stored with the MP Average. If there is no MCL Text value, do not round.

- 2) Create a new or modify existing MCL Value record for that same SSMPA and set the USER ID to "CDSSETUP." Store the rounded weighted value as the Value in the MCL Value table and link to all the Monitoring Period Average Records used in the computation (the link is accomplished through the associative table since there is a many-to-many relationship between MCL Value and Monitoring Period Average tables). Also link the MCL Value to the SSMPA of the End Monitoring Period Average.

- (ii) Otherwise, do not calculate or create a MCL Value record.

End of "Running Annual Average Method" action block

- iii. If Monitoring Period Average is related another MCL Value (need to read the entity Calc MCL Value MP Avg Asgmt to determine), then call the Monitoring Period Average that is related to the other MCL Value and whose Applicable End Date is the greatest, the "End Monitoring Period Average" AND
 - iv. Invoke the "Running Annual Average" action block.
- c. If periodicity is not equal to QT, MN, WK, DL, 4H, or HR, then run the "Monitoring Period Average Method" action block
9. If MCL Value Method (from Monitoring Period Average) is equal to MPA or blank/null, then run the "Monitoring Period Average Method" action block.

"Monitoring Period Average Method" Action Block

- a. If the USER ID for the MCL Value associated to the same SSMPA as the Monitoring Period Average is not equal to "CDSSETUP," do not calculate a MCL Value for this SSMPA.

- b. Else, round the Average Measure of the current Monitoring Period Average to the same significant digits as the MCL. If there is no MCL Text value, do not round.
- c. Create new or modify existing MCL Value record for that same SSMPA and set the USER ID to "CDSSETUP." Store the rounded Average Measure as the Value in the MCL Value table and link to the current Monitoring Period Average. Also link the MCL Value to the SSMPA of the End Monitoring Period Average.

End of "Monitoring Period Average Method" Action Block

The following action involves evaluation of a Monitoring Period Average that was first evaluated above. This time, however, the Monitoring Period Average/SSMPA is selected based on the type of Sample Schedule it is associated to, namely a Finished TOC Sample Schedule.

10. If Monitoring Period Average is associated to a Finished TOC Sample Schedule, then run the "TOC RAA Method" action block.

A Finished TOC Schedule is one where:

- the Analyte Code associated to the Monitoring Requirement is equal to "2920" AND
- the the Sample Type of the Monitoring Requirement associated to the Sample Schedule is "RT" AND
- the Type Code of the Water System Facility referenced by the Sample Schedule is equal to "DS" or "TP").

"TOC RAA Method" Action Block:

- a. If the USER ID for the MCL Value associated to the same SSMPA as the Monitoring Period Average is not equal to "CDSSETUP," do not calculate a Precursor Achieved Removal Ratio for the MCL Value associated to this SSMPA.
- b. Else, use the Monitoring Period associated to the SSMPA being processed as the End Monitoring Period. Go back 1 year and arithmetically average the

Precursor Achieved Removal Ratio (the ones stored with the Monitoring Period Averages in the new PRC_ACH_RMVL_RA_NO field) for the same schedule and store in both the PRC_ACH_RMVL_RA_NO and the PRC_ACH_RMVL_RA_TX (both new fields in the MCL Value table).

Calculate the arithmetic average as follows:

$$\frac{\sum (\text{TMNMPAVG.PRC_ACH_RMVL_RA_NO} * \text{TOTAL_DAYS})}{\sum \text{TOTAL_DAYS}}$$

End "TOC RAA Method" Action Block.

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APPENDIX D-11

Chemical/Radionuclide MCL Compliance Check Process

D-11. Chemical/Radionuclide MCL Compliance Check Process (Section 3.6.12)

Redlined and ~~redlined-strikeout~~ in all Appendix D detailed designs indicate changes to existing logic in the Release 7.0 design as well as new logic to be added for Release 8.0.

Check-Point Restart Issues: Assess MCL Compliance for New/Changed MCL Values.

The driver for this subprocess is the MCL Value table.

The record key for this subprocess is the composite of D_Last_Update_Timestamp and the TMNCMCLV_IS_NUMBER columns.

The sort order for this subprocess will be D_Last_Update_Timestamp ascending and TMNMCLV_IS_NUMBER ascending.

1. Create a log record in the CDS Setup Execution Log indicating the process start time.
2. Read each MCL Value where the Last_Update_Timestamp is greater than the last time the “Chemical/Radionuclide MCL Compliance Check” process was run.
3. For each qualifying MCL Value:
 - a. Identify the Analyte linked to this MCL Value through a SSMPA record, to a Sample Schedule, then to a Monitoring Requirement.
 - i. If the analyte code is 2950 (TTHM, Total Trihalohalomethanes) or 2456 (HAA5, Five Haloacetic Acids), identify the Facility Analyte Level (TSAFANL) where:
 - (1) The Code for the Analyte referenced by the Facility Analyte Level is the same as the Code for the Analyte referenced by this qualifying MCL Value AND
 - (2) The Water System Facility referenced by the Facility Analyte Level is the same as the Water System Facility related to the MCL Value through the Sample Schedule, through the SSMPA related to the MCL Value AND
 - (3) The Control Level Type of the Facility Analyte Level is equal to “MAX” AND

- (4) Facility Analyte Level EFFECTIVE_BEGIN_DATE is less than or equal to the SSMPA (referenced by the MCL Value) Applicable Period Begin Date AND
- (5) Facility Analyte Level EFFECTIVE_END_DATE is greater than or equal to the SSMPA (referenced by the MCL Value) Applicable Period Begin Date Or Facility Analyte Level EFFECTIVE_END_DATE is NULL/Blank).

If Facility Analyte Level is found, then convert Control Level Text of this Facility Analyte Level record to a number (16(9)) by using action block *SBS_CONVERT_MEASURE_TO_NUMBER*, store the resulting number in a temporary variable "Level" (numeric - 16(9)) and proceed to Step b to compare Value (CALCULATED_VALUE of entity CALCULATED_MCL_VALUE) against this Level.

Else, move on to the next MCL Value.

- ii. Else, identify TMNALRA record referenced by this qualifying MCL Value.

If it finds such a TMNALRA record, then store the Measure of this TMNALRA record in a temporary variable "Level" (numeric - 16(9)) and proceed to Step b below to compare Value (CALCULATED_VALUE of entity CALCULATED_MCL_VALUE) against this Level.

Else, move on to the next MCL Value.

- b. Compare the Value against the Level. For analyte code 2950 or 2456, "Level" means the numeric equivalent of Control Level Text of the corresponding TSAFANL record; otherwise "Level" means the Measure for the TMNALRA record referenced by this qualifying MCL Value record. If the Value is greater than the Measure Level (note that both have been rounded so that the comparison is done at the same significant digits) ~~for the TMNALRA record referenced by this qualifying MCL Value record.~~

- i. Then call action block **Clear Previous CDS Candidate MCL Violation Identify Existing CDS Candidate MCL Violation** (first described here). Check for a CDS Candidate Violation where:

- (1) The CDS candidate violation is for the Water System referenced by the MCL Value AND
- (2) The CDS candidate violation's Compliance Period Begin Date is equal to the Begin Date of the Monitoring Period referenced by the MCL Value AND
- (3) The CDS candidate violation's Compliance Period End Date is equal to the End Date of the Monitoring Period referenced by the MCL Value AND
- (4) The CDS candidate violation's Analyte Code is equal to the Analyte Code referenced by the MCL Value AND
- (5) The CDS candidate violation's Type Code is either 01 or 02

If found, delete the CDS Candidate Violation and all associated records in the CDS Reporting entities.

- ii. Pass a CDS Candidate MCL violation for the Analyte referenced by the MCL Value to the **Create CDS Candidate Violation** action block (pass Violation Type 01 if the number of results used to calculate the MCL Value is 1; otherwise pass Violation Type 02).
- iii. Create a record in the *CDS Setup Processing Report* that says:

RECORD NUMBER—[insert Record Number]

PROCESS NAME—[insert Process Name]

REASON TEXT— A CDS CANDIDATE MCL VIOLATION WAS CREATED (SEE BELOW)

RESOLUTION TIPS— USE THE MIGRATE CDS CANDIDATE VIOLATIONS COMPONENT TO PROCESS THE VIOLATION.

UNIQUE IDENTIFIER—

VIOLATION TYPE—[insert Violation Type Code]

PWS—[insert TINWSYS-NUMBER0], [insert TINWSYS-Name]
(population: [insert TINWSYS-D_POPULATION_COUNT])

WSF STATE ASGN ID—[insert TINWSF-State Asgn ID Code]

ANALYTE—[insert Analyte Code], [insert Analyte Name]
MONITORING PERIOD NAME—[insert Monitoring Period Name]
MCL VALUE—[insert MCL Value] [insert MCL Value UOM]

iv. Move on to the next MCL Value

b. Else, if the Value is less than or equal to the ~~Measure~~ Level, then run the **Clear Previous CDS Candidate MCL Violation Identify Existing MCL CDS Candidate Violation** action block (previously described):

i. If the action block identifies a qualifying CDS candidate violation

(1) Create a record in the *CDS Setup Processing Report* that says:

RECORD NUMBER--[insert Record Number]

PROCESS NAME--[insert Process Name]

REASON TEXT--A CDS CANDIDATE MCL VIOLATION
WAS DELETED BECAUSE ITS MCL VALUE NO LONGER

EXCEEDS AN MCL

RESOLUTION TIPS--N/A

UNIQUE IDENTIFIER--

VIOLATION TYPE - [insert Violation Type Code]

PWS - [insert TINWSYS-NUMBER0], [insert TINWSYS-Name]

WSF STATE ASGN ID - [insert TINWSF-State Asgn ID Code]

ANALYTE - [insert Analyte Code], [insert Analyte Name]

MONITORING PERIOD NAME - [insert Monitoring Period
Name]

(2) Delete the CDS Candidate Violation and all associated records in
the CDS Reporting entities and move on to the next MCL Value.

ii. Else move on to the next MCL Value.

The following specifies what values to use when passing information to the **Create Candidate Violation** action block from the **Chemical/Radionuclide MCL Compliance Check Process**. This process will create one candidate schedule and one or more candidate results for each

candidate MCL violation determined. In addition, this process will create a record in CDS Report Log entity for the first candidate MCL violation it determines in a given run so that users can review the candidate violations using the Review Reports Log and Reports. For other candidate MCL violations determined in the same run of CDS Setup, associate them to the CDS Report Log record created when the first candidate MCL violation was determined.

CDS REPORT LOG	
Field Name	Value
TCDSRLOG_IS_NUMBER	Running Sequence number to be generated by getting Max of sequence number and increment by 1.
TCDSRLOG_ST_CODE	State Code of the state obtained from the TINPRT table.
REPORT_RUN_USERID	CDSSETUP
REPORT_RUN_TS	State Code of the state obtained from the TINPRT table.
REPORT_TYPE	MCL

CDS CANDIDATE VIOLATION	
Field Name	Value
TCDSVIOL_IS_NUMBER	Running Sequence number to be generated by getting Max of sequence number and increment by 1.
TCDSVIOL_ST_CODE	State Code of the state obtained from the TINPRT table.
PWS_TINWSYS_IS_NO PWS_TINWSYS_ST_CO PWS_NUMBER PWS_NAME PWS_FED_PRI_SRC_CD PWS_FED_TYPE_CD PWS_POPULATION_CNT PWS_ACTIV_STAT_CD PWS_ACTIVITY_DATE	TINWSYS_IS_NUMBER TINWSYS_ST_CODE NUMBER NAME FED_PRIMARY_SOURCE_CODE FEDERAL_TYPE_CODE D_POPULATION_COUNT ACTIVITY_STATUS_CODE ACTIVITY_DATE From the TINWSYS associated to the MCL Value that exceeds the MCL. This denormalized information is used for reporting purposes and to create the link to the water system record when migrating the candidate violations.

CDS CANDIDATE VIOLATION	
Field Name	Value
WSF_TINWSF_IS_NO WSF_TINWSF_ST_CO WSF_STATE_ASGN_ID WSF_NAME WSF_TYPE_CODE WSF_ACTIVITY_DATE WSF_WATER_TYP_CD WSF_AVAIL_CD WSF_EX_SYS_NO	TINWSF_IS_NUMBER TINWSF_ST_CODE STATE_ASGN_ID NAME TYPE_CODE ACTIVITY_DATE WATER_TYPE_CODE AVAILABILITY_CODE EXTERNAL_SYSTEM_NUMBER From the Water system facility, which is the location for the sampling point, which is the sample site for associated to the Sample Schedule that is related to the MCL Value that exceeds the MCL.
SP_TSASMPPT_IS_NUMBER SP_TSASMPPT_ST_CODE SP_IDENTIFICATION_CODE SP_DESCRIPTION SP_TYPE_CODE SP_SOURCE_TYPE_CODE SP_POST_DISINFECTION_INDICATOR SP_PROCESS_PHASE_INDICATOR_CODE	TSASMPPT_IS_NUMBER TSASMPPT_ST_CODE IDENTIFICATION_CODE DESCRIPTION TYPE_CODE SOURCE_TYPE_CODE POST_DISINFECTION_INDICATOR PROCESS_PHASE_INDICATOR_CODE From the sampling point which is the sample site for the MCL Value that exceeds the MCL. Fields no longer in table.
TMNVTYPE_IS_NUMBER TMNVTYPE_ST_CODE VIOLATION_TYPE_CD VIOLATION_TYPE_NAM VIO_TYPE_SEV_LVL	TMNVTYPE_IS_NUMBER TMNVTYPE_ST_CODE Value with '01' if NUMBER_OF_RESULTS_USED for the MCL Value that exceeds the MCL is equal to 1; '02' otherwise. NAME that corresponds to the Violation Type Code SEVERITY_LEVEL that corresponds to the Violation Type Code

CDS CANDIDATE VIOLATION	
Field Name	Value
VIO_TO_FED_ANL_CD	If Violation Type is associated to Analyte, value with that Analyte Code. If the Violation Type record is not associated to an Analyte record, then the Analyte Code for the analyte related to the MCL Value that exceeds the MCL.
ANL_TSAANLYT_IS_NO ANL_TSAANLYT_ST_CO ANALYTE_CODE ANALYTE_NAME	TSAANLYT_IS_NUMBER TSAANLYT_ST_CODE The Analyte Code for the analyte related to the MCL Value that exceeds the MCL. Use the name corresponding to the code to value the name field.
ANALYTE_GROUP_CODE ANALYTE_GROUP_NAME	Never valued for an MCL candidate violation.
MP_TMNPDRD_IS_NO MP_TMNPDRD_ST_CO MP_CP_BEG_DAT MP_CP_END_DAT MP_MON_PER_DUR MP_MON_PER_NAME	TMNPDRD_IS_NUMBER TMNPDRD_ST_CODE BEGIN_DATE END_DATE TYPE_CODE NAME of the Monitoring Period referenced by the MCL Value that exceeds the MCL.
VIO_ANALYS_RSLT_TXT	Set to CALCULATED_VALUE_TEXT (entity CALCULATED_MCL_VALUE) from the MCL Value that exceeds the MCL.
VIO_ANALYS_RSLT_UOM	Set to UOM_CODE (entity CALCULATED_MCL_VALUE) from the MCL Value that exceeds the MCL.

CDS CANDIDATE VIOLATION	
Field Name	Value
VIO_MCL_VIOLTD_TXT	Set to CONTROL_LEVEL_TEXT (entity FACILITY_ANALYTE_LEVEL) if the Analyte Code for the analyte related to the MCL Value that exceeds the MCL is either 2950 or 2456. Blank if ST_CODE for MCL (in TMNALRA) is HQ. Otherwise, set to MEASURE TEXT (table TMNALRA) of MCL violated. None of the records in ALRA (except TCR related ALRAs) have HQ. Leaving this in the code does not hurt but it is misleading. The only reason to record the MCL violated is when it is different than the federal MCL. There is no way in SDWIS/STATE to determine whether this is the case so it is best to always value it.
VIO_MCL_VIOLTD_UOM	Set to UOM_CODE (entity FACILITY_ANALYTE_LEVEL) if the Analyte Code for the analyte related to the MCL Value that exceeds the MCL is either 2950 or 2456. Blank if ST_CODE for MCL (in TMNALRA) is HQ. Otherwise, set to UOM_CODE (table TMNALRA) of MCL violated.
VIO_MCL_NUM_RSLTS	Set to NUMBER_OF_RESULTS_USED (entity CALCULATED_MCL_VALUE) from the MCL Value that exceeds the MCL.
VIO_DATA_ORIGIN_CD	Set to 'S or R' (even for EPA Regions thus enabling them to report Indian Land violations using SDWIS/STATE). depending on whether the Government Agency where Primacy Indicator = Y has type of ST (set to S) or RG (set to R)
VIO_ON_SKD_GRP_IND	Blank
VTYPE_CATEGORY_CD	Set to 'MCL'.

The following CDS CANDIDATE SCHEDULE record will be created and associated to the CDS CANDIDATE VIOLATION:

CDS CANDIDATE SCHEDULE	
Field Name	Value
TCDSSASCH_IS_NUMBER	Running Sequence number to be generated by getting Max of sequence number and increment by 1.
TCDSSASCH_ST_CODE	State Code of the state obtained from the TINPRT table.
PWS_TINWSYS_IS_NO PWS_TINWSYS_ST_CO PWS_NUMBER PWS_NAME PWS_FED_PRI_SRC_CD PWS_FED_TYPE_CD PWS_POPULATION_CNT PWS_ACTIV_STAT_CD PWS_ACTIVITY_DATE	TINWSYS_IS_NUMBER TINWSYS_ST_CODE NUMBER NAME FED_PRIMARY_SOURCE_CODE FEDERAL_TYPE_CODE D_POPULATION_COUNT ACTIVITY_STATUS_CODE ACTIVITY_DATE From the TINWSYS that is related to the MCL Value that exceeds the MCL.
WSF_TINWSF_IS_NO WSF_TINWSF_ST_CO WSF_STATE_ASGN_ID WSF_NAME WSF_TYPE_CODE WSF_ACTIVITY_DATE WSF_WATER_TYP_CD WSF_AVAIL_CD WSF_EX_SYS_NO	TINWSF_IS_NUMBER TINWSF_ST_CODE STATE_ASGN_ID NAME TYPE_CODE ACTIVITY_DATE WATER_TYPE_CODE AVAILABILITY_CODE EXTERNAL_SYSTEM_NUMBER From the Water system facility, which is the location for the sampling point, which is the sample site for associated to the Sample Schedule that is related to the MCL Value that exceeds the MCL.

CDS CANDIDATE SCHEDULE	
Field Name	Value
SP_TSASMPPT_IS_NUMBE R SP_TSASMPPT_ST_CODE SP_IDENTIFICATION_COD E SP_DESCRIPTION SP_TYPE_CODE SP_SOURCE_TYPE_CODE SP_POST_DISINFECTION_I NDICATOR SP_PROCESS_PHASE_INDI CATOR_CODE	TSASMPPT_IS_NUMBER TSASMPPT_ST_CODE IDENTIFICATION_CODE DESCRIPTION TYPE_CODE SOURCE_TYPE_CODE POST_DISINFECTION_INDICATOR PROCESS_PHASE_INDICATOR_CODE from the sampling point, which is the sample site for the MCL Value that exceeds the MCL. Fields no longer in table.
SCH_TMNSASCH_IS_NO SCH_TMNSASCH_ST_CO SCH_BEGIN_DATE SCH_END_DATE SCH_SEAS_PRD_BEG SCH_SEAS_PRD_END SCH_ST_SEA_PRD_BEG SCH_ST_SEA_PRD_END SCH_STATE_YEAR SCH_REASON_TEXT SCH_INIT_MP_BEG_DT	TMNSASCH_IS_NUMBER TMNSASCH_ST_CODE BEGIN_DATE END_DATE START_DAY + "/" + START_MONTH END_DAY + "/" + END_MONTH STATE_START_DAY + "/" + STATE_START_MONTH STATE_END_DAY + "/" + STATE_END_MONTH STATE_YEAR REASON_TEXT INITIAL_MP_BEGIN_DAT from the Sample_Schedule that is related to the MCL Value that exceeds the MCL.
MNR_TMNMNR_IS_NO MNR_TMNMNR_ST_CO MNR_SAMPLE_TYPE_CD MNR_SAMPLE_COUNT MNR_SMPL_CNT_UOM	TMNMNR_IS_NUMBER TMNMNR_ST_CODE SAMPLE_TYPE_CODE SAMPLE_COUNT SAMPLE_COUNT_UNIT_CODE of the monitoring requirement that results in the sample schedule that is related to the MCL Value that exceeds the MCL.

CDS CANDIDATE SCHEDULE	
Field Name	Value
ANL_TSAANLYT_IS_NO ANL_TSAANLYT_ST_CO	TSAANLYT_IS_NUMBER TSAANLYT_ST_CODE
ANALYTE_CODE	The Analyte Code for the analyte related to the Sample Schedule (whether an individual or hidden schedule) through the Monitoring Requirement.
ANALYTE_NAME	Name corresponding to Analyte Code
ANALYTE_GROUP_CODE ANALYTE_GROUP_NAME	Never valued for a MCL candidate violation.

The following CDS SAMPLE RESULT record(s) will be created and associated to the CDS Candidate MCL violation with values from Sample Analytical Results associated to the MCL Value that exceeds the MCL:

CDS SAMPLE RESULT	
Field Name	Value
TCDSSAR_IS_NUMBER	Running Sequence number to be generated by getting Max of sequence number and increment by 1.
TCDSSAR_ST_CODE	State Code of the state obtained from the TINPRT table.
PWS_TINWSYS_IS_NO PWS_TINWSYS_ST_CO PWS_NUMBER PWS_NAME PWS_FED_PRI_SRC_CD PWS_FED_TYPE_CD PWS_POPULATION_CNT PWS_ACTIV_STAT_CD PWS_ACTIVITY_DATE	TINWSYS_IS_NUMBER TINWSYS_ST_CODE NUMBER NAME FED_PRIMARY_SOURCE_CODE FEDERAL_TYPE_CODE D_POPULATION_COUNT ACTIVITY_STATUS_CODE ACTIVITY_DATE from the TINWSYS where the sample/sample analytical result applies.

CDS SAMPLE RESULT	
Field Name	Value
WSF_TINWSF_IS_NO, WSF_TINWSF_ST_CO WSF_ACTIVITY_DATE WSF_AVAIL_CD WSF_NAME, WSF_STATE_ASGN_ID, WSF_EX_SYS_NO WSF_TYPE_CODE WSF_WATER_TYP_CD WSF_ACTIV_STAT_CD	TINWSF_IS_NUMBER TINWSF_ST_CODE STATE_ASGN_ID NAME TYPE_CODE ACTIVITY_DATE WATER_TYPE_CODE AVAILABILITY_CODE EXTERNAL_SYSTEM_NUMBER ACTIVITY_STATUS_CODE from the Water System Facility, which is the location for the sampling point, which is the sample site for the sample/sample analytical result.
SP_TSASMPPT_IS_NO SP_TSASMPPT_ST_CO SP_IDENT_CD SP_DESCRIPTION SP_TYPE_CODE SP_SOURCE_TYPE_CD SP_POST_DISINF_CD SP_PROC_PHASE_CD SP_ACTIV_STAT_CD SP_STATUS_DATE	TSASMPPT_IS_NUMBER TSASMPPT_ST_CODE IDENTIFICATION_CODE DESCRIPTION TYPE_CODE SOURCE_TYPE_CODE POST_DISINFECTION_INDICATOR PROCESS_PHASE_INDICATOR_CODE ACTIVITY_STATUS_CODE ACTIVITY_DATE from the sampling point which is the sample site for the sample/sample analytical result.

CDS SAMPLE RESULT	
Field Name	Value
SAR_TSASAR_IS_NO SAR_TSASAR_ST_CO SAR_DATA_QUAL_CD SAR_DETECT_LIM_NUM SAR_DETECT_LIM_UOM SAR_LESS_THAN_IND SAR_LESS_THAN_CD SAR_REPORTED_MSR SAR_RAD_COUNT_ERR SAR_UOM_CD SAR_CONCENTRAT_MSR	TSASAR_IS_NUMBER TSASAR_ST_CODE DATA_QUALITY_CODE DETECTION_LIMIT_NUMBER DETECTION_LIMIT_UOM_CODE LESS_THAN_INDICATOR LESS_THAN_CODE REPORTED_MEASURE RAD_COUNTING_ERROR UOM_CODE CONCENTRATION_MEASURE from the sample analytical result.
TSASAMPL_IS_NUMBER TSASAMPL_ST_CODE SMP_LAB_ASGN_ID SMP_ST_ASGN_ID SMP_SAMPLE_TYPE_CD SMP_COLLECTION_DAT SMP_COLLECTION_TIM SMP_COMPL_PURP_IND SMP_INFORML_CLCTR SMP_REPLACE_IND	TSASAMPL_IS_NUMBER TSASAMPL_ST_CODE LAB_SAMPLE_ASGN_ID STATE_SAMPLE_ASGN_ID SAMPLE_TYPE_CODE COLLECTION_END_DATE COLLECTION_END_TIME COMPLIANCE_PURPOSE_IND_CODE INFORMAL_COLLECTOR REPLACEMENT_INDICATOR_CODE from the SBS Sample associated to the SAR.
ANL_TSAANLYT_IS_NO ANL_TSAANLYT_ST_CO ANALYTE_CODE ANALYTE_NAME	TSAANLYT_IS_NUMBER TSAANLYT_ST_CODE CODE NAME code and name of the analyte associated to the SAR.

CDS SAMPLE RESULT	
Field Name	Value
MP_TMNMPRD_IS_NO MP_TMNMPRD_ST_CO	TMNPRD_IS_NUMBER TMNPRD_ST_CODE
MP_BEGIN_DATE MP_END_DATE MP_DURATION MP_NAME	BEGIN_DATE END_DATE TYPE_CODE NAME of the Monitoring Period associated to the SAR.
LAB_TSALAB_IS_NO LAB_TSALAB_ST_CO LAB_NAME LAB_ST_ASSIGNED_ID LAB_FEDERAL_ID_NO	TSALAB_IS_NUMBER TSALAB_ST_CODE NAME STATE_ASSIGNED_ID_NUMBER FEDERAL_ID_NUMBER of the LAB that is associated to the SAR.

APPENDIX D-12

Assess Sample Schedule Monitoring

D-12. Assess Sample Schedule Monitoring (Section 3.6.13)

Redlined and ~~redlined~~ strikeout in all Appendix D detailed designs indicate changes to existing logic in the Release 7.0 design as well as new logic to be added for Release 8.0.

Check-Point Restart Issues: This process will be driven by changes to both the Sample Schedule and the SSMPA tables.

- Assess Sample Schedule Monitoring for New/Changed Sample Schedules or SSMPAs.

The driver for this subprocess is the SSMPA table or the Monitoring Assessment Flag or MCL Values (RAAs) for certain analytes.

The record key for this subprocess is the composite of D_Last_Update_Timestamp and the TMNSASCH_IS_NUMBER and the TMNMPRD_IS_NUMBER columns.

The sort order for this subprocess will be D_Last_Update_Timestamp ascending and TMNSASCH_IS_NUMBER and TMNMPRD_IS_NUMBER ascending.

This process might require a secondary Reference_IS_NUMBER in the CDS_SETUP_EXECUTION_LOG table.

1. Create a log in the CDS Setup Execution Log indicating the process start time.
2. Identify:
 - a. SSMPAs whose Last Update Timestamp > Last Time CDS Setup was Run (changed SSMPAs indicate a change in an MCL record of the associated Analyte or a change in the relevant Sample Results or Sample Summaries - therefore, changed SSMPAs indicate the need to evaluate or re-evaluate associated Sample Schedules for Increased or Decreased Monitoring) AND the associated Sample Schedule Monitoring Assessment Flag is not "X" (already assessed and no reassessment desired for this schedule) and go to step 3.
 - b. Sample Schedules whose Monitoring Assessment Flag is spaces and which are related to an SSMPA (these need to be reassessed because, when an ACL or TRL is changed, added or deleted, other processes set the Monitoring Assessment Flag to spaces) and where Schedule Assessed TS is less than the time that this particular process started (this is captured as a local variable not anywhere in the database) and go to step 3. (This last clause will prevent this process from re-evaluating a schedule that was evaluated under 2a.)
 - c. **Running Annual Averages (i.e., MCL Values) for Source Water TOC, Finished Water TOC and Source Water Bromide whose Last Update Timestamp > Last**

Time CDS Setup was Run (changes to the Source Water TOC RAA levels indicate the need to evaluate or re-evaluate Sample Schedules for TTHM/HAA; changes to the Finished Water TOC RAA levels indicate the need to evaluate or re-evaluate Sample Schedules for DBP Precursors (and where Schedule Assessed TS is less than the time that this particular process started (this is captured as a local variable not anywhere in the database)), while changes to Source Water Bromide RAA indicate the need to evaluate or re-evaluate Sample Schedules for Bromate and go to step 9.

3. For each identified SSMPA, obtain associated Sample Schedule. Evaluate associated Sample Schedule where:
 - a. the analyte code referenced through the reference Monitoring Requirement is not 3100, AND
 - b. the Begin Date is less than or equal to the current date; AND
 - c. the End Date is open (blank/null) or is greater than the End Date of the current Monitoring Period; AND
 - d. the related Monitoring Requirement Sample Type Code = “RT”, ~~“SO”~~, ~~“IN”~~, ~~“FR”~~ or ~~“FE”~~.
4. Else, skip this record and read next SSMPA.
5. Retrieve current TRL, MCL and/or ACL for analyte referenced by the Sample Schedule. Use appropriate threshold level(s) as indicated in the criteria for increased and decreased monitoring matrices.
6. If appropriate threshold levels do not exist for an analyte and if the sample schedules’s monitoring requirement analyte code is not equal to 2456 (Total Haloacetic Acids) nor 2950 (Total Trihalomethanes) nor 2920 (TOC) - (these will be evaluated in a different way), populate the Monitoring Assessment Flag to “N” and proceed to read next SSMPA.

Else, if required threshold level(s) is/are found in the ALRA table, then go to step 7.
7. Assess/Reassess Sample Schedule for Increased Monitoring:
 - a. Consider only if the sample schedule has a periodicity of greater than 6 months (e.g., annual, triennial, once every 9 yrs, ~~±time~~) for Lead and Copper, and

greater than quarterly (e.g., 6 months, annual, triennial, etc.) for all other non-TCR analytes—use Criteria for Increased Monitoring matrix down to the TTHM/HAA criteria - the matrix is located in the main design document. (Do not include any of the criteria for evaluating TTHM/HAA in this process. TTHM/HAA assessment is addressed in steps 9 on).

- b. If Sample Schedule is for analytes 1022 or 1030 and Monitoring Requirement ~~Sample Type Code is either “IN” or “FR”~~ is associated to violation type 51 or 52, then evaluate the Sample Schedule based on the Lead and Copper Sample criteria for increased monitoring; otherwise if Sample Schedule is for analytes 1022 or 1030, then evaluate the Sample Schedule for increased monitoring based on the criteria for Inorganic chemicals.
 - c. If Monitoring Assessment Flag = “S”, “D” or “A,” check if any of the Sample Results/Sample Summaries associated to changed SSMPA records should trigger the Sample Schedule as a candidate for Increased Monitoring. If a result/summary was not found satisfying the criteria for Increased Monitoring, then the Sample Schedule Monitoring Assessment Flag will retain its current value. This Sample Schedule will be re-evaluated for Decreased Monitoring in a later process.
 - d. Else if Monitoring Assessment Flag = “I,” check if the Sample Schedule is still a candidate for Increased Monitoring by checking Sample Results associated to all SSMPA records pertaining to Sample Schedule. If any one Result satisfies the criteria for Increased Monitoring, then retain the current value for the Monitoring Assessment Flag. In the event that all Results from every associated SSMPA were less than the criteria for Increased Monitoring, set Monitoring Assessment Flag to “S” and this Sample Schedule will be re-evaluated for Decreased Monitoring in a later process.
 - e. Else if Monitoring Assessment Flag = “ ”, check if the Sample Schedule is a candidate for Increased Monitoring by checking Sample Results associated to all SSMPA records pertaining to Sample Schedule. If any one Result satisfies the criteria for Increased Monitoring, then set Monitoring Assessment Flag = “I.” In the event that all Results from every associated SSMPA were less than the criteria for Increased Monitoring, set Monitoring Assessment Flag to “S” and this will be re-evaluated for Decreased Monitoring in a later process.
8. If associated Sample Schedule is not candidate for Increased Monitoring, then Assess/Reassess Sample Schedule for Decreased Monitoring:

- a. Consider only if the sample schedule has a periodicity of 6 months and annual for Lead and Copper, annual for IOC and OC, and quarterly for other non-TCR analytes—use Criteria for Decreased Monitoring matrix.
 - b. If Sample Schedule is monitoring for analytes 1022 or 1030 and Monitoring Requirement ~~Sample Type Code is either “IN” or “~~ is associated to violation type 51 or 52, then evaluate the Sample Schedule based on the Lead and Copper Sample criteria for decreased monitoring; otherwise if Sample Schedule is for analytes 1022 or 1030, then evaluate the Sample Schedule for decreased monitoring based on the criteria for Inorganic chemicals.
 - c. If Monitoring Assessment Flag = “S”, “D”, “ ” or “A”, evaluate for Decreased Monitoring in 2 steps (No need to evaluate “I” because it has been confirmed to be an “I” in the Assess/Reassess Sample Schedule for Increased Monitoring):
 - i. Run the process to determine M&R compliance for applicable previous monitoring periods.
 - (1) If no M&R candidate violation determined:
 - (a) If Analyte Code = 1009 (Chlorite), calling for monthly monitoring, check results for the past 12 consecutive months. For all other analytes, check all Sample Results/Sample Summaries associated to relevant SSMPAs (e.g., 4 consecutive quarterly results for Nitrate all < = MCL).
 - (b) If the criteria for Decreased Monitoring is satisfied, set Monitoring Assessment Flag to “D”.
 - (2) Else (M&R candidate violation is determined), set Monitoring Assessment Flag to “S”.
9. **For each MCL Value identified in 2c, obtain and evaluate associated Sample Schedule where:**
- a. the analyte code referenced through the Sample Schedule’s Monitoring Requirement is = 2920 AND Water System Facility’s type is not either Distribution System (“DS”) or Treatment Plant (“TP”) (i.e., a Source Water TOC schedule)

OR

the analyte code referenced through the Sample Schedule's Monitoring Requirement is = 2920 (TOC) AND Water System Facility's type is either Distribution System ("DS") or Treatment Plant ("TP"). (i.e., Finished Water TOC schedule)

OR

the analyte code referenced through the Sample Schedule's Monitoring Requirement is = 1004 (bromide) AND Water System Facility's type is not either Distribution System ("DS") or Treatment Plant ("TP")

AND

- b. the Sample Schedule's Begin Date is less than or equal to the current date; AND
 - c. the Sample Schedule's End Date is open (blank/null) or is greater than the End Date of the current Monitoring Period (i.e., the Monitoring Period associated to the current SSMPA); AND
 - d. the related Monitoring Requirement Sample Type Code = "RT".
10. Else, skip this record and read next MCL Value.
11. **Assess/Reassess TTHM/HAA/Bromate/TOC Sample Schedule for Increased Monitoring in accordance with following:**
- a. If most recent MCL Value is for analyte code 2950 (total trihalomethanes) and is > 0.080 mg/l and
The current Sample Schedule's frequency is 1 RT/QT or its periodicity is longer than QT (i.e., it is = 6M, YR, 2Y, 3Y, 4Y, 5Y, 6Y, 7Y, 8Y, 9Y, 10Y or 1T)
- Then set the Monitoring Assessment Flag to "I" for the current schedule (i.e., the TTHM schedule) and, if the current schedule is packaged with a schedule for analyte code 2456 (total haloacetic acids), set the Monitoring Assessment Flag to "I" for the packaged, total haloacetic acids schedule as well.

