



# Appendix B

*Data Quality for Assessments  
of FY 2002 Performance*

## APPENDIX B: DATA QUALITY FOR ASSESSMENTS OF FY 2002 PERFORMANCE

Appendix B describes the quality of the data used to measure EPA's performance. For each of the 10 EPA Strategic Goals, this appendix describes (1) the performance measures (PMs), (2) the database(s) supporting the PMs, (3) the source of the database(s), (4) the quality of the data, (5) planned improvements to the data or database(s), and (6) any material inadequacies.

### Goal 1: Clean Air

#### **PERFORMANCE MEASURES:** (Refer to Performance Data Chart pages II-9–II-11)

- Total number of people who live in areas designated in attainment of the clean air standards for ozone, PM, CO, SO<sub>2</sub>, NO<sub>2</sub>, and Pb. (APG 1 & 4)
- Additional people living in newly designated areas with demonstrated attainment of the ozone, PM, CO, SO<sub>2</sub>, NO<sub>2</sub>, and Pb standards. (APG 1 & 2)
- Total number of people living in areas with demonstrated attainment of the NO<sub>2</sub> standard. (APG 4)

[Note: PM = particulate matter, PM-10 = particulate matter 10 micrometers or less in diameter, PM-2.5 = particulate matter 2.5 micrometers or less in diameter CO = carbon monoxide, SO<sub>2</sub> = sulfur dioxide, NO<sub>2</sub> = nitrogen dioxide, Pb = lead.]

**Performance Database:** The Air Quality Subsystem (AQS). AQS stores ambient air quality data used to evaluate an area's air quality levels relative to the National Ambient Air Quality Standards (NAAQS). The Findings and Required Elements Data System (FREDS). FREDS is used to track the progress of states and regions in reviewing and approving the required data elements of the State Implementation Plans (SIPs). SIPs are clean air plans and define what actions a state will take to improve the air quality in areas that do not meet NAAQS.<sup>1</sup> FY 2002 performance data are complete.

**Data Source:** AQS - State and local agency data from State and Local Air Monitoring Stations (SLAMS). Population - Data from Census Bureau/Department of Commerce. FREDS - Data are provided by EPA's regional offices.

**Data Quality:** AQS - The quality assurance (QA)/quality control (QC) of the national air monitoring program has several major components: the Data Quality Objective (DQO) process, reference and equivalent methods program, EPA's National Performance Audit Program (NPAP), system audits, and network reviews. To ensure quality data, the SLAMS are required to meet the following: (1) each site must meet network design and siting criteria; (2) each site must provide adequate QA assessment, control, and corrective action functions according to minimum program requirements; (3) all sampling methods and equipment must meet EPA reference or equivalent requirements; (4) acceptable data validation and record-keeping procedures must be followed; and (5) data from SLAMS must be summarized and reported annually to EPA. Finally, there are system audits that regularly review the overall air quality data collection activity for any needed changes or corrections. FREDS - No formal QA/QC procedures. Populations - No additional QA/QC beyond that done by the Census Bureau/Department of Commerce. The data included in AQS are based on EPA performance specifications. EPA has stringent QA/QC procedures in place that minimize data limitations. Populations - No additional QA/QC beyond that done by the Census Bureau/Department of Commerce. FREDS - Potential data limitations include incomplete or missing data from EPA's regional offices.

**Improvements:** AQS - EPA recently completed the process of reengineering the AQS to make it a more user-friendly, Windows-based system. As a result, air quality data will be more easily accessible

## Goal 1: Clean Air (continued)

via the Internet. AQS has been enhanced to include data standards (e.g., latitude/longitude, chemical nomenclature) developed under the Agency's Reinventing Environmental Information (REI) Initiative.

**Material Inadequacy:** There are no material inadequacies for these performance measures.

### **PERFORMANCE MEASURES:** (Refer to Performance Data Chart pages II-9–II-11 )

- Reduction in mobile source PM-10. (APG 2)
- Reduction in mobile source PM-2.5. (APG 2)
- Reduction in mobile source volatile organic compound (VOC) emissions. (APG 1)
- Reduction in mobile source NO<sub>x</sub> emissions. (APG 1)
- CO reduced from mobile sources. (APG 4)

**Performance Database:** The Air Quality Subsystem (AQS). AQS stores ambient air quality data (used to evaluate an area's air quality levels relative to the NAAQS).<sup>2</sup> FY 2002 performance data are complete for FY 2002.

**Data Source:** AQS - State and local agency data from State and Local Air Monitoring Stations (SLAMS). Certain mobile source information is updated annually. Inputs are updated annually only if there is a rationale and a readily available source of annual data. Generally, Vehicle Miles Traveled (VMT), the mix of VMT by type of vehicle (Federal Highway Administration types), temperature, gasoline properties, and the designs of inspection/maintenance programs are updated each year. The age mix of highway vehicles is updated using state registration data, thereby capturing the effect of fleet turnover. Emission factors for all mobile sources and activity estimates for nonroad sources are changed only when the Office of Transportation and Air Quality requests that this be done and is able to provide the new information in a timely manner. This new information includes new models such as MOBILE6 and the latest version of the nonroad model.

**Data Quality:** AQS - The QA/QC of the national air monitoring program has several major components: the Data Quality Objective (DQO) process, the reference and equivalent methods program, EPA's National Performance Audit Program (NPAP), system audits, and network reviews. To ensure quality data, the SLAMS are required to meet the following: (1) each site must meet network design and siting criteria; (2) each site must provide adequate QA assessment, control, and corrective action functions according to minimum program requirements; (3) all sampling methods and equipment must meet EPA reference or equivalent requirements; (4) acceptable data validation and record-keeping procedures must be followed; and (5) data from SLAMS must be summarized and reported annually to EPA. Finally, there are system audits that regularly review the overall air quality data collection activity for any needed changes or corrections.

Any limitations of the inventory estimates for mobile sources come from limitations in the modeled emission factors (based on emission factor testing and models predicting overall fleet emission factors in grams per mile) and also in the estimated vehicle miles traveled for each vehicle class (derived from Department of Transportation data). For nonroad emissions, the estimates come from a model using equipment populations, emission factors per hour or unit of work, and an estimate of usage. This nonroad emissions model accounts for more than 200 types of nonroad equipment. Any limitations in the input data will carry over into limitations in the emission inventory estimates.

It is important to have the current and future year emission reduction estimates generated using consistent methods. The EPA Emission Trends report dated December 1997 has mobile source emission inventories for the 1995 base year as well as for years 2000, 2002, 2005, and 2007. The

## Goal 1: Clean Air (continued)

base year emissions in 1995 for mobile sources are 8,134,000 tons VOC; 70,947 tons CO; 11,998 tons NO<sub>x</sub>; 878,000 tons PM-10; and 659,000 tons PM. These data were used to predict the emission reductions in the year 2000 and later.

**Improvements:** AQS - EPA recently completed the process of reengineering the AQS to make it a more user-friendly, Windows-based system. As a result, air quality data will be more easily accessible via the Internet. AQS has been enhanced to include data standards (e.g., latitude/longitude, chemical nomenclature) developed under the Agency's Reinventing Environmental Information (REI) Initiative.

**Material Inadequacy:** There are no material inadequacies for these performance measures.

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### PERFORMANCE MEASURE: (Refer to Performance Data Chart page II-11)

Combined stationary and mobile source reduction in air toxics emissions. (APG 5)

**Performance Database:** National Toxics Inventory (NTI).

**Data Source:** The NTI includes emission estimates from large industrial or point sources, smaller stationary area sources, and mobile sources. The baseline NTI (for base years 1990–1993) includes emission estimates for 188 hazardous air pollutants from more than 900 stationary source categories and from mobile sources. It is based on data collected during the development of Maximum Achievable Control Technology (MACT) standards, state and local data, Toxics Release Inventory (TRI) data, and emissions estimates using accepted emission inventory methodologies. Additional information on the development of the baseline NTI is available on the Internet at <http://www.epa.gov/ttn/chief/nti/index.html#nti>. The baseline NTI contains county level emissions data and cannot be used for modeling because it does not contain facility-specific data.

The 1996 and the 1999 NTI contain major point sources, area sources, and mobile source estimates that are used as input to National Air Toxics Assessment (NATA) modeling. The 1996 and 1999 NTI contain estimates of facility-specific hazardous air pollutants (HAP) emissions and their source-specific parameters necessary for modeling such as location and facility characteristics (stack height, exit velocity, temperature, etc.).

The primary source of data in the 1996 and 1999 NTI is state and local air pollution control agencies and tribes. These data vary in completeness, format, and quality. EPA evaluates these data and supplements them with data gathered while developing MACT and residual risk standards, industry data, and Toxics Release Inventory (TRI) data. Then EPA estimates emissions for approximately 30 area source categories such as wildfires and residential heating sources not included in the state, local, and tribal data to produce a complete model-ready national inventory. Mobile source data are developed using data provided by state and local agencies and tribes and onroad and nonroad models developed by EPA's Office of Transportation and Air Quality. The draft 1996 and 1999 NTI undergo extensive review by state and local agencies, tribes, industry, EPA, and the public.<sup>3</sup>

In the intervening years between updates of the NTI, the model EMS-HAP (Emissions Modeling System for Hazardous Air Pollutants) is used to estimate annual emissions of air toxics. EMS-HAP is an emissions processor that performs the steps needed to process an emission inventory for input into the model. These steps include spatial allocation of area and mobile source emissions from the county level to the census tract level, and temporal allocation of annual emission rates to annually averaged (i.e., same rate for every day of the year) 3-hour emission rates. In addition, EMS-HAP, a model processor, can project future emissions by adjusting point, nonpoint, and mobile emission data to account for growth and emission reductions resulting from emission reduction scenarios.<sup>4</sup>

## Goal 1: Clean Air (continued)

**Data Quality:** The NTI is a database designed to house information from other primary sources. EPA performs extensive QA/QC activities to improve the quality of the emission inventory. EPA conducts a variety of internal activities to QC the 1999 NTI data provided by other organizations, including (1) the use of an automated format QC tool to identify potential errors with data integrity, code values, and range checks; (2) use of geographic information system (GIS) tools to verify facility locations; and (3) content analysis by pollutant, source category, and facility to identify potential problems with emission estimates such as outliers, duplicate sites, duplicate emissions, coverage of a source category, etc. The content analysis includes a variety of comparative and statistical analyses. The comparative analyses help reviewers prioritize which source categories and pollutants to review in more detail based on comparisons using current inventory data and prior inventories. The statistical analyses help reviewers identify potential outliers by providing the minimum, maximum, average, standard deviation, and selected percentile values based on current data. EPA is currently developing an automated QC content tool for data providers to use prior to submitting their data to EPA. After investigating errors identified using the automated QC format tool and GIS tools, EPA follows specific guidance, available on the Internet ([http://www.epa.gov/ttn/chief/emch/invent/qaaugmemo\\_final.pdf](http://www.epa.gov/ttn/chief/emch/invent/qaaugmemo_final.pdf)), on augmenting missing data fields. The NTI database contains data fields that indicate if a field has been augmented and identifies the augmentation method.