- b. If most recent MCL Value is for analyte code 2950 (total trihalomethanes) and is > the current TRL for 2950 in TMNALRA
And either
The current Sample Schedule's periodicity is longer than annual (i.e., it is = 2Y, 3Y, 4Y, 5Y, 6Y, 7Y, 8Y, 9Y, 10Y or 1T) - the current sample schedule is the one associated to the MCL Value through the SSMPA for the MCL Value
Or
The current Sample Schedule's periodicity is annual (it is = YR)
And
The D_FED_PRIMARY_SRC_CD is = SW, SWP, GU, or GUP
And
The D_POPULATION_COUNT for the current water system is > = 500
Or
The current Sample Schedule's periodicity is annual (it is = YR)
And
The D_FED_PRIMARY_SRC_CD is = GW or GWP
And
The D_POPULATION_COUNT for the current water system is > = 10,000
Or
The current Sample Schedule's frequency is 1 RT/QT
And
The D_FED_PRIMARY_SRC_CD is = SW, SWP, GU, or GUP
And
The D_POPULATION_COUNT for the current water system is > = 10,000

Then set the Monitoring Assessment Flag to "I" for the current schedule (i.e., the TTHM schedule) and, if the current schedule is packaged with a schedule for analyte code 2456 (total haloacetic acids), set the Monitoring Assessment Flag to "I" for the packaged, total haloacetic acids schedule as well.

- c. If most recent MCL Value is for analyte code 2456 (total haloacetic acids) and is > 0.060 mg/l
and
The current Sample Schedule's frequency is 1 RT/QT or its periodicity is longer than QT (i.e., it is = 6M. YR, 2Y, 3Y, 4Y, 5Y, 6Y, 7Y, 8Y, 9Y, 10Y or 1T)

Then set the Monitoring Assessment Flag to "I" for the current schedule (i.e., the HAA schedule) and, if the current schedule is packaged with a schedule for analyte code 2950 (total trihalomethanes), set the Monitoring Assessment Flag to "I" for the packaged, total trihalomethane schedule as well.

- d. If most recent MCL Value is for analyte code 2456 (total haloacetic acids) and is > 0.045 mg/l
And either
 The current Sample Schedule's periodicity is longer than QT (i.e., it is = 6M, YR, 2Y, 3Y, 4Y, 5Y, 6Y, 7Y, 8Y, 9Y, 10Y or 1T)
 And
 The D_FED_PRIMARY_SRC_CD is = SW, SWP, GU, or GUP
 And
 The D_POPULATION_COUNT for the current water system is > = 500
 Or
 The current Sample Schedule's frequency is 1 RT/QT
 And
 The D_FED_PRIMARY_SRC_CD is = SW, SWP, GU, or GUP
 And
 The D_POPULATION_COUNT for the current water system is > = 10,000

Then set the Monitoring Assessment Flag to "I" for the current schedule (i.e., the HAA schedule) and, if the current schedule is packaged with a schedule for analyte code 2950 (total trihalomethanes), set the Monitoring Assessment Flag to "I" for the packaged, total trihalomethane schedule as well.

- e. If most recent MCL Value is for analyte code 2456 (total haloacetic acids) and is > 0.040 mg/l
And either
 The current Sample Schedule's periodicity is longer than QT (i.e., it is = 6M, YR, 2Y, 3Y, 4Y, 5Y, 6Y, 7Y, 8Y, 9Y, 10Y or 1T)
 And
 The D_FED_PRIMARY_SRC_CD is = GW or GWP
 And
 The D_POPULATION_COUNT for the current water system is < 10,000
 Or
 The current Sample Schedule's frequency is 1 RT/QT
 And

The D_FED_PRIMARY_SRC_CD is = GW or GWP
And

The D_POPULATION_COUNT for the current water system is \geq 10,000

Then set the Monitoring Assessment Flag to "I" for the current schedule (i.e., the HAA schedule) and, if the current schedule is packaged with a schedule for analyte code 2950 (total trihalomethanes), set the Monitoring Assessment Flag to "I" for the packaged, total trihalomethane schedule as well.

- f. If most recent calculated MCL Value for analyte code 2920 (TOC) is > 4.0 mg/l
And
the TOC Sample Schedule's WSF's Type is not DS or TP
And either:
 a schedule that is packaged with the above TOC schedule is for analyte code 2950 (total trihalomethane) or 2456 (total haloacetic 5) and has a periodicity that is longer than QT (i.e., is = 6M, YR, 2Y, 3Y, 4Y, 5Y, 6Y, 7Y, 8Y, 9Y, 10Y or 1T)
 Or
 a schedule that is packaged with the above TOC schedule is for analyte code 2950 (total trihalomethane) or 2456 (total haloacetic 5) and has a frequency of 1 RT/QT
 And
 the current water system's D_POPULATION_COUNT is $\geq 10,000$

Then set the Monitoring Assessment Flag to "I" for the packaged total trihalomethane and total haloacetic acid schedules and read the next MCL Value.

- g. If most recent calculated MCL Value is for analyte code 1004 (bromide) and is \geq to the TRL for bromide (recorded as an Analyte Level)
And
the sample schedule's periodicity is QT (quarterly)
And
a schedule that is packaged with the bromide schedule is for analyte code 1011 (bromate) and has a periodicity of QT (quarterly)

Then set the Monitoring Assessment Flag to "I" for both the bromide schedule and the packaged bromate schedule and read the next MCL Value.

- h. If most recent calculated MCL Value is for 2920 (TOC) and is \geq 2.0 mg/l and the Sample Schedule's periodicity is QT (quarterly) and the Sample Schedule's WSF's Type is TP or DS**
Or
if there is a Subschedule associated to the Sample Schedule and the SOURCE_TYPE_CODE of the Sampling Point it references is = "FN"

[Note: This logic assumes that a TOC schedule will only exist for a Subpart H system and so no criteria is needed to define.]

Then set the associated Sample Schedule's Monitoring Assessment Flag = "I" and read next RAA.

12. Assess/Reassess TTHM/HAA/Bromate/TOC Sample Schedule for Decreased Monitoring

- a. If the most recent calculated RAA is for Source Water Bromide and is less than TRL, determine the periodicity of the packaged Bromate sample schedule. If the sample schedule calls for a monthly monitoring, check the Bromide and Bromate results for the past 12 consecutive months. If the system complied with all monitoring requirements, then set the packaged Bromate and Bromide Sample Schedules' Monitoring Assessment Flag = "D" and read next RAA.**
- b. If the most recent calculated RAA is for Finished Water TOC and is less than or equal to 1.0 mg/l, determine the periodicity of the packaged Source Water and Finished Water TOC and alkalinity sample schedules. If the sample schedules call for monthly monitoring, check the Source Water and Finished Water TOC and Source Water alkalinity results for the past 12 consecutive months. If the system complied with all monitoring requirements, then set the packaged Source Water and Finished Water TOC and alkalinity Sample Schedules' Monitoring Assessment Flags = "D" and read next RAA.**
- c. If the most recent calculated RAA is for Finished Water TOC and is less than or equal to 2.0 mg/l for previous 24 month period, determine the periodicity of the packaged Source Water and Finished Water TOC and alkalinity sample schedules. If the sample schedules calls for a monthly monitoring, check the Source Water and Finished Water TOC and Source Water alkalinity results for the past 24 consecutive months. If the system complied with all monitoring**

requirements set the packaged Source Water and Finished Water TOC and alkalinity Sample Schedules' Monitoring Assessment Flags = "D" and read next RAA.

- d. **If the most recent calculated RAA is for Source Water TOC and is less than or equal to 4.0 mg/l. Obtain and set the packaged TTHM/HAA Sample Schedules' Monitoring Assessment Flags = "D" if the TTHM/HAA Sample Schedule is for quarterly monitoring for a Subpart H system calling for 4 samples per quarter, check the TTHM and HAA results for the past 4 quarters. If the system complied with all monitoring requirements, then set the TTHM/HAA Sample Schedules' Monitoring Assessment Flags = "D" if the RAA for TTHM and HAA are less than or equal to 0.040 mg/l and less than or equal to 0.030 mg/l, respectively.**
- e. **If the most recent calculated RAA is for TTHM/HAA, obtain and set the packaged TTHM/HAA Sample Schedules' Monitoring Assessment Flags = "I" for the following cases:**
 - i. **The TTHM/HAA Sample Schedule is for a Subpart H system calling for quarterly monitoring of 4 samples per quarter and the RAA for TTHM is greater than 0.080 mg/l OR the RAA for HAA is greater than 0.060 mg/l.**
 - ii. **The TTHM/HAA Sample Schedule is for a Ground Water or Ground Water Purchase system calling for quarterly monitoring of 4 samples per quarter and the RAA for TTHM and HAA are less than or equal to 0.040 mg/l and less than or equal to 0.030 mg/l, respectively.**
 - iii. **The TTHM/HAA Sample Schedule is for a Ground Water or Ground Water Purchase system serving a population of greater than or equal to 10,000 calling for quarterly monitoring of 1 sample per quarter and the RAA for TTHM and HAA are less than or equal to 0.040 mg/l and less than or equal to 0.030 mg/l, respectively.**
 - iv. **The TTHM/HAA Sample Schedule is for a Ground Water or Ground Water Purchase system serving a population of less than 10,000 calling for annual monitoring and the RAA for TTHM and HAA are less than or equal to 0.020 mg/l and less than or equal to 0.015 mg/l, respectively for one year.**

- v. **The TTHM/HAA Sample Schedule is for a Ground Water or Ground Water Purchase system serving a population of less than 10,000 calling for annual monitoring and the RAA for TTHM and HAA are less than or equal to 0.040 mg/l and less than or equal to 0.030 mg/l, respectively for two years.**
13. After all applicable Sample Schedules have been processed, create a log in the CDS Execution Log indicating process end time.

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APPENDIX D-13

Chlorite and Chlorine Dioxide Level Exceedence Check

D-13. Chlorite and Chlorine Dioxide Level Exceedence Check (Section 3.6.14.)

Redlined and ~~redlined~~ ~~strikeout~~ in all Appendix D detailed designs indicate changes to existing logic in the Release 7.0 design as well as new logic to be added for Release 8.0. This process is completely new with Release 8.0.

Check-Point Restart Issues: This process will be driven by changes to the TSASAR table.

The driver for this subprocess is the Sample Analytical Result table.

The record key for this subprocess is the composite of D_Last_Update_Timestamp and the TSASAR_IS_NUMBER columns.

The sort order for this subprocess will be D_Last_Update_Timestamp ascending and TSASAR_IS_NUMBER ascending.

1. Create a log in the CDS Execution Log indicating the process start time.

Assess Chlorine Dioxide Results Subprocess

2. Select the current MRDL for chlorine dioxide where:
 - a. TSAANLYT.CODE = "1008" AND
 - b. TMNALRA.THRESHOLD_TYPE_CD = "MRDL" AND
 - c. TMNALRA.BEGIN_DATE < = Current Date AND
 - d. TMMNALRA.END_DATE is null Or > = Current Date.
3. If there is not a current MRDL for "1008," send the following message to the CDS Setup Processing Report: *"There is not a current MRDL for chlorine dioxide and so CDS Setup cannot check for chlorine dioxide results that exceed its MRDL."*
4. If there is a current MRDL for 1008 (chlorine dioxide), then:
 - a. Identify results that meet the following criteria:
 - i. Whose Last_Update_Timestamp or whose parent sample's Last_Update_Timestamp is greater than the last time the *CDS Setup* program was run; AND
 - ii. That reference chlorine dioxide TSAANLYT.CODE = "1008" AND

- iii. Whose Data Quality Code is accepted (A) or validated (V); AND
 - iv. Whose parent Sample's Compliance Purpose Indicator Code is equal to "Y" AND
 - v. Whose parent Sample's Rejection Reason Code is blank.
- b. For each result identified:
- i. If there is a record in CDS Sample Result where SAR_TSASAR_IS_NUMBER = TSASAR.TINSAR_IS_NUMBER and SAR_TSASAR_ST_CODE = TSASAR.TSASAR_ST_CODE and the CDS Sample Result record references a CDS Exceedence (TCDSCAEX_IS_NUMBER is not null), then delete both the referenced CDS Exceedence and the CDS Sample Result.
 - ii. If the Less Than Indicator is equal to Y, go to next Sample Analytical Result (this result does not exceed the MRDL)
 - iii. If the UOM_Code for the Sample Analytical Result is not equal to the UOM_Code for its MRDL, convert the Concentration to the same units as the MRDL and temporary save as "Result" (do not change the value in the Sample Analytical Result, only convert it for comparison purposes). If the Sample Analytical Result cannot be converted using the conversion table (see the main design specifications), then send a message to the CDS Setup Processing Report that says, "*Could not check compare a result for chlorine dioxide against its MRDL for the following sample because encountered improper unit of measure for the result: Lab Sample No., State Asgn Identification Number, Collection Date (from field Collection End Date), Water System No., WSF St Asgn ID, and Sampling Point.*"
 - iv. Else temporarily save the Concentration as "Result"
 - v. If Result is greater than the MRDL for chlorine dioxide:
 - (1) If this is the first CDS Exceedence determined in this run of CDS Setup, create a record in CDS Report Log entity and reference it with all CDS Exceedences determined in this run AND

- (2) Pass a CDS Exceedence to the Create CDS Exceedence action block AND
 - (3) Create a record in the *CDS Setup Processing Report* that says, "A CDS Exceedence was determined for PWS [insert TINWSYS-Number] - [insert TINWSYS-Name] (population: [TINWSYS-D_POPULATION_COUNT]) and Water System Facility [insert TINWSF-State Asgn ID Code] for Analyte [insert Analyte Code] - [insert Analyte Name] from Sample ID [insert Lab Assigned ID Number concatenated, with a space in between, to the State Asgn Identification Number], collected on [insert the Collection End Date]." AND
 - (4) Move on to the next Sample Analytical Result.
- vi. If Result is not greater than the MRDL for chlorine dioxide, move to the next Sample Analytical Result
 - vii. Once all Sample Analytical Results for chlorine dioxide have been assessed, go on to the Assess Chlorite Results subprocess.

End of the Assess Chlorine Dioxide Results subprocess

Assess Chlorite Results

5. Select the current MCL for chlorite where:
 - a. TSAANLYT.CODE = "1009" AND
 - b. TMNALRA.THRESHOLD_TYPE_CD = "MCL" AND
 - c. TMNALRA.BEGIN_DATE < = Current Date AND
 - d. TMMNALRA.END_DATE is null Or > = Current Date
6. If there is not a current MCL for "1009", send the following message to the CDS Setup Processing Report: *"There is not a current MCL for chlorite and so CDS Setup cannot check for chlorite results that exceed its MCL."*

7. If there is a current MCL for 1009 (chlorite), then:
 - a. Identify results that meet the following criteria:
 - i. Whose Last_Update_Timestamp or whose parent sample's Last_Update_Timestamp is greater than the last time the *CDS Setup* program was run; AND
 - ii. That reference chlorite TSAANLYT.CODE = "1009" AND
 - iii. Whose Data Quality Code is accepted (A) or validated (V); AND
 - iv. Whose parent Sample's Compliance Purpose Indicator Code is equal to "Y" AND
 - v. Whose parent Sample's Rejection Reason Code is blank.
 - b. For each result identified:
 - i. If there is a record in CDS Sample Result where SAR_TSASAR_IS_NUMBER = TSASAR.TINSAR_IS_NUMBER and SAR_TSASAR_ST_CODE = TSASAR.TSASAR_ST_CODE and the CDS Sample Result record references a CDS Exceedence (TCDSCAEX_IS_NUMBER is not null), then delete both the referenced CDS Exceedence and the CDS Sample Result.
 - ii. If the Less Than Indicator is equal to Y, go to next Sample Analytical Result (this result does not exceed the MCL)
 - iii. Else, if the UOM_Code for the Sample Analytical Result is not equal to the UOM_Code for its MCL, convert the Concentration to the same units as the MCL and temporary save as "Result" (do not change the value in the Sample Analytical Result, only convert it for comparison purposes). If the Sample Analytical Result cannot be converted using the conversion table (see the main design specifications), then send a message to the CDS Setup Processing Report that says, "*Could not check compare a result for chlorite against its MCL for the following sample because encountered improper unit of measure for the result: Lab Sample No., State Asgn Identification Number, Collection Date (from field Collection End Date), Water System No., WSF St Asgn ID, and Sampling Point.*"

- iv. Else temporarily save the Concentration as “Result.”
- v. If Result is greater than the MCL for chlorite:
 - (1) If this is the first CDS Exceedence determined in this run of CDS Setup, create a record in CDS Report Log entity and reference it with all CDS Exceedences determined in this run AND
 - (2) Pass a CDS Exceedence to the Create CDS Exceedence action block AND
 - (3) Create a record in the *CDS Setup Processing Report* that says, “A CDS Exceedence was determined for PWS [insert TINWSYS-Number] - [insert TINWSYS-Name] (population: [TINWSYS-D_POPULATION_COUNT]) and Water System Facility [insert TINWSF-State Asgn ID Code] for Analyte [insert Analyte Code] - [insert Analyte Name] from Sample ID [insert Lab Assigned ID Number concatenated, with a space in between, to the State Asgn Identification Number], collected on [insert the Collection End Date].” AND
 - (4) Move on to the next Sample Analytical Result.
- vi. If Result is not greater than the MCL for chlorite, move to the next Sample Analytical Result.

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APPENDIX E-1

Results Alert Report Processes

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E.1 Results Alert Report Processes (Section 7.8)

Presentation Type 2: The information in this section reflects a Release 8.0 update to an existing documented design. As such, normal text means no change from the current 7.0 release; redline/redline strikeout indicates where the functionality of an existing object (such as a field, button, menu item, etc.) has changed or where new functionality has been added for Release 8.0.

1. PROCESS CLEAR CDS CANDIDATE EXCEEDENCES

INPUTS

Duration (Monitoring Period, Sample Collection Date or Data Entry Date Range)
Regulating Agency
Analyte or Analyte Group
Threshold Level

PROCESS SPECIFICATIONS

Read input Regulating Agency

```
--- Read Each Water system associated to the Regulating agency.
| --- If Analyte = PB90 or CU90
| | ----- Read Each SSR whose analyte = input analyte and
| | | SSR associated to current water system and
| | | SSR matches the input duration.
| | |
| | | Invoke Clear SSR Exceedences subprocess passing the
| | | TSASSR_IS_NUMBER,
| | | TSASSR_ST_CODE,
| | | Input threshold type.
| | -----
| | --- Else
| | ----- Read Each SAR whose analyte = input analyte and
| | | SAR associated to current water system and
| | | SAR matches the input duration.
| | |
| | | Invoke Clear SAR Exceedences subprocess passing the
| | | TSASAR_IS_NUMBER,
| | | TSASAR_ST_CODE,
| | | Input threshold type.
| | -----
```

| |--- End-IF.

SUBPROCESS: CLEAR SAR EXCEEDENCES

Input:

TSASAR_IS_NUMBER
TSASAR_ST_CODE
Threshold type.

Process Specifications:

---- Read Each CDS_Candidate_Exceedence
| Where SAR_TSASAR_IS_NUMBER = input TSASAR_IS_NUMBER
and
| SAR_TSASAR_ST_CODE = input TSASAR_ST_CODE and
| ALRA_FANL_LEVEL_TYPE = Threshold type.
|
| Delete current CDS_Candidate_Exceedence and Cascade delete
| associated
| CDS_SAMPLE_RESULTS and
CDS_SAMPLE_SUMMARY_RESULTS.

SUBPROCESS: CLEAR SSR EXCEEDENCES

Input:

TSASSR_IS_NUMBER
TSASSR_ST_CODE
Threshold type.

Process Specifications:

---- Read Each CDS_Candidate_Exceedence
| Where SSR_TSASSR_IS_NUMBER = input TSASSR_IS_NUMBER
and
| SSR_TSASSR_ST_CODE = input TSASSR_ST_CODE and
| ALRA_FANL_LEVEL_TYPE = Threshold type.
|

| Delete current CDS_Candidate_Exceedence and Cascade delete
associated
| CDS_SAMPLE_RESULTS and
CDS_SAMPLE_SUMMARY_RESULTS.

2. ACTION LEVEL EXCEEDENCE CHECK

INPUTS AVAILABLE

- Duration (Monitoring Period, Sample Collection Date or Data Entry Date Range).
- Regulating Agency.
- Analyte or Analyte Group.
- Threshold Level ACL assumed.

MAIN PROCESS

Note: This is the main process and it initiates subprocesses based on the input duration selected by the user.

Note: This process again is split into 2 processes depending on the type of analyte picked by the user.

If Analyte Code is PB90 or CU90, then the Sample Summary Table is used for processing, and for the rest of the analytes or Analyte groups the Sample Analytical Results table is used for processing.

If Duration is Monitoring Period
 If Analyte Code is PB90 or CU90
 Use Subprocess A
 Else
 Use Subprocess B
Else If Duration is Sample Collection Period
 If Analyte Code is PB90 or CU90

Note: Sample Collection duration is not valid for PB90 and CU90

 Else
 Use Subprocess C
Else (Duration equals Data Entry Date Range)
 If Analyte Code is PB90 or CU90

Use Subprocess D
Else
Use Subprocess E

SUBPROCESS A

Note: This process is used when the user selects PB90 or CU90 as the analyte and Monitoring Period as the duration for generating the report with the threshold level as ACL.

Read Each WATER SYSTEM
Where WATER SYSTEM is regulated by the given REGULATING
AGENCY
Read Each SAMPLE SUMMARY
SAMPLE SUMMARY RESULT
ANALYTE
MONITORING PERIOD
Where Analyte Code = PB90 or CU90,

When Not Found

Note: This case is encountered when the Water System does not have any Sample Summary Results in the Given Monitoring Period, so skip the water system and go on to the next.

Return to read the next water system

When Found

Note: In this case read the Water System Facility and Sampling Point.

Read Water System Facility
Sampling Point
Where these belong to the current water system

Note: Compare the Result with TMNALRA threshold level for ACL.

Read TMNALRA
ANALYTE
Where Threshold_Type_Code = ACL
And Analyte Code = PB90 or CU90
IF Sample_Summary_Result Measure > TMNALRA
Threshold Level

Note: Exceedence has occurred write it to the report database.

ELSE

Note: No Exceedence; go to the next result.

SUBPROCESS B

Note: This process is used when the user selects analyte other than PB90 and CU90 and Monitoring Period as the duration for generating the report with the threshold level as ACL.

IF Input Analyte = Group Analyte

Read Each Analyte Within the Group

Read Each WATER SYSTEM

Where WATER SYSTEM is regulated by the given REGULATING
AGENCY

Read Each SAMPLE ANALYTICAL RESULT

MONITORING PERIOD

MICROBIAL ANALYTICAL RESULT

SAMPLE

SAMPLING POINT

WATER SYSTEM FACILITY

Where Analyte Code is the Current Analyte Code

And Sample_Collection_End_Date is within the input dates

When Not Found

Note: This case is encountered when the Water System does not have any Sample Analytical Results in the Given Monitoring Period, so skip the water system and go on to the next.

Return to read the next water system

When Found

Note: Compare the Result with TMNALRA threshold level for ACL.

Read TMNALRA
ANALYTE

Where Threshold_Type_Code = ACL
And Analyte Code is the current Analyte Code
IF Sample_Analytical_Result Measure > TMNALRA
Threshold Level

Note: Exceedence has occurred write it to the report database.

ELSE

Note: No Exceedence go to the next result.

ELSE

Note: This case is encountered if the user picked an individual analyte code.

Read Each WATER SYSTEM

Where WATER SYSTEM is regulated by the given REGULATING
AGENCY

Read Each SAMPLE ANALYTICAL RESULT

MONITORING PERIOD

MICROBIAL ANALYTICAL RESULT

SAMPLE

SAMPLING POINT

WATER SYSTEM FACILITY

Where Analyte Code is equal to input Analyte Code

And Sample_Collection_End_Date is within the input dates

When Not Found

Note: This case is encountered when the Water System does not have any Sample Analytical
Results in the Given Monitoring Period, so skip the water system and go on to the next.

Return to read the next water system

When Found

Note: Compare the Result with TMNALRA threshold level for ACL.

Read TMNALRA

ANALYTE

Where Threshold_Type_Code = ACL

And Analyte Code is equal to input Analyte Code

IF Sample_Analytical_Result Measure > TMNALRA
Threshold Level

Note: Exceedence has occurred; write it to the report database.

ELSE

Note: No Exceedence; go to the next result.

SUBPROCESS C

Note: This process is used when the user selects analyte other than PB90 and CU90 and Sample Collection Period as the duration for generating the report with the threshold level as ACL.

IF Input Analyte = Group Analyte

Read Each Analyte Within the Group

Read Each WATER SYSTEM

Where WATER SYSTEM is regulated by the given REGULATING
AGENCY

Read Each SAMPLE ANALYTICAL RESULT

MONITORING PERIOD

MICROBIAL ANALYTICAL RESULT

SAMPLE

SAMPLING POINT

WATER SYSTEM FACILITY

Where Analyte Code is the Current Analyte Code

And Sample_Collection_End_Date is within the input dates

When Not Found

Note: This case is encountered when the Water System does not have any Sample Analytical Results in the Given Sample Collection Dates, So skip the water system and go on to the next.

Return to read the next water system

When Found

Note: Compare the Result with TMNALRA threshold level for ACL.

Read TMNALRA
ANALYTE
Where Threshold_Type_Code = ACL
And Analyte Code is the current Analyte Code

IF Sample_Analytical_Result Measure > TMNALRA
Threshold Level

Note: Exceedence has occurred write it to the report database.

ELSE

Note: No Exceedence go to the next result.

ELSE

Note: This case is encountered if the user picked an individual analyte code.

Read Each WATER SYSTEM
Where WATER SYSTEM is regulated by the given REGULATING
AGENCY
Read Each SAMPLE ANALYTICAL RESULT
MONITORING PERIOD
MICROBIAL ANALYTICAL RESULT
SAMPLE
SAMPLING POINT
WATER SYSTEM FACILITY
Where Analyte Code is equal to input Analyte Code
And Sample_Collection_End_Date is within the input dates

When Not Found

Note: This case is encountered when the Water System does not have any Sample Summary Results in the Given Sample Collection Dates, so skip the water system and go on to the next.

Return to read the next water system

When Found

Note: Compare the Result with TMNALRA threshold level for ACL.

Read TMNALRA
ANALYTE
Where Threshold_Type_Code = ACL
And Analyte Code is equal to input Analyte Code

IF Sample_Analytical_Result Measure > TMNALRA
Threshold Level

Note: Exceedence has occurred write it to the report database.

ELSE

Note: No Exceedence go to the next result.

SUBPROCESS D

Note: This process is used when the user selects PB90 or CU90 as the analyte and Data Entry Date Range as the duration for generating the report with the threshold level as ACL.

Read Each WATER SYSTEM
Where WATER SYSTEM is regulated by the given REGULATING
AGENCY
Read Each SAMPLE SUMMARY
SAMPLE SUMMARY RESULT
ANALYTE
MONITORING PERIOD
Where Analyte Code = PB90 or CU90
And Sample Summary Result Last Update Timestamp is in between
Data Entry Date Range Timestamps

When Not Found

Note: This case is encountered when the Water System does not have any Sample Summary Results in the Given Data Entry Date Range, so skip the water system and go on to the next.

Return to read the next water system

When Found

Note: In this case read the Water System Facility and Sampling Point.

Read Water System Facility
Sampling Point
Where these belong to the current water system

Note: Compare the Result with TMNALRA threshold level for ACL.

Read TMNALRA
ANALYTE
Where Threshold_Type_Code = ACL
And Analyte Code = PB90 or CU90

IF Sample_Summary_Result Measure > TMNALRA
Threshold Level

Note: Exceedence has occurred write it to the report database.

ELSE

Note: No Exceedence go to the next result.

SUBPROCESS E

Note: This process is used when the user selects analyte other than PB90, and Data Entry Date Range as the duration for generating the report with the threshold level as ACL.

IF Input Analyte = Group Analyte

Read Each Analyte Within the Group

Read Each WATER SYSTEM

Where WATER SYSTEM is regulated by the given REGULATING
AGENCY

Read Each SAMPLE ANALYTICAL RESULT
MONITORING PERIOD
MICROBIAL ANALYTICAL RESULT
SAMPLE
SAMPLING POINT
WATER SYSTEM FACILITY

Where Analyte Code is the Current Analyte Code

And Sample Analytical Result Last Update Timestamp is in
between
Data Entry Date Range Timestamps

When Not Found

Note: This case is encountered when the Water System does not have any Sample Analytical Results in the Given Data Entry Date Range, so skip the water system and go on to the next.

Return to read the next water system

When Found

Note: Compare the Result with TMNALRA threshold level for ACL.

Read TMNALRA
ANALYTE
Where Threshold_Type_Code = ACL
And Analyte Code is the current Analyte Code

IF Sample_Analytical_Result Measure > TMNALRA
Threshold Level

Note: Exceedence has occurred write it to the report database.

ELSE

Note: No Exceedence go to the next result.

ELSE

Note: This case is encountered if the user picked an individual analyte code.

Read Each WATER SYSTEM
Where WATER SYSTEM is regulated by the given REGULATING
AGENCY
Read Each SAMPLE ANALYTICAL RESULT
MONITORING PERIOD
MICROBIAL ANALYTICAL RESULT

SAMPLE
SAMPLING POINT
WATER SYSTEM FACILITY
Where Analyte Code is equal to input Analyte Code
And Sample Analytical Result Last Update Timestamp is in
between
Data Entry Date Range Timestamps

When Not Found

Note: This case is encountered when the Water System does not have any Sample Analytical Results in the Given Data Entry Date Range, so skip the water system and go on to the next.

Return to read the next water system

When Found

Note: Compare the Result with TMNALRA threshold level for ACL.

Read TMNALRA
ANALYTE
Where Threshold_Type_Code = ACL
And Analyte Code is equal to input Analyte Code

IF Sample_Analytical_Result Measure > TMNALRA
Threshold Level

Note: Exceedence has occurred write it to the report database.

ELSE

Note: No Exceedence go to the next result.

3. THRESHOLD LEVEL EXCEEDENCE CHECK

INPUTS AVAILABLE

- Duration (Monitoring Period, Sample Collection Date, or Data Entry Date Range).
- Regulating Agency.
- Analyte or Analyte Group.
- Threshold Level(s) (MCL, MCLG, URTH, TRL, RMDL, PQL, PLR, MRDL, and MRDLG).

MAIN PROCESS

Note: This is the main process, and it is split into subprocesses based on the duration picked by the user.

If Duration is Monitoring Period

Use Subprocess A

Else If Duration is Sample Collection Period

Use Subprocess B

Else (Duration equals Data Entry Date Range)

Use Subprocess C

SUBPROCESS A

Note: This process is used when the user selects analyte other than PB90 or CU90 and Monitoring Period as the duration for generating the report.

Note: This process is used for each threshold level selected by the user in the main window (i.e., MCL, MCLG, URTH, TRL, RMDL, PQL, PLR, **MRDL, and MRDLG**).

If Input Analyte = Group Analyte

Read Each Analyte Within the Group

Read Each WATER SYSTEM

Where WATER SYSTEM is regulated by the given REGULATING AGENCY

Read Each SAMPLE ANALYTICAL RESULT

MONITORING PERIOD

MICROBIAL ANALYTICAL RESULT

SAMPLE

SAMPLING POINT
WATER SYSTEM FACILITY
Where Analyte Code is the Current Analyte Code
And Monitoring Period is equal to Input Monitoring Period

When Not Found

Note: This case is encountered when the Water System does not have any Sample Analytical Results in the Given Monitoring Period, so skip the water system and go on to the next.

Return to read the next water system

When Found

Note: Compare the Result with TMNALRA threshold level.

Read TMNALRA
ANALYTE
Where Threshold_Type_Code = Input Threshold Level
And Analyte Code is the current Analyte Code

IF Sample_Analytical_Result Measure > TMNALRA
Threshold Level

Note: Exceedence has occurred; write it to the report database.

ELSE

Note: No Exceedence; go to the next result.

ELSE

Note: This case is encountered if the user picked an individual analyte code.

Read Each WATER SYSTEM
Where WATER SYSTEM is regulated by the given REGULATING
AGENCY

Read Each SAMPLE ANALYTICAL RESULT
MONITORING PERIOD
MICROBIAL ANALYTICAL RESULT
SAMPLE
SAMPLING POINT

WATER SYSTEM FACILITY
Where Analyte Code is equal to input Analyte Code
And Monitoring Period is equal to Input Monitoring Period

When Not Found

Note: This case is encountered when the Water System does not have any Sample Analytical Results in the Given Monitoring Period, so skip the water system and go on to the next.

Return to read the next water system

When Found

Note: Compare the Result with TMNALRA threshold level.

Read TMNALRA
ANALYTE
Where Threshold_Type_Code = Input Threshold Level
And Analyte Code is equal to input Analyte Code

IF Sample_Analytical_Result Measure > TMNALRA Threshold
Level

Note: Exceedence has occurred; write it to the report database.

ELSE

Note: No Exceedence; go to the next result.

SUBPROCESS B

Note: This process is used when the user selects analyte other than PB90 or CU90 and Sample Collection Date as the duration for generating the report.

Note: This process is used for each threshold level selected by the user in the main window (i.e., MCL, MCLG, URTH, TRL, RMDL, PQL, PLR, **MRDL, and MRDLG**).

IF Input Analyte = Group Analyte

Read Each Analyte Within the Group

Read Each WATER SYSTEM

Where WATER SYSTEM is regulated by the given REGULATING
AGENCY

Read Each SAMPLE ANALYTICAL RESULT

MONITORING PERIOD

MICROBIAL ANALYTICAL RESULT

SAMPLE

SAMPLING POINT

WATER SYSTEM FACILITY

Where Analyte Code is the Current Analyte Code

And Sample Collection End Date is within the input dates

When Not Found

Note: This case is encountered when the Water System does not have any Sample Analytical Results in the Given Sample Collection Period, so skip the water system and go on to the next.

Return to read the next water system

When Found

Note: Compare the Result with TMNALRA threshold level.

Read TMNALRA

ANALYTE

Where Threshold_Type_Code = Input Threshold Level

And Analyte Code is the current Analyte Code

If Sample_Analytical_Result Measure > TMNALRA Threshold
Level

Note: Exceedence has occurred; write it to the report database.

ELSE

Note: No Exceedence; go to the next result.

ELSE

Note: This case is encountered if the user picked an individual analyte code.

Read Each WATER SYSTEM

Where WATER SYSTEM is regulated by the given REGULATING
AGENCY

Read Each SAMPLE ANALYTICAL RESULT
MONITORING PERIOD
MICROBIAL ANALYTICAL RESULT
SAMPLE
SAMPLING POINT
WATER SYSTEM FACILITY
Where Analyte Code is equal to input Analyte Code
And Sample Collection End Date is within the input dates

When Not Found

Note: This case is encountered when the Water System does not have any Sample Analytical Results in the Given Sample Collection Period, so skip the water system and go on to the next.

Return to read the next water system

When Found

Note: Compare the Result with TMNALRA threshold level.

Read TMNALRA
ANALYTE
Where Threshold_Type_Code = Input Threshold Level
And Analyte Code is equal to input Analyte Code

IF Sample_Analytical_Result Measure > TMNALRA
Threshold Level

Note: Exceedence has occurred write it to the report database.

ELSE

Note: No Exceedence go to the next result.

SUBPROCESS C

Note: This process is used when the user selects an analyte other than PB90 or CU90 and Data Entry Date Range as the duration for generating the report.

Note: This process is used for each threshold level selected by the user in the main window (i.e., MCL, MCLG, URTH, TRL, RMDL, PQL, PLR, MRDL, and MRDLG).

IF Input Analyte = Group Analyte

Read Each Analyte Within the Group

Read Each WATER SYSTEM

Where WATER SYSTEM is regulated by the given REGULATING AGENCY

Read Each SAMPLE ANALYTICAL RESULT

MONITORING PERIOD

MICROBIAL ANALYTICAL RESULT

SAMPLE

SAMPLING POINT

WATER SYSTEM FACILITY

Where Analyte Code is the Current Analyte Code

And Sample Last Update Timestamp is in between

Data Entry Date Range Timestamps

When Not Found

Note: This case is encountered when the Water System does not have any Sample Analytical Results in the Given Data Entry Date Range, so skip the water system and go on to the next.

Return to read the next water system

When Found

Note: Compare the Result with TMNALRA threshold level.

Read TMNALRA

ANALYTE

Where Threshold_Type_Code = Input Threshold Level

And Analyte Code is the current Analyte Code

IF Sample_Analytical_Result Measure > TMNALRA
Threshold Level

Note: Exceedence has occurred write it to the report database.

ELSE

Note: No Exceedence go to the next result.

ELSE

Note: This case is encountered if the user picked an individual analyte code.

Read Each WATER SYSTEM

Where WATER SYSTEM is regulated by the given REGULATING
AGENCY

Read Each SAMPLE ANALYTICAL RESULT

MONITORING PERIOD

MICROBIAL ANALYTICAL RESULT

SAMPLE

SAMPLING POINT

WATER SYSTEM FACILITY

Where Analyte Code is equal to input Analyte Code

And Sample Last Update Timestamp is in between

Data Entry Date Range Timestamps

When Not Found

Note: This case is encountered when the Water System does not have any Sample Analytical Results in the Given Data Entry Date Duration, so skip the water system and go on to the next.

Return to read the next water system

When Found

Note: Compare the Result with TMNALRA threshold level.

Read TMNALRA

ANALYTE

Where Threshold_Type_Code = Input Threshold Level

And Analyte Code is equal to input Analyte Code

IF Sample_Analytical_Result Measure > TMNALRA
Threshold Level

Note: Exceedence has occurred; write it to the report database.

ELSE

Note: No Exceedence; go to the next result.

4. FACILITY LEVEL EXCEEDENCE CHECK

INPUTS AVAILABLE

- Duration (Monitoring Period, Sample Collection Date or Data Entry Date Range).
- Regulating Agency.
- Analyte or Analyte Group.
- Threshold Level(s) (WSF Max and WSF Min).

MAIN PROCESS

Note: This is the main process, and it is split into subprocesses based on the duration picked by the user.

If Duration is Monitoring Period

Use Subprocess A

Else If Duration is Sample Collection Period

Use Subprocess B

Else (Duration equals Data Entry Date Range)

Use Subprocess C

SUBPROCESS A

Note: This process is used when the user selects Monitoring Period as the duration for generating the report.

If Input Analyte = Group Analyte

Read Each Analyte Within the Group

Read Each WATER SYSTEM

Where WATER SYSTEM is regulated by the given REGULATING AGENCY

Read Each SAMPLE ANALYTICAL RESULT

MONITORING PERIOD

MICROBIAL ANALYTICAL RESULT

SAMPLE

SAMPLING POINT

WATER SYSTEM FACILITY

Where Analyte Code is the Current Analyte Code
And Sample collection date \geq Monitoring period begin date
And Sample collection date \leq Monitoring period end date

When Not Found

Note: This case is encountered when the Water System does not have any Sample Analytical Results collected during the selected Monitoring Period, so skip the water system and go on to the next.

Return to read the next water system

When Found

Note: Compare the Result with TSAFANL control level.

Read TSAFANL

ANALYTE

Where Control Level Type = Input Threshold Level

And Analyte Code is the current Analyte Code

If Sample Analytical Result UOM does not equal TSAFANL Control Level UOM, convert Sample Analytical Result to same units as Control Level (use Conversion table used elsewhere). Note that, if Sample Analytical Result's UOM is not found in conversion table, write error to CDS Error Log.

If Sample Analytical Result Measure $>$ TSAFANL Control Level
(In case of WSF Max) OR

If Sample Analytical Result Measure $<$ TSAFANL Control Level
(In case of WSF Min)

Note: Exceedence has occurred; write it to the report database.

Else

Note: No Exceedence; go to the next result.

Else

Note: This case is encountered if the user picked an individual analyte code.

Read Each WATER SYSTEM
Where WATER SYSTEM is regulated by the given REGULATING AGENCY

Read Each SAMPLE ANALYTICAL RESULT
MONITORING PERIOD
MICROBIAL ANALYTICAL RESULT
SAMPLE
SAMPLING POINT
WATER SYSTEM FACILITY
Where Analyte Code is equal to input Analyte Code
And Sample collection date \geq Monitoring period begin date
And Sample collection date \leq Monitoring period end date

When Not Found

Note: This case is encountered when the Water System does not have any Sample Analytical Results collected during the selected Monitoring Period, so skip the water system and go on to the next.

Return to read the next water system

When Found

Note: Compare the Result with TSAFANL control level.

Read TSAFANL
ANALYTE
Where Control Level Type = Input Threshold Level
And Analyte Code is equal to Input Analyte Code

If Sample Analytical Result UOM does not equal TSAFANL Control Level UOM, convert Sample Analytical Result to same units as Control Level (use Conversion table used elsewhere). If UOM is spaces and Sample Result Less Than Indicator is Y – leave as is. Note that, if Sample Analytical Result's UOM is not found in conversion table, write error to CDS Processing Error Report.

If Sample Analytical Result Measure $>$ TSAFANL Control Level
(In case of WSF Max) OR
If Sample Analytical Result Measure $<$ TSAFANL Control Level
(In case of WSF Min)

Note: Exceedence has occurred; write it to the report database.

Else

Note: No Exceedence; go to the next result.

SUBPROCESS B

Note: This process is used when the user selects Sample Collection Date as the duration for generating the report.

IF Input Analyte = Group Analyte

Read Each Analyte Within the Group

Read Each WATER SYSTEM
Where WATER SYSTEM is regulated by the given REGULATING AGENCY
Read Each SAMPLE ANALYTICAL RESULT
MONITORING PERIOD
MICROBIAL ANALYTICAL RESULT
SAMPLE
SAMPLING POINT
WATER SYSTEM FACILITY
Where Analyte Code is the Current Analyte Code
And Sample Collection End Date is within the input dates

When Not Found

Note: This case is encountered when the Water System does not have any Sample Analytical Results in the Given Sample Collection Period, so skip the water system and go on to the next.

Return to read the next water system

When Found

Note: Compare the Result with TSAFANL control level.

Read TSAFANL
ANALYTE
Where Control Level Type = Input Threshold Level
And Analyte Code is the current Analyte Code

If Sample Analytical Result UOM does not equal TSAFANL Control

Level UOM, convert Sample Analytical Result to same units as Control Level (use Conversion table used elsewhere). If UOM is spaces and Sample Result Less Than Indicator is Y – leave as is. Note that, if Sample Analytical Result's UOM is not found in conversion table, write error to CDS Processing Report.

If Sample Analytical Result Measure > TSAFANL Control Level
(In case of WSF Max) OR
If Sample Analytical Result Measure < TSAFANL Control Level
(In case of WSF Min)

Note: Exceedence has occurred; write it to the report database.

Else

Note: No Exceedence; go to the next result.

Else

Note: This case is encountered if the user picked an individual analyte code.

Read Each WATER SYSTEM
Where WATER SYSTEM is regulated by the given REGULATING AGENCY
Read Each SAMPLE ANALYTICAL RESULT
MONITORING PERIOD
MICROBIAL ANALYTICAL RESULT
SAMPLE
SAMPLING POINT
WATER SYSTEM FACILITY
Where Analyte Code is equal to input Analyte Code
And Sample Collection End Date is within the input dates

When Not Found

Note: This case is encountered when the Water System does not have any Sample Analytical Results in the Given Sample Collection Period. So skip the water system and go on to the next.

Return to read the next water system

When Found

Note: Compare the Result with TSAFANL control level.

Read TSAFANL
ANALYTE
Where Control Level Type = Input Threshold Level
And Analyte Code is equal to Input Analyte Code

If Sample Analytical Result UOM does not equal TSAFANL Control Level UOM, convert Sample Analytical Result to same units as Control Level (use Conversion table used elsewhere). If UOM is spaces and Sample Result Less Than Indicator is Y – leave as is. Note that, if Sample Analytical Result's UOM is not found in conversion table, write error to CDS Processing Report.

If Sample Analytical Result Measure > TSAFANL Control Level
(In case of WSF Max) OR
If Sample Analytical Result Measure < TSAFANL Control Level
(In case of WSF Min)

Note: Exceedence has occurred; write it to the report database.

Else

Note: No Exceedence; go to the next result.

SUBPROCESS C

Note: This process is used when the user selects Data Entry Date Range as the duration for generating the report.

IF Input Analyte = Group Analyte

Read Each Analyte Within the Group

Read Each WATER SYSTEM
Where WATER SYSTEM is regulated by the given REGULATING AGENCY
Read Each SAMPLE ANALYTICAL RESULT
MONITORING PERIOD
MICROBIAL ANALYTICAL RESULT
SAMPLE
SAMPLING POINT
WATER SYSTEM FACILITY
Where Analyte Code is the Current Analyte Code
And Sample Last Update Timestamp

Or Sample Analytical Result Last Update Timestamp
is in between Data Entry Date Range Timestamps

When Not Found

Note: This case is encountered when the Water System does not have any Sample Analytical Results in the Given Data Entry Date Range, so skip the water system and go on to the next.

Return to read the next water system

When Found

Note: Compare the Result with TSAFANL control level.

Read TSAFANL
ANALYTE

Where Control Level Type = Input Threshold Level
And Analyte Code is the current Analyte Code

If Sample Analytical Result UOM does not equal TSAFANL Control Level UOM, convert Sample Analytical Result to same units as Control Level (use Conversion table used elsewhere). If UOM is spaces and Sample Result Less Than Indicator is Y – leave as is. Note that, if Sample Analytical Result's UOM is not found in conversion table, write error to CDS Processing Report.
If Sample Analytical Result Measure > TSAFANL Control Level
(In case of WSF Max) OR
If Sample Analytical Result Measure < TSAFANL Control Level
(In case of WSF Min)

Note: Exceedence has occurred; write it to the report database.

Else

Note: No Exceedence; go to the next result.

Else

Note: This case is encountered if the user picked an individual analyte code.

Read Each WATER SYSTEM
Where WATER SYSTEM is regulated by the given REGULATING AGENCY
Read Each SAMPLE ANALYTICAL RESULT

MONITORING PERIOD
MICROBIAL ANALYTICAL RESULT
SAMPLE
SAMPLING POINT
WATER SYSTEM FACILITY

Where Analyte Code is equal to input Analyte Code
And Sample Last Update Timestamp
Or Sample Analytical Result Last Update Timestamp
is in between Data Entry Date Range Timestamps

When Not Found

Note: This case is encountered when the Water System does not have any Sample Analytical Results in the Given Data Entry Date Duration, so skip the water system and go on to the next.

Return to read the next water system

When Found

Note: Compare the Result with TMNALRA control level.

Read TMNALRA
ANALYTE

Where Control Level Type = Input Threshold Level
And Analyte Code is equal to Input Analyte Code

If Sample Analytical Result UOM does not equal TSAFANL Control Level UOM, convert Sample Analytical Result to same units as Control Level (use Conversion table used elsewhere). If UOM is spaces and Sample Result Less Than Indicator is Y – leave as is. Note that, if Sample Analytical Result's UOM is not found in conversion table, write error to CDS Processing Report.

If Sample Analytical Result Measure > TMNALRA Control Level
(In case of WSF Max) OR
If Sample Analytical Result Measure < TSAFANL Control Level
(In case of WSF Min)

Note: Exceedence has occurred; write it to the report database.

Else

Note: No Exceedence; go to the next result.

5. CREATE CDS CANDIDATE EXCEEDENCES

The following specifies what values to use when passing information to the **Create Candidate Exceedence** process. This process would create one CDS_CANDIDATE_Exceedence record and either one CDS_SAMPLE_RESULT or one CDS_SAMPLE_SUMMARY_RESULT record corresponding to each Exceedence determined.

Field Name	Value
TCDSEX_IS_NUMBER	Running Sequence number to be generated by getting Max of sequence number and increment by 1.
TCDSEX_ST_CODE	State Code of the state obtained from the TINPRT table.
PWS_TINWSYS_IS_NO PWS_TINWSYS_ST_CO PWS_NUMBER PWS_NAME PWS_FED_PRI_SRC_CD PWS_FED_TYPE_CD PWS_POPULATION_CNT PWS_ACTIV_STAT_CD PWS_ACTIVITY_DATE	TINWSYS_IS_NUMBER TINWSYS_ST_CODE NUMBER NAME FED_PRIMARY_SOURCE_CODE FEDERAL_TYPE_CODE D_POPULATION_COUNT ACTIVITY_STATUS_CODE ACTIVITY_DATE From the TINWSYS that 'APPLIES' to the SAR or SSR that caused this Exceedence.
WSF_TINWSF_IS_NO, WSF_TINWSF_ST_CO WSF_ACTIVITY_DATE WSF_AVAIL_CD WSF_NAME, WSF_STATE_ASGN_ID, WSF_EX_SYS_NO WSF_TYPE_CODE WSF_WATER_TYP_CD	TINWSF_IS_NUMBER TINWSF_ST_CODE ACTIVITY_DATE AVAILABILITY_CODE NAME STATE_ASGN_ID EXTERNAL_SYSTEM_NUMBER TYPE_CODE WATER_TYPE_CODE From the Water system facility which is the location for the sampling point which is the sample site for the SAR that caused this exceedence. These fields will not be valued for PB90 and CU90 exceedences.

Exhibit E-1-1. CDS Candidate Exceedence

Field Name	Value
SP_TSASMPPT_IS_NO SP_TSASMPPT_ST_CO SP_IDENT_CD SP_DESCRIPTION SP_TYPE_CODE SP_SOURCE_TYPE_CD SP_POST_DISINF_CD SP_PROC_PHASE_CD	TSASMPPT_IS_NUMBER TSASMPPT_ST_CODE IDENTIFICATION_CODE DESCRIPTION TYPE_CODE SOURCE_TYPE_CODE POST_DISINFECTION_INDICATOR PROCESS_PHASE_INDICATOR_CODE from the sampling point which is the sample site for the SAR that caused this exceedence. These fields will not be valued for PB90 and CU90 exceedences.
SAR_TSASAR_IS_NO SAR_TSASAR_ST_CO	TSASAR_IS_NUMBER TSASAR_ST_CODE of the SAR that caused the exceedence. These attributes will not be valued if a SSR caused the exceedence.
SSR_TSASSR_IS_NO SSR_TSASSR_ST_CO	TSASSR_IS_NUMBER TSASSR_ST_CODE of the SSR that caused the exceedence. These attributes will not be valued if a SAR caused the exceedence.
ALRA_TMNALRA_IS_NO ALRA_TMNALRA_ST_CO	TMNALRA_IS_NUMBER TMNALRA_ST_CODE of the ALRA record that contained the threshold level that was exceeded by the SAR. These attributes will not be valued if the exceedence is for threshold types WSF Max or WSF Min.

Exhibit E-1-1. CDS Candidate Exceedence (Continued)

Field Name	Value
FANL_TSAFANL_IS_NO	<p>TSAFANL_IS_NUMBER of the Facility Analyte Level record that contained the threshold level that was exceeded by the SAR.</p> <p>This attribute will not be valued if the exceedence is for threshold types other than WSF Max or WSF Min.</p>
ALRA_FANL_LEVEL_TP ALRA_FANL_MEAS_TXT ALRA_FANL_UOM_CD	LEVEL_TYPE MEASURE_TEXT FANL_UOM_CODE of the ALRA record or the FANL record that contained the threshold level that was exceeded by the SAR.
ANALYTE_CODE ANALYTE_NAME	CODE NAME of the analyte that is related to the SAR that caused the exceedence
MP_BEGIN_DATE MP_END_DATE MP_DURATION MP_NAME	BEGIN_DATE END_DATE TYPE_CODE NAME of the monitoring period that is associated to the SAR that caused the exceedence.

Exhibit E-1-1. CDS Candidate Exceedence (Continued)

The following CDS SAMPLE RESULT record will be created and associated to the CDS CANDIDATE Exceedence with values from the SAR that caused the Exceedence.

Field Name	Value
TCDSSAR_IS_NUMBER	Running Sequence number to be generated by getting Max of sequence number and increment by 1.
TCDSSAR_ST_CODE	State Code of the state obtained from the TINPRT table.
PWS_TINWSYS_IS_NO PWS_TINWSYS_ST_CO PWS_NUMBER PWS_NAME PWS_FED_PRI_SRC_CD PWS_FED_TYPE_CD PWS_POPULATION_CNT PWS_ACTIV_STAT_CD PWS_ACTIVITY_DATE	TINWSYS_IS_NUMBER TINWSYS_ST_CODE NUMBER NAME FED_PRIMARY_SOURCE_CODE FEDERAL_TYPE_CODE D_POPULATION_COUNT ACTIVITY_STATUS_CODE ACTIVITY_DATE From the TINWSYS that 'APPLIES' to the SAR.
WSF_TINWSF_IS_NO, WSF_TINWSF_ST_CO WSF_ACTIVITY_DATE WSF_AVAIL_CD WSF_NAME, WSF_STATE_ASGN_ID, WSF_EX_SYS_NO WSF_TYPE_CODE WSF_WATER_TYP_CD WSF_ACTIV_STAT_CD	TINWSF_IS_NUMBER TINWSF_ST_CODE ACTIVITY_DATE AVAILABILITY_CODE NAME STATE_ASGN_ID EXTERNAL_SYSTEM_NUMBER TYPE_CODE WATER_TYPE_CODE ACTIVITY_STATUS_CODE From the Water system facility which is the location for the sampling point which is the sample site for the SAR.

Exhibit E-1-2. CDS Sample Result

Field Name	Value
SP_TSASMPPT_IS_NO SP_TSASMPPT_ST_CO SP_IDENT_CD SP_DESCRIPTION SP_TYPE_CODE SP_SOURCE_TYPE_CD SP_POST_DISINF_CD SP_PROC_PHASE_CD SP_ACTIV_STAT_CD SP_STATUS_DATE	TSASMPPT_IS_NUMBER TSASMPPT_ST_CODE IDENTIFICATION_CODE DESCRIPTION TYPE_CODE SOURCE_TYPE_CODE POST_DISINFECTION_INDICATOR PROCESS_PHASE_INDICATOR_CODE ACTIVITY_STATUS_CODE ACTIVITY_DATE from the sampling point which is the sample site for the SAR
SAR_TSASAR_IS_NO SAR_TSASAR_ST_CO SAR_DATA_QUAL_CD SAR_DETECT_LIM_NUM SAR_DETECT_LIM_UOM SAR_LESS_THAN_IND SAR_LESS_THAN_CD SAR_REPORTED_MSR SAR_RAD_COUNT_ERR SAR_UOM_CD SAR_CONCENTRAT_MSR	TSASAR_IS_NUMBER TSASAR_ST_CODE DATA_QUALITY_CODE DETECTION_LIMIT_NUMBER DETECTION_LIMIT_UOM_CODE LESS_THAN_INDICATOR LESS_THAN_CODE REPORTED_MEASURE RAD_COUNTING_ERROR UOM_CODE CONCENTRATION_MEASURE from the SAR.
TSASAMPL_IS_NUMBER TSASAMPL_ST_CODE SMP_LAB_ASGN_ID SMP_ST_ASGN_ID SMP_SAMPLE_TYPE_CD SMP_COLLECTION_DAT SMP_COLLECTION_TIM SMP_COMPL_PURP_IND SMP_INFORML_CLCTR SMP_REPLACE_IND	TSASAMPL_IS_NUMBER TSASAMPL_ST_CODE LAB_SAMPLE_ASGN_ID STATE_SAMPLE_ASGN_ID SAMPLE_TYPE_CODE COLLECTION_END_DATE COLLECTION_END_TIME COMPLIANCE_PURPOSE_IND_CODE INFORMAL_COLLECTOR REPLACEMENT_INDICATOR_CODE from the SBS Sample associated to the SAR .

Exhibit E-1-2. CDS Sample Result (Continued)

Field Name	Value
ANALYTE_CODE ANALYTE_NAME	Code and Name of the analyte associated to the ALRA that is associate to the calculated MCL Value.
MP_BEGIN_DATE MP_END_DATE MP_DURATION MP_NAME	BEGIN_DATE END_DATE TYPE_CODE NAME of the Monitoring Period associated to the SAR.
LAB_TSALAB_IS_NO LAB_TSALAB_ST_CO LAB_NAME LAB_ST_ASSIGNED_ID LAB_FEDERAL_ID_NO	TSALAB_IS_NUMBER TSALAB_ST_CODE NAME STATE_ASSIGNED_ID_NUMBER FEDERAL_ID_NUMBER of the LAB that is associated to the SAR.

Exhibit E-1-2. CDS Sample Result (Continued)

The following CDS SAMPLE SUMMARY RESULT record will be created and associated to the CDS CANDIDATE Exceedence with values from the SAR that caused the Exceedence.

Field Name	Value
TCDSSSR_IS_NUMBER	Running Sequence number to be generated by getting Max of sequence number and increment by 1.
TCDSSSR_ST_CODE	State Code of the state obtained from the TINPRT table.
PWS_TINWSYS_IS_NO PWS_TINWSYS_ST_CO PWS_NUMBER PWS_NAME PWS_FED_PRI_SRC_CD PWS_FED_TYPE_CD PWS_POPULATION_CNT PWS_ACTIV_STAT_CD PWS_ACTIVITY_DATE	TINWSYS_IS_NUMBER TINWSYS_ST_CODE NUMBER NAME FED_PRIMARY_SOURCE_CODE FEDERAL_TYPE_CODE D_POPULATION_COUNT ACTIVITY_STATUS_CODE ACTIVITY_DATE From the TINWSYS that 'APPLIES' to the SSR
WSF_TINWSF_IS_NO, WSF_TINWSF_ST_CO WSF_ACTIVITY_DATE WSF_AVAIL_CD WSF_NAME, WSF_STATE_ASGN_ID, WSF_EX_SYS_NO WSF_TYPE_CODE WSF_WATER_TYP_CD WSF_ACTIV_STAT_CD	TINWSF_IS_NUMBER TINWSF_ST_CODE ACTIVITY_DATE AVAILABILITY_CODE NAME STATE_ASGN_ID EXTERNAL_SYSTEM_NUMBER TYPE_CODE WATER_TYPE_CODE ACTIVITY_STATUS_CODE From the Water System Facility for which the Sample Summary was taken. Must be reported for Sample Summaries of analyte "PB90" or "CU90"

Exhibit E-1-3. CDS Sample Summary Result

Field Name	Value
SSM_TSASMPISM_IS_NO SSM_TSASMPISM_ST_CO SSM_COLL_START_DAT SSM_COLL_END_DAT SSM_SUMRY_RCPT_DAT SSM_COMPL_PURP_IND SSM_COMMENT_TEXT SSM_DATE_RECEIVED	TSASMPISM_IS_NUMBER TSASMPISM_ST_CODE COLLECTION_START_DATE COLLECTION_END_DATE SUMMARY_RECEIVED_DATE COMPLIANCE_PURPOSE_IND_CODE COMMENT_TEXT SUMMARY_RECPT_DT of the Sample Summary associated to the Sample Summary result.
SSR_TSASSR_IS_NO SSR_TSASSR_ST_CO SSR_DATA_QUAL_CD SSR_TYPE_CODE SSR_COUNT_QTY SSR_MEASURE SSR_UOM_CODE SSR_MEASURE_TEXT	TSASSR_IS_NUMBER TSASSR_ST_CODE DATA_QUALITY_CODE TYPE_CODE COUNT_QTY MEASURE UOM_CODE MEASURE_TEXT of the sample summary result.
ANALYTE_CODE ANALYTE_NAME	CODE NAME Code and name of the analyte that is associated to the sample summary result.
MP_BEGIN_DATE MP_END_DATE MP_DURATION MP_NAME	BEGIN_DATE END_DATE DURATION NAME of the monitoring period associated to the sample summary result.

Exhibit E-1-3. CDS Sample Summary Result (Continued)

Field Name	Value
LAB_TSALAB_IS_NO LAB_TSALAB_ST_CO LAB_NAME LAB_ST_ASSIGNED_ID LAB_FEDERAL_ID_NO	TSALAB_IS_NUMBER TSALAB_ST_CODE NAME STATE_ASSIGNED_ID_NUMBER FEDERAL_ID_NUMBER of the LAB that is associated to the Sample Summary result.

Exhibit E-1-3. CDS Sample Summary Result (Continued)

APPENDIX E-2

Chemical/Radionuclide M&R Compliance Determination Check

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E.2 Chemical/ Radionuclide M&R Compliance Determination Check (Section 7.9)

Presentation Type 2: The information in this section reflects a Release 8.0 update to an existing documented design. As such, normal text means no change from the current 7.0 release; redline/redline strikeout indicates where the functionality of an existing object (such as a field, button, menu item, etc.) has changed or where new functionality has been added for Release 8.0.

This check has been revised for Release 8.0 so that it does not determine candidate violations for violation types associated with the following rules: Lead and Copper Rule M&R Violations (Types 51, 52, 53, & 56), D/DBP M&R Violations (Types 27 & 29), and SWTR/IESWTR Violations (31, 36, 37, & 38).

Clear Previous Chemical/Radionuclide M&R CDS Candidate Violations (7.9.3.1)

If the user selects an Analyte Group for the Compliance Check:

1. Select all Water Systems that reference the selected Regulating Agency (*WHERE* $((TINLGENT.NAME) = [Regulating Agency Selected by User] AND ((TINRAA.BEGIN_DATE) < = Current Date Or (TINRAA.BEGIN_DATE) Is Null) AND ((TINRAA.END_DATE) > = Current Date Or (TINRAA.END_DATE) Is Null))$)
2. Delete each Candidate Violation and associated records in the CDS Reporting entities, where:
 - A. The candidate violation is for one of the above selected Water Systems AND
 - B. The candidate violation is associated to a CDS Report Log of Report Type “MR” (i.e., the candidate violation was determined by a previous run of the Chemical/Radionuclide M&R Compliance Report).
 - C. The candidate violation’s SSMPA Applicable Period End Date is greater than or equal to the Begin Date of the Applicable Period End Date range selected for the compliance check AND
 - D. The candidate violation’s SSMPA Applicable Period End Date is less than or equal to the End Date of the Applicable Period End Date range selected for the compliance check AND
 - E. The candidate violation’s type is not equal to 04 ~~is-03~~ AND
 - F. Either, the candidate violation

- i. Has the same Analyte Group as the one selected for the compliance check and OR
- ii. Has an Analyte Group whose Analytes are all referenced by the Analyte Group selected for the compliance check OR
- iii. Has an Analyte which is referenced by the Analyte Group selected for the compliance check

If the user selects an Analyte for the Compliance Check.

1. Select all Water Systems that reference the selected Regulating Agency (*WHERE* $((TINLGENT.NAME) = [Regulating Agency Selected by User] AND ((TINRAA.BEGIN_DATE) < = Current Date Or (TINRAA.BEGIN_DATE) Is Null) AND ((TINRAA.END_DATE) > = Current Date Or (TINRAA.END_DATE) Is Null))$)
2. Delete each Candidate Violation and associated records in the CDS Reporting entities, where:
 - A. The candidate violation is for one of the above selected Water Systems AND
 - B. **The candidate violation is associated to a CDS Report Log of Report Type “MR” (i.e., the candidate violation was determined by a previous run of the Chemical/Radionuclide M&R Compliance Report).**
 - C. The candidate violation’s SSMPA Applicable Period End Date is greater than or equal to the Begin Date of the Applicable Period End Date range selected for the compliance check AND
 - D. The candidate violation’s SSMPA Applicable Period End Date is less than or equal to the End Date of the Applicable Period End Date range selected for the compliance check AND
 - E. The candidate violation’s type is not equal to 04 ~~is 03~~ AND
 - F. The candidate violation has an Analyte which is referenced by the Analyte selected for the compliance check.

~~Note that neither of the above processes will delete Candidate Violation Types 53 or 56. Since these require analyte code 5000 rather than the analyte code specified in the sample schedule, it is impossible to determine whether a selected analyte resulted in the candidate violation or not.~~

~~Therefore, it is better to leave these even if it results in duplicate candidate violations. Remember that, even if the user does not see that they are duplicates and tries to migrate them into SDWIS/STATE, the migration process will see they are duplicates and will reject them.~~

If the user checks the “Determine Confirmation M&R Compliance” checkbox, then:

1. Select all Water Systems that reference the selected Regulating Agency (*WHERE* $((TINLGENT.NAME) = [Regulating Agency Selected by User] AND ((TINRAA.BEGIN_DATE) < = Current Date Or (TINRAA.BEGIN_DATE) Is Null) AND ((TINRAA.END_DATE) > = Current Date Or (TINRAA.END_DATE) Is Null))$)
2. Delete each Candidate Violation and associated records in the CDS Reporting entities, where:
 - A. The candidate violation is for one of the above selected Water Systems AND
 - B. The candidate violation’s Violation Type is equal to ‘04’ AND
 - C. The candidate violation’s SSMPA Applicable Period End Date is greater than or equal to the Begin Date of the SSMPA Applicable Period End Date range selected for the compliance check (Note: SSMPA Applicable Period End Date column in TCDSVIOL table will contain the Sample Schedule’s Effective End Date for candidate violation of type 04) AND
 - D. The candidate violation’s SSMPA Applicable Period End Date is less than or equal to the current date ~~End Date of the SSMPA Applicable Period End Date range selected for the compliance check~~ (Note: SSMPA Applicable Period End Date column in TCDSVIOL table will contain the Sample Schedule’s Effective End Date for candidate violation of type 04) AND
 - E. The candidate violation has an Analyte referenced by the Analyte selected for the compliance check or has an Analyte that is equal to one of the Analytes in the Analyte Group selected for the compliance check.

(Note that, if a Confirmation Sample Schedule in the Oracle data entities is marked has assessed and a candidate violation was previously created for it and is still in the CDS Reporting entities, the above will delete the candidate violation and the **Chemical/Radionuclide Confirmation M&R Compliance Check** process will not re-create the candidate violation. Users should only mark a confirmation Sample Schedule as assessed after they have created a potential or validated violation in the Oracle data entities to avoid missing these.)

Chemical/Radionuclide Routine M&R Compliance Check (Section 7.9.3.2)

The Chemical/Radionuclide Routine M&R Compliance Check follows these steps.

If the user selects an Analyte Group for the Compliance Check.

1. Select all Water Systems that reference the selected Regulating Agency (*WHERE* $((TINLGENT.NAME)= [Regulating Agency Selected by User] AND ((TINRAA.BEGIN_DATE)< = Current Date Or (TINRAA.BEGIN_DATE) Is Null) AND ((TINRAA.END_DATE)> = Current Date Or (TINRAA.END_DATE) Is Null))$)
2. Select all Sample Schedules (hidden and non-hidden) that reference one of the selected Water Systems and that reference a Violation Type but not Violation Type 04, 27, 29, 31, 36, 37, 38, 51, 52, 53, or 56 and that reference a Monitoring Requirement that has a periodicity of monthly or longer, i.e., *SAMPLE_COUNT_UNIT_CODE* is "10Y", "2Y", "3Y", "4Y", "5Y", "6M", "6Y", "7Y", "8Y", "9Y", "MN", "QT", or "YR". (Read first all the group schedules followed by all the non-hidden schedules. All the hidden Sample Schedules for a single Group Schedule will be together.)
3. Identify all Monitoring Periods associated to the selected Sample Schedule through a SSMPA record which:
 - A. has an Applicable Period End Date greater than or equal to the Begin Date of the SSMPA Applicable Period End Date range selected for the compliance check AND
 - B. has an Applicable Period End Date less than or equal to the End Date of the SSMPA Applicable Period End Date range selected for the compliance check.
4. Evaluate the selected SSMPA, one by one.
 - A. If the Sample Schedule referenced by the SSMPA is part of a Group Schedule, then:
 - i. If the referenced Group Schedule is for the same Analyte Group as the one selected for compliance check, then the process will evaluate all the Sample Schedules for the Group Schedule together.

(Call the following action block **Group Schedule M&R Compliance Check action block** - it is used in a second place.)