After performing the content analysis, EPA contacts data providers to reconcile potential errors. The draft NTI is posted for external review and includes a README file with instructions on review of data and submission of revisions, documentation, state-by-state modeling files with all modeled data fields, and summary files to assist in the review of the data. One of the summary files includes a comparison of point source data submitted by different organizations.

During the external review of the data, state and local agencies, tribes, and industry provide external QA of the inventory. EPA evaluates proposed revisions from external reviewers and prepares memos for individual reviewers documenting incorporation of revisions and explanations if revisions were not incorporated. All revisions are tracked in the database with the source of original data and sources of subsequent revision. The external QA and the internal QC of the inventory result in significant changes to the initial emissions estimates. Additional information on QA/QC of the NTI is documented in a paper titled *QA/QC — An Integral Step in the Development of the 1999 National Emission Inventory for HAPs* (Anne Pope et al.). Presented at the 2002 Emission Inventory Conference in Atlanta; available on the Internet at <http://www.epa.gov/ttn/chief/conference/ei11/qa/pope.pdf>.

EPA's Science Advisory Board (SAB) reviewed the draft 1996 national-scale assessment, NATA, during 2001. It was published in 2002. The review was generally supportive of the assessment purpose, methods, and presentation; the committee considers this an important step toward a better understanding of air toxics. Many of the SAB comments related to possible improvements for future assessments (additional national-scale assessments are being planned for the base year 1999 and for every 3 years thereafter) or raised technical issues that merit further investigation. In response to the technical issues, EPA plans to improve the modeling methodology and conduct additional analyses and studies per SAB recommendation. Also, as a result of the SAB meeting, industry provided revisions to the draft 1996 NTI, which were incorporated in the final inventory used for NATA modeling. EPA will follow up on all the issues raised by SAB and plans to publish a series of technical reports addressing the results of these investigations. Information on the scientific peer review of the national-scale assessment is available on the Internet at <http://www.epa.gov/ttn/atw/nata/peer.html>.

## Goal 1: Clean Air (continued)

**Improvements:** The 1996 and 1999 NTI are a significant improvement over the baseline 1993 NTI because of the added facility-level detail (e.g., stack heights, latitude/longitude locations), making it more useful for dispersion model input. Future inventories (2002 and later years) are expected to improve significantly because of increased interest in the NTI by regulatory agencies, environmental interests, and industry, and the greater potential for modeling and trend analysis. During the development of the 1999 NTI, all primary data submitters and reviewers were required to submit their data and revisions to EPA in a standardized format using the Agency's Central Data Exchange (CDX). Information on CDX is available on the Internet at <http://www.epa.gov/ttn/chief/nif/cdx.html>.

**Material Inadequacy:** There are no material inadequacies for this performance measure.

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### PERFORMANCE MEASURES: (Refer to Performance Data Chart page II-12)

- SO<sub>2</sub> emissions reduction. (APG 6)
- NO<sub>x</sub> emissions reduction. (APG 7)

**Performance Database:** The following are the databases used to support the performance measures in the Acid Rain Program: Emissions Tracking System (ETS), SO<sub>2</sub> and NO<sub>x</sub> emissions collected by Continuous Emission Monitoring Systems (CEMS), CASTNet for dry deposition, and National Atmospheric Deposition Program (NADP) for wet deposition. Data are collected on a calendar year basis. FY 2002 data will be available in mid-2003 and will be reported in the FY 2003 Annual Report.

**Data Source:** On a quarterly basis, ETS receives and processes hourly measurements of SO<sub>2</sub>, NO<sub>x</sub>, volumetric flow, CO<sub>2</sub>, and other emission-related parameters from more than 2,500 fossil fuel-fired utility units affected under the Title IV Acid Rain Program. For the 5-month ozone season (May 1–September 30), ETS receives and processes hourly NO<sub>x</sub> measurements from electric generation units (EGUs) and certain large industrial combustion units affected under the Ozone Transport Commission (OTC) NO<sub>x</sub> Budget Program, the NO<sub>x</sub> SIP Call, and/or the section 126 programs for controlling regional transport of ozone in the eastern United States. In 2004 the initial compliance year for the NO<sub>x</sub> SIP Call, up to 2,000 units in as many as 20 states and the District of Columbia will report seasonal NO<sub>x</sub> data to ETS. More than 900 units have been reporting these data since 1999 under the OTC NO<sub>x</sub> Budget Program.

CASTNet measures particle and gas acidic deposition chemistry. Specifically, CASTNet measures sulfate and nitrate dry deposition and meteorological information at approximately 70 active monitoring sites. CASTNet is primarily an eastern, long-term dry deposition network funded, operated, and maintained by EPA's Office of Air and Radiation (OAR).

The NADP is a national long-term wet deposition network that measures precipitation chemistry and provides long-term geographic and temporal trends in concentration and deposition of major cations and anions. Specifically, NADP provides measurements of sulfate and nitrate wet deposition at approximately 200 active monitoring sites. EPA, along with several other federal agencies, states, and other private organizations, provides funding and support for NADP. The Illinois State Water Survey, University of Illinois, maintains the NADP database.

**Data Quality:** Quality assurance and quality control requirements dictate performing a series of quality assurance tests of CEMS's performance. For these tests, emissions data are collected under highly structured, carefully designed testing conditions, which involve either high-quality standard reference materials or multiple instruments performing simultaneous emission measurements. The resulting data are screened and analyzed using a battery of statistical procedures, including one that tests for systematic bias. If CEMS fails the bias test, indicating a potential for systematic underestimation

## Goal 1: Clean Air (continued)

of emissions, either the problem must be identified and corrected or the data are adjusted to minimize the bias.

In November 2001 CASTNet established a Quality Assurance Project Plan (QAPP).<sup>5</sup> The QAPP contains data quality objectives and quality control procedures for accuracy and precision.

NADP has established data quality objectives and quality control procedures for accuracy, precision, and representativeness. The intended use of these data is to establish spatial and temporal trends in wet deposition and precipitation chemistry. The NADP methods of determining wet deposition values have undergone extensive peer review, handled entirely by the NADP housed at the Illinois State Water Survey, University of Illinois. Assessments of changes in NADP methods are developed primarily through the academic community and reviewed through the technical literature process.

The ETS provides instant feedback to the data sources (e.g., the electrical utilities) to identify data reporting problems, format errors, and inconsistencies. EPA staff then conduct data quality review on each quarterly ETS file. In addition, states or EPA staff conduct random audits on selected sources' data submission. The electronic data file QA checks are described in EPA's *Quarterly Report Review Process*.<sup>6</sup>

**Improvements:** To improve the spatial resolution of the Network (CASTNet), additional monitoring sites are needed. However, at this time EPA has no plans to add sites.

**Material Inadequacy:** There are no material inadequacies for these performance measures.

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### **PERFORMANCE MEASURE: (Refer to Performance Data Chart page II-10)**

Report on the effects of concentrated ambient PM on humans and animals believed most susceptible to adverse effects (e.g., elderly, people with lung disease, or animal models of such diseases). (APG 3)

**Performance Database:** Program output; no internal tracking system.

**Data Source, Data Quality, Improvements, Material Inadequacy:** Not applicable.

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### **PERFORMANCE MEASURE: (Refer to Performance Data Chart page II-10)**

Report on animal and clinical toxicology studies using Utah Valley particulate matter (UVPM) to describe biological mechanisms that may underlie the reported epidemiological effects of UVPM. (APG 3)

**Performance Database:** Program output; no internal tracking system.

**Data Source, Data Quality, Improvements, Material Inadequacy:** Not applicable.

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## Goal 2: Clean and Safe Water

### **PERFORMANCE MEASURE: (Refer to Performance Data Chart page II-23)**

Provide method(s) for CCL related pathogens in drinking water for use in the Unregulated Contaminant Monitoring Rule. (APG 11)

**Performance Database:** Program output; no internal tracking system.

## Goal 2: Clean and Safe Water (continued)

**Data Source, Data Quality, Improvements, Material Inadequacy:** Not applicable.

### **PERFORMANCE MEASURE:** (Refer to Performance Data Chart page II-22)

Percent of population served by community drinking water systems with no violations during the year of any federally enforceable health-based standards that were in place by 1994 and population served by community water systems providing drinking water meeting health-based standards promulgated in or after 1998. (APG 8 & 9)

**Performance Database:** Safe Drinking Water Information System–Federal Version (SDWIS or SDWIS-FED).

**Data Source:** Agencies with primacy for the Public Water Supply Supervision (PWSS) Program, including states, EPA regional offices with direct implementation (DI) responsibility for states and Indian tribes, and the Navajo Nation Indian Tribe (the Navajo Nation is expected to begin reporting directly to EPA in FY 2003). Primacy agencies (states) collect the data from the regulated water systems, determine compliance, and report a subset of the data to EPA (primarily inventory and violations). EPA is the secondary user of these data. Water quality data from other collectors of data (third parties) related to drinking water, such as source water or waste water discharge, are not used in PWSS program measures. FY 2002 performance data are complete.

**Data Quality:** The analytical methods for drinking water sample analysis are specified in technical guidance associated with each drinking water regulation. Laboratories must be certified by the primacy agency (state) to analyze drinking water samples and are subject to periodic performance audits by the state. The performance measures are based on data reported by individual systems to states, which supply the information to EPA through SDWIS. EPA then verifies and validates the data for 10 to 12 states per year, according to the PWSS Data Verification Protocol (Version 9.0, 1999).<sup>7</sup> To measure program performance, EPA aggregates the SDWIS data into a national statistic on overall compliance with health-based drinking water standards. This statistic compares the total population served by community water systems meeting all health-based standards to the total population served by all public water systems (which includes non-community water systems).