- (1) *For each Sample Schedules in the referenced Group Schedule*
 - (a) *Call action block **Individual Schedule M&R Compliance Check***
 - (b) *If a candidate violation is detected, then*
 - (i) *Get the lowest total number of results collected so far (the total number of results collected for each sample schedule is provided by Individual Schedule M&R Compliance Check action block)*
 - (ii) *Move on to the next Sample Schedule*
 - (c) *Else (no candidate violation is detected), move on to the next Sample Schedule*
- (2) *If for each hidden Sample Schedules in the Schedule Group (and the Violation Type linked to the Schedule Group is 03), a candidate routine Major M&R violation is detected, pass a candidate routine Major M&R violation (using the violation type associated to the Group Schedule) for the Analyte Group of the Group Schedule to the **Create Candidate Violation** action block and move on to the next Sample Schedule (which would either be for the next Group Schedule or the first Sample Schedule not referencing a Group Schedule). If available, also pass the list of sampling point sub-schedules that are not in compliance.*
- (3) *Else, if for each Sample Schedule in the Group (and the Violation Type linked to the Group Schedule is 03), a candidate routine Minor M&R violation is detected, pass a candidate routine Minor M&R violation (using the violation type associated to the Group Schedule) for the Analyte Group of the Group Schedule to the **Create Candidate Violation** action block and move on to the next Group Schedule or Individual Schedule. Pass the lowest number of results collected from among the sample schedules in the group and if available, the list of sampling point sub-schedules that are not in compliance.*
- (4) *Else, if for each Sample Schedule in the Group (the violation type is not 03), a candidate violation is detected, pass a candidate*

*violation (using the violation type associated to the Group Schedule) for the Analyte Group of the Group Schedule to the **Create Candidate Violation** action block and move on to the next Group Schedule or Individual Schedule. Pass the lowest number of results collected from among the sample schedules in the group and if available, the list of sampling point sub-schedules that are not in compliance.*

- (5) Else, if for each Sample Schedule in the Group, no candidate violation is detected, then move on to the next Group Schedule or Individual Schedule*
- (6) Else (note that CO will already be excluded since Sample Schedules that do not reference the selected Monitoring Period have already be precluded), evaluate each Sample Schedule in the Group Schedule one by one (rerun **Individual Schedule M&R Compliance Check** action block), passing candidate violation to the **Create Candidate Violation** action block as follows by Analyte:
 - (a) If the violation type linked to the hidden schedule is not 03 and a candidate violation is detected, then pass a candidate routine violation (using the violation type linked to Sample Schedule) for the Analyte.*
 - (b) Else If a candidate routine 03-Major M&R violation is detected for the selected Sample Schedule, then pass a candidate routine 03-Major M&R violation (using the violation type linked to Sample Schedule) for the Analyte.*
 - (c) Else If a candidate routine 03-Minor M&R violation is detected for the selected Sample Schedule, then pass a candidate routine 03-Minor M&R violation (using the violation type linked to Sample Schedule) for the Analyte.*
 - (d) Else, do not pass a candidate violation for the Analyte**
- (7) ~~If the Sample Type = IN or FR for the referenced Monitoring Requirement, then~~*

- (a) *If the analyte referenced by the referenced monitoring requirement is lead (1030) or copper (1022), then skip the Sample Schedule*
 - (b) *Else if, for **one or more** Sample Schedules in the Group, the number of results associated to its SSMPA is less than the number of samples called for by the referenced monitoring requirement, then pass (~~do not pass the Sampling Point and WSF~~) a candidate type 53 violation with analyte code '5000' (~~do not use the Analyte Group of the Group Schedule~~) to the **Create Candidate Violation** action block and move on to the next Sample Schedule.*
 - (c) *Else move on to the next Sample Schedule/Schedule Group*
- (8) *Else, if the Sample Type is FE for the referenced Monitoring Requirement, then*
- (a) *If, for **one or more** Sample Schedules in the Group, the number of results associated to its SSMPA is less than the number of samples called for by the referenced monitoring requirement, then pass (~~do not pass the Sampling Point and WSF~~) a candidate type 53 violation with analyte code '5000' (~~do not use the Analyte Group of the Group Schedule~~) to the **Create Candidate Violation** action block and move on to the next Sample Schedule.*
 - (b) *Else move on to the next Sample Schedule/Schedule Group*
- (9) *Else, if the Sample Type is SO for the referenced Monitoring Requirement, then*
- (a) *If, for **one or more** Sample Schedules in the Group, the number of results associated to its SSMPA is less than the number of samples called for by the referenced monitoring requirement, then pass (~~do not pass the Sampling Point and WSF~~) a candidate type 56 violation with analyte code '5000' (~~do not use the Analyte Group of the Group Schedule~~) to the **Create Candidate Violation** action block and move on to the next Sample Schedule.*

- (b) ~~Else move on to the next Sample Schedule/Schedule Group~~
- (10) ~~Else (all other Sample Types -- note that CO will already be excluded since Sample Schedules that do not reference the selected Monitoring Period have already be precluded)~~
- (a) ~~If each of the Sample Schedules for the Group Schedule has no result associated to it, then pass a candidate type 03-Major violation for the Analyte Group of the Group Schedule to the **Create Candidate Violation** action block and move on to the next Group Schedule or Individual Sample Schedule.~~
- (b) ~~Else, if each of the Sample Schedules for the Group Schedule has one or more results associated to it but less than the number of samples called for by the Sample Schedule, then pass a candidate type 03-Minor violation for the Analyte Group of the Group Schedule to the **Create Candidate Violation** action block and move on to the next Sample Schedule.~~
- (c) ~~Else, if for each Sample Schedule in the Group, the number of results associated to the SSMPA is equal to or greater than the number of samples called for in the Monitoring Requirement -- in compliance), then move on to the next Sample Schedule (which would either be for the next Group Schedule or the first Sample Schedule not referencing a Group Schedule).~~
- (d) ~~Else, evaluate each Sample Schedule in the Group Schedule one by one, passing candidate violations to the **Create Candidate Violation** action block as follows by Analyte:~~
- (i) ~~If the number of Results associated to the SSMPA is zero, pass a candidate type 03-Major violation for the Analyte.~~
- (ii) ~~If the number of Results associated to the SSMPA is greater than zero but less than the Sample Count~~

~~*called for by the Monitoring Requirement, pass a candidate type 03-Minor for the Analyte.*~~

~~*(iii) Else do not pass a candidate violation for the Analyte*~~

- ii. If the referenced Group Schedule is not for the same Analyte Group as the one selected for the compliance check, then
- (1) If all the Analytes in the Analyte Group referenced by the Group Schedule are included in the Analyte Group selected for the compliance check, then evaluate all the Sample Schedules for the Group Schedule together by running the **Group Schedule M&R Compliance Check action block** (described above)
 - (2) Else, the process will evaluate each Sample Schedule in the Group Schedule that has an analyte which is referenced by the selected Analyte Group one by one, passing candidate violations to the **Create Candidate Violation** action block as follows:

(Call the following italicized section the **Individual Schedule M&R Compliance Check action block**. It will be reused.)

- (a) Read the Violation Type linked to the Sample Schedule (through Monitoring Requirement).*
- (b) Identify the Monitoring Period Average (MPAvg) linked to its SSMPA where the User ID is not equal to 'CDSSETUP'.*
- (c) If a user-maintained Monitoring MPAvg is found, then*
 - (i) If the Violation Type is 03, then,*

If the number of results recorded in the MPAvg is zero, then pass a candidate routine major M&R violation (Type 03, Severity MJ). If the Sample Schedule is a hidden Sample Schedule, also pass an indication that the candidate violation is based on a hidden schedule.

Else if the number of results recorded in the MPAvg is greater than zero but less than the number of samples called for in the Sample Schedule, then pass a candidate routine minor M&R violation type (Type 03, Severity MN). If the Sample Schedule is a hidden Sample Schedule, also pass an indication that the candidate violation is based on a hidden schedule. In addition, pass the number of results recorded in the MPAvg. This will be used to populate the MNR_NUMBER_OF_RESULTS column in CDS Candidate Violation table.

Else (neither of the above two conditions exists), the sample schedule is not violated, move on to the next SSMPA

(ii) Else (the Violation Type < > 03)

If the number of results recorded in the MPAvg is less than the number of samples called for in the Sample Schedule, pass a candidate routine violation using the Violation Type associated to the Sample Schedule for the Analyte. If the Sample Schedule is a hidden Sample Schedule, also pass an indication that the candidate violation is based on a hidden schedule. Also pass the number of results recorded in the MPAvg.

Else, move on to the next SSMPA

(d) Else (it does not have a user-maintained MPAvg), check M&R compliance check both at the Sampling Point Sub-Schedule level (if any sub-schedules exist for the schedule) as well as at the Sample Schedule level by proceeding at next step.

(e) Assess the Sample Schedule for M&R compliance at Sampling Point Sub-Schedule level:

- (i) *Read each Sampling Point Sub-SSMPA associated to its SSMPA*

- (ii) *For each selected Sampling Point Sub-SSMPA:*
 - Count the number of results associated to the Sampling Point Sub-SSMPA*

 - Read the Sampling Point Sub-Schedule referenced by the selected Sampling Point Sub-SSMPA to get the Subcount (number of samples required at the sampling point sub-schedule)*

 - If the number of results collected at the Sampling Point is less than the Subcount called for by the Sampling Point Sub-Schedule, then add this sampling point sub-schedule to the list of Sampling Point Sub-Schedules that are not in compliance (a potential violation is detected at sampling point sub-schedule level)*

 - Else, move on to the next Sampling Point Sub-SSMPA.*

- (iii) *Sum the total number of results collected at all Sampling Point Sub-SSMPA(s). (This is done to determine the severity of a candidate routine M&R violation, if detected)*

- (iv) *Sum the total number of Subcounts at all Sampling Point Sub-Schedule(s).*

- (f) *Count the total number of Results associated to its SSMPA (This is the total number of Results collected at the Sample Schedule level.)*

- (g) *If the list of Sampling Point Sub-Schedules that are not in compliance is not empty, then:*

(i) *If the Violation Type is not 03, then pass a candidate violation of this type (plus the list of sampling point sub-schedules that are not in compliance and the total number of results collected at Sample Schedule level) for the Analyte. If the Sample Schedule is a hidden Sample Schedule, also pass an indication that the candidate violation is based on a hidden schedule.*

(ii) *Else (the Violation Type is 03), if the total number of samples called for by all Sampling Point Sub-Schedules is equal to the number of samples called for by the Sample Schedule, then*

If the total number of Results collected at all Sampling Point Sub-SSMPAs is equal to zero (no result collected at any of the sampling point sub-schedules), then pass a candidate type 03-Major violation (plus the list of sampling point sub-schedules that are not in compliance and the total number of results collected at Sample Schedule level) for the Analyte. If the Sample Schedule is a hidden Sample Schedule, also pass an indication that the candidate violation is based on a hidden schedule.

Else, pass a candidate type 03-Minor violation (plus the list of sampling point sub-schedules that are not in compliance and the total number of results collected at Sample Schedule level) for the Analyte. If the Sample Schedule is a hidden Sample Schedule, also pass an indication that the candidate violation is based on a hidden schedule.

(iii) *Else (the Violation Type is 03 and the total number of samples called for by all the Sampling Point Sub-Schedules < > Sample Count called for by the Sample Schedule), if the total number of results linked to the SSMPA is zero, then pass a candidate*

type 03-Major violation (plus the list of sampling point sub-schedules that are not in compliance) for the Analyte. If the Sample Schedule is a hidden Sample Schedule, also pass an indication that the candidate violation is based on a hidden schedule.

- (iv) *Else, pass a candidate type 03-Minor violation (plus the list of sampling point sub-schedules that are not in compliance and the total number of results collected at Sample Schedule level) for the Analyte. If the Sample Schedule is a hidden Sample Schedule, also pass an indication that the candidate violation is based on a hidden schedule.*

- (h) *If the Sample Type — IN or FR for the referenced Monitoring Requirement, then*
 - (i) *If the analyte referenced by the referenced monitoring requirement is lead (1030) or copper (1022), then skip the Sample Schedule*

 - (ii) *Else if the number of results associated to its SSMPA is less than the number of samples called for by the referenced monitoring requirement, then pass (do not pass the Sampling Point and WSF) a candidate type 53 violation with analyte code '5000' (do not use the Analyte Group of the Group Schedule) to the **Create Candidate Violation** action block and move on to the next Sample Schedule.*

 - (iii) *Else move on to the next Sample Schedule.*

- (i) *Else, if the Sample Type is FE for the referenced Monitoring Requirement, then*
 - (i) *If the number of results associated to its SSMPA is less than the number of samples called for by the referenced monitoring requirement, then pass (do not pass the Sampling Point and WSF) a candidate type 53 violation with analyte code '5000' (do not use the Analyte Group of the Group Schedule) to*

~~the **Create Candidate Violation** action block and move on to the next Sample Schedule.~~

- ~~(ii) Else move on to the next Sample Schedule~~
- (j) ~~Else, if the Sample Type is SO for the referenced Monitoring Requirement, then~~
 - ~~(i) If the number of results associated to its SSMPA is less than the number of samples called for by the referenced monitoring requirement, then pass (**do not pass the Sampling Point and WSF**) a candidate type 56 violation with analyte code '5000' (**do not use the Analyte Group of the Group Schedule**) to the **Create Candidate Violation** action block and move on to the next Sample Schedule.~~
 - ~~(ii) Else move on to the next Sample Schedule~~
- (k) ~~Else (all other Sample Types No candidate violation detected at Sampling Point Sub-Schedule level or there are no Sampling Point Sub-Schedules), if the Analyte referenced by the Sample Schedule is equal to one of the Analytes in the Analyte Group selected for the compliance check, then: Assess M&R compliance at Sample Schedule (WSF) level: If the total number of Results associated to the SSMPA is less than the Sample Count called for by the Monitoring Requirement, then this is a potential violation at the Sample Schedule level:~~
 - ~~(i) If the Violation Type is not 03, then pass a candidate violation of this type (plus the list of sampling point sub-schedules that are not in compliance and the total number of results collected at Sample Schedule level) for the Analyte. If the Sample Schedule is a hidden Sample Schedule, also pass an indication that the candidate violation is based on a hidden schedule.~~
 - (ii) ~~Else (the Violation Type is 03), If the number of Results associated to the SSMPA is zero, pass a~~

candidate type 03-Major violation (plus the list of sampling point sub-schedules that are not in compliance) for the Analyte. If the Sample Schedule is a hidden Sample Schedule, also pass an indication that the candidate violation is based on a hidden schedule (the idea here is to inform the user that this particular candidate violation is based on a hidden Sample Schedule so that the user might realize that he/she may want to wait and see if a group violation record could be validated if he/she picked a analyte group that correlated to the Group Schedule for this hidden schedule).

(iii) Else ~~if~~ (the violation type is 03 and the number of Results associated to the SSMPA is greater than zero but less than the Sample Count called for by the Monitoring Requirement), pass a candidate type 03-Minor (plus the list of sampling point sub-schedules that are not in compliance and the total number of results collected at Sample Schedule level) for the Analyte. If the Sample Schedule is a hidden Sample Schedule, also pass an indication that the candidate violation is based on a hidden schedule.

(iv) ~~Else do not create a candidate violation for the Analyte and go on to the next Sample Schedule~~

(l) ~~Else, if the Analyte referenced by the Sample Schedule is not equal to one of the Analytes in the Analyte Group selected for the compliance check, then skip it (do not assess it for M&R compliance; go to the next Sample Schedule)~~

B. Else if the Sample Schedule referenced by the SSMPA is not part of a Group Schedule and the analyte referenced by the Sample Schedule is equal to one of the Analytes in the Analyte Group selected for the compliance check, then rerun the **Individual Schedule M&R Compliance Check action block** (described above).

If the user selects an Analyte for the Compliance Check.

1. Select all Water Systems that reference the selected Regulating Agency (*WHERE* $((TINLGENT.NAME) = [Regulating Agency Selected by User] \text{ AND } ((TINRAA.BEGIN_DATE) < = \text{Current Date Or } (TINRAA.BEGIN_DATE) \text{ Is Null}) \text{ AND } ((TINRAA.END_DATE) > = \text{Current Date Or } (TINRAA.END_DATE) \text{ Is Null}))$)
2. Select all Sample Schedules (hidden and non-hidden) that references the selected Analyte and that reference one of the selected Water Systems and that reference a Violation Type but not Violation Type 04, 27, 29, 31, 36, 37, 38, 51, 52, 53, or 56 and that reference a Monitoring Requirement that has a periodicity of monthly or longer, i.e., SAMPLE_COUNT_UNIT_CODE is "10Y", "2Y", "3Y", "4Y", "5Y", "6M", "6Y", "7Y", "8Y", "9Y", "MN", "QT", or "YR".
3. Identify all SSMPAs associated to the Sample Schedule where:
 - A. The SMMPA's Applicable Period End Date is greater than or equal to the Begin Date of the SSMPA Applicable Period End Date range selected for the compliance check AND
 - B. The SSMPA's Applicable Period End Date is less than or equal to the End Date of the SSMPA Applicable Period End Date range selected for the compliance check.
4. Evaluate the selected SSMPA, one by one, using the **Individual Schedule M&R Compliance Check action block** (described above).

The following specifies what values to use when passing information to the **Create Candidate Violation** action block. This check would create one candidate violation and one candidate schedule record corresponding to each candidate violation determined. For Release 8.0, the Create Candidate Violation action block needs to be revised so that it values the data origin code based on the Government Agency Type Code of the primacy agency.

Select Government Agency where Primacy Indicator = Y

- A. If Govt Agency Type Code is ST, then set the data origin code to "S".
- B. If Govt Agency Type Code is RG, then set the data origin code to "R".

If there is no Government Agency where Primacy Indicator = Y, set the data origin code to "S."

Field Name	Value
TCDSVIOL_IS_NUMBER	Running Sequence number to be generated by getting Max of sequence number and increment by 1.
TCDSVIOL_ST_CODE	State Code of the state obtained from the TINPRT table.
PWS_TINWSYS_IS_NO PWS_TINWSYS_ST_CO PWS_NUMBER PWS_NAME PWS_FED_PRI_SRC_CD PWS_FED_TYPE_CD PWS_POPULATION_CNT PWS_ACTIV_STAT_CD PWS_ACTIVITY_DATE	TINWSYS_IS_NUMBER TINWSYS_ST_CODE NUMBER NAME FED_PRIMARY_SOURCE_CODE FEDERAL_TYPE_CODE D_POPULATION_COUNT ACTIVITY_STATUS_CODE ACTIVITY_DATE From the TINWSYS that 'APPLIES' to the schedule record that was not conformed causing this candidate violation. This denormalized information is used for reporting purposes and to create the link to the water system record when migrating the candidate violations.
WSF_TINWSF_IS_NO WSF_TINWSF_ST_CO WSF_STATE_ASGN_ID WSF_NAME WSF_TYPE_CODE WSF_ACTIVITY_DATE WSF_WATER_TYP_CD WSF_AVAIL_CD WSF_EX_SYS_NO	TINWSF_IS_NUMBER TINWSF_ST_CODE STATE_ASGN_ID NAME TYPE_CODE ACTIVITY_DATE WATER_TYPE_CODE AVAILABILITY_CODE EXTERNAL_SYSTEM_NUMBER From the Water system facility, which is the location for the sampling point, which is the sample site for location for specifying the schedule, which was not conformed causing this candidate violation. These fields will not be valued for Lead and copper violations (i.e., those with Analyte Code 5000).

Exhibit E-2-1. CDS Candidate Violation

Field Name	Value
SP_TSASMPPT_IS_NUMBER SP_TSASMPPT_ST_CODE SP_IDENTIFICATION_CODE SP_DESCRIPTION SP_TYPE_CODE SP_SOURCE_TYPE_CODE SP_POST_DISINFECTION_INDICATOR SP_PROCESS_PHASE_INDICATOR_CODE	TSASMPPT_IS_NUMBER TSASMPPT_ST_CODE IDENTIFICATION_CODE DESCRIPTION TYPE_CODE SOURCE_TYPE_CODE POST_DISINFECTION_INDICATOR PROCESS_PHASE_INDICATOR_CODE From the sampling point which is the sample site for the schedule which was not conformed causing this candidate violation. These fields will not be valued for Lead and copper violations (i.e., those with Analyte Code 5000). Not valued.
TMNVTYPE_IS_NUMBER TMNVTYPE_ST_CODE VIOLATION_TYPE_CD VIOLATION_TYPE_NAME VIO_TYPE_SEV_LVL	TMNVTYPE_IS_NUMBER TMNVTYPE_ST_CODE As indicated in the detailed specification above. Use the name corresponding to the code and populate the violation type name column. For the severity level use MJ, MN, or blank as indicated in the detailed specification above.
VIO_TO_FED_ANL_CD	If Violation Type is associated to Analyte, value with that Analyte Code. Else use Analyte Code related to the Schedule/ Schedule Group through the Monitoring Requirement.
ANL_TSAANLYT_IS_NO ANL_TSAANLYT_ST_CO ANALYTE_CODE ANALYTE_NAME	TSAANLYT_IS_NUMBER TSAANLYT_ST_CODE Either 5000 or the Analyte Code for the analyte related to the Sample Schedule through the Monitoring Requirement if so indicated in above specification or blank (if Analyte Group Code is valued). Use the name corresponding to the code to value the name field.

Exhibit E-2-1. CDS Candidate Violation (Continued)

Field Name	Value
AGP_TSAANLGP_IS_NO AGP_TSAANLGP_ST_CO	TSAANLGP_IS_NUMBER TSAANLGP_ST_CODE
ANALYTE_GROUP_CODE ANALYTE_GROUP_NAME	Analyte Group Code related to the Schedule Group through Monitoring Requirement. Analyte Group Name
MP_TMNPRD_IS_NO MP_TMNPRD_ST_CO MP_CP_BEG_DAT MP_CP_END_DAT MP_MON_PER_DUR MP_MON_PER_NAME	TMNPRD_IS_NUMBER TMNPRD_ST_CODE BEGIN_DATE END_DATE TYPE_CODE NAME of the Monitoring related to the Sample Schedule.
VIO_ANLYS_RSLT_TXT	Blank
VIO_ANLYS_RSLT_UOM	Blank
VIO_MCL_VIOLTD_TXT	Blank
VIO_MCL_VIOLTD_UOM	Blank
VIO_MCL_NUM_RSLTS	Blank
VIO_DATA_ORIGIN_CD	Set to 'S or R' (even for EPA Regions thus enabling them to report Indian Land violations using SDWIS/STATE). depending on whether the Government Agency where Primacy Indicator = Y has type of ST (set to S) or RG (set to R)
VIO_ON_SKD_GRP_IND	'Y' if indicated in the above specification. Blank if not. (Set to 'Y' if violation is for a hidden schedule, Set to 'N' if violation is for non-hidden schedule, Set to Blank if violation is for schedule group)
SSMPA_APPER_END_DT	APPLICABLE_PERIOD_END_DATE of the SSMPA associated to the selected Sample Schedule and Monitoring Period.

Exhibit E-2-1. CDS Candidate Violation (Continued)

Field Name	Value
VIO_MNR_NUM_RSLTS	Set to the number of results actually collected. (Either the number of results associated to the SSMPA or the number of results associated to the user-maintained MPAvg if so indicated in the above specification) Group Schedule Violation: - If the number of results is the same for each analyte in the group, then use that number. - If the number of results varies, then use the lowest number of results collected at Sample Schedule level.
VTYPE_CATEGORY_CD	Set to 'MON'.

Exhibit E-2-1. CDS Candidate Violation (Continued)

The following CDS CANDIDATE SCHEDULE record will be created and associated to the CDS CANDIDATE VIOLATION

Field Name	Value
TCDSASCH_IS_NUMBER	Running Sequence number to be generated by getting Max of sequence number and increment by 1.
TCSSASCH_ST_CODE	State Code of the state obtained from the TINPRT table.
PWS_TINWSYS_IS_NO PWS_TINWSYS_ST_CO PWS_NUMBER PWS_NAME PWS_FED_PRI_SRC_CD PWS_FED_TYPE_CD PWS_POPULATION_CNT PWS_ACTIV_STAT_CD PWS_ACTIVITY_DATE	TINWSYS_IS_NUMBER TINWSYS_ST_CODE NUMBER NAME FED_PRIMARY_SOURCE_CODE FEDERAL_TYPE_CODE D_POPULATION_COUNT ACTIVITY_STATUS_CODE ACTIVITY_DATE From the TINWSYS that 'APPLIES' to the schedule record that was not conformed causing this candidate violation.

Exhibit E-2-2. CDS Candidate Schedule

Field Name	Value
WSF_TINWSF_IS_NO WSF_TINWSF_ST_CO WSF_STATE_ASGN_ID WSF_NAME WSF_TYPE_CODE WSF_ACTIVITY_DATE WSF_WATER_TYP_CD WSF_AVAIL_CD WSF_EX_SYS_NO	TINWSF_IS_NUMBER TINWSF_ST_CODE STATE_ASGN_ID NAME TYPE_CODE ACTIVITY_DATE WATER_TYPE_CODE AVAILABILITY_CODE EXTERNAL_SYSTEM_NUMBER From the Water system facility, which is the location for the sampling point, which is the sample site for location for specifying the schedule, which was not conformed causing this candidate violation. These fields will not be valued for Lead and copper violations (i.e., those with Analyte Code 5000).
SP_TSASMPPT_IS_NUMB ER SP_TSASMPPT_ST_CODE SP_IDENTIFICATION_CO DE SP_DESCRIPTION SP_TYPE_CODE SP_SOURCE_TYPE_CODE SP_POST_DISINFECTION_ INDICATOR SP_PROCESS_PHASE_IND ICATOR_CODE	TSASMPPT_IS_NUMBER TSASMPPT_ST_CODE IDENTIFICATION_CODE DESCRIPTION TYPE_CODE SOURCE_TYPE_CODE POST_DISINFECTION_INDICATOR PROCESS_PHASE_INDICATOR_CODE from the sampling point, which is the sample site for the schedule, which was not conformed causing this candidate violation. These fields will not be valued for Lead and copper violations (i.e., those with Analyte Code 5000). Not valued.

Exhibit E-2-2. CDS Candidate Schedule (Continued)

Field Name	Value
SCH_TMNSASCH_IS_NO SCH_TMNSASCH_ST_CO SCH_BEGIN_DATE SCH_END_DATE SCH_SEAS_PRD_BEG SCH_SEAS_PRD_END SCH_ST_SEA_PRD_BEG SCH_ST_SEA_PRD_END SCH_STATE_YEAR SCH_REASON_TEXT SCH_INIT_MP_BEG_DT	TMNSASCH_IS_NUMBER TMNSASCH_ST_CODE BEGIN_DATE END_DATE SEASONAL_PERIOD_BEGIN SEASONAL_PERIOD_END STATE_SEASONAL_PERIOD_BEGIN STATE_SEASONAL_PERIOD_END STATE_YEAR REASON_TEXT INITIAL_MP_BEGIN_DAT from the Sample_Schedule which was not conformed causing this violation.
MNR_TMNMNR_IS_NO MNR_TMNMNR_ST_CO MNR_SAMPLE_TYPE_CD MNR_SAMPLE_COUNT MNR_SMPL_CNT_UOM	TMNMNR_IS_NUMBER TMNMNR_ST_CODE SAMPLE_TYPE_CODE SAMPLE_COUNT SAMPLE_COUNT_UNIT_CODE of the monitoring requirement that results in the sample schedule that was not conformed.
ANL_TSAANLYT_IS_NO ANL_TSAANLYT_ST_CO ANALYTE_CODE ANALYTE_NAME	TSAANLYT_IS_NUMBER TSAANLYT_ST_CODE Either 5000 or the Analyte Code for the analyte related to the Sample Schedule through the Monitoring Requirement if so indicated in above specification or blank (if Analyte Group Code is valued). Use Name corresponding to Analyte Code.
AGP_TSAANLGP_IS_NO AGP_TSAANLGP_ST_CO AGP_CODE AGP_NAME	TSAANLGP_IS_NUMBER TSAANLGP_ST_CODE Analyte Group Code related to the Group Schedule through Monitoring Requirement. Use Name corresponding to Analyte Code.

Exhibit E-2-2. CDS Candidate Schedule (Continued)

The following CDS SAMPLING POINT SUBSCHEDULE record(s) will be created and associated to the CDS CANDIDATE VIOLATION and CDS CANDIDATE SCHEDULE. This record(s) will only be valued for candidate violation detected at Sampling Point Sub-Schedule Level.

CDS SAMPLING POINT SUBSCHEDULE	
Field Name	Value
TCDSPSUB_IS_NUMBER	Running Sequence number to be generated by getting Max of sequence number and increment by 1.
TCDSPSUB_ST_CODE	State Code of the state obtained from the TINPRT table.
SP_IDENT_CD SP_DESCRIPTION SP_TYPE_CODE SP_SOURCE_TYP_CD SP_POST_DISINF_CD SP_PROC_PHASE_CD	IDENTIFICATION_CODE DESCRIPTION TYPE_CODE SOURCE_TYPE_CODE POST_DISINFECTION_INDICATOR PROCESS_PHASE_INDICATOR_CODE (from the sampling point associated to the sampling point sub-schedule, at which monitoring requirements were not met, which caused this candidate violation).
SUBCOUNT	SUBCOUNT from Sampling Point Subschedule (TMNSPSUB)

Exhibit E-2-3. CDS Sampling Point Subschedule

Chemical/Radionuclide Confirmation M&R Compliance Check (Section 2.1.15.3.3)

If the Determine Confirmation M&R Compliance box is checked, then:

1. Select all Water Systems that reference the selected Regulating Agency (*WHERE* $((TINLGENT.NAME) = [Regulating Agency Selected by User] AND ((TINRAA.BEGIN_DATE) < = Current Date Or (TINRAA.BEGIN_DATE) Is Null) AND ((TINRAA.END_DATE) > = Current Date Or (TINRAA.END_DATE) Is Null))$)
2. Select each Sample Schedule where:
 - A. It references one of the selected Water Systems AND
 - B. The Sample Type of its related Monitoring Requirement = CO AND
 - C. The Effective End Date of the Sample Schedule is:
 - i. Greater than or equal to the Begin Date of the selected Applicable Period End Date range AND
 - ii. Less than or equal to the current date ~~End Date of the selected Applicable Period End Date range.~~
 - AND
 - D. The Analyte referenced by the Monitoring Requirement is equal to the Analyte selected by the user or is equal to one of the Analytes in the Analyte Group selected by the user AND
 - E. The Monitoring Assessment Flag is not equal to A (assessed).
3. For each Sample Schedule selected
 - A. Count as one sample each result where the result (SAR):
 - i. is related to a Sample:
 - (1) that is related to the originating Sample for the Sample Schedule AND
 - (2) whose Compliance Purpose Indicator Code is equal to 'Y' AND
 - (3) whose Sample Type of confirmation (CO) AND
 - (4) whose Rejection Reason Code is blank; AND

- (5) whose Collection End Date is equal to or less than the Effective End Date of the Confirmation Sample Schedule AND
 - ii has a Data Quality Code is accepted (A) or validated (V) AND
 - iii references the same Analyte as the Confirmation Sample Schedule
- b. Sum the results counted
- c. Compare the sum of results against the Sample Count of the Confirmation Sample Schedule
 - i. If the number of Results is zero, pass a candidate type 04-Major violation for the Analyte to the **Create Candidate Violation** action block.
 - ii If the number of Results is greater than zero but less than the Sample Count called for by the Monitoring Requirement, create a candidate type 04-Minor for the Analyte to the **Create Candidate Violation** action block.
 - iii Else do not create a candidate violation for the Analyte

The following specifies what values to use when passing information to the **Create Candidate Violation** action block. This check would create one candidate violation and one candidate schedule record corresponding to each candidate violation determined.

Field Name	Value
TCDSVIOL_IS_NUMBER	Running Sequence number to be generated by getting Max of sequence number and increment by 1.
TCDSVIOL_ST_CODE	State Code of the state obtained from the TINPRT table.

Exhibit E-2-4. CDS Candidate Violation

Field Name	Value
PWS_TINWSYS_IS_NO PWS_TINWSYS_ST_CO PWS_NUMBER PWS_NAME PWS_FED_PRI_SRC_CD PWS_FED_TYPE_CD PWS_POPULATION_CNT PWS_ACTIV_STAT_CD PWS_ACTIVITY_DATE	TINWSYS_IS_NUMBER TINWSYS_ST_CODE NUMBER NAME FED_PRIMARY_SOURCE_CODE FEDERAL_TYPE_CODE D_POPULATION_COUNT ACTIVITY_STATUS_CODE ACTIVITY_DATE From the TINWSYS that 'APPLIES' to the schedule record that was not conformed causing this candidate violation. This denormalized information is used for reporting purposes and to create the link to the water system record when migrating the candidate violations.
WSF_TINWSF_IS_NO WSF_TINWSF_ST_CO WSF_STATE_ASGN_ID WSF_NAME WSF_TYPE_CODE WSF_ACTIVITY_DATE WSF_WATER_TYP_CD WSF_AVAIL_CD WSF_EX_SYS_NO	TINWSF_IS_NUMBER TINWSF_ST_CODE STATE_ASGN_ID NAME TYPE_CODE ACTIVITY_DATE WATER_TYPE_CODE AVAILABILITY_CODE EXTERNAL_SYSTEM_NUMBER From the Water system facility, which is the location for the sampling point, which is the sample site for location for specifying the schedule, which was not conformed causing this candidate violation. These fields will not be valued for Lead and copper violations (i.e., those with Analyte Code 5000).

Exhibit E-2-4. CDS Candidate Violation (Continued)

Field Name	Value
SP_TSASMPPT_IS_NUMBER SP_TSASMPPT_ST_CODE SP_IDENTIFICATION_CODE SP_DESCRIPTION SP_TYPE_CODE SP_SOURCE_TYPE_CODE SP_POST_DISINFECTION_INDICATOR SP_PROCESS_PHASE_INDICATOR_CODE	TSASMPPT_IS_NUMBER TSASMPPT_ST_CODE IDENTIFICATION_CODE DESCRIPTION TYPE_CODE SOURCE_TYPE_CODE POST_DISINFECTION_INDICATOR PROCESS_PHASE_INDICATOR_CODE from the sampling point, which is the sample site for the schedule, which was not conformed causing this candidate violation. These fields will not be valued for Lead and copper violations (i.e., those with Analyte Code 5000). Not valued.
TMNVTYPE_IS_NUMBER TMNVTYPE_ST_CODE VIOLATION_TYPE_CD VIOLATION_TYPE_NAME VIO_TYPE_SEV_LVL	TMNVTYPE_IS_NUMBER TMNVTYPE_ST_CODE 04. Use the name corresponding to the code and populate the violation type name column. For the severity level use MJ, MN or blank as indicated in the detailed specification above.
VIO_TO_FED_ANL_CD	If Violation Type is associated to Analyte, value with that Analyte Code. Else use Analyte Code related to Schedule through Monitoring Requirement.
ANL_TSAANLYT_IS_NUMBER ANL_TSAANLYT_ST_CODE ANALYTE_CODE ANALYTE_NAME	TSAANLYT_IS_NUMBER TSAANLYT_ST_CODE Analyte_Code for the analyte related to the Sample Schedule through the Monitoring Requirement.
ANALYTE_GROUP_CODE ANALYTE_GROUP_NAME	Blank. Never an Analyte Group for a Confirmation Schedule.