SDWIS-FED has numerous edit checks built into the software to reject erroneous data. There are quality assurance manuals for states and regions to follow to ensure data quality. The manuals provide standard operating procedures for conducting routine assessments of the quality of the data, communication and follow-up actions to be conducted with the state to achieve timely corrective action(s). EPA offers training to states on reporting requirements, data entry, data retrieval, and error correction. User and system documentation is produced with each software release and is maintained on EPA's Web site. SDWIS-FED documentation includes data entry instructions, data element dictionary application, Entity Relationship Diagrams, a user's manual, and regulation-specific reporting requirements documents. System, user, and reporting requirements documents can be found on the EPA Web site at <http://www.epa.gov/safewater>. System and user documents are accessed via the database link, and specific rule reporting requirements documents are accessed via the regulations, guidance, and policy documents link. In addition, EPA provides specific error correction and reconciliation support through a troubleshooter's guide, a system-generated summary with detailed reports that document the results of each data submission, and an error code database for states to use when they have questions on how to enter or correct data. A user support hotline is available 5 days a week to answer questions and provide technical assistance. At least one EPA staff person in each EPA regional office serves as the SDWIS-FED Regional Data Management Coordinator to provide technical assistance and training to the states

## Goal 2: Clean and Safe Water (continued)

on all aspects of information management and required reporting to EPA. State primacy agencies' information systems are audited on an average schedule of once every 3 years. EPA also completed a data reliability assessment (QA audit) of the 1996–1998 SDWIS-FED data in FY 2000. The Data Reliability Action Plan (DRAP, described below),<sup>8</sup> completed in FY 2000, was developed to address deficiencies identified in the 1999 data reliability assessment. The action plan was implemented in 2001 and continues to be implemented and revised as appropriate. The most recent revision was made in October 2002.

EPA, states, and stakeholders have expanded on the DRAP through the development of a more comprehensive OGWDW Information Strategy that tackles additional data quality problems.<sup>9</sup> Components of the OGWDW Information Strategy include (1) simplifying and/or standardizing regulatory reporting requirements where possible; (2) reevaluating EPA's philosophy of system edits; and (3) continuing to improve tools and processes for creating and transferring data to EPA, such as incorporating newer technologies, and adapting the Agency's Enterprise Architecture Plan, to integrate data and the flow of data from reporting entities to EPA via a central data exchange (CDX) environment. The Information Strategy could be considered Phase II of the DRAP, and it sets the direction for a comprehensive modernization of SDWIS over the next 3 to 5 years.

Finally, individual data quality reviews are conducted by EPA and its contracted auditors on state primacy agencies' information systems. The frequency of these audits are conducted between every 2 to 4 years depending on the resources available and programmatic need in the region. Each state's overall information system is evaluated with special emphasis on its compliance determinations (interpretation and application of regulatory requirements, which includes designation of violations) and data flow (primacy agency's compliance with record-keeping and reporting requirements to EPA). Continuous data quality reviews include data quality estimates based on the results of data verifications, timeliness and completeness of violation reporting, completeness of various required inventory data elements, and completeness of reporting for specific rules.

Currently SDWIS-FED is an "exceptions" database that focuses exclusively on public water systems' noncompliance with drinking water regulations (health-based and program). Primacy states implement drinking water regulations with the support of the Public Water System Supervision (PWSS) grant program and determine whether public water systems have violated maximum contaminant levels (MCLs), treatment technique requirements, consumer notification requirements, or monitoring and reporting requirements. Primacy agencies report those violations through SDWIS.

Recent state data verification and other quality assurance analyses indicate the most significant data quality problem is under-reporting to EPA of monitoring and health-based standards violations and inventory characteristics, such as water sources and/or latitude/longitude for all sources. The most significant under-reporting occurs in monitoring violations. Even though these are not covered in the performance measure, failures to monitor could mask treatment technique and MCL violations. Such under-reporting of violations limits EPA's ability to precisely quantify the population served that are meeting health based standards. Currently, the program office is assessing the percentage of unreported health based violations and calculating adjustments to the performance data that might be required for future annual reports. The population data has been determined to be of high quality.

The DRAP and the Information Strategy Plan address many of the underlying factors contributing to the data limitations. Additional options under consideration include the following:

1. Increase the focus on state compliance determinations and reporting of complete, accurate, and timely violations data.
2. Develop incentives to improve the accuracy, completeness, and timeliness of state reporting.

## Goal 2: Clean and Safe Water (continued)

3. Continue to analyze the quality of the data.
4. Require the reporting of parametric data (analytical results used to evaluate compliance with monitoring regulations and compliance with treatment techniques and maximum contaminant levels), monitoring schedules, and waiver information assigned to water systems by the state primacy agency. This information would allow compliance determinations to be made by EPA for quality assurance or state oversight purposes. Potential violation under reporting could be identified through the availability of this information and appropriate corrective actions implemented.

**Improvements:** With a newly developed information strategy developed by EPA in partnership with the states and major stakeholders, several improvements to SDWIS are under way. The DRAP is an integral part of the OGWDW Strategic Information Plan, currently under development.

First, EPA will continue to work with states to implement the DRAP (previously referenced), a multi-step approach to improve the quality and reliability of data in SDWIS-FED. The DRAP already has improved the completeness, accuracy, timeliness, and consistency of the data in SDWIS-FED through (1) training courses for SDWIS-FED data entry, error correction, and regulation-specific compliance determination and reporting requirements; (2) specific DRAP analyses, follow-up activities, and state-specific technical assistance; (3) increased number of data verifications conducted each year; and (4) creation of various quality assurance reports to assist regions and states in the identification and reconciliation of missing, incomplete, or conflicting data.

Second, more states will use SDWIS-STATE,<sup>10</sup> a software information system jointly designed by states and EPA, to support states as they implement the drinking water program. SDWIS-STATE is the counterpart to EPA's federal drinking water information system, SDWIS-FED, and employs many of the same edit criteria and enforces many of the mandatory data elements. If the SDWIS-STATE system is fully utilized by a state, the information it holds would meet EPA's minimum data requirements. SDWIS-STATE contains a utility that creates the necessary output to report to SDWIS-FED, which aids in easing the states' reporting burden to EPA and in the process minimizes data conversion errors and improves data quality and accuracy. In addition, a Web-enabled version of SDWIS-STATE and a data migration application that can be used by all states to process data for upload to SDWIS-FED are being developed. EPA estimates that 40 states will be using SDWIS-STATE for data collections by FY 2004.

Third, EPA is modifying SDWIS-FED to (1) streamline its table structure, which simplifies updates and retrievals, (2) minimize data entry options that result in complex software and prevent meaningful edit criteria, and (3) enforce compliance with permitted values and Agency data standards through software edits, all of which will improve the accuracy of the data.

Fourth, EPA has developed a data warehouse system that is optimized for analysis, data retrieval, and data integration from other data sources like information from data verifications, sample data, source water quality data (e.g., U.S. Geological Survey [USGS] data), and indicators from inspections conducted at the water systems. It will improve the program's ability to use information to make decisions and effectively manage the program.

Finally, EPA, in partnership with the states, is developing information modules on other drinking water programs: the Source Water Protection Program, the Underground Injection Control Program, and the Drinking Water State Revolving Fund. These modules will be integrated with SDWIS to provide a more comprehensive data set with which to assess the Nation's drinking water supplies, a key component of the goal.

**Material Inadequacy:** There is no material inadequacy for this performance measure.

## Goal 2: Clean and Safe Water (continued)

### **PERFORMANCE MEASURE:** (Refer to Performance Data Chart page II-25)

Clean Water State Revolving Fund (CWSRF) projects that have initiated operations. (APG 17)

**Performance Database:** Clean Water State Revolving Fund National Information Management System (NIMS).<sup>11</sup> FY 2002 performance data are complete.

**Data Source:** Data are reported to EPA headquarters by state regulatory agency personnel and EPA's regional staff. Data are collected and reported once yearly. State data are maintained in NIMS using a standard Excel spreadsheet format.

**Data Quality:** States receive data entry guidance from EPA headquarters in the form of annual memoranda. After the states enter data, EPA headquarters and its contractor compile the data. EPA headquarters and its regional office staff query the states as needed to ensure data quality and conformance with expected trends. Quality control measures verify that data are complete, data collected are consistent with data stored in NIMS, and data in NIMS are unique. The process of validating the data takes several weeks.

After discrepancies have been resolved and the data are determined to be complete, EPA headquarters prepares a detailed analysis, which the regional offices use during their yearly on-site reviews of each state program. In addition, independent auditors or the EPA Inspector General's office conduct their own annual audits, at which time they evaluate each state's financial data quality. Finally, every other year, headquarters staff visit each regional office to examine files and to check data quality procedures.

There are no known limitations in the performance data, which states submit voluntarily. Erroneous data can be introduced into the NIMS database by typographic or definitional error. Typographic errors are controlled or corrected through data testing performed by EPA and its contractor. Definitional errors due to varying interpretations of information requested for specific data fields have been virtually eliminated in the past 2 years through EPA headquarters' clarification of definitions.<sup>12</sup> It takes several weeks to quality-check the data and make them available for public use.

**Improvements:** This system has been operative since 1996. It is updated annually, and data fields are changed or added as needed. The federal budget cycle demands that EPA set program performance targets 2 years in advance. The NIMS has effectively shown the success of the CWSRF program. The NIMS shows that the number of projects being financed and built has exceeded the Agency's targets by an average of 12 percent per year.

**Material Inadequacy:** There is no material inadequacy for this performance measure.

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### **PERFORMANCE MEASURE:** (Refer to Performance Data Chart page II-24)

Acres of habitat restored and protected nationwide since 1987 as part of the National Estuary Program (NEP). (APG 14)

**Performance Database:** Aggregate national and regional data for this measurement, as well as data submitted by the individual National Estuary Programs, are displayed numerically, graphically, and by habitat type in the Performance Indicators Visualization and Outreach Tool (PIVOT).<sup>13</sup> PIVOT highlights habitat loss, alteration, protection, and restoration in an educational fashion with graphics and images that reflect specific NEP reports. FY 2002 performance data are complete.

**Data Source:** NEP program documents such as annual work plans (which contain achievements made in the previous year) and annual progress reports are used, along with other implementation tracking materials, to document the number of acres of habitat restored and protected. EPA then aggregates

## Goal 2: Clean and Safe Water (continued)

the data for each NEP to arrive at a national total for the entire program. EPA conducts regular reviews of NEP implementation to help ensure that information provided in these documents is as accurate as possible and that progress reported is in fact being achieved.

**Data Quality:** Primary data are prepared by the staff of the NEP based on their own reports and from data supplied by other partnering agencies/organizations (that are responsible for implementing the action resulting in habitat protection and restoration). The NEP staff are required to follow guidance provided by EPA to prepare their reports and to verify the numbers they provided. EPA then confirms that the national total accurately reflects the information submitted by each program. The Office of Wetlands, Oceans and Watersheds has developed a standardized format for data reporting and compilation and guidance with definitions for habitat protection, restoration activities, and habitat categories.<sup>14</sup>

Current data limitations include information that may be reported inconsistently (based on different interpretations of the protection and restoration definitions), acreage that may be miscalculated or misreported, and acreage that may be double-counted (same parcel may also be counted by partnering/implementing agency or need to be replanted multiple years). In addition, although measuring the (quantitative) number of acres of habitat protected or restored provides an indicator of on-the-ground progress made by NEPs, it does not necessarily correlate to an indication of the overall health of that habitat (e.g., changes in ecological function).

**Improvements:** EPA is continuing to work with the NEPs and their partners to improve consistency and accuracy of reporting.

**Material Inadequacy:** There is no material inadequacy for this performance measure.

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### PERFORMANCE MEASURE: (Refer to Performance Data Chart page II-23)

Cumulative number of beaches for which monitoring and closure data are available. (APG 10)

**Performance Database:** National Health Protection Survey of Beaches Information Management System.<sup>15</sup> FY 2002 performance data are complete.

**Data Source:** Data are obtained from National Health Protection Survey of Beaches, which is a voluntary collection of beach data along the coastal and Great Lake states and territories. State and local governments voluntarily provide the information. The survey began in 1997 with information on 1,021 beaches and now includes records on 2,445 beaches. The database includes fields identifying the beaches for which monitoring and notification information is available. The database also identifies those states that have received a BEACH (Beaches Environmental Assessment and Coastal Health) Act grant. Information is updated annually.

**Data Quality:** A standard survey form, approved by OMB, is distributed to coastal and Great Lake state and county environmental and public health beach program officials by mail in hard copy and is available on the Internet for electronic submission. In 2001 survey respondents comprised 42% county, 31% city, 12% state, 6% district, 4% region, 2% National park, 2% state park, 1% other. When data are entered over the Internet by a state or local official, a password is issued to ensure the appropriate party is completing the survey. EPA reviews the survey responses to ensure the information is complete, then follows up with the state or local government to obtain additional information where needed. However, because the data are submitted voluntarily by state and local officials, the Agency cannot verify the accuracy of the information provided.

## Goal 2: Clean and Safe Water (continued)

Participation in this survey and collection of data is voluntary, and information has not been collected on the universe of beaches. The voluntary response rate was 88% in 2001 (237 out of 269 contacted agencies responded). The number of beaches for which information was collected increased from 1,021 in 1997 to 2,445 in 2001. Participation in the survey will become a mandatory condition for grants awarded under the BEACH Act program (described below); however, state and local governments are not required to apply for a grant.

**Improvements:** With the passage of the BEACH Act of 2000, P.L. 106-284, the Agency is authorized to award grants to states to develop and implement monitoring and notification programs consistent with federal requirements. As the Agency awards these implementation grants, it will require standard program procedures, sampling and assessment methods, and data elements for reporting. To the extent that state governments apply for and receive these implementation grants, the amount, quality, and consistency of available data will improve. In addition, the BEACH Act requires the Agency to maintain a database of national coastal recreation water pollution occurrences. The Agency will fulfill this requirement by revising the current database to include this new information. In revising the database, the Agency has been investigating modes for electronic exchange of information and reducing the number of reporting requirements.

**Material Inadequacy:** There is no material inadequacy for this performance measure.

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### PERFORMANCE MEASURES: (Refer to Performance Data Chart page II-25)

- Major point sources are covered by current permits. (APG 16)
- Minor point sources are covered by current permits. (APG 16)

**Performance Database:** Permit Compliance System (PCS).<sup>16</sup> FY 2002 performance data are complete.

**Data Source:** EPA's regional offices and states enter data into PCS.

**Data Quality:** PCS is the official repository of NPDES program data. The Office of Water (OW) uses PCS to determine the extent of the NPDES universe and the percentage of permits that have exceeded their expiration date (i.e., the percentage of permits that are backlogged). States that have been delegated the NPDES program are required to maintain PCS. In cases where EPA remains the permitting authority, the region is responsible for maintenance of PCS. However, many states have developed their own systems to manage NPDES data. While these states are still required to input data into PCS, either through direct entry or batch upload, their own systems often contain more complete and accurate programmatic data.

OW has been working with states and regions on a PCS Clean-Up Project to ensure that the data in PCS provide an accurate representation of the NPDES universe and are reconciled with state system data. As part of the QA/QC process, OW generates monthly national and state-by-state reports listing key facility and outfall data elements appearing in PCS for all active permits. The data elements include permittee and facility name, facility address, issuance date, expiration date, application received date, effective date, Standard Industrial Classification (SIC) code, facility and outfall latitude/longitude, flow, etc. These reports are available on a password-protected Web site<sup>17</sup> maintained by an OW contractor. In addition to the actual data elements listed above, the site includes summary reports of missing and available data nationally and for every state.

OW has been working with states and regions to identify and correct discrepancies between state and PCS data and to populate fields in PCS that are currently blank with existing state-level data provided by states. A contractor is available to provide states with support in the review, comparison, upload and entry of data. OW anticipates completion of the project during FY 2003.

## Goal 2: Clean and Safe Water (continued)

**Improvements:** The PCS Clean-Up project has resulted in significant changes to the PCS database. OW has inactivated over 25% of the individual permits in PCS when states indicated that, according to their own updated records, those permits were no longer or had never been active. Many of the permits that were inactivated had been included as part of the NPDES permit backlog. OW has also worked with states to populate many facility-level data fields that had been blank. While EPA has progressed with the PCS Clean-Up, significant data gaps remain. Many minor permit records still do not contain basic facility-level data such as address or latitude/longitude.

**Material Inadequacy:** Minor permit data elements remain poorly populated in PCS; however, there is sufficient information upon which to base management decisions.

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### PERFORMANCE MEASURES: (Refer to Performance Data Chart page II-24)

- Loading reductions of toxics by facilities subject to effluent guidelines promulgated between 1992 and 2000, as predicted by model projection. (APG 15)
- Loading reductions of conventional pollutants by facilities subject to effluent guidelines promulgated between 1992 and 2000, as predicted by model projection. (APG 15)
- Loading reductions of non-conventional pollutants by facilities subject to effluent guidelines promulgated between 1992 and 2000, as predicted by model projection. (APG 15)

**Performance Database:** This measure is calculated using a spreadsheet<sup>18</sup> that draws from several data sources. An average “per facility” value is assigned to each permittee according to the industrial type of the facility. Each region reports the actual number of permits issued in the past year for each sector, typically drawn from PCS.<sup>19</sup> Using both the average per facility value and the number of permits issued, the spreadsheet then generates the value for the total pollutants reduced.

**Data Sources:** For direct dischargers subject to effluent guidelines, the average per facility value for pollutant reduction is derived from the Technical Development Documents produced at the time of the effluent guideline (ELG) rulemaking.<sup>20</sup> TDDs are available for Pulp & Paper, Pharmaceuticals, Landfills, Industrial Waste Combustors, Centralized Waste Treatment, Transportation Equipment Cleaning, Pesticide Manufacturing, Offshore Oil & Gas, Coastal Oil & Gas, Synthetic Based Drilling Fluid, and Concentrated Animal Feeding Operations.

**Data Quality:** (For a discussion of the PCS data that provide the number of permittees in each sector, please see the discussion in the previous measure on backlog.) The Technical Development Documents that provide pollutant data for each industrial sector are based on extensive research and undergo public review and comment.

**Improvements:** (For a discussion of activities to improve PCS data, please see the discussion in the previous measure on backlog.)

For other sources, such as POTWs, CSOs, and storm water, that were not included as of 2002, other sector-specific modeling is being developed in order to more fully characterize the pollutant loading reductions resulting from the entire NPDES program. For 2003 EPA added an estimation for CSOs using a model<sup>21</sup> that draws information from the Clean Water Needs Survey.<sup>22</sup> EPA is also developing a model,<sup>23</sup> to estimate pollutant reductions from POTWs, both with and without pretreatment programs. EPA expects that model to draw information from Discharge Monitoring Reports (DMRs) contained in PCS, as well as other annual reports by POTWs to EPA and states, including information about permitted Significant Industrial Users where there are pretreatment programs. In the future, EPA also expects to develop a model to estimate pollutant reductions from storm water.

## Goal 2: Clean and Safe Water (continued)

**Material Inadequacy:** There are no material inadequacies for these performance measures. There is sufficient information upon which to base management decisions.

### **PERFORMANCE MEASURE:** (Refer to Performance Data Chart page II-23)

Watersheds that have greater than 80% of assessed waters meeting all water quality standards. (APG 12)

**Performance Database:** The Watershed Assessment Tracking Environmental Results System (WATERS)<sup>24</sup> is used to summarize water quality information at the watershed level. For purposes of this national summary, “watersheds” are equivalent to 8-digit hydrologic unit codes (HUCs), of which there are 2,262 nationwide.<sup>25</sup> State CWA 305(b) data<sup>26</sup> are submitted every 2 years and many states provide annual updates.<sup>27</sup> Data to be used for the FY 2003 Annual Performance Report will include state submissions expected in the spring of 2002.<sup>28</sup> 510 eight-digit HUCs were reported with greater than 80% of assessed waters meeting all water quality standards in the 2000 305(b) report. FY 2001 performance data are used to assess FY 2002 performance; this is a biennial measure, and no new data were planned this year.

**Data Source:** State CWA 305(b) reporting. The data used by the states to assess water quality and prepare their 305(b) reports include ambient monitoring results from multiple sources (state, USGS, volunteer, academic) as well as predictive tools like water quality models.<sup>29</sup> States compile diverse data to support water quality assessments; EPA uses these data to present a snapshot of water quality as reported by the states, but does not use them to report trends in water quality. EPA’s Office of Water and Office of Research and Development have established a monitoring and design team that is working with states on a 3- to 5-year project to recommend a design for a national probability-based monitoring network that could be used to provide both status and trends in water quality at a state and national level. Future data will be accompanied by quality assurance plans as part of the State’s Assessment Methodology,<sup>30</sup> and data coming into the OW database, Storage and Retrieval system (STORET), will have the necessary accompanying metadata.

**Data Quality: QA/QC Procedures:** QA/QC of data provided by states pursuant to individual state assessments (under 305(b)) is dependent on individual state procedures. Numerous system-level checks are built into WATERS based upon the business rules associated with assessment information.<sup>31</sup> States are then given the opportunity to review the information in WATERS to ensure it accurately reflects the data that they submitted. Detailed data exchange guidance and training are also provided to the states. Sufficiency threshold for inclusion in this measure requires that 20% of stream miles in an 8-digit HUC be assessed. The OW Quality Management Plan (QMP) was approved in July 2001.<sup>32</sup> (QMPs need to be renewed every 5 years.)