Exhibit E-2-4. CDS Candidate Violation (Continued)

Field Name	Value
MP_TMNPDRD_IS_NO MP_TMNPDRD_ST_CODE	TMNPDRD_IS_NUMBER TMNPDRD_ST_CODE
MP_CP_BEG_DAT MP_CP_END_DAT MP_MON_PER_DUR MP_MON_PER_NAME	BEGIN_DATE END_DATE TYPE_CODE NAME of the Monitoring Period associated to the originating Sample for the Sample Schedule.
VIO_ANALYS_RSLT_TXT	Blank
VIO_ANALYS_RSLT_UOM	Blank
VIO_MCL_VIOLTD_TXT	Blank
VIO_MCL_VIOLTD_UOM	Blank
VIO_MCL_NUM_RSLTS	Blank
VIO_DATA_ORIGIN_CD	Set to 'S or R' (even for EPA Regions thus enabling them to report Indian Land violations using SDWIS/STATE) . depending on whether the Government Agency where Primacy Indicator = Y has type of ST (set to S) or RG (set to R)
VIO_ON_SKD_GRP_IND	Blank.
SSMPA_APPER_END_DT	EFFECTIVE_END_DATE of the Sample Schedule.
VIO_MNR_NUM_RSLTS	Set to the number of results actually collected.
VTYPE_CATEGORY_CD	Set to 'MON'.

Exhibit E-2-4. CDS Candidate Violation (Continued)

The following CDS CANDIDATE SCHEDULE record will be created and associated to the CDS CANDIDATE VIOLATION:

Field Name	Value
TCDSSASCH_IS_NUMBER	Running Sequence number to be generated by getting Max of sequence number and increment by 1.
TCDSSASCH_ST_CODE	State Code of the state obtained from the TINPRT table.
PWS_TINWSYS_IS_NO PWS_TINWSYS_ST_CO PWS_NUMBER PWS_NAME PWS_FED_PRI_SRC_CD PWS_FED_TYPE_CD PWS_POPULATION_CNT PWS_ACTIV_STAT_CD PWS_ACTIVITY_DATE	TINWSYS_IS_NUMBER TINWSYS_ST_CODE NUMBER NAME FED_PRIMARY_SOURCE_CODE FEDERAL_TYPE_CODE D_POPULATION_COUNT ACTIVITY_STATUS_CODE ACTIVITY_DATE From the TINWSYS that 'APPLIES' to the schedule record that was not conformed causing this candidate violation.
WSF_TINWSF_IS_NO WSF_TINWSF_ST_CO WSF_STATE_ASGN_ID WSF_NAME WSF_TYPE_CODE WSF_ACTIVITY_DATE WSF_WATER_TYP_CD WSF_AVAIL_CD WSF_EX_SYS_NO	TINWSF_IS_NUMBER TINWSF_ST_CODE STATE_ASGN_ID NAME TYPE_CODE ACTIVITY_DATE WATER_TYPE_CODE AVAILABILITY_CODE EXTERNAL_SYSTEM_NUMBER From the Water system facility, which is the location for the sampling point, which is the sample site for location for specifying the schedule, which was not conformed causing this candidate violation. These fields will not be valued for Lead and copper violations (i.e., those with Analyte Code 5000).

Exhibit E-2-5. CDS Candidate Schedule

Field Name	Value
SP_TSASMPPT_IS_NUMBE R SP_TSASMPPT_ST_CODE SP_IDENTIFICATION_COD E SP_DESCRIPTION SP_TYPE_CODE SP_SOURCE_TYPE_CODE SP_POST_DISINFECTION_I NDICATOR SP_PROCESS_PHASE_INDI CATOR_CODE	TSASMPPT_IS_NUMBER TSASMPPT_ST_CODE IDENTIFICATION_CODE DESCRIPTION TYPE_CODE SOURCE_TYPE_CODE POST_DISINFECTION_INDICATOR PROCESS_PHASE_INDICATOR_CODE from the sampling point, which is the sample site for the schedule, which was not conformed causing this candidate violation. These fields will not be valued for Lead and copper violations (i.e., those with Analyte Code 5000). Not valued.
SCH_TMNSASCH_IS_NO SCH_TMNSASCH_ST_CO SCH_BEGIN_DATE SCH_END_DATE SCH_SEAS_PRD_BEG SCH_SEAS_PRD_END SCH_ST_SEA_PRD_BEG SCH_ST_SEA_PRD_END SCH_STATE_YEAR SCH_REASON_TEXT SCH_INIT_MP_BEG_DT	TMNSASCH_IS_NUMBER TMNSASCH_ST_CODE BEGIN_DATE END_DATE SEASONAL_PERIOD_BEGIN SEASONAL_PERIOD_END STATE_SEASONAL_PERIOD_BEGIN STATE_SEASONAL_PERIOD_END STATE_YEAR REASON_TEXT INITIAL_MP_BEGIN_DAT from the Sample_Schedule which was not conformed causing this violation.
MNR_TMNMNR_IS_NO MNR_TMNMNR_ST_CO MNR_SAMPLE_TYPE_CD MNR_SAMPLE_COUNT MNR_SMPL_CNT_UOM	TMNMNR_IS_NUMBER TMNMNR_ST_CODE SAMPLE_TYPE_CODE SAMPLE_COUNT SAMPLE_COUNT_UNIT_CODE of the monitoring requirement that results in the sample schedule that was not conformed.

Exhibit E-2-5. CDS Candidate Schedule (Continued)

Field Name	Value
ANL_TSAANLYT_IS_NO ANL_TSAANLYT_ST_CO	TSAANLYT_IS_NUMBER TSAANLYT_ST_CODE
ANALYTE_CODE ANALYTE_NAME	Analyte_Code for the analyte related to the Sample Schedule through the Monitoring Requirement.
AGP_CODE AGP_NAME	Blank. Never an Analyte Group for a Confirmation Schedule.

Exhibit E-2-5. CDS Candidate Schedule (Continued)

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APPENDIX E-3

Lead & Copper Rule Compliance Report Processes

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E-3 Lead & Copper Rule Compliance Report Processes

Presentation Type 2: The information in this section reflects a Release 8.0 update to an existing documented design. As such, normal text means no change from the current 7.0 release; redline/redline strikeout indicates where the functionality of an existing object (such as a field, button, menu item, etc.) has changed or where new functionality has been added for Release 8.0 .

LEAD & COPPER ACTION LEVEL EXCEEDENCE CHECK

INPUTS AVAILABLE

- Applicable Period End Date Range.
- Regulating Agency.

Clear Previous Action Level Exceedences Sub-process

Read Each WATER SYSTEM

Where WATER SYSTEM is regulated by the given REGULATING AGENCY

Read Each CDS SAMPLE SUMMARY RESULT

Where:

- MP_End_Date is between User Selected Applicable Period End Date Range and
- Analyte_Code is PB90, 1030, CU90, and 1022 and
- SSR_Type_Code is equal to '90' and
- CDS SAMPLE SUMMARY RESULT references a CDS CANDIDATE EXCEEDENCE

When Not Found

Return to read the next water system

When Found

Delete referenced CDS_CANDIDATE_EXCEEDENCE and CDS SAMPLE SUMMARY RESULT

Determine Action Level Exceedences Sub-process

Read Each WATER SYSTEM

Where WATER SYSTEM is regulated by the given REGULATING AGENCY

Read Each SAMPLE SUMMARY, SAMPLE SUMMARY RESULT, ANALYTE, and MONITORING PERIOD

Where:

- Monitoring Period End Date is between User Selected Applicable Period End Date Range and
- Analyte Code referenced by Sample Summary is PB90, 1030, CU90, and 1022 and
- Sample Summary's Compliance Purpose Indicator Code is equal to Y and
- Sample Summary Result's Data Quality Code is equal to V or A and
- Type Code for the Sample Summary Result is equal to '90'

When Not Found (Note: This case is encountered when the Water System does not have any Sample Summary Results in the Given Monitoring Period, so skip the water system and go on to the next.)

Return to read the next water system

When Found

- Convert and temporarily store the Measure of the Sample Summary Result to the same unit of measure as the ACL in ALRA using the standard conversion table (Note, use ACL for 1030 for Sample Summary that references either PB90 or 1030 and use ACL for 1022 for Sample Summary that references either CU90 or 1022)
If the unit of measure for a summary result cannot be converted, send an error message to the CDS Report Error Log identifying the summary result that could not be converted and stating that its unit of measure could not be converted.
- Compare the temporarily stored SSR Measure with TMNALRA threshold level for ACL (again, use ACL for 1030 for Sample Summary that references either PB90 or 1030 and use ACL for 1022 for Sample Summary that references either CU90 or 1022)

If SSR Measure is greater than ACL, pass data to the CDSRPTS.mdb

ELSE go to the next SSR

LCR TAP M&R COMPLIANCE CHECK

Clear Previous Lead and Copper Tap M&R Candidate Violations

If the user checks the Lead and Copper Tap checkbox on the Lead and Copper Rule Compliance Report ~~Non-Microbiological Monitoring and Reporting Compliance Check~~ Selection window for the Compliance Check, then run the following process:

2. Select all Water Systems that reference the selected Regulating Agency (*WHERE* $((TINLGENT.NAME) = [Regulating Agency Selected by User])$ AND $((TINRAA.BEGIN_DATE) < = Current Date Or (TINRAA.BEGIN_DATE) Is Null)$ AND $((TINRAA.END_DATE) > = Current Date Or (TINRAA.END_DATE) Is Null)$)
3. Delete each CDS Candidate Violation and (cascade delete any associated records in linked CDS entities), where:
 - a. The candidate violation is for one of the above selected Water Systems AND
 - b. The candidate violation's SSMPA Applicable Period End Date is greater than or equal to the Begin Date of the SSMPA Applicable Period End Date range selected for the compliance check AND
 - c. The candidate violation's SSMPA Applicable Period End Date is less than or equal to the End Date of the SSMPA Applicable Period End Date range selected for the compliance check AND
 - d. The candidate violation has a Violation Type of 51 or 52.

Lead and Copper Tap M&R Compliance Determination

If the user checks the Lead and Copper Tap checkbox on the Lead and Copper Rule Compliance Report ~~Non-Microbiological Monitoring and Reporting Compliance Check~~ Selection window for the Compliance Check, then run the following process after the *Clear Previous Lead and Copper Tap M&R Candidate Violations* process.

1. Select all Water Systems that reference the selected Regulating Agency (*WHERE* $((TINLGENT.NAME) = [Regulating Agency Selected by User])$ AND $((TINRAA.BEGIN_DATE) < = Current Date Or (TINRAA.BEGIN_DATE) Is Null)$ AND $((TINRAA.END_DATE) > = Current Date Or (TINRAA.END_DATE) Is Null)$)
2. Select all SSMPAs that:

- A. Have an Applicable Period End Date greater than or equal to the Begin Date of the SSMPA Applicable Period End Date range selected for the compliance check AND
 - B. Have an Applicable Period End Date less than or equal to the End Date of the SSMPA Applicable Period End Date range selected for the compliance check AND
 - C. Reference a Sample Schedule (hidden or not hidden) that:
 - i. references one of the selected Water Systems AND
 - ii. references a Monitoring Requirement that
 - (1) ~~with a Sample Type Code equal to (IN or FR)~~ references Violation Type with Type Code 51 or 52 AND
 - (2) references analyte code 1030 or 1022
3. Evaluate the selected SSMPAs, one by one.
- A. If a Sample Schedule associated to a SSMPA is part of a Schedule Group and the Schedule Group includes a hidden schedule for both lead (1030) and copper (1022), then evaluate both Sample Schedules for the Schedule Group together as follows.
 - i. If the ~~Sample Type = IN~~ Type Code = 51 for the referenced ~~Monitoring Requirement~~ Violation Type, and any one of the following conditions exists, then pass (**do not** pass the Sampling Point and WSF) a candidate type 51 violation (**do** use the Violation Type linked to the referenced Monitoring Requirement) with analyte code '5000' (**do not** use the Analyte Group of the Schedule Group, **do** use the Rule Code in TSAANLYT linked to the referenced Violation Type) to the **Create Candidate Violation** action block and move on to the next SSMPA referencing the next Schedule Group (or, if this was the last Schedule Group, to the first individual Sample Schedule). (Only pass a maximum of one candidate violation for a pair of hidden Sample Schedules associated to the same Schedule Group.) If none of the following conditions exist, then move on to the next SSMPA referencing the next Schedule Group.

- (1) If a Sample Summary Result is not associated to the SSMPA for one or the other or both hidden Sample Schedules OR
- (2) If a Sample Summary Result is associated to both SSMPA for the hidden Sample Schedules that are part of the Schedule Group, AND, for one or the other or both SSMPA:
 - (a) If the Seasonal Period Begin Month and Day are populated:
 - (i) and the Month and Day of the collection_start_date (TSASMPSM) is populated and is less than the Seasonal Period Begin Month and Day (TMNSASCH) OR
 - (ii) The Month and Day of the collection_end_date (TSASMPSM) is populated and is greater than the Seasonal Period End Month and Day (TMNSASCH), OR
 - (b) The number of Samples in the Sample Summary Result (TSASSR-count_qty) is less than the number of samples called for in the Sample Schedule (TMNMNR-sample_count).

- ii. If the ~~Sample Type~~ ~~FR-Type Code~~ = 52 for the referenced ~~Monitoring Requirement~~ Violation Type, and anyone of the following conditions exists, then pass (**do not** pass the Sampling Point and WSF) a candidate type 52 violation (**do** use the Violation Type linked to the referenced Monitoring Requirement) with analyte code '5000' (**do not** use the Analyte Group of the Schedule Group, **do** use the Rule Code in TSAANLYT linked to the referenced Violation Type) to the **Create Candidate Violation** action block and move on to the next SSMPA referencing the next Schedule Group (or, if this was the last Schedule Group, to the first individual Sample Schedule). (Only pass a maximum of one candidate violation for a pair of hidden Sample Schedules associated to the same Schedule Group.) If none of these conditions exist, then move on to the next SSMPA referencing the next Schedule Group.

- (1) If a Sample Summary Result is not associated to the SSMPA for one or the other or both hidden Sample Schedules OR
 - (2) If a Sample Summary Result is associated to both SSMPA for the hidden Sample Schedules that are part of the Schedule Group, AND, for one or the other or both SSMPA:
 - (a) If the Seasonal Period Begin Month and Day are populated:
 - (i) and the Month and Day of the collection_start_date (TSASMPSM) is populated and is less than the Seasonal Period Begin Month and Day (TMNSASCH) OR
 - (ii) The Month and Day of the collection_end_date (TSASMPSM) is populated and is greater than the Seasonal Period End Month and Day (TMNSASCH), OR
 - (b) The number of Samples in the Sample Summary Result (TSASSR_Count_Qty) is less than the number of samples called for in the Sample Schedule (TMNMNR-sample_count).
 - (c) Else move on to the next Sample Schedule/Schedule Group
- B. Else if a Sample Schedule associated to a SSMPA is part of a Schedule Group and the Schedule Group does not include a hidden schedule for both lead (1030) and copper (1022) or a Sample Schedule associated to a SSMPA is not part of a Schedule Group, then

- i. If the ~~Sample Type = IN~~ Type Code = 51 for the referenced ~~Monitoring Requirement~~ Violation Type, and anyone of the following conditions exists, then pass (**do not** pass the Sampling Point and WSF) a candidate type 51 violation (**do** use the Violation Type linked to the referenced Monitoring Requirement) with analyte code '5000' (**do not** use the Analyte Group of the Schedule Group, **do** use the Rule Code in TSAANLYT linked to the referenced Violation Type) to the **Create Candidate Violation** action block and move on to the next SSMPA. If none of the following conditions exist, then move on to the next SSMPA.
- (1) If a Sample Summary Result is not associated to the SSMPA OR
 - (2) If a Sample Summary Result is associated to the SSMPA AND
 - (a) If the Seasonal Period Begin Month and Day are populated:
 - (i) and the Month and Day of the collection_start_date (TSASMPSM) is populated and is less than the Seasonal Period Begin Month and Day (TMNSASCH) or
 - (ii) The Month and Day of the collection_end_date (TSASMPSM) is populated and is greater than the Seasonal Period End Month and Day (TMNSASCH), OR
 - (b) The number of Samples in the Sample Summary Result (TSASSR-count_qty) is less than the number of samples called for in the Sample Schedule (TMNMNR-sample_count).
- ii. If the ~~Sample Type = FR~~ Type Code = 52 for the referenced ~~Monitoring Requirement~~ Violation Type, and anyone of the following conditions exists, then pass (**do not** pass the Sampling Point and WSF) a candidate type 52 violation (**do** use the Violation Type linked to the referenced Monitoring Requirement) with analyte code '5000' (**do not** use the Analyte Group of the Schedule Group, **do** use the Rule Code in TSAANLYT linked to the referenced Violation Type) to the **Create Candidate Violation** action block and move on to the next SSMPA. If none of these conditions exist, then move on to the next SSMPA.

- (1) If a Sample Summary Result is not associated to the SSMPA OR
- (2) If a Sample Summary Result is associated to the SSMPA AND
 - (a) If the Seasonal Period Begin Month and Day are populated:
 - (i) and the Month and Day of the collection_start_date (TSASMPSM) is populated and is less than the Seasonal Period Begin Month and Day (TMNSASCH) or
 - (ii) The Month and Day of the collection_end_date (TSASMPSM) is populated and is greater than the Seasonal Period End Month and Day (TMNSASCH), OR
 - (b) The number of Samples in the Sample Summary Result (TSASSR-count_qty) is less than the number of samples called for in the Sample Schedule (TMNMNR-sample_count).
 - (c) Else move on to the next SSMPA.

CDS Candidate Violation fields are set according to the convention established in Appendix E.6 (detailed design for *Chemical/Radionuclide Confirmation M&R Compliance Check*).

The CDS Candidate Violation table below specifies what values to use when passing information to the **Create Candidate Violation** action block. This check would create one candidate violation and one candidate schedule record corresponding to each candidate violation determined.

Field Name	Value
TCDSVIOL_IS_NUMBER	Running Sequence number to be generated by getting Max of sequence number and increment by 1.
TCDSVIOL_ST_CODE	State Code of the state obtained from the TINPRT –use <i>same action block</i> used by all Main Menus for this purpose.
PWS_TINWSYS_IS_NO PWS_TINWSYS_ST_CO PWS_NUMBER PWS_NAME PWS_FED_PRI_SRC_CD PWS_FED_TYPE_CD PWS_POPULATION_CNT PWS_ACTIV_STAT_CD PWS_ACTIVITY_DATE	TINWSYS_IS_NUMBER TINWSYS_ST_CODE NUMBER NAME FED_PRIMARY_SOURCE_CODE FEDERAL_TYPE_CODE D_POPULATION_COUNT ACTIVITY_STATUS_CODE ACTIVITY_DATE From the TINWSYS that ‘APPLIES’ to the schedule record that was not confirmed causing this candidate violation. This denormalised information is used for reporting purposes and to create the link to the water system record when migrating the candidate violations.
WSF_TINWSF_IS_NO, WSF_TINWSF_ST_CO WSF_ACTIVITY_DATE WSF_AVAIL_CD WSF_NAME, WSF_STATE_ASGN_ID, WSF_EX_SYS_NO WSF_TYPE_CODE WSF_WATER_TYP_CD	Not Valued.

Exhibit E-3-1. CDS Candidate Violation

Field Name	Value
SP_TSASMPPT_IS_NUMBER SP_TSASMPPT_ST_CODE SP_IDENTIFICATION_CODE SP_DESCRIPTION SP_TYPE_CODE SP_SOURCE_TYPE_CODE SP_POST_DISINFECTION_INDICATOR SP_PROCESS_PHASE_INDICATOR_CODE	<p>These fields have been removed from the table.</p>
TMNVTYPE_IS_NUMBER TMNVTYPE_ST_CODE VIOLATION_TYPE_CD VIOLATION_TYPE_NAM VIO_TYPE_SEV_LVL	TMNVTYPE_IS_NUMBER TMNVTYPE_ST_CODE As indicated in the detailed specification above. Use the name corresponding to the code and populate the violation type name column. For the severity level use MJ, MN or blank as indicated in the detailed specification above.
ANL_TSAANLYT_IS_NO ANL_TSAANLYT_ST_CO ANALYTE_CODE ANALYTE_NAME	TSAANLYT_IS_NUMBER TSAANLYT_ST_CODE Either 5000 or the Analyte Code for the analyte related to the Sample Schedule through the Monitoring Requirement if so indicated in above specification or blank (if Analyte Group Code is valued). Use the name corresponding to the code to value the name field.
ANALYTE_GROUP_CODE ANALYTE_GROUP_NAME	Analyte Group Code related to the Schedule Group related to the Sample Schedule if so indicated in above specification. Use the name corresponding to the code to value the name field.

Exhibit E-3-1. CDS Candidate Violation (Continued)

Field Name	Value
MP_TMNPDRD_IS_NO MP_TMNPDRD_ST_CODE MP_CP_BEG_DAT MP_CP_END_DAT MP_MON_PER_DUR MP_MON_PER_NAME	TMNPDRD_IS_NUMBER TMNPDRD_ST_CODE BEGIN_DATE END_DATE TYPE_CODE NAME Monitoring Period selected by the user.
VIO_ANALYS_RSLT_TXT	Blank
VIO_ANALYS_RSLT_UOM	Blank
VIO_MCL_VIOLTD_TXT	Blank
VIO_MCL_VIOLTD_UOM	Blank
VIO_MCL_NUM_RSLTS	Blank
VIO_DATA_ORIGIN_CD	Set to 'S or R' (even for EPA Regions thus enabling them to report Indian Land violations using SDWIS/STATE) ; depending on whether the Government Agency where Primacy Indicator = Y has type of ST (set to S) or RG (set to R)
VIO_ON_SKD_GRP_IND	'Y' if indicated in the above specification. Blank if not. (Set to 'Y' if violation is for a hidden schedule, Set to 'N' if violation is for non-hidden schedule, Set to Blank if violation is for schedule group)
SSMPA_APPER_END_DT	APPLICABLE_PERIOD_END_DATE of the SSMPA associated to the selected Sample Schedule and Monitoring Period.
VIO_MNR_NUM_RSLTS	Set to the number of results actually collected. Set to zero (0) if results are not collected within the seasonal period.
VIOL_VP_END_DATE	Set to Applicable End Date plus one day.
VTYPE_CATEGORY_CD	Set to 'MON'.

Exhibit E-3-1. CDS Candidate Violation (Continued)

The following CDS CANDIDATE SCHEDULE record will be created and associated to the CDS CANDIDATE VIOLATION:

Field Name	Value
TCDSASCH_IS_NUMBER	Running Sequence number to be generated by getting Max of sequence number and increment by 1.
TCDSSASCH_ST_CODE	State Code of the state obtained from the TINPRT table.
PWS_TINWSYS_IS_NO PWS_TINWSYS_ST_CO PWS_NUMBER PWS_NAME PWS_FED_PRI_SRC_CD PWS_FED_TYPE_CD PWS_POPULATION_CNT PWS_ACTIV_STAT_CD PWS_ACTIVITY_DATE	TINWSYS_IS_NUMBER TINWSYS_ST_CODE NUMBER NAME FED_PRIMARY_SOURCE_CODE FEDERAL_TYPE_CODE D_POPULATION_COUNT ACTIVITY_STATUS_CODE ACTIVITY_DATE From the TINWSYS that 'applies' to the schedule record that was not conformed causing this candidate violation.
WSF_TINWSF_IS_NO, WSF_TINWSF_ST_CO WSF_ACTIVITY_DATE WSF_AVAIL_CD WSF_NAME, WSF_STATE_ASGN_ID, WSF_EX_SYS_NO WSF_TYPE_CODE WSF_WATER_TYP_CD	Not Valued.

Exhibit E-3-2. CDS Candidate Schedule

Field Name	Value
SP_TSASMPPT_IS_NUMBER SP_TSASMPPT_ST_CODE SP_IDENTIFICATION_CODE SP_DESCRIPTION SP_TYPE_CODE SP_SOURCE_TYPE_CODE SP_POST_DISINFECTION_INDICATOR SP_PROCESS_PHASE_INDICATOR_CODE	Not Valued.
SCH_TMNSASCH_IS_NO SCH_TMNSASCH_ST_CO SCH_BEGIN_DATE SCH_END_DATE SCH_SEAS_PRD_BEG SCH_SEAS_PRD_END SCH_ST_SEA_PRD_BEG SCH_ST_SEA_PRD_END SCH_STATE_YEAR SCH_REASON_TEXT SSCH_INIT_MP_BEG_DT	TMNSASCH_IS_NUMBER TMNSASCH_ST_CODE BEGIN_DATE END_DATE SEASONAL_PERIOD_BEGIN SEASONAL_PERIOD_END STATE_SEASONAL_PERIOD_BEGIN STATE_SEASONAL_PERIOD_END STATE_YEAR REASON_TEXT INITIAL_MP_BEGIN_DAT from the Sample_Schedule which was not conformed causing this violation.
MNR_TMNMNR_IS_NO MNR_TMNMNR_ST_CO MNR_SAMPLE_TYPE_CD MNR_SAMPLE_COUNT MNR_SMPL_CNT_UOM	TMNMNR_IS_NUMBER TMNMNR_ST_CODE SAMPLE_TYPE_CODE SAMPLE_COUNT SAMPLE_COUNT_UNIT_CODE of the monitoring requirement that results in the sample schedule that was not conformed.

Exhibit E-3-2. CDS Candidate Schedule (Continued)

Field Name	Value
ANL_TSAANLYT_IS_NO ANL_TSAANLYT_ST_CO ANALYTE_CODE ANALYTE_NAME	TSAANLYT_IS_NUMBER TSAANLYT_ST_CODE Either 5000 or the Analyte Code for the analyte related to the Sample Schedule through the Monitoring Requirement if so indicated in above specification or blank (if Analyte Group Code is valued). Use the name corresponding to the code to value the name field.
AGP_TSAANLGP_IS_NO AGP_TSAANLGP_ST_CO AGP_CODE AGP_NAME	TSAANLGP_IS_NUMBER TSAANLGP_ST_CODE Analyte Group Code related to the Schedule Group related to the Sample Schedule if so indicated in above specification. Use the name corresponding to the code to value the name field.

Exhibit E-3-2. CDS Candidate Schedule (Continued)

The following CDS SAMPLE SUMMARY RESULT record will be created and associated to the CDS CANDIDATE VIOLATION

Field Name	Value
TCDSSSR_IS_NUMBER	Running Sequence number to be generated by getting Max of sequence number and increment by 1.
TCDSSSR_ST_CODE	State Code of the state obtained from the TINPRT table.

Exhibit E-3-3. CDS Sample Summary Result

Field Name	Value
PWS_TINWSYS_IS_NO PWS_TINWSYS_ST_CO PWS_NUMBER PWS_NAME PWS_FED_PRI_SRC_CD PWS_FED_TYPE_CD PWS_POPULATION_CNT PWS_ACTIV_STAT_CD PWS_ACTIVITY_DATE	TINWSYS_IS_NUMBER TINWSYS_ST_CODE NUMBER NAME FED_PRIMARY_SOURCE_CODE FEDERAL_TYPE_CODE D_POPULATION_COUNT ACTIVITY_STATUS_CODE ACTIVITY_DATE From the TINWSYS that 'applies' to the schedule record that was not conformed causing this candidate violation.
WSF_TINWSF_IS_NO, WSF_TINWSF_ST_CO WSF_ACTIV_STAT_CD WSF_STATUS_DATE WSF_AVAIL_CD WSF_NAME, WSF_STATE_ASGN_ID, WSF_EX_SYS_NO WSF_TYPE_CODE WSF_WATER_TYP_CD, and (for other reasons) SSM_DATE_RECEIVED	TINWSF_IS_NUMBER TINWSF_ST_CODE TINWSF_ACTIVITY_STATUS_CD TINWSF_ACTIVITY_DATE TINWSF_AVAILABILITY_CODE TINWSF_NAME TINWSF_ST_ASGN_IDENT_CD TINWSF_EXTERNAL_SYS_NUM TINWSF_TYPE_CODE TINWSF_WATER_TYPE_CODE TSASMPSM_SUMMARY_RECIVED_DATE
SSM_TSASMPSM_IS_NO SSM_TSASMPSM_ST_CO SSM_COLL_START_DAT SSM_COLL_END_DAT SSM_SUMRY_RCPT_DAT SSM_COMPL_PURP_IND SSM_COMMENT_TEXT	TSASMPSM_IS_NUMBER TSASMPSM_ST_CODE COLLECTION_START_DATE COLLECTION_END_DATE SUMMARY_RECEIVED_DATE COMPLIANCE_PURPOSE_IND_CODE COMMENT_TEXT of the Sample Summary associated to the Sample Summary result which is associated to the SSMPA.

Exhibit E-3-3. CDS Sample Summary Result (Continued)

Field Name	Value
SSR_TSASSR_IS_NO SSR_TSASSR_ST_CO SAR_DATA_QUAL_CD SSR_TYPE_CODE SSR_COUNT_QTY SSR_MEASURE SSR_UOM_CODE SSR_MEASURE_TEXT	TSASSR_IS_NUMBER TSASSR_ST_CODE DATA_QUALITY_CODE TYPE_CODE COUNT_QTY MEASURE UOM_CODE MEASURE_TEXT of the sample summary result associated to the SSMPA which in turn is associated to the schedule that caused this violation.
ANL_TSAANLYT_IS_NO ANL_TSAANLYT_ST_CO ANALYTE_CODE ANALYTE_NAME	TSAANLYT_IS_NUMBER TSAANLYT_ST_CODE CODE NAME Code and name of the analyte that is associated to the sample summary result.
MP_TMNPRD_IS_NO MP_TMNPRD_ST_CO MP_BEGIN_DAT MP_END_DAT MP_DURATION MP__NAME	TMNPRD_IS_NUMBER TMNPRD_ST_CODE BEGIN_DATE END_DATE DURATION NAME (of the monitoring period associated to the sample summary result.)
LAB_TSALAB_IS_NO LAB_TSALAB_ST_CO LAB_NAME LAB_ST_ASSIGNED_ID LAB_FEDERAL_ID_NO	TSALAB_IS_NUMBER TSALAB_ST_CODE NAME STATE_ASSIGNED_ID_NUMBER FEDERAL_ID_NUMBER (of the LAB that is associated to the Sample Summary result.)

Exhibit E-3-3. CDS Sample Summary Result (Continued)


```
|---  
|-Else  
|  
|   Set Temp_Duration = Input Monitoring period begin date - Schedule Initial MP  
|   Begin  
|   date.  
|  
|   Set Number of Fortnights = modulus ( Temp_Duration / 14).  
|  
|   Set Compliance check Period Begin Date = Schedule Initial MP Begin date +  
|                                           (Number of  
|                                           Fortnights*14  
|                                           ) Days  
|  
|----  
|  
|   Set Compliance Indicator to Y.  
|   Compliance check period End Date = Compliance check Period Begin Date +  
|   13 days  
|  
| Repeat  
|  
|   Count total number of Routine Samples Collected at this sampling point  
|                                           between the  
|   Compliance check Period Begin Date and Compliance check period End  
|   Date.  
|  
|   If Count is less than the number of samples required by the monitoring  
|   requirement  
|   associated to the schedule  
|  
|       Set Compliance Indicator to N.  
|       return any data necessary to create the 53 violation and finish the  
|       process.  
|  
|-----  
|  
|   Set Compliance check Period Begin Date = Compliance check Period Begin  
|   Date + 14  
|   days  
|   Set Compliance check Period End Date = Compliance check Period End Date  
|   + 14  
|   days
```

|-- until Compliance check period End Date > Input Monitoring Period End Date

TT Compliance Check Process

```
| /
| /
| /   Invoke "Initialize Out of Range Array" process passing the MP begin and End Dates.
| /   Check if 5000 x 59 Violation already exists for WS for MP
| /   If found, go to next WS
| /   - Read each FANL for WS that references VT 59
| /     / Read analyte
| /     / Read WSF
| /
| /
| /     ReadEach Sampling Point for the WSF
| /     /
| /     /     Set Previous sample collection date to Current Monitoring Period End
| /     /     Date.
| /     /
| /     /     Read each SAR for this Sampling Point and current analyte(for
| /     /     compliance, routine)
| /     /     Sorted by collection date descending and where the sample collection
| /     /     date is
| /     /     less than or equal to the Input Monitoring Period End Date.
| /     /
| /     /     Compare Result Value against FANL Max and Min
| /     /     If above Max or below Min
| /     /
| /     /     Set Out of Range Begin to Larger of Sample Collection
| /     /     Date and
| /     /
| /     /     Input
| /     /     Monitoring
| /     /     Period Begin
| /     /     Date
| /     /     Set Out of Range End to Previous sample collection date.
| /     /
| /     /     Invoke "Update Out of Range Array" process.
| /     /     /-----
| /     /     Set Previous sample collection date to current Sample Collection
```

```

Date.
/      /      /      /
/      /      /      /      If   Sample Collection Date < Input Monitoring Period Begin
                                Date
/      /      /      /      /
/      /      / < -----next Sampling Point
/      /      /      /      /----
/      /      /      /-----
/      /      /-----
/      /-----
/
/
/      Invoke " Determine total number of days out of Compliance" process.
/      Update the WQP summary for the water system for this analyte, Mp and water
/      system.
/      If total number of days out of compliance is > 9
/      /      Create a TT violation
/      /      (Diana and Scott please add the violation type, Major, Minor etc., )
/      /-----
/
/-----

```

Initialize Out of Range Array.

*Imports: Monitoring Period Begin,
Monitoring Period End.*

*Local:
Date:*

Exports:

*Group View: Max limit 250.
Group Date :
Out of Compliance Indicator*

*Set subscript to 0.
Set Local: Date to Monitoring Period Begin.*

Repeat
/
/ *If Local Date < = Monitoring Period End Date*

```

/
/
/      Set subscript to subscript + 1.
/
/      Set Group Date to Local Date
/      Set Local Date to Local Date + 1
/
/      |-- Else
/
/      | finish and exit
/      |-----
/-----
```

Populate out of range array

Imports: Out of Range Begin,
 Out of Range End.
Group View: Max limit 250.
Group Date :
Out of Compliance Indicator

Exports:

Group View: Max limit 250.
Export Group Date :
Export Out of Compliance Indicator

For subscript of import group from 1 to last of import group by 1

```

/
/      set subscript of export group to subscript of import group
/      Move import group to export group
/      If Export Group Date is > = Out of Range Begin and
/      |      Export Group Date is < = Out of Range End
/      |
/      |      Set Export Out of Compliance Indicator to "Y".
/      |-----
/-----
```

Determine total number of days out of Compliance

Imports: Group View: Max limit 250.
 Group Date :

Out of Compliance Indicator

Exports: Total number of days out of compliance.

Set Total number of days out of compliance = 0

For subscript of import group from 1 to last of import group by 1

```
/  
/ If Export Out of Compliance Indicator to "Y".  
/ /  
/ /Set Total number of days out of compliance = Total number of days out of  
/ / compliance + 1  
/ /-----  
/-----
```

LCR SOURCE WATER TT AND M&R COMPLIANCE CHECK

The Source Water M&R Compliance Check uses the same logic as the Chemical/Radionuclide M&R Compliance Check except:

- Add a Clear Previous, Candidate Violations of Type 56 for the same Water Systems and Monitoring Period selected (note that the user selects monitoring periods indirectly by selecting Applicable Period End Date Range).
- It determines compliance for Sample Schedules that reference Violation Type 56.

The Source Water Treatment Technique Compliance Check uses the same logic as the Assess Chemical/Radionuclide MCL Compliance except that:

- Instead of triggering off of updated MCL Values/SSMPA, it uses the Regulating Agency and Applicable Period End Date Range selected by the user to determine which MCL Values to assess.
- It checks the selected MCL Value against FANLs that reference Violation Type 63.
- When creating Candidate Violations, it uses the Violation Type referenced by the FANL rather than 01 or 02.

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APPENDIX E-4

Surface Water Treatment Rule and and D/DBP Compliance Processes

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E.4 Surface Water Treatment Rule and and D/DBP Compliance Processes

Presentation Type 1: This section documents the design for a function that is new with Release 8.0. As such, normal text means completely new design for Release 8.0. This section contains no redlined text.

Depending on the what the user specified on the SWT or D/DBP Compliance Report windows, one or more of the following processes will be performed. Prior to any report processing, a record of the report parameters that the user specified on the window is created and kept in the CDS Reports Log. It will record the monitoring period end date range specified and which reports were actually selected.

The following CDS Report Log fields will be valued:

1. Set DATA_ENTRY_BEGIN_DATE to Monitoring Period End Date Begin
2. Set DATA_ENTRY_END_DATE to Monitoring Period End Date End
3. If called from SWT Compliance Report, set Report Type to "SW"
4. If called from D/DBP Compliance Report, set Report Type to "DB"
5. Set FEDERAL_EP_RDC_SELECTED_INDICATOR = 'Y' if Entry Point RDC (Federal) report was selected
6. Set STATE_EP_RDC_SELECTED_INDICATOR = 'Y' if Entry Point RDC (State) report was selected
7. Set FEDERAL_DS_RDC_SELECTED_INDICATOR = 'Y' if Distribution RDC (Federal) report was selected
8. Set STATE_DS_RDC_SELECTED_INDICATOR = 'Y' if Distribution RDC (State) report was selected
9. Set TURBIDITY_SELECTED_INDICATOR = 'Y' if Turbidity Report was selected
10. Set TTHM_HAA5_MR_SELECTED_INDICATOR = 'Y' if TTHM/HAA5 M&R report was selected
11. Set DBP_PRECURSORS_SELECTED_INDICATOR = 'Y' if DBP Precursors report was selected
12. Set BROMATE_BROMIDE_MR_SELECTED_INDICATOR = 'Y' if Bromate/Bromide M&R report was selected
13. Set CL2_CHLORAMINE_SELECTED_INDICATOR = 'Y' if Chlorine/Chloramine MRDL report was selected
14. Set CLO2_CHLORITE_EP_SELECTED_INDICATOR = 'Y' if Chlorine Dioxide/Chlorite (Entry Point) report was selected
15. Set CLO2_CHLORITE_DS_SELECTED_INDICATOR = 'Y' if Chlorine Dioxide/Chlorite (Distribution) report was selected
16. Set CREATE_CLO2_CHLORAMINE_MRDL_SELECTED_INDICATOR = 'Y' if Create Chlorine/Chloramine MRDL Summaries was selected

Process Clear MDBP-based Candidate Violations

Inputs: Monitoring Period End Date Range

Regulating Agency

MDBP Summary Type

1. Identify WS Facilities for Water Systems associated to the input Regulating Agency (*WHERE ((TINLGENT.NAME)=[Regulating Agency Selected by User] AND ((TINRAA.BEGIN DATE) <= Current Date Or (TINRAA.BEGIN_DATE) Is Null) AND ((TINRAA.END DATE) >= Current Date Or (TINRAA.END_DATE) Is Null))*).
2. For each WS Facility, identify all associated CDS Candidate Violations:
 - a. Associated with an MDBP Summary with the same Type as the input MDBP Summary Type (the list of valid MDBP Summary Types can be found in the Permitted Values (TINPVAL) table where field CODE_NAME is set to "TSAMDBPS1") AND
 - b. The CDS Candidate Violation's Compliance Period End Date falls within the input Begin and End Dates AND
 - c. The candidate violation is associated to a CDS Report Log of Report Type "SW" or "DB". (i.e., the candidate violation was determined by a previous run of the SWT or D/DBP Compliance Report, respectively)
3. Delete CDS Candidate Violation and also delete associated CDS FANLs and associated CDS MDBP Summaries but only do so if this is the only violation they are associated with.
4. Process next Water System Facility.

Process Clear Schedule-based M&R or Level/TT Candidate Violations

Inputs: Monitoring Period End Date Range

Regulating Agency

Analyte Code Pairs

1. Identify WS Facilities for Water Systems associated to the input Regulating Agency (*WHERE* (((*TINLGENT.NAME*)= [*Regulating Agency Selected by User*] *AND* ((*TINRAA.BEGIN_DATE*)< = *Current Date Or (TINRAA.BEGIN_DATE) Is Null*) *AND* ((*TINRAA.END_DATE*)> = *Current Date Or (TINRAA.END_DATE) Is Null*))).
2. For each WS Facility, identify all associated CDS Candidate Violations:
 - a. Of type 03 or 27
 - b. for Analyte Codes "2950" or "2456" or the Analyte Group for TTHM/HAA5 - if called from TTHM/HAA5 M&R Compliance OR "1011" or "1004" - if called from Bromate/Bromide M&R Compliance OR "1009"- if called from Chlorine Dioxide/Chlorite Distribution Compliance or "2920", "1067" or "1927" - if called from DBP Precursor Compliance AND
 - c. CDS Candidate Violation's Compliance Period End Date falls within the input Begin and End Dates AND
 - d. **The candidate violation is associated to a CDS Report Log of Report Type "SW" or "DB". (i.e., the candidate violation was determined by a previous run of the SWT or D/DBP Compliance Report, respectively)**
3. Delete CDS Candidate Violation and also associated CDS Schedules.
4. Process next Water System Facility.

Turbidity Compliance Check Process

This process will be run if the Turbidity checkbox on the SWT Compliance Report window is checked. The process is composed of two subprocesses: Combined Filter Effluent (CFE) Turbidity compliance check and the Individual Filter Turbidity compliance check. The report is a combined report that evaluates M&R and level compliance of water systems at the treatment plant level for the following: Average Combined Filter Effluent Turbidity, Single Max Sample Combined Filter Effluent Turbidity, Monthly Samples Combined Filter Effluent Turbidity and Individual Filter Turbidity. In order for compliance to be determined, the appropriate M&R and level **violations** in effect should have been entered in the Facility Analyte Level table prior to running this process **and the monitoring and level compliance indicators must be set appropriately.**

1. **Invoke Clear Candidate MDBP Violations action block passing Monitoring Period End Date Range, Regulating Agency and MDBP Summary Type “AVET”, “MAXT” and “95PT”.**
2. **Combined Filter Effluent Turbidity Compliance Check**
 - a. **Identify Facility Analyte Level Records where:**
 - i. **The MDBP_SUMMARY_CHECK_FLAG = ‘Y’**
 - ii. **It has a summary type code “AVET” - Average Turbidity or “MAXT” - Maximum Turbidity or “95PT” - 95 Percentile AND**
 - iii. **Associated to a water system facility for a water system currently regulated by the Regulating Agency specified (*WHERE ((TINLGENT.NAME)= [Regulating Agency Selected by User] AND ((TINRAA.BEGIN_DATE)< = Current Date Or (TINRAA.BEGIN_DATE) Is Null) AND ((TINRAA.END_DATE)> = Current Date Or (TINRAA.END_DATE) Is Null))*) AND**
 - iv. **The Facility Analyte Level should be in effect for the date range specified (the FANL’s effective end date should be open or be within the specified date range).**
 - b. **Retrieve all monthly monitoring periods that satisfy the Monitoring Period End Date range specified and also overlap the water system’s AOP for at least one day.**
 - c. **For each monitoring period retrieved, get associated MDBP Summary records which are also associated to the FANL identified (except MDBP Summary Type = “IFT” - Individual Filter Turbidity. Compliance determination for these are performed separately. See 2.e below). M&R Compliance is determined in two steps:**
 - i. **First, if there were no MDBP Summaries found for the monitoring period, the process will create a candidate M&R violation using the M&R violation type associated with the FANL. For example, for Combined Filter Effluent Turbidity, the FANLs would be associated to one of the following M&R violation types: 03-Major if the FANL is of type “AVET” and level type “AVG” - Turbidity Rule, type 31-Major for Unfiltered**

Treatment Plant or type 36-Major for Filtered Treatment Plant if the FANL is of type "MAXT" and level type "MAX" or "95PT" and level type "95P" - SWTR Rule, or type 38-Major if the FANL is of type "MAXT" and level type "MAX" or "95PT" and level type "95P" - IESWTR Rule. So if an M&R violation is determined, while creating an Candidate M&R Violation for an MDBP Summary of type AVET, the process will use M&R violation type 03 with severity of "MJ". The process will create and populate the CDS Candidate Violation, CDS MDBP Summary and CDS FANL records using the tables at the end of this section as reference.

- ii. Next, if MDBP Summaries are found, check each MDBP Summary record's MR_COMPLIANCE_INDICATOR. Create a candidate violation (use the M&R violation type associated with the FANL - as described above) in the following situations: a severity level of "MN" if this indicator is valued "NMN" or a severity level of "MJ" if valued "NMJ". If there is no severity level associated with the violation type, create the Candidate M&R Violation without a severity level.

- d. **To determine Level/Treatment Technique compliance for the MDBP Summary, check its LEVEL COMPLIANCE INDICATOR. If this field is not equal to "Y", create Candidate Violation using the Level Violation Type associated to the FANL.**

- e. **If the FANL type is "95PT" and its INDIV FILTER MNTRG REOD FLAG = 'Y', perform the following Individual Filter Effluent Turbidity Compliance Check:**
 - i. Determine Individual Filter Turbidity M&R compliance by performing the same checks (use the same action block) as described in Combined Filter Effluent Turbidity, on MDBP Summaries of summary type "IFT" associated to the FANL and monitoring period retrieved and create CDS Candidate Violations as appropriate. In addition, if the MDBP Summary's MR_COMPLIANCE_INDICATOR is "NMJ" or "NMN", then create entries in the CDS Report Execution Errors table in the following situations:

- (1) If Q1_IFT_MONITORED_INDICATOR is equal to 'N', create an entry in CDS Report Execution Errors table with the message "There was a failure to continuously monitor each individual filter during the monitoring period from MM/DD/YYYY to MM/DD/YYYY." Use the monitoring period begin and end dates to value the dates.
 - (2) If Q2_IFT_RECORDED_INDICATOR is equal to 'N', create an entry in CDS Report Execution Errors table with the message "There was a failure to record turbidity measurements every 15 minutes during the monitoring period from MM/DD/YYYY to MM/DD/YYYY." Use the monitoring period begin and end dates to value the dates.
 - (3) If Q3_IFT_EQUIPMENT_INDICATOR is equal to 'Y', create an entry in CDS Report Execution Errors table with the message "There was a failure on the turbidity monitoring equipment during the monitoring period from MM/DD/YYYY to MM/DD/YYYY." Use the monitoring period begin and end dates to value the dates.
- ii. To determine Individual Filter Turbidity Level/Treatment Technique compliance for the same MDBP Summary, check its LEVEL_COMPLIANCE_INDICATOR. If this field is not equal to "Y", *do not* create Candidate Violation. In addition, if the LEVEL_COMPLIANCE_INDICATOR is not equal to "Y", create entries in the CDS Report Execution Errors table in the following situations:
- (1) If Q4_IFT_GREATER_1_0_INDICATOR is equal to 'Y', create an entry in CDS Report Execution Errors table with the message "Individual filter turbidity had been greater than 1.0 NTU in two consecutive measurements during the monitoring period from MM/DD/YYYY to MM/DD/YYYY." Use the monitoring period begin and end dates to value the dates.
 - (2) If Q5_IFT_GREATER_0_5_INDICATOR is equal to 'Y', create an entry in CDS Report Execution Errors table with the message "Individual Filter Turbidity had been greater than 0.5 NTU in two consecutive measurements after

being on line for more than four hours during the monitoring period from MM/DD/YYYY to MM/DD/YYYY.” Use the monitoring period begin and end dates to value the dates.

- (3) If Q6_IFT_GREATER_1_DUR_3_MON_IND is equal to ‘Y’, create an entry in CDS Report Execution Errors table with the message “Individual Filter Turbidity had been greater than 1.0 NTU in two consecutive measurements in three consecutive months ending MM/DD/YYYY.” Use the monitoring period end date to value the date.
- (4) If Q7_IFT_GREATER_2_0_DUR_2_MON_IND is equal to ‘Y’, create an entry in CDS Report Execution Errors table with the message “Individual Filter Turbidity had been greater than 2.0 NTU in two consecutive measurements in two consecutive months ending MM/DD/YYYY.” Use the monitoring period end date to value the date.

f. Process next FANL.

Entry Point RDC Compliance Check (Federal) Process

This process will be run if the Entry Point RDC Report (Federal) checkbox on the SWT or the D/DBP Compliance Report window is checked.

1. Invoke Clear Candidate MDBP Violations action block passing Monitoring Period End Date Range, Regulating Agency and MDBP Summary Type “EPRD”
2. Identify Facility Analyte Level Records where:
 - a. The MDBP_SUMMARY_CHECK_FLAG = ‘Y’ AND
 - b. Is of summary type code “EPRD” - Federal EP RDC AND

- c. **Associated to a water system facility** for a water system regulated by the Regulating Agency specified (*WHERE* $((TINLGENT.NAME) = [Regulating Agency Selected by User])$ AND $((TINRAA.BEGIN_DATE) < = Current Date Or (TINRAA.BEGIN_DATE) Is Null)$ AND $((TINRAA.END_DATE) > = Current Date Or (TINRAA.END_DATE) Is Null))$ AND
 - d. The Facility Analyte Level should be in effect for the date range specified (the FANL's effective end date should be open or be within the specified date range).
3. Retrieve all monthly monitoring periods that satisfy the Monitoring Period End Date range specified and also overlap the water system's AOP for at least one day.
 4. Determine M&R compliance by performing the same checks (use the same action block) as described in Combined Filter Effluent Turbidity, on MDBP Summaries associated to the FANL and monitoring period retrieved.
 5. Determine Treatment Technique compliance by performing the same checks (use the same action block) as described in Combined Filter Effluent Turbidity, on MDBP Summaries associated to the FANL and monitoring period retrieved.
 6. Process next FANL.

Entry Point RDC Compliance Check (State) Process

This process will be run if the Entry Point RDC Report (State) checkbox on the SWT or the D/DBP Compliance Report window is checked.

1. Invoke Clear Candidate MDBP Violations action block passing Monitoring Period End Date Range, Regulating Agency and MDBP Summary Type "*SERD*"
2. Identify Facility Analyte Level Records where:
 - a. The `MDBP_SUMMARY_CHECK_FLAG` = 'Y' AND
 - b. Is of summary type code "*SERD*" - State EP RDC AND
 - c. **Associated to a water system facility** for a water system regulated by the Regulating Agency specified (*WHERE*

*((TINLGENT.NAME)= [Regulating Agency Selected by User] AND
(TINRAA.BEGIN_DATE)< = Current Date Or (TINRAA.BEGIN_DATE)
Is Null) AND ((TINRAA.END_DATE)> = Current Date Or
(TINRAA.END_DATE) Is Null))) AND*

- d. The Facility Analyte Level should be in effect for the date range specified (the FANL's effective end date should be open or be within the specified date range).
3. **Since samples required and taken is the same for both the federal and state levels, the users will not normally associate an M&R Violation Type to the State Entry Point RDC FANL. In this case, if M&R non-compliance is determined, create an entry in the CDS Report Execution Errors table with the message "State Minimum Entry Point RDC M&R compliance was not achieved during the monitoring period between MM/DD/YYYY and MM/DD/YYYY." Use the monitoring period begin and end dates to value the dates. However, if the user chooses to associate the FANL to a M&R Violation Type, then M&R compliance will be determined by performing the same checks (use the same action block) as described in Combined Filter Effluent Turbidity, on MDBP Summaries associated to the FANL and monitoring period retrieved.**
4. Determine Treatment Technique compliance by performing the same checks (use the same action block) as described in Combined Filter Effluent Turbidity, on MDBP Summaries associated to the FANL and monitoring period retrieved.
5. Process next FANL.

Distribution RDC Compliance Check (Federal) Process

This process will be run if the Distribution RDC Report (Federal) checkbox on the SWT or the D/DBP Compliance Report window is checked.

1. Invoke Clear Candidate MDBP Violations action block passing Monitoring Period End Date Range, Regulating Agency and MDBP Summary Type "*DSRD*"
2. Identify Facility Analyte Level Records where:
 - a. The MDBP_SUMMARY_CHECK_FLAG = 'Y' AND
 - b. Is of summary type code "*DSRD*" - Federal DS RDC AND

- c. **Associated to a water system facility** for a water system regulated by the Regulating Agency specified (*WHERE* $((TINLGENT.NAME) = [Regulating Agency Selected by User])$ AND $((TINRAA.BEGIN_DATE) < = Current Date Or (TINRAA.BEGIN_DATE) Is Null)$ AND $((TINRAA.END_DATE) > = Current Date Or (TINRAA.END_DATE) Is Null))$ AND
 - d. The Facility Analyte Level should be in effect for the date range specified (the FANL's effective end date should be open or be within the specified date range).
3. Retrieve all monthly monitoring periods that satisfy the Monitoring Period End Date range specified and also overlap the water system's AOP for at least one day.
 4. Determine M&R compliance by performing the same checks (use the same action block) as described in Combined Filter Effluent Turbidity, on associated MDBP Summaries.
 5. Determine Treatment Technique compliance by performing the same checks (use the same action block) as described in Combined Filter Effluent Turbidity, on MDBP Summaries associated to the FANL and monitoring period retrieved.
 6. Process next FANL.

Distribution RDC Compliance Check (State) Process

This process will be run if the Distribution RDC Report (State) checkbox on the SWT or the D/DBP Compliance Report window is checked.

1. Invoke Clear Candidate MDBP Violations action block passing Monitoring Period End Date Range, Regulating Agency and MDBP Summary Type "*SDRD*"
2. Identify Facility Analyte Level Records where:
 - a. The `MDBP_SUMMARY_CHECK_FLAG = 'Y'` AND
 - b. Is of summary type code "*SDRD*" - State EP RDC AND
 - c. **Associated to a water system facility** for a water system regulated by the Regulating Agency specified (*WHERE*

*((TINLGENT.NAME)= [Regulating Agency Selected by User] AND
(TINRAA.BEGIN_DATE)< = Current Date Or (TINRAA.BEGIN_DATE)
Is Null) AND ((TINRAA.END_DATE)> = Current Date Or
(TINRAA.END_DATE) Is Null))) AND*

- d. The Facility Analyte Level should be in effect for the date range specified (the FANL's effective end date should be open or be within the specified date range).
3. Retrieve all monthly monitoring periods that satisfy the Monitoring Period End Date range specified and also overlap the water system's AOP for at least one day.
4. Since samples required and taken is the same for both the federal and state levels, the users will not normally associate an M&R Violation Type to the State Distribution RDC FANL. **In this case, if M&R non-compliance is determined, create an entry in the CDS Report Execution Errors table with the message "State Minimum Entry Point RDC M&R compliance was not achieved during the monitoring period between MM/DD/YYYY and MM/DD/YYYY." Use the monitoring period begin and end dates to value the dates.** However, if the user chooses to do associate the FANL to a M&R Violation Type, then M&R compliance will be determined by performing the same checks (use the same action block) as described in Combined Filter Effluent Turbidity, on MDBP Summaries associated to the FANL and monitoring period retrieved.
5. Determine Level/Treatment Technique compliance by performing the same checks (use the same action block) as described in Combined Filter Effluent Turbidity, on MDBP Summaries associated to the FANL and monitoring period retrieved. If the LEVEL_COMPLIANCE_INDICATOR is not equal to "Y", create an entry in the CDS Report Execution Errors table for the same monitoring period with the message **"There are less than 95% of samples that met the State Minimum Distribution RDC level during the monitoring period from MM/DD/YYYY to MM/DD/YYYY."** Use the monitoring period begin and end dates to value the dates.
6. Process next FANL.

TTHM/HAA5 M&R Compliance Check Process

This process will be run if the TTHM/HAA5 M&R checkbox on the D/DBP Compliance Report window is checked. It will have 2 subprocesses: the first will process only group schedules for analyte groups that only contain Analyte Codes "2950", "2456" or both where a

group or several individual violations may result; the second, will process only individual non-hidden sample schedules for Analyte Codes "2950" or "2456", where an individual violation may result.

1. Invoke Clear Candidate M&R Violations action block passing Monitoring Period End Date Range, Regulating Agency and Analyte Codes "2950" and "2456" and the Analyte Group for TTHM/HAA5
2. Identify Group Schedules that:
 - a. Reference the Analyte Group that contain only Analyte Code "2950" or "2456" or both AND
 - b. References a Monitoring Requirement that is associated to violation type 03 or 27 AND
 - c. References a Water System regulated by the Regulating Agency specified (*WHERE ((TINLGENT.NAME)= [Regulating Agency Selected by User] AND ((TINRAA.BEGIN_DATE)< = Current Date Or (TINRAA.BEGIN_DATE) Is Null) AND ((TINRAA.END_DATE)> = Current Date Or (TINRAA.END_DATE) Is Null))*)
 - d. The Group Schedule should be in effect for the date range specified (the Schedule's effective end date should be open or be within the specified date range).
3. Retrieve all monitoring periods with the same periodicity as the Group Schedule identified and also overlap the Group Schedule's effective dates and the water system's AOP for at least one day and that satisfy the Monitoring Period End Date range specified.
4. Evaluate the selected Group Schedules, one by one, using the **Group Schedule M&R Compliance Check action block** (described in Appendix E.2 (7.9.3.2) - Chemical/Radionuclide Routine M&R Compliance Check). The action block creates the appropriate group or individual violation.
5. Process next Group Schedule.
6. Identify Individual Non-Hidden Schedules that:
 - a. Reference the Analyte Code "2950" or "2456" AND

- b. References a Monitoring Requirement that is associated to violation type 03 or 27 AND
 - c. References a Water System regulated by the Regulating Agency specified (*WHERE* (((*TINLGENT.NAME*)= [Regulating Agency Selected by User] AND ((*TINRAA.BEGIN_DATE*)< = Current Date Or (*TINRAA.BEGIN_DATE*) Is Null) AND ((*TINRAA.END_DATE*)> = Current Date Or (*TINRAA.END_DATE*) Is Null)))
 - d. The Schedule should be in effect for the date range specified (the Schedule's effective end date should be open or be within the specified date range).
7. Identify all monitoring periods associated to the Sample Schedule through the SSMPA that:
- a. Reference a Monitoring Period that:
 - i. Has an End Date greater than or equal to the Begin Date of the Monitoring Period End Date range selected for the compliance check AND
 - ii. Has an End Date less than or equal to the End Date of the Monitoring Period End Date range selected for the compliance check
8. Evaluate the selected SSMPAs, one by one, using the **Individual Schedule M&R Compliance Check action block** (described in Appendix E.2a - Chemical/Radionuclide Routine M&R Compliance Check). If the action block returns a violation type (03 or 27), create and populate the Candidate M&R Violation and CDS Schedule records using the tables at the end of this section as reference.
9. Process next SSMPA.
10. Process next Individual Non-Hidden Schedule

DBP Precursors Compliance Check Process

This process will be run if the DBP Precursors checkbox on the SWT or the D/DBP Compliance Report window is checked.

1. Invoke the Clear Candidate Violations process action block used in the current CDS Setup process to clear the Candidate Violations passing the Monitoring Period End Date Range and Regulating Agency and Analyte Code "2920" - TOC and Alkalinity Analytes "1067" or "1927".
2. To determine M&R compliance, identify all SSMPAs that:
 - a. Reference a Sample Schedule that:
 - i. References a Water System regulated by the Regulating Agency specified (*WHERE ((TINLGENT.NAME)= [Regulating Agency Selected by User] AND ((TINRAA.BEGIN_DATE) < = Current Date Or (TINRAA.BEGIN_DATE) Is Null) AND ((TINRAA.END_DATE) > = Current Date Or (TINRAA.END_DATE) Is Null))*) AND
 - ii. References a Monitoring Requirement that is associated to violation type 27 for analyte code "2920" - TOC or Alkalinity Analytes "1067" or "1927"
 - b. Reference a Monitoring Period that:
 - i. Has an End Date greater than or equal to the Begin Date of the Monitoring Period End Date range selected for the compliance check AND
 - ii. Has an End Date less than or equal to the End Date of the Monitoring Period End Date range selected for the compliance check
3. Evaluate the selected SSMPAs, one by one, using the **Individual Schedule M&R Compliance Check action block** (described in Appendix E.2a - Chemical/Radionuclide Routine M&R Compliance Check). If the action block returns a violation type 27, create and populate the Candidate M&R Violation and CDS Schedule records using the tables at the end of this section as reference.

4. If the SSMPA is for a Finished TOC, determine Treatment Technique compliance by retrieving the Achieved Removal Ratio (field PRC_ACH_RMVL_RA_NO from TMNMPAVG table) associated to the SSMPA. If the Achieved Removal Ratio is less than 1.0, create Precursor Removal TT violation type 46.
5. Process next SSMPA.

Bromate/Bromide M&R Compliance Check Process

This process will be run if the Bromate/Bromide on the D/DBP Compliance Report window is checked. It will have 2 subprocesses: the first will process only group schedules for analyte groups that only contain Analyte Codes "1004", "1011" or both where a group or several individual violations may result; the second, will process only individual non-hidden sample schedules for Analyte Codes "1004" or "1011", where an individual violation may result.

1. Invoke Clear Candidate M&R Violations action block passing Monitoring Period End Date Range, Regulating Agency and Analyte Codes "1004" and "1011" and the Analyte Group for Bromate/Bromide
2. Identify Group Schedules that:
 - a. Reference the Analyte Group that contain only Analyte Code "1004" or "1011" or both AND
 - b. References a Monitoring Requirement that is associated to violation type 03 or 27 AND
 - c. References a Water System regulated by the Regulating Agency specified (*WHERE (((TINLGENT.NAME)=[Regulating Agency Selected by User] AND ((TINRAA.BEGIN DATE) <= Current Date Or (TINRAA.BEGIN DATE) Is Null) AND ((TINRAA.END_DATE) >= Current Date Or (TINRAA.END_DATE) Is Null))*)
 - d. The Group Schedule should be in effect for the date range specified (the Schedule's effective end date should be open or be within the specified date range).

3. Retrieve all monitoring periods with the same periodicity as the Group Schedule identified and also overlap the Group Schedule's effective dates and the water system's AOP for at least one day and that satisfy the Monitoring Period End Date range specified.
4. Evaluate the selected Group Schedules, one by one, using the **Group Schedule M&R Compliance Check action block** (described in Appendix E.2 (7.9.3.2) - Chemical/Radionuclide Routine M&R Compliance Check). The action block creates the appropriate group or individual violation.
5. Process next Group Schedule.
6. Identify Individual Non-Hidden Schedules that:
 - a. Reference the Analyte Code "1004" or "1011" AND
 - b. References a Monitoring Requirement that is associated to violation type 03 or 27 AND
 - c. References a Water System regulated by the Regulating Agency specified (*WHERE ((TINLGENT.NAME) = [Regulating Agency Selected by User] AND ((TINRAA.BEGIN DATE) < = Current Date Or (TINRAA.BEGIN DATE) Is Null) AND ((TINRAA.END_DATE) > = Current Date Or (TINRAA.END_DATE) Is Null))*)
 - d. The Schedule should be in effect for the date range specified (the Schedule's effective end date should be open or be within the specified date range).
7. Identify all monitoring periods associated to the Sample Schedule through the SSMPA that:
 - a. Reference a Monitoring Period that:
 - i. Has an End Date greater than or equal to the Begin Date of the Monitoring Period End Date range selected for the compliance check AND
 - ii. Has an End Date less than or equal to the End Date of the Monitoring Period End Date range selected for the compliance check

8. Evaluate the selected SSMPAs. one by one, using the **Individual Schedule M&R Compliance Check action block** (described in Appendix E.2a - Chemical/Radionuclide Routine M&R Compliance Check). If the action block returns a violation type (03 or 27), create and populate the Candidate M&R Violation and CDS Schedule records using the tables at the end of this section as reference.
9. Process next SSMPA.
10. Process next Individual Non-Hidden Schedule.

Chlorine/Chloramine MRDL Compliance Check Process

This process will be run if the Chlorine/Chloramine MRDL checkbox on the SWT or the D/DBP Compliance Report window is checked.

1. Invoke Clear Candidate MDBP Violations action block passing Monitoring Period End Date Range, Regulating Agency and MDBP Summary Type "MRDL"
2. Identify Facility Analyte Level Records where:
 - a. The `MDBP_SUMMARY_CHECK_FLAG = 'Y'` AND
 - b. Is of summary type code "*MRDL*" - Chlorine/Chloramine MRDL Summary AND
 - c. Associated to a water system facility for a water system regulated by the Regulating Agency specified (*WHERE* $((TINLGENT.NAME) = [Regulating Agency Selected by User])$ AND $((TINRAA.BEGIN_DATE) < = Current Date$ Or $(TINRAA.BEGIN_DATE) Is Null)$ AND $((TINRAA.END_DATE) > = Current Date$ Or $(TINRAA.END_DATE) Is Null))$ AND
 - d. The Facility Analyte Level should be in effect for the date range specified (the FANL's effective end date should be open or be within the specified date range).
3. Identify Routine or Temporary Routine (Monitoring Requirement Sample Type Code is "RT" or "TR") TCR Sample Schedules for the same water system associated with the FANL identified.

4. Retrieve all monitoring periods with the same periodicity as the TCR Schedule identified and also overlap the TCR Schedule's effective dates and the water system's AOP for at least one day and that satisfy the Monitoring Period End Date range specified.
5. Determine M&R compliance by performing the same checks (use the same action block) as described in Combined Filter Effluent Turbidity, on MDBP Summaries associated to the FANL and monitoring period retrieved.
6. Determine Treatment Technique compliance by performing the same checks (use the same action block) as described in Combined Filter Effluent Turbidity, on MDBP Summaries associated to the FANL and monitoring period retrieved.
7. Process next Schedule.
8. Process next FANL.

Entry Point Chlorine Dioxide/Chlorite Compliance Check Process

This process will be run if the Chlorine Dioxide/Chlorite EP checkbox on the SWT or the D/DBP Compliance Report window is checked.

1. Invoke Clear Candidate MDBP Violations action block passing Monitoring Period End Date Range, Regulating Agency and MDBP Summary Type "CLO2" and "CL03"
2. Identify Facility Analyte Level Records where:
 - a. The `MDBP_SUMMARY_CHECK_FLAG = 'Y'` AND
 - b. Is of summary type code "*CLO2*" - Chlorine Dioxide MDBP Summary or "*CLO3*" - Chlorite MDBP Summary AND
 - c. **Associated to a water system facility** for a water system regulated by the Regulating Agency specified (*WHERE*
((TINLGENT.NAME)= [Regulating Agency Selected by User] AND
((TINRAA.BEGIN_DATE)< = Current Date Or (TINRAA.BEGIN_DATE)
Is Null) AND ((TINRAA.END_DATE)> = Current Date Or
(TINRAA.END_DATE) Is Null))) AND

Distribution Chlorine Dioxide/Chlorite Process

This process will be run if the Chlorine Dioxide/Chlorite DS checkbox on the SWT or the D/DBP Compliance Report window is checked.

M&R compliance determination for Chlorine Dioxide and Chlorite at the Distribution System will be performed if monitoring requirements at the facility are recorded by entering sample schedules. However, this process will not check for additional monitoring at the distribution system. On the other hand, Level compliance determination for the same analytes will be performed if MRDL and MCL levels for Chlorine Dioxide and Chlorite are established in the ALRA table.

1. Determine M&R compliance using the following steps:
2. Identify Group Schedules that:
 - a. It is a Routine schedule (Monitoring Requirement Sample Type Code is "RT") associated to violation type "27"
 - b. The analyte referenced by the sample schedule is either analyte code "1008" - Chlorine Dioxide or "1009" - Chlorite AND
 - c. Are Monthly (Monitoring Requirement Sample Count Unit Code is "MN") or Quarterly ("QT")
 - d. References a Water System regulated by the Regulating Agency specified (*WHERE ((TINLGENT.NAME) = [Regulating Agency Selected by User] AND (TINRAA.BEGIN DATE) < = Current Date Or (TINRAA.BEGIN DATE) Is Null) AND ((TINRAA.END _DATE) > = Current Date Or (TINRAA.END _DATE) Is Null))*)
 - e. The Group Schedule should be in effect for the date range specified (the Schedule's effective end date should be open or be within the specified date range).
3. Retrieve all monthly or quarterly monitoring periods with the same periodicity as the Group Schedule identified and also overlap the Group Schedule's effective dates and the water system's AOP for at least one day and that satisfy the Monitoring Period End Date range specified.

4. Evaluate the selected Group Schedules, one by one, using the **Group Schedule M&R Compliance Check action block** (described in Appendix E.2 (7.9.3.2) - Chemical/Radionuclide Routine M&R Compliance Check). The action block creates the appropriate group or individual violation.
5. XProcess next Group Schedule.
6. Identify Individual Non-Hidden Schedules that:
 - a. It is a Routine schedule (Monitoring Requirement Sample Type Code is "RT") associated to violation type "27"
 - b. The analyte referenced by the sample schedule is either analyte code "1008" - Chlorine Dioxide or "1009"-Chlorite AND
 - c. Are Monthly (Monitoring Requirement Sample Count Unit Code is "MN") or Quarterly ("QT")
 - d. References a Water System regulated by the Regulating Agency specified (*WHERE (((TINLGENT.NAME)= [Regulating Agency Selected by User] AND ((TINRAA.BEGIN_DATE)< = Current Date Or (TINRAA.BEGIN_DATE) Is Null) AND ((TINRAA.END_DATE)> = Current Date Or (TINRAA.END_DATE) Is Null))*)
 - d. The Schedule should be in effect for the date range specified (the Schedule's effective end date should be open or be within the specified date range).
7. Identify all monitoring periods associated to the Sample Schedule through the SSMPA that:
 - a. Reference a Monitoring Period that:
 - i. Has an End Date greater than or equal to the Begin Date of the Monitoring Period End Date range selected for the compliance check AND
 - ii. Has an End Date less than or equal to the End Date of the Monitoring Period End Date range selected for the compliance check

8. Evaluate the selected SSMPAs, one by one, using the **Individual Schedule M&R Compliance Check action block** (described in Appendix E.2a - Chemical/Radionuclide Routine M&R Compliance Check). If the action block returns a violation type (27), create and populate the Candidate M&R Violation and CDS Schedule records using the tables at the end of this section as reference.
9. Process next SSMPA.
10. Process next Individual Non-Hidden Schedule
11. Determine Level compliance using the following steps:
12. Get ALRA records where:
 - a. The analyte referenced by the ALRA is either analyte code "1008" - Chlorine Dioxide with a Level Type of "MRDL" or "1009"-Chlorite with a Threshold Type of "MCL" AND
 - b. The ALRA is in effect for the date range specified (the ALRA's effective end date should be open or be within the specified date range).
13. Retrieve water systems regulated by the Regulating Agency specified (*WHERE* $((TINLGENT.NAME) = [Regulating Agency Selected by User] AND ((TINRAA.BEGIN_DATE) < = Current Date Or (TINRAA.BEGIN_DATE) Is Null) AND ((TINRAA.END_DATE) > = Current Date Or (TINRAA.END_DATE) Is Null))$) AND have sample results collected for Chlorine Dioxide and Chlorite
14. Retrieve all monthly or quarterly monitoring periods that satisfy the Monitoring Period End Date range specified (there may not be sample schedules for analytes 1008 or 1009, therefore we cannot use SSMPA as the driver).