*Data Quality Review:* Numerous independent reports have cited that weaknesses in monitoring programs and the reporting of monitoring data undermine EPA’s ability to depict the condition of the Nation’s waters and to support scientifically sound water program decisions. The most recent reports include the 1998 *Report of the Federal Advisory Committee on the Total Maximum Daily Load (TMDL) Program*,<sup>33</sup> the March 15, 2000, General Accounting Office report,<sup>34</sup> and the 2001 National Academy of Sciences Report.<sup>35</sup>

In response to these evaluations, EPA has been working with states and other stakeholders to improve (1) data coverage, so that state reports reflect the condition of all waters of the state; (2) data consistency to facilitate comparison and aggregation of state data to the national level; and (3) documentation so that data limitations and discrepancies are fully understood by data users. First, EPA enhanced two existing data management tools (STORET and the Assessment Database) that include documentation of data quality information.<sup>36</sup> Second, EPA has developed a GIS tool called

## Goal 2: Clean and Safe Water (continued)

WATERS that integrates many databases including STORET, the Assessment database, and a new water quality standards database. These integrated databases facilitate comparison and understanding of differences among state standards, monitoring activities, and assessment results. Third, EPA and states have developed a guidance document intended to facilitate increased consistency in monitoring program design and the data and decision criteria used to support water quality assessments.<sup>37</sup> And fourth, OW and the regions have developed the *Elements of a State Water Monitoring and Assessment Program*,<sup>38</sup> which is currently under review by EPA's state partners. This guidance describes 10 elements that each state water quality monitoring program should contain and proposes time-frames for implementing all 10 elements.

**Data Limitations:** Data are not representative of comprehensive national assessments because states do not yet employ a monitoring design that characterizes all waters in each reporting cycle. States do not use a consistent suite of water quality indicators to assess attainment with water quality standards. For example, indicators of aquatic life use support range from biological community assessments to levels of dissolved oxygen to concentrations of toxic pollutants. Several factors relating to variations in state practices limit how the assessment reports provided by states can be used to describe water quality at the national level. States, territories, and tribes collect data and information on only a portion of their water bodies. There are differences among their programs, sampling techniques, and standards.

State assessments of water quality may include uncertainties associated with derived or modeled data. Differences in monitoring designs among and within states prevent the Agency from aggregating water quality assessments at the national level with known statistical confidence. States, territories, and authorized tribes monitor to identify problems and typically place a higher priority on problem solving than on characterization of all water resources. Lag times between data collection and reporting can vary by state.

**Improvements:** OW is currently working with states, tribes, and other federal agencies to improve the database that supports this management measure by addressing the underlying methods of monitoring water quality and assessing the data. Also, OW is working with partners to enhance monitoring networks to achieve comprehensive coverage of all waters, use a consistent suite of core water quality indicators (supplemented with additional indicators for specific water quality questions), and document key data elements and decision criteria in electronic data systems and assessment methodologies. OW is using a variety of mechanisms to implement these improvements including data management systems, guidance, stakeholder meetings, training and technical assistance, program reviews, and negotiations.

EPA is working with states to enhance their monitoring and assessment programs, with a particular emphasis on the probabilistic approach. These enhancements, along with improving the quality and timeliness of data for making watershed-based decisions, will also greatly improve the Agency's ability to use state assessments in consistently portraying national conditions and trends. Specific state refinements include developing rigorous biological criteria to measure the health of aquatic communities (and attainment with the aquatic life use) and designing probability-based monitoring designs to support statistically valid inferences about water quality. The EPA Environmental Monitoring and Assessment Program (EMAP) design team has been instrumental in helping states design the monitoring networks and analyze the data. Initial efforts have focused on streams, lakes, and coastal waters though wetlands and large rivers are next in line. States are implementing these changes incrementally and in conjunction with traditional targeted monitoring. At last count 16 states have adopted probability-based monitoring designs, several more are evaluating them, and all but 10 are collaborating in an EMAP study.

**Material Inadequacy:** There is no material inadequacy for this performance measure.

## Goal 3: Safe Food

### PERFORMANCE MEASURE: (Refer to Performance Data Chart page II-36)

Register safer chemicals and biopesticides. (APG 18)

**Performance Database:** PRATS. OPP maintains PRATS. The system is designed to track regulatory data and studies submitted by the registrant (pesticide manufacturer/producer) in support of the registration application for a pesticide. OPP staff update the data regularly. Output counts are available in October of the next fiscal year.

**Data Source:** OPP staff update the status of the submissions and studies as they are received and as work is completed by the reviewers. The status indicates whether the application is ready for review, the application is in the process of review, or the review has been completed.

**Data Quality:** These are program outputs. OPP staff and management review the program outputs in accordance with established policy for the registration of reduced-risk pesticides as set forth in Pesticide Regulation Notice 97-3, September 4, 1997.

**Improvements:** OPPIN, which is in the initial stages of implementation, will consolidate various OPP program databases. EPA is working internally and with stakeholders from environmental organizations and industry to develop outcome data and measures that more accurately depict risk from pesticides. Quantitative assessment of human risks from pesticide exposure is challenging in part because pesticides are pervasive in the environment and there are many routes of exposure. Furthermore, in many cases, a means of distinguishing whether an effect is the result of pesticide use or of some other condition is difficult to verify. Therefore, the risk assessors must make assumptions to estimate results that are attributable to pesticide use.

**Material Inadequacy:** There is no material inadequacy for this performance measure.

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### PERFORMANCE MEASURES: (Refer to Performance Data Chart page II-37)

- Product reregistration. (APG 22)
- Reregistration Eligibility Decisions (REDs). (APG 22)

**Performance Database:** PRATS. OPP maintains PRATS. The system is designed to track regulatory data and studies submitted by the registrant (pesticide manufacturer/producer) in support of a pesticide's registration application. OPP staff update the data regularly. Output counts are available in October of the next fiscal year.

**Data Source:** OPP staff update the status of each action as it is completed by the reviewer.

**Data Quality:** These are program outputs. OPP staff and management review the program outputs in accordance with established policies in place for the reregistration program.

**Improvements:** OPPIN is being implemented in late 2002 and will consolidate various OPP program databases. EPA is working internally, as well as with stakeholders from environmental organizations and industry, to develop outcome data and measures that more accurately depict risk from pesticides.

**Material Inadequacy:** There are no material inadequacies for these performance measures.

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### PERFORMANCE MEASURES: (Refer to Performance Data Chart page II-37)

- Tolerance reassessments for top 20 foods eaten by children. (APG 21)
- Tolerance reassessments. (APG 21)

### Goal 3: Safe Food (continued)

**Performance Database:** Tolerance Reassessment Tracking System (TORTS). TORTS is an OPP in-house system that contains records on all 9,721 tolerances subject to reassessment. It includes the total number of tolerances reassessed by fiscal year, the outcomes of reassessments (number of tolerances raised, lowered, revoked, or unchanged), and the appropriate priority group for the tolerance. Additionally, it breaks out the tolerances for specific chemical groups such as organophosphates, carbamates, organochlorines, carcinogens, high-hazard inerts, children's foods, and minor uses. OPP staff update the data regularly. Output counts are available in October of the next fiscal year.

**Data Source:** OPP staff update the status of each tolerance reassessment action as it is completed by the reviewer.

**Data Quality:** These are program outputs. OPP staff and management review the program outputs in accordance with established policies in place for reregistration/tolerance reassessment activities.

**Improvements:** EPA is working internally, as well as with stakeholders from environmental organizations and industry, to develop outcome data and measures that more accurately depict risk from pesticides.

**Material Inadequacy:** There are no material inadequacies for these performance measures.

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#### PERFORMANCE MEASURE: (Refer to Performance Data Chart page II-37)

Number of acre-treatments using reduced risk pesticides. (APG 20)

**Performance Database:** Two non-EPA databases are used for this measure. One is the Doane Marketing Research data; the other is the U.S. Department of Agriculture's (USDA) National Agricultural Statistical Survey (NASS) database. FY 2002 performance data are expected to be complete in November 2002.

**Data Source:** Doane Marketing Research (a private-sector research database) and USDA surveys (e.g., NASS data).

**Data Quality:** A reduced-risk pesticide must meet the criteria set forth in Pesticide Registration Notice 97-3, September 4, 1997. Reduced-risk pesticides include those which reduce the risks to human health; reduce the risks to nontarget organisms; reduce the potential for contamination of groundwater, surface water, or other valued environmental resources; and/or broaden the adoption of integrated pest management strategies or make such strategies more available or more effective. In addition, biopesticides are generally considered safer (and thus reduced-risk). All registration actions must employ sound science and meet the new safety standard of the Food Quality Protection Act (FQPA). All risk assessments are subject to public and scientific peer review. Doane data and USDA's NASS data are subject to extensive QA/QC procedures, documented at their Web sites. Additionally, Doane and NASS information are compared as a cross-reference.

OPP statistical and economics staff review data from Doane and NASS. Information is also compared to prior years for variations and trends as well as to determine the reasons for the variability.

Doane data are proprietary; thus, to release any detailed information, the Agency must obtain approval. The NASS data include only major crops for annual surveys. Other crops are surveyed biannually. Not all states are included; however, states included are deemed representative of a national estimate.

**Improvements:** These are not EPA databases; thus improvements are not known in any detail.

**Material Inadequacy:** There is no material inadequacy for this performance measure.

### Goal 3: Safe Food (continued)

#### **PERFORMANCE MEASURE:** (Refer to Performance Data Chart page II-36)

Occurrence of residues on core set of 19 foods eaten by children. (APG 19)

**Performance Database:** U.S. Department of Agriculture's (USDA) Pesticide Data Program (PDP). FY 2002 performance data expected to be complete in FY 2003.

**Data Source:** Data collection is conducted by states.

**Data Quality:** The information is collected by the states and includes statistical information on pesticide use, food consumption, and residue detections, which provides the basis for realistic dietary risk assessments and evaluation of pesticide tolerance. Information is coordinated within USDA agencies and cooperating state agencies. Pesticide residue sampling and testing procedures are managed by USDA's Agricultural Marketing Service (AMS). AMS also maintains an automated information system for pesticide residue data and publishes annual summaries of residue detections.

Participation in PDP sites is voluntary. Sampling is limited to 10 states but designed in a manner to represent the food supply nationwide. The number of sampling sites and volume vary by state. Uncertainties and other sources of error are minor and not expected to have any significant effect on performance assessment.