15. If the ALRA retrieved is for "1008" - Chlorine Dioxide, check all Chlorine Dioxide Sample Analytical Results, collected during the monitoring period retrieved (SAR Collection End Date is on or after the monitoring period begin date and is on or before the monitoring period end date), for any exceedence (*using the CDS Setup Results Alert Report action block, passing the analyte code "1008", "MDRL" and the monitoring period begin and end dates*). If any one is greater than the MRDL Measure, the process will create an entry in the CDS Report Execution Errors table with the message "Maximum residual disinfectant level for Chlorine Dioxide was exceeded during the monitoring period from MM/DD/YYYY to MM/DD/YYYY." Use the monitoring period begin and end dates to value the dates.
16. If the ALRA retrieved is for "1009" - Chlorite, check all Chlorite Sample Analytical Results, collected during the monitoring period retrieved (SAR Collection End Date is on or after the monitoring period begin date and is on or before the monitoring period end date), for exceedence (*using the CDS Setup Results Alert Report action block, passing the analyte code "1009", "MCL" and the monitoring period begin and end dates*). If any one is greater than the MRDL Measure, the process will create an entry in the CDS Report Execution Errors table with the message "Maximum Level for Chlorite was exceeded during the monitoring period from MM/DD/YYYY to MM/DD/YYYY." Use the monitoring period begin and end dates to value the dates.
17. Process next Water System.

Create Chlorine/Chloramine MRDL Summaries Process

This process will be run if the Create Chlorine/Chloramine checkbox on the SWT or the D/DBP Compliance Report window is checked and will be run prior to any other compliance process selected, if any. The action block will not update the Summary if the Last Update User Id is not a system userid ("CDSSETUP").

Inputs: Monitoring Period End Date Range Regulating Agency

1. Identify Facility Analyte Level Records where:
 - a. It is of level type "MAX" and the referenced analyte is either "1006" - Chloramine or "0999" - Chlorine AND
 - b. **Associated to a water system facility** for a water system regulated by the Regulating Agency specified (*WHERE*)

*((TINLGENT.NAME)= [Regulating Agency Selected by User] AND
(TINRAA.BEGIN_DATE)< = Current Date Or (TINRAA.BEGIN_DATE)
Is Null) AND ((TINRAA.END_DATE)> = Current Date Or
(TINRAA.END_DATE) Is Null)) AND*

- c. The Facility Analyte Level should be in effect for the date range specified (the FANL's effective end date should be open or be within the specified date range).
2. **Identify Routine or Temporary Routine (Monitoring Requirement Sample Type Code is "RT" or "TR") TCR Sample Schedules (sorted ascending effective begin date) for the same water system associated with the FANL identified which are in effect during the Monitoring Period End Date range specified.**
3. Retrieve all monitoring periods (sorted ascending) with the same periodicity as the TCR Schedule identified and also overlap the TCR Schedule's effective dates and the water system's AOP for at least one day.
4. Create or modify (if already existing and user id is "CDSSETUP") MDBP Summary.
 - a. Set the TYPE_CODE_CV to "MRDL"
 - b. Set the REPORTED_DATE to current date.
 - c. Set the SAMPLES_REQUIRED to the monitoring requirement of the TCR Schedule.
 - d. Set the SAMPLES_COLLECTED by counting the number of Routine (Type Code = "RT") TCR samples where either
FLD_FREE_CHLORINE_RESIDUAL_MSR > 0 or
FLD_TOTAL_CHLORINE_RESIDUAL_MSR > 0 and the
COMPLIANCE_PURPOS_INDICATOR_CODE is equal to "Y".
 - e. Set the MR_COMPLIANCE_INDICATOR using the following algorithm.

$$x = (\text{Number of Samples Taken} / \text{Number of Samples Required}) * 100$$

If No. Samples Taken > = No. Samples Required, set to "Y"

If $x < 89.9$, set to "NMJ"

Otherwise, set to "NMN"

- f. Retrieve and get the sum of the residual measures from the Routine For-Compliance TCR samples as follows:

If the analyte code in the FANL is "0999":

Use FLD_FREE_CHLORINE_RESIDUAL_MSR if this field > 0, Else
Use FLD_TOTAL_CHLORINE_RESIDUAL_MSR

If the analyte code in the FANL is "1006":

Use FLD_TOTAL_CHLORINE_RESIDUAL_MSR if this field > 0,

Else

Use FLD_FREE_CHLORINE_RESIDUAL_MSR

Set MONITORING_PERIOD_AVG_MEASURE by dividing the sum of the above by the number of samples taken.

- g. Set RUNNING_ANNUAL_AVERAGE_MEASURE using the following algorithm.
- i. Retrieve MRDL Summaries associated to the same FANL for the prior 12 months and including the current period.
 - ii. For each MRDL Summary retrieved, let y = Number of Days in the Monitoring Period the water system is in operation (the days which are also overlapping the water system's AOP - Developer's Note: Use the action block which calculates the SSMPA applicable period dates to determine the number of days overlapping among monitoring period, AOP and Schedule). For the MRDL covering the actual day 1 year ago (current date - 1 year), y = Number of days from current date - 1 day to the end of that MRDL's monitoring period. Calculate x = $\text{MONITORING_PERIOD_AVG_MEASURE} * y$.
 - iii. Calculate the Total number of days in operation by adding the y 's of each MRDL Summary.
 - iv. Calculate the RUNNING_ANNUAL_AVERAGE_MEASURE:
$$\text{RAA} = \frac{\text{Sum of } x \text{ for each monitoring period}}{\text{Total number of days in operation}}$$

- h. Associate the MDBP Summary to the FANL and the monitoring period being processed.
 - i. If the RUNNING_ANNUAL_AVERAGE_MEASURE is greater than the FANL level (convert Unit of Measure as appropriate), set the LEVEL_COMPLIANCE_INDICATOR to “N”, otherwise set to “Y”.
 - j. Set User Id to “CDSSETUP”
 - k. Set Last Update Timestamp to Current Timestamp
5. Process next FANL.

The following tables specify what values to use when passing information to the **Create Candidate Violation** action block for any M&R, Level or Treatment Technique candidate violations determined.

Field Name	Value
TCDSVIOL_IS_NUMBER	Running Sequence number to be generated by getting Max of sequence number and increment by 1.
TCDSVIOL_ST_CODE	State Code of the state obtained from the TINPRT table.
PWS_TINWSYS_IS_NO PWS_TINWSYS_ST_CO PWS_NUMBER PWS_NAME PWS_FED_PRI_SRC_CD PWS_FED_TYPE_CD PWS_POPULATION_CNT PWS_ACTIV_STAT_CD PWS_ACTIVITY_DATE	TINWSYS_IS_NUMBER TINWSYS_ST_CODE NUMBER NAME FED_PRIMARY_SOURCE_CODE FEDERAL_TYPE_CODE D_POPULATION_COUNT ACTIVITY_STATUS_CODE ACTIVITY_DATE From the TINWSYS that ‘applies’ to the MDBP Summary that was not in conformance with the FANL causing this candidate violation. This denormalized information is used for reporting purposes and to create the link to the water system record when migrating the candidate violations.

Exhibit E-4-1. CDS Candidate Violation

Field Name	Value
WSF_TINWSF_IS_NO WSF_TINWSF_ST_CO WSF_STATE_ASGN_ID WSF_NAME WSF_TYPE_CODE WSF_ACTIVITY_DATE WSF_WATER_TYP_CD WSF_AVAIL_CD WSF_EX_SYS_NO	TINWSF_IS_NUMBER TINWSF_ST_CODE STATE_ASGN_ID NAME TYPE_CODE ACTIVITY_DATE WATER_TYPE_CODE AVAILABILITY_CODE EXTERNAL_SYSTEM_NUMBER From the Water system facility, which is the location of the samples collected for the MDBP Summary that was not in conformance with the FANL causing this candidate violation.
TMNVTYPE_IS_NUMBER TMNVTYPE_ST_CODE VIOLATION_TYPE_CD VIOLATION_TYPE_NAM VIO_TYPE_SEV_LVL	TMNVTYPE_IS_NUMBER TMNVTYPE_ST_CODE As indicated in the detailed specification above. Use the name corresponding to the code and populate the violation type name column. For the severity level use MJ, MN, or blank as indicated in the detailed specification above.
VIO_TO_FED_ANL_CD	If Violation Type is associated to Analyte, value with that Analyte Code. Else use Analyte Code related to the Schedule/ Schedule Group through the Monitoring Requirement.
ANL_TSAANLYT_IS_NO ANL_TSAANLYT_ST_CO ANALYTE_CODE ANALYTE_NAME	TSAANLYT_IS_NUMBER TSAANLYT_ST_CODE Use the Analyte Code associated to the FANL. Use the name corresponding to the code to value the name field.

Exhibit E-4-1. CDS Candidate Violation (Continued)

Field Name	Value
AGP_TSAANLGP_IS_NO AGP_TSAANLGP_ST_CO	TSAANLGP_IS_NUMBER TSAANLGP_ST_CODE
ANALYTE_GROUP_CODE ANALYTE_GROUP_NAME	Analyte Group Code related to the Schedule Group related to the Sample Schedule if so indicated in above specification. Use the name corresponding to the code to value the name field.
MP_TMNPRD_IS_NO MP_TMNPRD_ST_CODE MP_CP_BEG_DAT MP_CP_END_DAT MP_MON_PER_DUR MP_MON_PER_NAME	TMNPRD_IS_NUMBER TMNPRD_ST_CODE BEGIN_DATE END_DATE TYPE_CODE NAME of the Monitoring Period related to the MDBP Summary for the FANL based compliance check or the Monitoring Period related to the SSMPA for the Schedule based compliance check.
VIO_ANLYS_RSLT_TXT	Not valued
VIO_ANLYS_RSLT_UOM	Not valued
VIO_MCL_VIOLTD_TXT	Not valued
VIO_MCL_VIOLTD_UOM	Not valued
VIO_MCL_NUM_RSLTS	Not valued
VIO_DATA_ORIGIN_CD	Set to 'S or R' depending on whether the Government Agency where Primacy Indicator = Y has type of ST (set to S) or RG (set to R)
VIO_ON_SKD_GRP_IND	Not valued
SSMPA_APPER_END_DT	Not valued
VIO_MNR_NUM_RSLTS	Set to the MDBP Summary Samples Collected for M&R Violations

Exhibit E-4-1. CDS Candidate Violation (Continued)

Field Name	Value
VTTYPE_CATEGORY_CD	Set to 'MON' for M&R violations. Set to 'MCL' for Level violations. Set to 'TT' for Treatment Technique violations.
ORIG_TMNVOL_IS_NO ORIG_TMNVOL_ST_CO ORIG_VI_VTYP_IS_NO ORIG_VI_VTYP_ST_CO	Not valued

Exhibit E-4-1. CDS Candidate Violation (Continued)

The following CDS MDBP SUMMARY record will be created and associated to the CDS CANDIDATE VIOLATION with values from the associated MDBP SUMMARY that caused the violation.

Field Name	Value
TCDMDBPS_IS_NUMBER	Running Sequence number to be generated by getting Max of sequence number and increment by 1.
TCDMDBPS_ST_CODE	State Code of the MDBP Summary being reported.
PWS_TINWSYS_IS_NO PWS_TINWSYS_ST_CO PWS_NUMBER PWS_NAME PWS_FED_PRI_SRC_CD PWS_FED_TYPE_CD PWS_POPULATION_CNT PWS_ACTIV_STAT_CD PWS_ACTIVITY_DATE	TINWSYS_IS_NUMBER TINWSYS_ST_CODE NUMBER NAME FED_PRIMARY_SOURCE_CODE FEDERAL_TYPE_CODE D_POPULATION_COUNT ACTIVITY_STATUS_CODE ACTIVITY_DATE From the TINWSYS that applies to the MDBP Summary.

Exhibit E-4-2. CDS MDBP Summary

Field Name	Value
WSF_TINWSF_IS_NO WSF_TINWSF_ST_CO WSF_STATE_ASGN_ID WSF_NAME WSF_TYPE_CODE WSF_ACTIVITY_DATE WSF_WATER_TYP_CD WSF_AVAIL_CD WSF_EX_SYS_NO	TINWSF_IS_NUMBER TINWSF_ST_CODE STATE_ASGN_ID NAME TYPE_CODE ACTIVITY_DATE WATER_TYPE_CODE AVAILABILITY_CODE EXTERNAL_SYSTEM_NUMBER From the Water system facility associated to the MDBP Summary.
ANL_TSAANLYT_IS_NO ANL_TSAANLYT_ST_CO ANALYTE_CODE ANALYTE_NAME	TSAANLYT_IS_NUMBER TSAANLYT_ST_CODE The Analyte Code associated to the MDBP Summary. Use the name corresponding to the code to value the name field.
MP_TMNMPRD_IS_NO MP_TMNPRD_ST_CODE MP_BEGIN_DATE MP_END_DATE MP_DURATION MP_NAME	TMNPRD_IS_NUMBER TMNPRD_ST_CODE BEGIN_DATE END_DATE TYPE_CODE NAME of Monitoring Period related to the MDBP Summary.
MDBP_SUMM_TYP MDBP_SUMM_TYP_DSC	MDBP Summary's TYPE_CODE_CV DESCRIPTION (in TINPVAL) where matches with entity CODE, attribute CODE_NAME of value TSAMDBPS1 AND PERMITTED VALUE attribute Text Value that matches value in MDBP Summary's TYPE_CODE_CV
REPORTED_DATE	REPORTED_DATE

Exhibit E-4-2. CDS MDBP Summary (Continued)

Field Name	Value
SAMPLES_REQUIRED SAMPLES_COLLECTED MR_COMPLIANCE_IND LVL_COMPLIANCE_IND	SAMPLES_REQUIRED SAMPLES_COLLECTED MR_COMPLIANCE_INDICATOR LEVEL_COMPLIANCE_INDICATOR
SMPLS_BYND_MEA_LVL PRCNT_BYND_MEA_LVL PRCNT_BYND_MEA_TXT HIGHEST_MEASURE HIGHEST_MSR_TXT MON_PER_AVG_MSR MON_PER_AVG_MSR_TX MPA_UOM_CODE RAA_MEASURE RAA_MSR_TXT RAA_UOM_CODE Q1_IFT Q2_IFT Q3_IFT Q4_IFT Q5_IFT Q6_IFT Q7_IFT	SMPLS_BYND_MEA_LVL PRCNT_BYND_MEA_LVL PRCNT_BYND_MEA_TXT HIGHEST_MSR HIGHEST_MSR_TXT MON_PER_AVG_MSR MON_PER_AVG_MSR_TX MPA_UOM_CODE RAA_MEASURE RAA_MSR_TXT RAA_UOM_CODE Q1_IFT_MONITRD_IND Q2_IFT_RECORED_IND Q3_IFT_EQUIP_IND Q4_IFT_OVER_1_IND Q5_IFT_OVER_05_IND Q6_IFT_1_IN_3M_IND Q7_IFT_2_IN_2M_IND

Exhibit E-4-2. CDS MDBP Summary (Continued)

The following CDS FANL record will be created and associated to the CDS CANDIDATE VIOLATION with values from the associated TMNFANL that was not complied.

Field Name	Value
TCDFANL_IS_NUMBER	Running Sequence number to be generated by getting Max of sequence number and increment by 1.
PWS_TINWSYS_IS_NO PWS_TINWSYS_ST_CO PWS_NUMBER PWS_NAME PWS_FED_PRI_SRC_CD PWS_FED_TYPE_CD PWS_POPULATION_CNT PWS_ACTIV_STAT_CD PWS_ACTIVITY_DATE	TINWSYS_IS_NUMBER TINWSYS_ST_CODE NUMBER NAME FED_PRIMARY_SOURCE_CODE FEDERAL_TYPE_CODE D_POPULATION_COUNT ACTIVITY_STATUS_CODE ACTIVITY_DATE From the TINWSYS that applies to the FANL.
WSF_TINWSF_IS_NO WSF_TINWSF_ST_CO WSF_STATE_ASGN_ID WSF_NAME WSF_TYPE_CODE WSF_ACTIVITY_DATE WSF_WATER_TYP_CD WSF_AVAIL_CD WSF_EX_SYS_NO	TINWSF_IS_NUMBER TINWSF_ST_CODE STATE_ASGN_ID NAME TYPE_CODE ACTIVITY_DATE WATER_TYPE_CODE AVAILABILITY_CODE EXTERNAL_SYSTEM_NUMBER From the Water system facility for which the FANL is established.
ANL_TSAANLYT_IS_NO ANL_TSAANLYT_ST_CO ANALYTE_CODE ANALYTE_NAME	TSAANLYT_IS_NUMBER TSAANLYT_ST_CODE Either the Rule Code associated to the Violation Type of the FANL or the Analyte Code associated to the FANL. Use the name corresponding to the code to value the name field.
EFFECTIVE_BEG_DAT EFFECTIVE_END_DAT	EFFECTIVE_BEGIN_DATE EFFECTIVE_END_DATE

Exhibit E-4-3. CDS Facility Analyte Level (TCDFANL)

Field Name	Value
CONTROL_LEVEL_TYPE CONTROL_LEVEL_TEXT UOM_CODE	CONTROL_LEVEL_TYPE CONTROL_LEVEL_TEXT UOM_CODE
NUM_DAYS_PER_MONTH SAMPLE_RQT_PER_DAY IND_FILT_MNTRG_FLG SUM_TYPE_CODE_CV	NUM_DAYS_PER_MONTH SAMPLE_RQT_PER_DAY IND_FILT_MNTRG_FLG SUM_TYPE_CODE_CV
MR_VTYP_IS_NO MR_VTYP_ST_CO MR_VTYP_CODE MR_VTYP_NAME MR_VTYP_SEV_LVL	TMNVTYPE_IS_NUMBER TMNVTYPE_ST_CODE of the M&R Violation associated to the FANL. Use the name corresponding to the code and populate the violation type name column. For the severity level use MJ, MN, or blank as indicated in the detailed specification above.
LVL_VTYP_IS_NO LVL_VTYP_ST_CO LVL_VTYP_CODE LVL_VTYP_NAME LVL_VTYP_SEV_LVL	TMNVTYPE_IS_NUMBER TMNVTYPE_ST_CODE of the Level or Treatment Technique Violation associated to the FANL. Use the name corresponding to the code and populate the violation type name column. For the severity level use MJ, MN, or blank as indicated in the detailed specification above.

Exhibit E-4-3. CDS Facility Analyte Level (TCDFANL) (Continued)

Field Name	Value
TCDSSASCH_IS_NUMBER	Running Sequence number to be generated by getting Max of sequence number and increment by 1.
TCDSSASCH_ST_CODE	State Code of the state obtained from the TINPRT table.
PWS_TINWSYS_IS_NO PWS_TINWSYS_ST_CO PWS_NUMBER PWS_NAME PWS_FED_PRI_SRC_CD PWS_FED_TYPE_CD PWS_POPULATION_CNT PWS_ACTIV_STAT_CD PWS_ACTIVITY_DATE	TINWSYS_IS_NUMBER TINWSYS_ST_CODE NUMBER NAME FED_PRIMARY_SOURCE_CODE FEDERAL_TYPE_CODE D_POPULATION_COUNT ACTIVITY_STATUS_CODE ACTIVITY_DATE From the TINWSYS that 'APPLIES' to the schedule record that was not conformed causing this candidate violation.
WSF_TINWSF_IS_NO WSF_TINWSF_ST_CO WSF_STATE_ASGN_ID WSF_NAME WSF_TYPE_CODE WSF_ACTIVITY_DATE WSF_WATER_TYP_CD WSF_AVAIL_CD WSF_EX_SYS_NO	TINWSF_IS_NUMBER TINWSF_ST_CODE STATE_ASGN_ID NAME TYPE_CODE ACTIVITY_DATE WATER_TYPE_CODE AVAILABILITY_CODE EXTERNAL_SYSTEM_NUMBER From the Water System Facility, which is the location for specifying the schedule, which was not conformed causing this candidate violation.

Exhibit E-4-4. CDS Candidate Schedule

Field Name	Value
SCH_TMNSASCH_IS_NO SCH_TMNSASCH_ST_CO SCH_BEGIN_DATE SCH_END_DATE SCH_SEAS_PRD_BEG SCH_SEAS_PRD_END SCH_ST_SEA_PRD_BEG SCH_ST_SEA_PRD_END SCH_STATE_YEAR SCH_REASON_TEXT SCH_INIT_MP_BEG_DT	TMNSASCH_IS_NUMBER TMNSASCH_ST_CODE BEGIN_DATE END_DATE SEASONAL_PERIOD_BEGIN SEASONAL_PERIOD_END STATE_SEASONAL_PERIOD_BEGIN STATE_SEASONAL_PERIOD_END STATE_YEAR REASON_TEXT INITIAL_MP_BEGIN_DAT from the Sample_Schedule which was not conformed causing this violation.
MNR_TMNMNR_IS_NO MNR_TMNMNR_ST_CO MNR_SAMPLE_TYPE_CD MNR_SAMPLE_COUNT MNR_SMPL_CNT_UOM	TMNMNR_IS_NUMBER TMNMNR_ST_CODE SAMPLE_TYPE_CODE SAMPLE_COUNT SAMPLE_COUNT_UNIT_CODE of the monitoring requirement that results in the sample schedule that was not conformed.
ANL_TSAANLYT_IS_NO ANL_TSAANLYT_ST_CO ANALYTE_CODE ANALYTE_NAME	TSAANLYT_IS_NUMBER TSAANLYT_ST_CODE Analyte Code for the analyte related to the Sample Schedule through the Monitoring Requirement if so indicated in above specification. Use the name corresponding to the code to value the name field.
AGP_TSAANLGP_IS_NO AGP_TSAANLGP_ST_CO AGP_CODE AGP_NAME	TSAANLGP_IS_NUMBER TSAANLGP_ST_CODE Analyte Group Code related to the Schedule Group related to the Sample Schedule if so indicated in above specification. Use the name corresponding to the code to value the name field.

Exhibit E-4-4. CDS Candidate Schedule (Continued)

The following CDS SAMPLING POINT SUBSCHEDULE record(s) will be created and associated to the CDS CANDIDATE VIOLATION and CDS CANDIDATE SCHEDULE. This record(s) will only be valued for candidate violation detected at Sampling Point Sub-Schedule Level.

CDS SAMPLING POINT SUBSCHEDULE	
Field Name	Value
TCDSPSUB_IS_NUMBER	Running Sequence number to be generated by getting Max of sequence number and increment by 1.
TCDSPSUB_ST_CODE	State Code of the state obtained from the TINPRT table.
SP_IDENT_CD SP_DESCRIPTION SP_TYPE_CODE SP_SOURCE_TYP_CD SP_POST_DISINF_CD SP_PROC_PHASE_CD	IDENTIFICATION_CODE DESCRIPTION TYPE_CODE SOURCE_TYPE_CODE POST_DISINFECTION_IND_CODE PROCESS_PHASE_IND_CODE from the sampling point, which is the sample site for the sampling point sub-schedule, which was not conformed causing this candidate violation.
SUBCOUNT	SUBCOUNT from Sampling Point Subschedule (TMNSPSUB)

Exhibit E-4-5. CDS Sampling Point Subschedule

APPENDIX E-5

User Defined Summary Compliance Process

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E-5 User Defined Summary Compliance Process

Presentation Type 1: This section documents the design for a function that is new with Release 8.0. As such, normal text means completely new design for Release 8.0. This section contains no redlined text.

Clear Candidate MDBP Violations

This process is described in Appendix E.4. However, the software is specifically searching for CDS MDBP Summaries (and their CDS Candidate Violations of the user-specified Summary type).

User-Defined Summary Compliance Check

This process is a generic compliance process that will perform M&R and Level Compliance for MDBP Summary Type OTHR or any other type the users may have defined, other than the pre-defined AVET, MAXT, 95PT, EPRD, SERD, DSRD, SDRD, MRDL, CLO2 or CLO3.

1. Invoke Clear Candidate MDBP-based Violations action block (refer to Appendix E.4), passing Monitoring Period End Date Range, Regulating Agency and input Summary Type
2. Identify Facility Analyte Level Records where:
 - a. **The MDBP_SUMMARY_CHECK_FLAG is equal to 'Y' AND**
 - b. **Is of summary type code specified in the User Defined Summary Compliance Report window AND**
 - c. Associated to a water system facility for a water system regulated by the Regulating Agency specified (*WHERE* $((TINLGENT.NAME) = [Regulating Agency Selected by User])$ AND $((TINRAA.BEGIN_DATE) < = Current Date Or (TINRAA.BEGIN_DATE) Is Null)$ AND $((TINRAA.END_DATE) > = Current Date Or (TINRAA.END_DATE) Is Null))$ AND
 - d. The Facility Analyte Level should be in effect for the date range specified (the FANL's effective end date should be open or be within the specified date range).
3. Retrieve all monthly monitoring periods that satisfy the Monitoring Period End Date range specified.

4. Determine M&R and Level/Treatment Technique compliance by performing the same checks (use the same action block) as described in Appendix E.4 - Combined Filter Effluent Turbidity Compliance Check, on MDBP Summaries associated to the FANL and monitoring period retrieved. When a violation is detected, create the CDS Candidate Violation using the tables at the end of Appendix E.4 as reference.
5. Process next FANL.

APPENDIX E-6

Public Notification Compliance Report Processes

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E.6 Public Notification Compliance Report Processes (Section 7.14)

Presentation Type 1: This section documents the design for a function that is new with Release 8.0. As such, normal text means completely new design for Release 8.0. This section contains no redlined text.

Process: Clear Previous CDS Candidate Violations

If a PN Required Date Range is chosen , delete all PN activities with PN required dates within the date range and delete the associated candidate violation and originating violation from the CDS Candidate Violation table. Likewise, if a Proof of PN Required Date Range is chosen , delete all PN activities with Proof of PN required dates within the date range and delete the associated candidate violation and originating violation from the CDS Candidate Violation table.

Process: Assess Candidate CDS PN Violation

For each PN schedule identified, evaluate and create a PN Violation (type 75 or 76) in the following scenarios with the corresponding values to populate the CDS Candidate Violation table:

1. If a violation with a TMNVTYPE_ST_CODE= "HQ" is associated with the SIE/EIE and PN Performed Date is Null, create a type 75 CDS Candidate Violation with a Contaminant Code of 7500 (PN Rule), populate the Compliance Period Begin and End Dates with the Compliance Period Begin and End dates of the original violation, the Violation Period Begin to PN Due Date + 1 day and leave the Violation Period End Date open-ended.
2. If a violation is not associated with the SIE/EIE or a violation with a TMNVTYPE_ST_CODE not equal to "HQ" is associated with the SIE/EIE and PN Performed Date is Null, create a type 76 CDS Candidate Violation with a Contaminant Code of 7500 (PN Rule), populate the Compliance Period Begin and End Dates with the Compliance Period Begin and End dates of the original violation, the Violation Period Begin to PN Due Date + 1 day and leave the Violation Period End Date open-ended.

3. If a violation with a TMNVTYPE_ST_CODE= "HQ" is associated with the SIE/EIE and PN Performed Date is valued but is greater than the PN Required Date, create a type 75 CDS Candidate Violation with a Contaminant Code of 7500 (PN Rule), populate the Compliance Period Begin and End Dates with the Compliance Period Begin and End dates of the original violation, the Violation Period Begin to PN Due Date + 1 day and the Violation Period End Date to PN Performed Date.
4. If a violation is not associated with the SIE/EIE or a violation with a TMNVTYPE_ST_CODE not equal to "HQ" is associated with the SIE/EIE and PN Performed Date is valued but is greater than the PN Required Date, create a type 76 CDS Candidate Violation with a Contaminant Code of 7500 (PN Rule), populate the Compliance Period Begin and End Dates with the Compliance Period Begin and End dates of the original violation, the Violation Period Begin to PN Due Date + 1 day and the Violation Period End Date to PN Performed Date.
5. If a violation with a TMNVTYPE_ST_CODE= "HQ" is associated with the SIE/EIE and PN Performed Date is valued and is less than or equal to PN Due Date and Proof of PN Received Date is Null, create a type 75 CDS Candidate Violation with a Contaminant Code of 7500 (PN Rule), populate the Compliance Period Begin and End Dates with the Compliance Period Begin and End dates of the original violation, the Violation Period Begin to Proof of PN Due Date + 1 day and leave the Violation Period End Date open-ended.
6. If a violation is not associated with the SIE/EIE or a violation with a TMNVTYPE_ST_CODE not equal to "HQ" is associated with the SIE/EIE and PN Performed Date is valued and is less than or equal to PN Due Date and Proof of PN Received Date is Null, create a type 76 CDS Candidate Violation with a Contaminant Code of 7500 (PN Rule), populate the Compliance Period Begin and End Dates with the Compliance Period Begin and End dates of the original violation, the Violation Period Begin to Proof of PN Due Date + 1 day and leave the Violation Period End Date open-ended.
7. If a violation with a TMNVTYPE_ST_CODE= "HQ" is associated with the SIE/EIE and both PN Performed Date is valued and is less than or equal to PN Due Date and Proof of PN Received Date is valued but Proof of PN Received Date is greater than Proof of PN Due Date, create a type 75 CDS Candidate Violation with a Contaminant Code of 7500 (PN Rule), populate the Compliance Period Begin and End Dates with the Compliance Period Begin and End dates of the original violation, the Violation Period Begin to Proof of PN Due Date + 1 day and the Violation Period End Date to Proof of PN Received Date.

8. If a violation is not associated with the SIE/EIE or a violation with a TMNVTYPE_ST_CODE not equal to "HQ" is associated with the SIE/EIE and both PN Performed Date and Proof of PN Received Date are valued but Proof of PN Received Date is greater than Proof of PN Due Date, create a type 76 CDS Candidate Violation with a Contaminant Code of 7500 (PN Rule), populate the Compliance Period Begin and End Dates with the Compliance Period Begin and End dates of the original violation, the Violation Period Begin to Proof of PN Due Date + 1 day and the Violation Period End Date to Proof of PN Received Date.

Process: Create Candidate Violation

The following specifies what values to use when passing information to the **Create Candidate Violation** action block. This check would create one candidate violation corresponding to each PN violation determined.

Field Name	Value
TCDSVIOL_IS_NUMBER	Running Sequence number to be generated by getting Max of sequence number and increment by 1.
TCDSVIOL_ST_CODE	State Code of the state obtained from the TINPRT table.
PWS_TINWSYS_IS_NO PWS_TINWSYS_ST_CO PWS_NUMBER PWS_NAME PWS_FED_PRI_SRC_CD PWS_FED_TYPE_CD PWS_POPULATION_CNT PWS_ACTIV_STAT_CD PWS_ACTIVITY_DATE	TINWSYS_IS_NUMBER TINWSYS_ST_CODE NUMBER NAME FED_PRIMARY_SOURCE_CODE FEDERAL_TYPE_CODE D_POPULATION_COUNT ACTIVITY_STATUS_CODE ACTIVITY_DATE From the TINWSYS that 'APPLIES' to the original enforcement action record that was not conformed causing this candidate violation. This denormalized information is used for reporting purposes and to create the link to the water system record when migrating the candidate violations.

Exhibit E-6-1. CDS Candidate Violation

Field Name	Value
WSF_TINWSF_IS_NO, WSF_TINWSF_ST_CO WSF_ACTIVITY_DATE WSF_AVAIL_CD WSF_NAME, WSF_STATE_ASGN_ID, WSF_EX_SYS_NO WSF_TYPE_CODE WSF_WATER_TYP_CD	Blank
TMNVTYPE_IS_NUMBER TMNVTYPE_ST_CODE VIOLATION_TYPE_CD VIOLATION_TYPE_NAM VIO_TYPE_SEV_LVL	TMNVTYPE_IS_NUMBER TMNVTYPE_ST_CODE '75' or '76' Use the name corresponding to the code and populate the violation type name column. Severity level corresponding to specified violation type.
ANL_TSAANLYT_IS_NO ANL_TSAANLYT_ST_CO ANALYTE_CODE ANALYTE_NAME	TSAANLYT_IS_NUMBER TSAANLYT_ST_CODE VIO_TO_FED_ANL_CD Use '7500' Use the name corresponding to the code to value the name field.
VIO_TO_FED_ANL_CD	If Violation Type is associated to Analyte, value with that Analyte Code. Else use Analyte Code related to the Schedule/ Schedule Group through the Monitoring Requirement.
AGP_TSAANLGP_IS_NO AGP_TSAANLGP_ST_CO ANALYTE_GROUP_CODE ANALYTE_GROUP_NAME	Blank

Exhibit E-6-1. CDS Candidate Violation (Continued)

Field Name	Value
MP_TMNMPRD_IS_NO MP_TMNPRD_ST_CODE MP_CP_BEG_DAT MP_CP_END_DAT MP_MON_PER_DUR MP_MON_PER_NAME	See 2.a-h above for populating the compliance period begin and end dates.
VIO_ANALYS_RSLT_TXT	Blank
VIO_ANALYS_RSLT_UOM	Blank
VIO_MCL_VIOLTD_TXT	Blank
VIO_MCL_VIOLTD_UOM	Blank
VIO_MCL_NUM_RSLTS	Blank
VIO_DATA_ORIGIN_CD	Set to 'S or R' depending on whether the Government Agency where Primacy Indicator = Y has type of ST (set to S) or RG (set to R)
VIO_MCL_VIOLTD_TXT	Blank
VIO_MCL_VIOLTD_UOM	Blank
VIO_MCL_NUM_RSLTS	Blank
VTYPE_CATEGORY_CD	Set to 'PN'
ORIG_TMNVOL_IS_NO ORIG_TMNVOL_ST_CO ORIG_VI_VTYP_IS_NO ORIG_VI_VTYP_ST_CO	Value for PN violations only. Set to originating VIOLATION_IS_NUMBER VIOLATION_ST_CODE TNMVTYPE_IS_NUMBER TNMVTYPE_ST_CODE

Exhibit E-6-1. CDS Candidate Violation (Continued)

The following specifies what values to use when passing information to the **Create CDS PN Activity** action block. This check would create one CDS PN Activity corresponding to each PN violation determined.