**Improvements:** PDP is not an EPA database; thus improvements are not known in any detail.

**Material Inadequacy:** There is no material inadequacy for this performance measure.

### Goal 4: Preventing Pollution and Reducing Risks in Communities, Homes, Workplaces, and Ecosystems

#### **PERFORMANCE MEASURE:** (Refer to Performance Data Chart page II-46)

Model agricultural partnership pilot projects. (Through voluntary cooperation among EPA, states, and private grower groups, implement model agricultural partnership pilot projects that demonstrate and facilitate the adoption of farm management decisions and practices that provide growers with a "reasonable transition" away from the highest risk pesticides.) (APG 23)

**Performance Database:** EPA's regional offices report new model agricultural partnership pilot projects implemented during the year, and the information is compiled by the Office of Pesticide Programs. FY 2002 performance data are complete.

**Data Source:** Reports from EPA's regional offices.

**Data Quality:** FY 2002 performance data are simple counts of projects implemented and are considered accurate.

**Improvements, Material Inadequacy:** Not applicable.

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#### **PERFORMANCE MEASURE:** (Refer to Performance Data Chart page II-47)

Number of certified individuals nationally (federal-administered and state-administered programs). (APG 24)

**Performance Database:** EPA's regional office records. FY 2002 performance data are complete.

## Goal 4: Preventing Pollution and Reducing Risks in Communities, Homes, Workplaces, and Ecosystems (continued)

**Data Source:** Currently, all information is received through informal reporting from regional offices and originates from information submitted through certification applications. In the future, EPA will track certifications centrally.

**Data Quality:** The Office of Prevention, Pesticides and Toxic Substances' Quality Management Plan (QMP) is under review; approval is scheduled by December 31, 2002. Data quality reviews of records maintained at the test centers are conducted during routine compliance monitoring of the centers using Office of Enforcement and Compliance Assurance procedures. The reviews have found occasional discrepancies, but no regional or national trends requiring modifications to any record-keeping or QA/QC procedures have come to light.

**Improvements:** EPA hopes to have a centralized, contractor-run tracking system in place by 2003.

**Material Inadequacy:** There is no material inadequacy for this performance measure.

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### PERFORMANCE MEASURE: (Refer to Performance Data Chart page II-47)

TSCA Premanufacture Notice reviews. (APG 25)

**Performance Database:** New Chemicals Management Information Tracking System (MITS), which tracks information from beginning of Premanufacture Notice (PMN) program (1979) to present. Information includes number of PMNs submitted and final disposition (whether regulated or not) and number of low-volume and test market exemptions. The performance data for FY 2002 are complete and final.

**Data Source:** As industry develops new chemicals, it submits data related to the new chemicals for review to the Agency, including information on chemicals to be manufactured and imported, chemical identity, manufacturing process, use, worker exposure, environmental releases, and disposal.

**Data Quality:** The Office of Prevention, Pesticides and Toxic Substances' Quality Management Plan (QMP) is under review; approval is scheduled by December 31, 2002. EPA reviews industry data; Agency staff scientists and contractors perform risk screening and assessments, which could lead to regulation. This is an output measure tracked directly through OPPT record-keeping systems. No models or assumptions or statistical methods are employed. Data are aggregated nationally and suitable for cross-year comparisons.

**Improvements, Material Inadequacy:** Not applicable.

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### PERFORMANCE MEASURE: (Refer to Performance Data Chart page II-47)

After reviewing submissions from companies, make screening quality health and environmental effects data publicly available for 2,800 HPV chemicals. (APG 26)

**Performance Database:** EPA is developing an electronic chemical right-to-know database system, called the U.S. High Production Volume (US HPV) database, which will allow organized storage and retrieval of all available information on high-production-volume chemicals in commerce in the United States. The US HPV database will be designed to store, in a systematic fashion, physical chemistry, fate, exposure, and toxicity data on listed chemicals for Agency and public use. The performance data for FY 2002 are complete and final.

## Goal 4: Preventing Pollution and Reducing Risks in Communities, Homes, Workplaces, and Ecosystems (continued)

**Data Source:** Industry submits test plans and robust summaries of risk screening data in response to the voluntary HPV Challenge program or EPA promulgated test rules.

**Data Quality:** The Office of Prevention, Pesticides and Toxic Substances' Quality Management Plan (QMP) is under review; approval is scheduled by December 31, 2002. Data undergo quality assurance/quality control by EPA before being uploaded to the database. EPA reviews industry submissions of robust summaries of hazard data on individual chemicals and chemical categories, and test plans based on those summaries. EPA determines whether industry data adequately support the summaries and test plans. Data review does not include new information received as a result of new testing. Data are primarily hazard data, not exposure data. Data are suitable to support screening-level assessments only.

**Improvements:** Data will be integrated with other Toxic Substances Control Act (TSCA) databases in an Oracle environment.

**Material Inadequacy:** There is no material inadequacy for this performance measure.

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### PERFORMANCE MEASURE: (Refer to Performance Data Chart page II-48)

People living in healthier indoor air. (Note: The following three supporting performance measures below are used for tracking progress toward this overarching Congressional performance measure.) (APG 27)

- People living in radon resistant homes.

**Performance Database:** Survey. The results are published by the National Association of Home Builders (NAHB) Research Center in annual reports of radon-resistant home building practices.<sup>39</sup> FY 2002 performance data are currently unavailable. Data are expected in 2003.

**Data Source:** The survey is an annual sample of home builders in the United States, most of whom are members of NAHB. NAHB members construct 80 percent of the homes built in the United States each year. Using a survey methodology reviewed by EPA, NAHB Research Center estimates the percentage of these homes that are built radon-resistant. The percentage built radon-resistant from the sample is then used to estimate what percent of all homes built nationwide are radon-resistant. To calculate the number of people living in radon-resistant homes, EPA assumes an average of 2.67 people per household. NAHB Research Center has been conducting this annual builder practices survey for nearly a decade and has developed substantial expertise in the survey's design, implementation, and analysis. The statistical estimates are typically reported with a 95 percent confidence interval.

NAHB Research Center conducts an annual survey of home builders in the United States, to assess a wide range of builder practices. NAHB Research Center voluntarily conducts this survey to maintain an awareness of industry trends in order to improve American housing and to be responsive to the needs of the home building industry. The annual survey gathers information such as types of houses built, lot sizes, foundation designs, types of lumber used, types of doors and windows used, and so forth. The NAHB Research Center Builder Survey also gathers information on the use of radon-resistant design features in new houses; these questions constituted about 2 percent of the overall survey.

In January of each year, the survey of building practices for the preceding calendar year is typically mailed out to home builders. For the most recently completed survey, on building practices during calendar year 2000, NAHB Research Center reported mailing the survey to about 39,000 active

## Goal 4: Preventing Pollution and Reducing Risks in Communities, Homes, Workplaces, and Ecosystems (continued)

United States home building companies and receiving about 2,200 responses, which translates to a response rate of about 5.6 percent. This is the response rate for the entire survey. The survey responses are analyzed with respect to state market areas and Census Divisions in the United States and are analyzed to assess the percentage and number of homes built each year that incorporate radon-reducing features. The data are also used to assess the percentage and number of homes built with radon-reducing features in high-radon-potential areas in the United States (high-risk areas). Other analyses include radon-reducing features as a function of housing type, foundation type, and different techniques for radon-resistant new home construction. The data are suitable for year-to-year comparisons.

**Data Quality:** Because data are obtained from an external organization, data quality review procedures are not entirely known. According to NAHB Research Center, QA/QC procedures have been established, which includes QA/QC by the vendor that is used for key entry of data.

NAHB Research Center indicates that each survey is manually reviewed, a process that requires several months to complete. The review includes data quality checks to ensure that the respondents understood the survey questions and answered the questions appropriately. NAHB Research Center also applies checks for open-ended questions to verify the appropriateness of the answers. In some cases where open-ended questions request numerical information, the data are capped between the upper and lower 3 percent of the values provided in the survey responses. Also, a quality review of each year's draft report from NAHB Research Center is conducted by the EPA project officer.

The majority of home builders surveyed are NAHB members. The NAHB Research Center survey also attempts to capture the activities of builders that are not members of NAHB. Home builders that are not members of NAHB are typically smaller, sporadic builders that in some cases build homes as a secondary profession. To augment the list of NAHB members in the survey sample, NAHB Research Center sends the survey to home builders identified from mailing lists of builder trade publications, such as *Professional Builder* magazine. There is some uncertainty as to whether the survey adequately characterizes the practices of builders that are not members of NAHB. The effects on the findings are not known.

Although an overall response rate of 5.6 percent could be considered low, it is the response rate for the entire survey, of which the radon-resistant new construction questions are only a very small portion. Builders responding to the survey would not be doing so principally due to their radon activities. Thus, a low response rate does not necessarily indicate a strong potential for a positive bias under the speculation that builders using radon-resistant construction would be more likely to respond to the survey. NAHB Research Center also makes an effort to reduce the potential for positive bias in the way the radon-related survey questions are presented. EPA recognizes that there are limitations to these data; however, the data are the best available at this time.

**Improvements:** None.

**Material Inadequacy:** There is no material inadequacy for this performance measure.

- People living in radon mitigated homes.

**Performance Database:** External. See <http://www.epa.gov/iaq/radon/pubs/index.html> for national performance/progress reporting (National Radon Results: 1985–1999) on radon, measurement, mitigation, and radon-resistant new construction.<sup>40</sup> FY 2002 performance data are currently unavailable. Data are expected in 2003.

## Goal 4: Preventing Pollution and Reducing Risks in Communities, Homes, Workplaces, and Ecosystems (continued)

**Data Source:** Radon fan manufacturers report fan sales to the Agency. EPA assumes one fan per radon-mitigated home and then multiplies it by the assumed average of 2.67 people per household.

**Data Quality:** Because data are obtained from an external organization, QA/QC procedures are not known. Reporting by radon fan manufacturers is voluntary and might underestimate the number of radon fans sold. Nevertheless, these are the best available data to determine the number of homes mitigated. There are other methods to mitigate radon, including passive mitigation techniques of sealing holes and cracks in floors and foundation walls, installing sealed covers over sump pits, installing one-way drain valves in untrapped drains, and installing static venting and ground covers in areas like crawl spaces. Because there are no data on the occurrence of these methods, there is again the possibility that the number of radon-mitigated homes has been underestimated. When EPA produces an updated version of its Radon Results (1985–1999) report, it will use more/most recent census data, as appropriate. No radon vent fan manufacturer, vent fan motor maker, or distributor is required to report to EPA; they provide data/information voluntarily to EPA. There are only four radon vent fan manufacturers of any significance; one of these accounts for an estimated 70 percent of the market.

**Improvements, Material Inadequacy:** Not applicable.

- Children under 6 not exposed to ETS in the home.

**Performance Database:** The National Cancer Institute's (NCI) Tobacco Use Supplement to the Census Bureau's Current Population Survey (CPS) data for 1992–2000 will be made available to EPA by the end of the calendar year. There is no Web site specifically related to the survey; however, ETS information can be obtained at <http://www.epa.gov/iaq/ets>. FY 2002 performance data are currently unavailable. Data are expected in 2003.

**Data Source:** NCI and the Census Bureau.

**Data Quality:** Data are from external organizations.

**Improvements:** EPA has developed an asthma survey that includes questions about the presence of environmental tobacco smoke in homes with small children. The information is obtained during the screening phase of the larger asthma survey. This survey has received Office of Management and Budget clearance. The survey will be conducted by a contractor in late fall 2002, and results will be available in early 2003.

EPA has designed the asthma survey questionnaire, in which the respondents are asked to provide primarily yes/no responses. By using yes/no and multiple-choice questions, the Agency has substantially reduced the amount of time necessary for the respondent to complete the survey and has ensured consistency in data response and interpretation.

The survey instrument was developed in consultation with EPA staff and the National Center for Health Statistics (NCHS) to ensure that respondents will understand the questions asked and will provide the types of data necessary to measure the Agency's objectives.

The survey will be designed, conducted, and analyzed in accordance with approved Agency procedures. Random-digit dialing methodology is used to ensure that a representative sample of households has been contacted; however, the survey is subject to the inherent limitations of voluntary telephone surveys of representative samples. Limitations of phone surveys include (1) inconsistency of interviewers following survey directions (for example, an interviewer might ask the questions

## Goal 4: Preventing Pollution and Reducing Risks in Communities, Homes, Workplaces, and Ecosystems (continued)

incorrectly or inadvertently lead the interviewee to a response) and (2) calling at an inconvenient time (for example, the respondent might not want to be interrupted at the time of the call and may resent the intrusion of the phone call; the answers will reflect this attitude).

**Material Inadequacy:** There is no material inadequacy for this performance measure.

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### **PERFORMANCE MEASURE:** (Refer to Performance Data Chart page II-48)

Students/staff experiencing improved indoor air quality (IAQ) in schools. (APG 28)

**Performance Database:** Survey of representative sample of schools using a comprehensive database of private and public schools. The survey will help determine the number of schools adopting and implementing good indoor air quality (IAQ) practices consistent with EPA's Tools for Schools (TfS) guidance.<sup>41</sup> FY 2002 performance data are currently unavailable. Data are expected in early 2003.

**Data Source:** EPA-developed questionnaire. Other supporting data from the U.S. Department of Education National Center for Education Statistics. The design of the IAQ Practices in Schools Survey is a random sample with stratification by geography and school type. Such stratification is expected to decrease the variances of sample estimates, and, because of interest in these specific strata, add strength to the survey design. Additional data from other sources, such as the U.S. Department of Education's National Center for Education Statistics, will facilitate analysis and interpretation of survey results.

**Data Quality:** The survey is designed, conducted, and analyzed in accordance with approved Agency procedures. EPA will review the data for completeness and quality of responses. The data are subject to inherent limitations of voluntary surveys of representative samples.

**Improvements:** Prior to the survey, EPA tracked the number of schools receiving the kit and estimated the population of the school to determine the number of students/staff experiencing improved IAQ. With this survey, EPA is querying a statistically representative sample of schools to estimate the number of schools that have actually adopted and implemented good IAQ management practices consistent with the TfS guidance.

**Material Inadequacy:** There is no material inadequacy for this performance measure.

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### **PERFORMANCE MEASURE:** (Refer to Performance Data Chart page II-49)

Reduction of TRI non-recycled wastes. (APG 29)

**Performance Database:** Toxics Release Inventory Modernization (TRIM), formerly TRIS (Toxics Release Inventory System)—Contains aggregate data on toxic chemical releases by individual reporting facilities.<sup>42</sup> The aggregate data are used to provide a measure of national performance. Performance data are not available currently; data will be available in spring 2003.

**Data Source:** Data reported to EPA from facilities meeting criteria specified in section 313 of the Emergency Preparedness and Community Right-to-Know Act. Following thorough quality control review and data processing, data are made publicly available through an annual Public Data Release report and associated publicly accessible databases.

**Data Quality:** The quality of TRI data depends on the quality of the data submitted by the reporting facilities. Although EPA has no direct control over the quality of the submitted data, the Agency does

## Goal 4: Preventing Pollution and Reducing Risks in Communities, Homes, Workplaces, and Ecosystems (continued)

assist reporting facilities in improving their estimates. EPA also verifies that the facilities' information is correctly entered in TRIM. The Office of Environmental Information's (OEI) Quality Management Plan (QMP) was approved on February 14, 2001.

**Improvements:** EPA is developing regulations for improving reporting of source reduction activities by TRI releasers.

**Material Inadequacy:** There is no material inadequacy for this performance measure.

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### PERFORMANCE MEASURES: (Refer to Performance Data Chart page II-49)

- Millions of tons of municipal solid waste diverted. (APG 30)
- Daily per capita generation of municipal solid waste. (APG 30)

**Performance Database:** In the nonhazardous waste program, no national databases are in place or planned. Data currently unavailable; expected September 30, 2003.

**Data Source:** The baseline numbers for municipal solid waste source reduction and recycling are developed using a materials flow methodology employing data largely from the Department of Commerce, which can be found in an EPA report titled *Characterization of Municipal Solid Waste in the United States*.<sup>43</sup>

**Data Quality:** Quality assurance and quality control are provided by the Department of Commerce's internal procedures and systems. The report prepared by the Agency is then reviewed by a number of experts for accuracy and soundness. The report, including the baseline numbers and annual rates of recycling and per capita municipal solid waste generation, is widely accepted among experts. There are various assumptions factored into the analysis to develop progress on each measure.

The quality of TRI data is dependent on the quality of the data submitted by the reporting facilities. Although EPA has no direct control over the quality of the submitted data, the Agency does assist reporting facilities in improving their estimates. EPA also verifies that the facilities' information is correctly entered into the TRI database.

**Improvements:** Because these numbers are widely reported and accepted by experts, no new efforts to improve the data or the methodology have been identified or are necessary. EPA is developing regulations for improving reporting of source reduction activities by TRI releasers.

**Material Inadequacy:** There are no material inadequacies for these performance measures.

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### PERFORMANCE MEASURE: (Refer to Performance Data Chart page II-49)

Number of environmental assessments for tribes. (APG 31)

**Performance Database:** The American Indian Environmental Office (AIEO) has made tremendous progress in developing an electronic baseline assessment system used to access tribal environmental information. The Tribal Information Management System (TIMS) is a Web-based application that allows access to these data. This information system will draw together environmental information on tribes from the existing EPA databases, such as those from the Office of Water and EPA regions, as well as databases from other federal agencies. All the data will be accessed on a per-tribe basis, so environmental information can be queried by tribe, by state, by EPA region, or nationally. Information that is geo-referenced will be displayed graphically on an electronic map of tribal reservation

## Goal 4: Preventing Pollution and Reducing Risks in Communities, Homes, Workplaces, and Ecosystems (continued)

boundaries. The information system will also have a narrative profile description by tribe of environmental information and management activities. The structure of this system is complete and is expected to be fully populated with profiles for all federally recognized tribes by FY 2005. Public access to this information via the Web cannot be given until EPA completes consultation with the tribes, but is expected within the next year. FY 2002 performance data are complete.

**Data Source:** The data sources will be existing federal databases that are available from EPA headquarters and its regional offices, as well as from other agencies. The data sources will be identified and referenced in EPA's information system application.

**Data Quality:** Quality of the external databases will be described but not ranked. Tribes will have the opportunity to review and comment on their tribal profiles. Mechanisms for adjusting data will be supplied. Errors in the tribal profiles are subject to errors in the underlying data.

**Improvements:** Statistical assessments are planned on a national level using the data collected and reported on a per-tribe basis. EPA will report on whether tribes are underserved or overserved compared to the nation as a whole in a number of categories, such as wastewater treatment service, drinking water facilities, and solid waste facilities.

**Material Inadequacy:** There is no material inadequacy for this performance measure.

## Goal 5: Better Waste Management, Restoration of Contaminated Waste Sites, and Emergency Response

### PERFORMANCE MEASURE: (Refer to Performance Data Chart page II-58)

Superfund construction completions. (APG 32)

**Performance Database:** The Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) is the database used by the Agency to track, store, and report Superfund site information. FY 2002 performance data are complete.

**Data Source:** Automated EPA system; headquarters and regional offices enter data into CERCLIS on a rolling basis.

**Data Quality:** To ensure data accuracy and control, the following administrative controls are in place: (1) Superfund/Oil Implementation Manual (SPIM), the program management manual that details what data must be reported; (2) Report Specifications, which are published for each report detailing how reported data are calculated; (3) Coding Guide, which contains technical instructions to such data users as regional Information Management Coordinators (IMCs), program personnel, report owners, and data input personnel; (4) Quality Assurance (QA) Unit Testing, an extensive QA check against report specifications; (5) QA Third Party Testing, an extensive test made by an independent QA tester to ensure that the report produces data in conformance with the report specifications; (6) Regional CERCLIS Data Entry Internal Control Plan, which includes (a) regional policies and procedures for entering data into CERCLIS, (b) a review process to ensure that all Superfund accomplishments are supported by source documentation, (c) delegation of authorities for approval of data input into CERCLIS, and (d) procedures to ensure that reported accomplishments meet accomplishment definitions; and (7) a historical lockout feature that has been added to CERCLIS so that changes in past fiscal year data can be changed only by approved and designated personnel and are logged to a change-log report.

## Goal 5: Better Waste Management, Restoration of Contaminated Waste Sites, and Emergency Response (continued)

Two audits, one by the Office of the Inspector General (OIG) and the other by the Government Accounting Office (GAO), were done to assess the validity of the data in CERCLIS. The OIG audit report, *Superfund Construction Completion Reporting* (No. E1SGF7-05-0102- 8100030), was performed to verify the accuracy of the information that the Agency was providing to Congress and the public. The OIG report concluded that the Agency “has good management controls to ensure accuracy of the information that is reported,” and “Congress and the public can rely upon the information EPA provides regarding construction completions.” The GAO’s report, *Superfund Information on the Status of Sites* (GAO/RECD-98-241), estimates that the cleanup status of National Priorities List sites reported by CERCLIS is accurate for 95 percent of the sites.

The IG reviews annually the end-of-year Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) data, in an informal process, to verify the data supporting the performance measures. Typically, there are no published results.

The Quality Management Plan (QMP) for the Office of Solid Waste and Emergency Response (OSWER) is currently under review by the Office of Environmental Information.