Field Name	Value
TCDPNACT_IS_NUMBER	Running Sequence number to be generated by getting Max of sequence number and increment by 1.
TCDPNACT_ST_CODE	State Code of the state obtained from the TINPRT table.
PN_REQUIRED_DATE PNA_PERFORMED_DAT PN_PERFORMED_DATE PROOF_PN_DUE_DATE RESPONSIBLE_PARTY	From Public Notification Activity (TENPNACT) PN_REQUIRED_DATE PERFORMED_DATE PN_PERFORMED_DATE PROOF_PN_DUE_DATE RESPONSIBLE_PARTY
ACTYP_LOC_TYP_CD ACTYP_FORM_TYP_CD ACTYP_SUB_CAT_CD	From the PN Acitivity's Enforcement Action Type TENACTYP.LOCATION_TYPE_CODE TENACTYP.FORMAL_TYPE_CODE TENACTYP.SUB_CATEGORY_CODE
ACTIV_NAME	From the PN Acitivity's Activity Type (TENACTIV) TENACTIV.NAME

Exhibit E-6-2. CDS PN Activity (Table TCDPNACT)

APPENDIX E-7

Identify Candidate Sample Schedules for Increased Monitoring

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E.7 Identify Candidate Sample Schedules for Increased Monitoring

Redlined and ~~redlined~~ ~~strikeout~~ in this detailed design indicates changes to existing logic in the Release 7.0 design as well as new logic to be added for Release 8.0.

Process: Get Active Water Systems with Federal Type Code = (C, NTNC, NC) Assigned to Regulating Agency

Call Subprocess - Clear Previous Candidates for Increased Monitoring

Read Each Water System, Regulating Agency Assignment, Government Agency

- Water System regulated by desired Regulating Agency Assignment
- Regulating Agency Assignment specifies desired Government Agency
- Government Agency is some Legal Entity (Regulating Agency chosen by User)
- Water System Activity Status Code is 'A' – Active and
- Water System History Indicator Code is 'C' – Current and
- Water System Federal Type Code is 'C', 'NTNC' or 'NC'

If Input is Analyte Group

Read Each Analyte in the Analyte Group

Call Subprocess - Get Sample Schedules Assessed for Increased Monitoring

Else if Input is an Individual Analyte

Call Subprocess - Get Sample Schedules Assessed for Increased Monitoring

Subprocess: Clear Previous Candidates for Increased Monitoring (Section 2.1.13.3.1)

Read Each Water System, Regulating Agency Assignment, Government Agency

- Water System regulated by desired Regulating Agency Assignment
- Regulating Agency Assignment specifies desired Government Agency
- Government Agency is some Legal Entity (Regulating Agency chosen by User)

Read Each Sample Schedule, Monitoring Requirement

- associated to Water System selected above
- If PB90 selected, is for analyte 1030 and is of type ~~'IN'~~ or ~~'FR'~~ associated with Violation Types 51 or 52
- If CU90 selected, is for analyte 1022 and is of type ~~'IN'~~ or ~~'FR'~~ associated with Violation Types 51 or 52
- If any other analyte is selected, is for that same analyte
- If Analyte Group selected, for an analyte in the selected Analyte Group
- Monitoring Requirement Sample Type = RT; ~~IN~~; ~~FR~~; ~~FE~~ or ~~SO~~

For each Sample Schedule, if the Sample Schedule is referenced by a CDS Candidate Monitoring Assessment with Assessment Flag = 'I',

Delete all CDS Report records associated to the CDS Candidate Monitoring Assessment Record

Delete the CDS Candidate Monitoring Assessment Record

Else if Sample Schedule is part of a Schedule Group

Read related Schedule Group referenced by the Sample Schedule and if the Schedule Group is referenced by a CDS Candidate Monitoring Assessment with Assessment Flag = 'I,'

Delete all CDS Report records associated to the CDS Candidate Monitoring Assessment Record

Delete the CDS Candidate Monitoring Assessment Record

Subprocess: Get Sample Schedules Assessed for Increased Monitoring

If Analyte is Lead 90th (Code = PB90) or Copper 90th (Code = CU90)

- Read Each Water System Facility, ~~Sampling Point~~, Sample Schedule
- Water System Facility belongs to current Water System
- Water System Facility is the location for desired ~~Sampling Point~~ Sample Schedule
- Water System Facility Activity Status Code is 'A' – Active
- Monitoring Requirement ~~Sample Type is 'IN' or 'FR'~~ is associated with Violation Types 51 or 52
- ~~Sampling Point is the sample site for desired Sample Schedule~~
- Monitoring Requirement referenced by the Sample Schedule is for desired

- Analyte (desired Analyte equal to 1030 for PB90 and 1022 for CU90)
- Sample Schedule Monitoring Assessment Flag is 'I' – Assessed for Increased Monitoring
- Sample Schedule Effective Begin Date is less than the current date
- Sample Schedule Effective End Date is either blank (null) or is greater than the End Date of the current Monitoring Period (the Monitoring Period related to the Sample Schedule through the SSMPA where the Monitoring Period Begin Date is less than the current date and the Monitoring Period End Date is greater than the current date)

Call Subprocess – Write Supporting Data for Sample Schedule Changes

Else

Read Each Water System Facility, ~~Sampling Point~~, Sample Schedule

- Water System Facility belongs to current Water System
- Water System Facility is the location for desired ~~Sampling Point~~ Sample Schedule
- Water System Facility Activity Status Code is 'A' – Active
- ~~Sampling Point is the sample site for desired Sample Schedule~~
- Monitoring Requirement referenced by the Sample Schedule is for desired Analyte
- Sample Schedule Monitoring Assessment Flag is 'I' – Assessed for Increased Monitoring
- Sample Schedule Effective Begin Date is less than the current date
- Sample Schedule Effective End Date is either blank (null) or is greater than the End Date of the current Monitoring Period (the Monitoring Period related to the Sample Schedule through the SSMPA where the Monitoring Period Begin Date is less than the current date and the Monitoring Period End Date is greater than the current date)

Call Subprocess – Write Supporting Data for Sample Schedule Changes

Process: Write Supporting Data for Candidate Sample Schedule Changes (CDS Candidate Monitoring Assessment-CDS Sample Schedule-CDS Sample Results/CDS Summary Results) (Section 2.1.13.3.3)

Create CDS-Candidate Monitoring Assessment

(to include the Sample Schedule IS Number and St Code of the Sample Schedule assessed or, if the Sample Schedule assessed is a hidden schedule, the IS Number and State Code of the Schedule Group for the hidden schedule)

Call Subprocess - Read Sample Schedules for Facility

| If Sample Schedule is for Lead (Code = 1030) or Copper (Code = 1022) and ~~is of type 'IN'~~
| ~~or 'FR'~~ its Monitoring Requirement is associated with Violation Types 51 or 52
| Call Subprocess – Read Summary Results for CDS Sample Schedule

Else (For all others)

Call Subprocess – Read Sample Results for CDS Sample Schedule

Subprocess: Read Sample Schedules for Sample Schedule

| Read Each Sample Schedule, Monitoring Requirement for given Analyte and ~~Sampling Point~~
| Water System Facility

- Sorted most recent first
- Include current and up to one future schedules, if any
- Enumerate 5 Sample Schedule-Monitoring Requirements
- If schedule is hidden schedule, read Schedule Group

Repeat 5 times

Write Schedule Group to CDS-Schedule if schedule is a hidden schedule;
otherwise write individual schedule to CDS-Schedule

Subprocess: Read Sample Results for CDS Sample Schedule

Read Each Valid or Accepted Routine Sample, Sample Result for specified Analyte taken at the Sampling Points of the Water System Facility

- Sorted most recent first
- Enumerate 10 Samples

Read all Sample Results for associated to Sample and Write to CDS-Sample Result

Subprocess: Read Summary Results for CDS Sample Schedule

Read Each Validated or Accepted Summary, Summary Result for Lead 90th (PB90) or Copper 90th (CU90) taken at Water System Facility

- Sorted most recent first
- Enumerate 10 Sample Summaries

If Analyte is Lead 90th (Code = PB90) or Copper 90th (Code = CU90)

Repeat 10 times
Write to CDS-Sample Summary

The following specifies what values to use when passing information to the **Create Candidate Monitoring Assessment and Create Supporting Data for Sample Schedule Change** processes.

The following CDS CANDIDATE MONITORING ASSESSMENT record will be created with values from the Water System, Water System Facility, ~~Sampling Point~~, Threshold Level, Analyte associated to the Sample Schedule that is being reported as a candidate for increased or decreased monitoring.

Field Name	Value
TCDSMA_IS_NUMBER	Running Sequence number to be generated by getting Max of sequence number and increment by 1.
TCDSMA_ST_CODE	State Code of the state obtained from the TINPRT table.
PWS_TINWSYS_IS_NO PWS_TINWSYS_ST_CO PWS_NUMBER PWS_NAME PWS_FED_PRI_SRC_CD PWS_FED_TYPE_CD PWS_POPULATION_CNT PWS_ACTIV_STAT_CD PWS_ACTIVITY_DATE	TINWSYS_IS_NUMBER TINWSYS_ST_CODE NUMBER NAME FED_PRIMARY_SOURCE_CODE FEDERAL_TYPE_CODE D_POPULATION_COUNT ACTIVITY_STATUS_CODE ACTIVITY_DATE from the TINWSYS where the sample schedule that is a candidate for increased or decreased monitoring is applied.
WSF_TINWSF_IS_NO WSF_TINWSF_ST_CO WSF_STATE_ASGN_ID WSF_NAME WSF_TYPE_CODE WSF_ACTIVITY_DATE WSF_WATER_TYP_CD WSF_AVAIL_CD WSF_EX_SYS_NO	TINWSF_IS_NUMBER TINWSF_ST_CODE STATE_ASGN_ID NAME TYPE_CODE ACTIVITY_DATE WATER_TYPE_CODE AVAILABILITY_CODE EXTERNAL_SYSTEM_NUMBER from the TINWSF, which is the location for the sampling point, which is the sample site where the sample schedule that is a candidate for increased or decreased monitoring is in effect.

Exhibit E-7-1. CDS Candidate Monitoring Assessment

Field Name	Value
SP_TSASMPPT_IS_NUMBER SP_TSASMPPT_ST_CODE SP_IDENTIFICATION_CODE SP_DESCRIPTION SP_TYPE_CODE SP_SOURCE_TYPE_CODE SP_POST_DISINFECTION_INDICATOR SP_PROCESS_PHASE_INDICATOR_CODE These fields have been removed from this table.	Blanks TSASMPPT_IS_NUMBER TSASMPPT_ST_CODE IDENTIFICATION_CODE DESCRIPTION TYPE_CODE SOURCE_TYPE_CODE POST_DISINFECTION_INDICATOR PROCESS_PHASE_INDICATOR_CODE from the sampling point, which is the sample site where the sample schedule is a candidate for increased or decreased monitoring is in effect. These fields will not be valued for PB90 and CU90 assessments.
ALRA_TMNALRA_IS_NO ALRA_TMNALRA_ST_CODE ALRA_LEVEL_TYPE ALRA_MEASURE_TEXT ALRA_UOM_CODE	TMNALRA_IS_NUMBER TMNALRA_ST_CODE LEVEL_TYPE MEASURE_TEXT UOM_CODE of the ALRA record that was used to assess the sample schedule for increased or decreased monitoring.
SCH_TMNSASCH_IS_NO SCH_TMNSASCH_ST_CODE	TMNSASCH_IS_NUMBER TMNSASCH_ST_CODE of the sample schedule that was assessed as a candidate for increased or decreased monitoring.
ANALYTE_CODE ANALYTE_NAME	CODE NAME of the analyte that was chosen by the user to generate the report.
ANALYTE_GROUP_CODE ANALYTE_GROUP_NAME	CODE NAME of the analyte group, if user chose analyte group to generate the report.

Exhibit E-7-1. CDS Candidate Monitoring Assessment (Continued)

Field Name	Value
MNTRG_ASSESS_FLAG	MONITORING_ASSESSMENT_FLAG of the sample schedule that was assessed as a candidate for increased or decreased monitoring.

Exhibit E-7-1. CDS Candidate Monitoring Assessment (Continued)

The following CDS SCHEDULE record will be created and associated to the CDS MONITORING ASSESSMENT with values from historical Sample Schedules for the same analyte being applied to the same **Water System Facility Sampling Point** where the Sample Schedule being reported as a candidate for increased or decreased monitoring is in effect. To help the user evaluate whether to change the monitoring frequency for an analyte, the 4 most recent historical (and up to 1 future sample schedule for the analyte) will be included in the report.

Field Name	Value
TCDSSASCH_IS_NUMBER	Running Sequence number to be generated by getting Max of sequence number and increment by 1.
TCDSSASCH_ST_CODE	State Code of the state obtained from the TINPRT table.
PWS_TINWSYS_IS_NO PWS_TINWSYS_ST_CO PWS_NUMBER PWS_NAME PWS_FED_PRI_SRC_CD PWS_FED_TYPE_CD PWS_POPULATION_CNT PWS_ACTIV_STAT_CD PWS_ACTIVITY_DATE	TINWSYS_IS_NUMBER TINWSYS_ST_CODE NUMBER NAME FED_PRIMARY_SOURCE_CODE FEDERAL_TYPE_CODE D_POPULATION_COUNT ACTIVITY_STATUS_CODE ACTIVITY_DATE from the TINWSYS where the future, current and/or historical sample schedule is being applied.

Exhibit E-7-2. CDS Schedule

Field Name	Value
WSF_TINWSF_IS_NO WSF_TINWSF_ST_CO WSF_STATE_ASGN_ID WSF_NAME WSF_TYPE_CODE WSF_ACTIVITY_DATE WSF_WATER_TYP_CD WSF_AVAIL_CD WSF_EX_SYS_NO	TINWSF_IS_NUMBER TINWSF_ST_CODE STATE_ASGN_ID NAME TYPE_CODE ACTIVITY_DATE WATER_TYPE_CODE AVAILABILITY_CODE EXTERNAL_SYSTEM_NUMBER from the TINWSF, which is the location for the sampling point, which is the sample site where the future, current and/or historical sample schedule is being applied.
SP_TSASMPPT_IS_NUMBE R SP_TSASMPPT_ST_CODE SP_IDENTIFICATION_COD E SP_DESCRIPTION SP_TYPE_CODE SP_SOURCE_TYPE_CODE SP_POST_DISINFECTION_I NDICATOR SP_PROCESS_PHASE_INDI CATOR_CODE These fields have been removed from this table.	Blanks TSASMPPT_IS_NUMBER TSASMPPT_ST_CODE IDENTIFICATION_CODE DESCRIPTION TYPE_CODE SOURCE_TYPE_CODE POST_DISINFECTION_INDICATOR PROCESS_PHASE_INDICATOR_CODE from the sampling point, which is the sample site where the future, current and/or historical sample schedule is being applied.

Exhibit E-7-2. CDS Schedule (Continued)

Field Name	Value
SCH_TMNSASCH_IS_NO SCH_TMNSASCH_ST_CO SCH_BEGIN_DATE SCH_END_DATE SCH_SEAS_PRD_BEG SCH_SEAS_PRD_END SCH_ST_SEA_PRD_BEG SCH_ST_SEA_PRD_END SCH_STATE_YEAR SCH_REASON_TEXT SCH_INIT_MP_BEG_DT MNTRG_ASSESS_FLAG	TMNSASCH_IS_NUMBER TMNSASCH_ST_CODE BEGIN_DATE END_DATE SEASONAL_PERIOD_BEGIN SEASONAL_PERIOD_END STATE_SEASONAL_PERIOD_BEGIN STATE_SEASONAL_PERIOD_END STATE_YEAR REASON_TEXT INITIAL_MP_BEGIN_DAT MONITORING_ASSESSMENT_FLAG from the future, current and/or historical sample schedule.
MNR_TMNMNR_IS_NO MNR_TMNMNR_ST_CO MNR_SAMPLE_TYPE_CD MNR_SAMPLE_COUNT MNR_SMPL_CNT_UOM	TMNMNR_IS_NUMBER TMNMNR_ST_CODE SAMPLE_TYPE_CODE SAMPLE_COUNT SAMPLE_COUNT_UNIT_CODE of the monitoring requirement associated to the sample schedule being reported.
ANALYTE_CODE ANALYTE_NAME	CODE NAME of the analyte being monitored using the sample schedule.
ANALYTE_GROUP_CODE ANALYTE_GROUP_NAME	CODE NAME of the analyte group, if applicable, being monitored using the sample schedule.

Exhibit E-7-2. CDS Schedule (Continued)

The following CDS SAMPLE RESULT record will be created and associated to the CDS MONITORING ASSESSMENT with values from historical Sample Analytical Results taken at the same Sampling Point where the Sample Schedule, reported as a candidate for increased or decreased monitoring, is in effect. To help the user evaluate whether to change the monitoring frequency for an analyte, the 10 most recent historical samples with their results will be included in the report.

Field Name	Value
TCDSSAR_IS_NUMBER	Running Sequence number to be generated by getting Max of sequence number and increment by 1.
TCDSSAR_ST_CODE	State Code of the state obtained from the TINPRT table.
PWS_TINWSYS_IS_NO PWS_TINWSYS_ST_CO PWS_NUMBER PWS_NAME PWS_FED_PRI_SRC_CD PWS_FED_TYPE_CD PWS_POPULATION_CNT PWS_ACTIV_STAT_CD PWS_ACTIVITY_DATE	TINWSYS_IS_NUMBER TINWSYS_ST_CODE NUMBER NAME FED_PRIMARY_SOURCE_CODE FEDERAL_TYPE_CODE D_POPULATION_COUNT ACTIVITY_STATUS_CODE ACTIVITY_DATE from the TINWSYS where the sample/sample analytical result applies.
WSF_TINWSF_IS_NO, WSF_TINWSF_ST_CO WSF_ACTIVITY_DATE WSF_AVAIL_CD WSF_NAME, WSF_STATE_ASGN_ID, WSF_EX_SYS_NO WSF_TYPE_CODE WSF_WATER_TYP_CD WSF_ACTIV_STAT_CD	TINWSF_IS_NUMBER TINWSF_ST_CODE ACTIVITY_DATE AVAILABILITY_CODE NAME STATE_ASGN_ID EXTERNAL_SYSTEM_NUMBER TYPE_CODE WATER_TYPE_CODE ACTIVITY_STATUS_CODE from the Water System Facility, which is the location for the sampling point, which is the sample site for the sample/sample analytical result.

Exhibit E-7-3. CDS Sample Result

Field Name	Value
SP_TSASMPPT_IS_NO SP_TSASMPPT_ST_CO SP_IDENT_CD SP_DESCRIPTION SP_TYPE_CODE SP_SOURCE_TYPE_CD SP_POST_DISINF_CD SP_PROC_PHASE_CD SP_ACTIV_STAT_CD SP_STATUS_DATE	TSASMPPT_IS_NUMBER TSASMPPT_ST_CODE IDENTIFICATION_CODE DESCRIPTION TYPE_CODE SOURCE_TYPE_CODE POST_DISINFECTION_INDICATOR PROCESS_PHASE_INDICATOR_CODE ACTIVITY_STATUS_CODE ACTIVITY_DATE from the sampling point which is the sample site for the sample/sample analytical result.
SAR_TSASAR_IS_NO SAR_TSASAR_ST_CO SAR_DATA_QUAL_CD SAR_DETECT_LIM_NUM SAR_DETECT_LIM_UOM SAR_LESS_THAN_IND SAR_LESS_THAN_CD SAR_REPORTED_MSR SAR_RAD_COUNT_ERR SAR_UOM_CD SAR_CONCENTRAT_MSR	TSASAR_IS_NUMBER TSASAR_ST_CODE DATA_QUALITY_CODE DETECTION_LIMIT_NUMBER DETECTION_LIMIT_UOM_CODE LESS_THAN_INDICATOR LESS_THAN_CODE REPORTED_MEASURE RAD_COUNTING_ERROR UOM_CODE CONCENTRATION_MEASURE from the sample analytical result.
TSASAMPL_IS_NUMBER TSASAMPL_ST_CODE SMP_LAB_ASGN_ID SMP_ST_ASGN_ID SMP_SAMPLE_TYPE_CD SMP_COLLECTION_DAT SMP_COLLECTION_TIM SMP_COMPL_PURP_IND SMP_INFORML_CLCTR SMP_REPLACE_IND	TSASAMPL_IS_NUMBER TSASAMPL_ST_CODE LAB_SAMPLE_ASGN_ID STATE_SAMPLE_ASGN_ID SAMPLE_TYPE_CODE COLLECTION_END_DATE COLLECTION_END_TIME COMPLIANCE_PURPOSE_IND_CODE INFORMAL_COLLECTOR REPLACEMENT_INDICATOR_CODE from the SBS Sample associated to the SAR.

Exhibit E-7-3. CDS Sample Result (Continued)

Field Name	Value
ANALYTE_CODE ANALYTE_NAME	CODE NAME code and name of the analyte associated to the SAR.
MP_BEGIN_DATE MP_END_DATE MP_DURATION MP_NAME	BEGIN_DATE END_DATE TYPE_CODE NAME of the Monitoring Period associated to the SAR.
LAB_TSALAB_IS_NO LAB_TSALAB_ST_CO LAB_NAME LAB_ST_ASSIGNED_ID LAB_FEDERAL_ID_NO	TSALAB_IS_NUMBER TSALAB_ST_CODE NAME STATE_ASSIGNED_ID_NUMBER FEDERAL_ID_NUMBER of the LAB that is associated to the SAR.

Exhibit E-7-3. CDS Sample Result (Continued)

The following CDS SAMPLE SUMMARY RESULT record will be created and associated to the CDS MONITORING ASSESSMENT with values from historical Sample Summaries taken at the same Water System Facility where the Sample Schedule, reported as a candidate for increased or decreased monitoring, was in effect. To help the user determine whether to change the monitoring frequency for either PB90 (or 1030 taken at a DS type facility) or CU90 (or 1022 taken at a DS type facility), the 10 most recent historical sample summaries will be included in the report.

Field Name	Value
TCDSSSR_IS_NUMBER	Running Sequence number to be generated by getting Max of sequence number and increment by 1.
TCDSSSR_ST_CODE	State Code of the state obtained from the TINPRT table.
PWS_TINWSYS_IS_NO PWS_TINWSYS_ST_CO PWS_NUMBER PWS_NAME PWS_FED_PRI_SRC_CD PWS_FED_TYPE_CD PWS_POPULATION_CNT PWS_ACTIV_STAT_CD PWS_ACTIVITY_DATE	TINWSYS_IS_NUMBER TINWSYS_ST_CODE NUMBER NAME FED_PRIMARY_SOURCE_CODE FEDERAL_TYPE_CODE D_POPULATION_COUNT ACTIVITY_STATUS_CODE ACTIVITY_DATE from the TINWSYS where the sample summary applies.
WSF_TINWSF_IS_NO, WSF_TINWSF_ST_CO WSF_ACTIVITY_DATE WSF_AVAIL_CD WSF_NAME, WSF_STATE_ASGN_ID, WSF_EX_SYS_NO WSF_TYPE_CODE WSF_WATER_TYP_CD WSF_ACTIV_STAT_CD	TINWSF_IS_NUMBER TINWSF_ST_CODE ACTIVITY_DATE AVAILABILITY_CODE NAME STATE_ASGN_ID EXTERNAL_SYSTEM_NUMBER TYPE_CODE WATER_TYPE_CODE ACTIVITY_STATUS_CODE From the Water System Facility for which the Sample Summary was taken. Must be reported for Sample Summaries of analyte "PB90" or "CU90"

Exhibit E-7-4. CDS Sample Summary Result

Field Name	Value
SSM_TSASMPISM_IS_NO SSM_TSASMPISM_ST_CO SSM_COLL_START_DAT SSM_COLL_END_DAT SSM_SUMRY_RCPT_DAT SSM_COMPL_PURP_IND SSM_COMMENT_TEXT SSM_DATE_RECEIVED	TSASMPISM_IS_NUMBER TSASMPISM_ST_CODE COLLECTION_START_DATE COLLECTION_END_DATE SUMMARY_RECEIVED_DATE COMPLIANCE_PURPOSE_IND_CODE COMMENT_TEXT SUMMARY_RECPT_DT of the Sample Summary associated to the Sample Summary result.
SSR_TSASSR_IS_NO SSR_TSASSR_ST_CO SSR_DATA_QUAL_CD SSR_TYPE_CODE SSR_COUNT_QTY SSR_MEASURE SSR_UOM_CODE SSR_MEASURE_TEXT	TSASSR_IS_NUMBER TSASSR_ST_CODE DATA_QUALITY_CODE TYPE_CODE COUNT_QTY MEASURE UOM_CODE MEASURE_TEXT of the sample summary result.
ANALYTE_CODE ANALYTE_NAME	CODE NAME code and name of the analyte that is associated to the sample summary result.
MP_BEGIN_DATE MP_END_DATE MP_DURATION MP_NAME	BEGIN_DATE END_DATE DURATION NAME of the monitoring period associated to the sample summary result.
LAB_TSALAB_IS_NO LAB_TSALAB_ST_CO LAB_NAME LAB_ST_ASSIGNED_ID LAB_FEDERAL_ID_NO	TSALAB_IS_NUMBER TSALAB_ST_CODE NAME STATE_ASSIGNED_ID_NUMBER FEDERAL_ID_NUMBER of the lab that is associated to the Sample Summary result.

Exhibit E-7-4. CDS Sample Summary Result (Continued)

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APPENDIX E-8

Identify Candidate Sample Schedules for Decreased Monitoring

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E.8 Identify Candidate Sample Schedules for Decreased Monitoring

Redlined and ~~redlined~~ ~~strikeout~~ in this detailed design indicates changes to existing logic in the Release 7.0 design as well as new logic to be added for Release 8.0.

Process: Get Active Water Systems With Federal Type Code = (C, NTNC, NC) Assigned to Regulating Agency

Call Subprocess - Clear Previous Candidates for Decreased Monitoring

Read Each Water System, Regulating Agency Assignment, Government Agency

- Water System regulated by desired Regulating Agency Assignment
- Regulating Agency Assignment specifies desired Government Agency
- Government Agency is some Legal Entity (Regulating Agency chosen by User)
- Water System Activity Status Code is 'A' – Active and
- Water System History Code is 'C' – Current and
- Water System Federal Type Code is 'C', 'NTNC' or 'NC'

If Input is Analyte Group

Read Each Analyte in the Analyte Group

Call Subprocess - Get Sample Schedules Assessed for Decreased Monitoring

Else if Input is an Individual Analyte

Call Subprocess - Get Sample Schedules Assessed for Decreased Monitoring

Subprocess: Clear Previous Candidates for Decreased Monitoring (Section 2.1.14.3.1)

Read Each Water System, Regulating Agency Assignment, Government Agency

- Water System regulated by desired Regulating Agency Assignment
- Regulating Agency Assignment specifies desired Government Agency
- Government Agency is some Legal Entity (Regulating Agency chosen by User)

Read Each Sample Schedule, Monitoring Requirement

- associated to Water System selected above
- If PB90 selected, is for analyte 1030 and is of type 'IN' or 'FR' associated with Violation Types 51 or 52
- If CU90 selected, is for analyte 1022 and is of type 'IN' or 'FR' associated with Violation Types 51 or 52
- If any other analyte is selected, is for that same analyte
- If Analyte Group selected, for an analyte in the selected Analyte Group
- Monitoring Requirement Sample Type = RT, IN, FR, FE or SO

For each Sample Schedule, if the Sample Schedule is referenced by a CDS Candidate Monitoring Assessment with Assessment Flag = 'D',

Delete all CDS Report records associated to the CDS Candidate Monitoring Assessment Record

Delete the CDS Candidate Monitoring Assessment Record

Else if Sample Schedule is part of a Schedule Group

Read related Schedule Group referenced by the Sample Schedule and if the Schedule Group is referenced by a CDS Candidate Monitoring Assessment with Assessment Flag = 'D',

Delete all CDS Report records associated to the CDS Candidate Monitoring Assessment Record

Delete the CDS Candidate Monitoring Assessment Record

Subprocess: Get-sample Schedules Assessed for Decreased Monitoring

If Analyte is Lead 90th (Code = PB90) or Copper 90th (Code = CU90)

Read Each Water System Facility, ~~Sampling Point~~, Sample Schedule

- Water System Facility belongs to current Water System
- Water System Facility is the location for desired ~~Sampling Point~~ Sample Schedule
- Water System Facility Activity Status Code is 'A' – Active
- Monitoring Requirement Sample Type is 'IN' or 'FR'
- ~~Sampling Point is the sample site for desired Sample Schedule~~

- Monitoring Requirement referenced by the Sample Schedule is for desired Analyte
- Sample Schedule Monitoring Assessment Flag is 'D' – Assessed for Decreased Monitoring
- Sample Schedule Effective Begin Date is less than the current date
- Sample Schedule Effective End Date is either blank (null) or is greater than the End Date of the current Monitoring Period (the Monitoring Period related to the Sample Schedule through the SSMPA where the Monitoring Period Begin Date is less than the current date and the Monitoring Period End Date is greater than the current date)

Call Subprocess – Write Supporting Data for Sample Schedule Changes (See the section entitled IDENTIFY CANDIDATE SAMPLE SCHEDULES FOR INCREASED MONITORING)

Else

Read Each Water System Facility, ~~Sampling Point~~, Sample Schedule

- Water System Facility belongs to current Water System
- Water System Facility is the location for desired ~~Sampling Point~~ Sample Schedule
- Water System Facility Activity Status Code is 'A' – Active
- ~~Sampling Point is the sample site for desired Sample Schedule~~
- Monitoring Requirement referenced by the Sample Schedule is for desired Analyte
- Sample Schedule Monitoring Assessment Flag is 'D' – Assessed for Decreased Monitoring
- Sample Schedule Effective Begin Date is less than the current date
- Sample Schedule Effective End Date is either blank (null) or is greater than the End Date of the current Monitoring Period (the Monitoring Period related to the Sample Schedule through the SSMPA where the Monitoring Period Begin Date is less than the current date and the Monitoring Period End Date is greater than the current date)

Call Subprocess – Write Supporting Data for Sample Schedule Changes (See the section entitled IDENTIFY CANDIDATE SAMPLE SCHEDULES FOR INCREASED MONITORING)

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APPENDIX E-9

TCR PRECOMP.MDB Selection Criteria for SDWIS/STATE Violations

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E-9 TCR PRECOMP.MDB Selection Criteria for SDWIS/STATE Violations

The following selection criteria applies to violations for the session's water systems and monitoring period when a Regulating Agency has been selected.

First select all the Water Systems that are associated to the selected Regulating Agency. The following SQL statement accomplishes the desired select:

```
SELECT Session.PK_SessionID, TINRAA.ACTIVE_IND_CD,  
TINWSYS.TINWSYS_IS_NUMBER, TINWSYS.TINWSYS_ST_CODE,  
TINWSYS.NUMBER0, TINWSYS.NAME  
FROM ([Session] INNER JOIN TINLGEN ON (Session.TINLGEN_IS_NUMBER =  
TINLGEN.TINLGEN_IS_NUMBER) AND (Session.TINLGEN_ST_CODE =  
TINLGEN.TINLGEN_ST_CODE)) INNER JOIN TINRAA ON  
(TINLGEN.TINLGEN_ST_CODE = TINRAA.TINLGEN_ST_CODE) AND  
(TINLGEN.TINLGEN_IS_NUMBER = TINRAA.TINLGEN_IS_NUMBER)) INNER  
JOIN TINWSYS ON (TINRAA.TINWSYS_ST_CODE = TINWSYS.TINWSYS_ST_CODE)  
AND (TINRAA.TINWSYS_IS_NUMBER = TINWSYS.TINWSYS_IS_NUMBER)  
WHERE (((Session.PK_SessionID)= ["User Selected Session ID(s)"]) AND  
((TINRAA.ACTIVE_IND_CD)= "A"))  
ORDER BY TINWSYS.TINWSYS_IS_NUMBER, TINWSYS.TINWSYS_ST_CODE;
```

Then select TCR violations for these water systems that are for the monitoring period in the session. The following SQL statement accomplishes the desired selection:

```
SELECT Session.PK_SessionID, Session.SessionName, TINWSYS.NUMBER0,  
TINWSYS.NAME, TMNVIOL.FED_FISCAL_YEAR, TMNVIOL.EXTERNAL_SYS_NUM,  
TSAANLYT.CODE, TMNVTYPE.TYPE_CODE, TMNVIOL.STATUS_TYPE_CODE,  
TMNVIOL.DETERMINATION_DATE, TMNVIOL.D_USERID_CODE,  
TMNVIOL.D_SYSTEM_GENERATED, TMNVIOL.COMP_PRD_BEGIN_DT,  
TMNVIOL.COMP_PRD_END_DT  
FROM ([Session] INNER JOIN (((TMNMPRD INNER JOIN TMNVIOL ON  
(TMNMPRD.TMNMPRD_ST_CODE = TMNVIOL.TMNMPRD_ST_CODE1) AND  
(TMNMPRD.TMNMPRD_IS_NUMBER = TMNVIOL.TMNMPRD_IS_NUMBER1))  
INNER JOIN TMNVTYPE ON (TMNVIOL.TMNVTYPE_ST_CODE =  
TMNVTYPE.TMNVTYPE_ST_CODE) AND (TMNVIOL.TMNVTYPE_IS_NUMBER =  
TMNVTYPE.TMNVTYPE_IS_NUMBER)) INNER JOIN TSAANLYT ON  
(TMNVIOL.TSAANLYT_ST_CODE = TSAANLYT.TSAANLYT_ST_CODE) AND  
(TMNVIOL.TSAANLYT_IS_NUMBER = TSAANLYT.TSAANLYT_IS_NUMBER))  
INNER JOIN TINWSYS ON (TMNVIOL.TINWSYS_ST_CODE =  
TINWSYS.TINWSYS_ST_CODE) AND (TMNVIOL.TINWSYS_IS_NUMBER =  
TINWSYS.TINWSYS_IS_NUMBER)) ON (Session.TMNMPRD_IS_NUMBER =
```

```
| TMNMPRD.TMNMPRD_IS_NUMBER) AND (Session.TMNMPRD_ST_CODE =  
| TMNMPRD.TMNMPRD_ST_CODE)) INNER JOIN [Reg Agency Wtr Sys in Session Qry]  
| ON ([Reg Agency Wtr Sys in Session Qry].TINWSYS_ST_CODE =  
| TINWSYS.TINWSYS_ST_CODE) AND ([Previously Selected Water  
| Systems].TINWSYS_IS_NUMBER = TINWSYS.TINWSYS_IS_NUMBER)  
| WHERE (((TMNVTYPE.TYPE_CODE) Between "21" And "26");
```