**Improvements:** In 2004 the Agency will continue its efforts begun in 1999 to improve the Superfund program’s technical information by incorporating more site remedy selection, risk, removal response, and community involvement information into CERCLIS. Efforts to share information among the federal, state, and tribal programs to further enhance the Agency’s efforts to efficiently identify, evaluate, and remediate Superfund hazardous waste sites will continue. In 2005 the Agency will also establish data quality objectives for program planning purposes and to ascertain the organization’s information needs for the next 5 years. Adjustments will be made to EPA’s current architecture and business processes to better meet those needs.

**Material Inadequacy:** There is no material inadequacy for this performance measure.

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### PERFORMANCE MEASURE: (Refer to Performance Data Chart page II-59)

Refer to DOJ, settle, or writeoff 100% of Statute of Limitations (SOLs) cases for Superfund sites with total unaddressed past costs equal to or greater than \$200,000 and report value of costs recovered. (APG 34)

**Performance Database:** Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS). Data are complete for assessment of FY 2002 performance.

**Data Source:** Automated EPA system; headquarters and EPA regional offices enter data into CERCLIS.

**Data Quality:** The data used to support this measure are collected on a fiscal year basis only. Enforcement reports are run at the end of the fiscal year, and the data that support this measure are extracted from the reports.

The Quality Management Plan for the Office of Site Remediation and Enforcement was approved on April 11, 2001. To ensure data accuracy and control, the following administrative controls are in place: (1) Superfund/Oil Implementation Manual (SPIM), the program management manual that details what data must be reported; (2) Report Specifications, which are published for each report detailing how reported data are calculated; (3) Coding Guide, which contains technical instructions to such data users as regional Information Management Coordinators (IMCs), program personnel, report owners, and data input personnel; (4) Quality Assurance (QA) Unit Testing, an extensive QA check against report specifications; (5) QA Third Party Testing, an extensive test made by an independent QA

## Goal 5: Better Waste Management, Restoration of Contaminated Waste Sites, and Emergency Response (continued)

tester to ensure that the report produces data in conformance with the report specifications; (6) Regional CERCLIS Data Entry Internal Control Plan, which includes (a) regional policies and procedures for entering data into CERCLIS, (b) a review process to ensure that all Superfund accomplishments are supported by source documentation, (c) delegation of authorities for approval of data input into CERCLIS, and (d) procedures to ensure that reported accomplishments meet accomplishment definitions; and (7) a historical lockout feature that has been added to CERCLIS so that changes in past fiscal year data can be changed only by approved and designated personnel and are logged to a change-log report.

The IG annually reviews the end-of-year CERCLA data, in an informal process, to verify the data supporting the performance measure. Typically, there are no published results.

**Improvements, Material Inadequacy:** Not applicable.

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### **PERFORMANCE MEASURES:** (Refer to Performance Data Chart pages II-58, II-60)

- PRPs conduct 70 percent of the work at new construction starts. (APG 33)
- Percentage of Federal facility NPL sites for which final offers have been made that meet Agency policy and guidance. (APG 38)
- Percentage of Federal facilities with final offers made within 18 months. (APG 38)

**Performance Database:** Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS).

**Data Source:** Automated EPA system; headquarters and EPA's regional offices enter data into CERCLIS. The data used to support these measures are collected on a fiscal year basis. Enforcement reports are run at the end of the fiscal year, and the data that support the measures are extracted from the report. Data are complete for assessment of FY 2002 performance.

**Data Quality:** The Quality Management Plan for the Office of Site Remediation and Enforcement was approved on April 11, 2001. To ensure data accuracy and control, the following administrative controls are in place: (1) Superfund/Oil Implementation Manual (SPIM), the program management manual that details what data must be reported; (2) Report Specifications, which are published for each report detailing how reported data are calculated; (3) Coding Guide, which contains technical instructions to such data users as regional Information Management Coordinators (IMCs), program personnel, report owners, and data input personnel; (4) Quality Assurance (QA) Unit Testing, an extensive QA check against report specifications; (5) QA Third Party Testing, an extensive test made by an independent QA tester to ensure that the report produces data in conformance with the report specifications; (6) Regional CERCLIS Data Entry Internal Control Plan, which includes (a) regional policies and procedures for entering data into CERCLIS, (b) a review process to ensure that all Superfund accomplishments are supported by source documentation, (c) delegation of authorities for approval of data input into CERCLIS, and (d) procedures to ensure that reported accomplishments meet accomplishment definitions; and (7) a historical lockout feature that has been added to CERCLIS so that changes in past fiscal year data can be changed only by approved and designated personnel and are logged to a change-log report.

The IG annually reviews the end-of-year CERCLA data, in an informal process, to verify the data supporting the performance measures. Typically, there are no published results.

**Improvements, Material Inadequacy:** Not applicable.

## Goal 5: Better Waste Management, Restoration of Contaminated Waste Sites, and Emergency Response (continued)

### PERFORMANCE MEASURES: (Refer to Performance Data Chart page II-59)

- High priority RCRA facilities with human exposure to toxins controlled. (APG 35)
- High priority RCRA facilities with toxic releases to groundwater controlled. (APG 35)

**Performance Database:** The Resource Conservation and Recovery Act Information System (RCRAInfo) is the national database that supports EPA's RCRA program. RCRAInfo contains information on entities (generically referred to as "handlers") engaged in hazardous waste (HW) generation and management activities regulated under the portion of RCRA that provides for regulation of hazardous waste. RCRAInfo has several different modules, including a Corrective Action Module that tracks the status of facilities that require, or may require, corrective actions. A "yes" or "no" entry is made in the database with respect to meeting corrective action indicators. Supporting documentation and reference materials are maintained in regional and state files.

Human exposures controlled and toxic releases to groundwater controlled are used to summarize and report on the facility-wide environmental conditions at the RCRA Corrective Action Program's highest-priority facilities. The environmental indicators are used to track the RCRA program's progress on getting highest-priority contaminated sites under control. Known and suspected site (-wide) conditions are evaluated using a series of simple questions and flow-chart logic to arrive at a reasonable, defensible determination. These questions were issued as Interim Final Guidance on February 5, 1999. Lead regulators for the site (authorized state or EPA) make the environmental indicator determination; however, facilities or their consultants may assist EPA in the evaluation by providing information on the current environmental conditions. FY 2002 performance data are complete.<sup>44</sup>

**Data Source:** EPA regions and authorized states enter data on a rolling basis.

**Data Quality:** States and regions, which create the data, manage data quality control related to timeliness and accuracy (i.e., the environmental conditions and determinations are correctly reflected by the data). Within RCRAInfo the application software enforces structural controls that ensure that high-priority national components of the data are properly entered. RCRAInfo documentation, which is available to all users online, provides guidance to facilitate the creation and interpretation of data. Training on use of RCRAInfo is provided on a regular basis, usually annually, depending on the nature of systems changes and user needs.

GAO's 1995 report on EPA's Hazardous Waste Information System reviewed whether national RCRA information systems support meeting the primary objective of helping EPA and states manage the HW program. Recommendations coincide with ongoing internal efforts (WIN/Informed) to improve the definitions of data collected, ensure that data collected provide critical information, and minimize the burden on states.

No data limitations have been identified. As discussed above, environmental indicator determinations are made by the authorized states and EPA regions based on a series of standard questions and entered directly into RCRAInfo. EPA has provided guidance and training to states and regions to help ensure consistency in those determinations. High-priority facilities are monitored on a facility-by-facility basis, and the QA/QC procedures identified above are in place to help ensure data validity.

The Quality Management Plan for the Office of Solid Waste and Emergency Response (OSWER) is currently under review by the Office of Environmental Information.

**Improvements:** EPA has successfully implemented new tools for managing environmental information to support federal and state programs, replacing the old data systems (the Resource

## Goal 5: Better Waste Management, Restoration of Contaminated Waste Sites, and Emergency Response (continued)

Conservation and Recovery Information System and the Biennial Reporting System) with RCRAInfo. RCRAInfo allows for tracking of information on the regulated universe of RCRA hazardous waste handlers and for characterization of facility status, regulated activities, and compliance histories. The system also captures detailed data on the generation of hazardous waste from large quantity generators and on waste management practices from treatment, storage, and disposal facilities. RCRAInfo is Web-accessible, providing a convenient user interface for federal, state, and local managers and encouraging development of in-house expertise for controlled cost. RCRAInfo uses commercial off-the-shelf software to report directly from database tables.

**Material Inadequacy:** There are no material inadequacies for these performance measures.

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### PERFORMANCE MEASURE: (Refer to Performance Data Chart page II-61)

Percent of RCRA hazardous waste management facilities with permits or other approved controls in place. (APG 40)

**Performance Database:** The Resource Conservation Recovery Act Information System (RCRAInfo) is the national database that supports EPA's RCRA program. RCRAInfo contains information on entities (generically referred to as "handlers") engaged in hazardous waste (HW) generation and management activities regulated under the portion of RCRA that provides for regulation of hazardous waste. RCRAInfo has several different modules, including status of RCRA facilities in the RCRA permitting universe. FY 2002 performance data are complete.<sup>45</sup>

**Data Source:** EPA regions and authorized states enter data on a rolling basis.

**Data Quality:** States and regions, which create the data, manage data quality control related to timeliness and accuracy (i.e., the environmental conditions and determinations are correctly reflected by the data). Within RCRAInfo the application software enforces structural controls that ensure that high-priority national components of the data are properly entered. RCRAInfo documentation, which is available to all users on-line, provides guidance to facilitate the creation and interpretation of data. Training on use of RCRAInfo is provided on a regular basis, usually annually, depending on the nature of system changes and user needs.

GAO's 1995 report on EPA's Hazardous Waste Information System reviewed whether national RCRA information systems support meeting the primary objective of helping EPA and states manage the HW program.<sup>46</sup> Recommendations coincide with ongoing internal efforts (WIN/Informed) to improve the definitions of data collected, ensure that data collected provide critical information, and minimize the burden on states.

The Quality Management Plan for the Office of Solid Waste and Emergency Response (OSWER) is currently under review by the Office of Environmental Information.

**Improvements:** EPA has successfully implemented new tools for managing environmental information to support federal and state programs, replacing the old data systems (the Resource Conservation and Recovery Information System and the Biennial Reporting System) with RCRAInfo. RCRAInfo allows for tracking of information on the regulated universe of RCRA hazardous waste handlers and for characterization of facility status, regulated activities, and compliance histories. The system also captures detailed data on the generation of hazardous waste from large quantity generators and on waste management practices from treatment, storage, and disposal facilities. RCRAInfo is Web-accessible, providing a convenient user interface for federal,

## Goal 5: Better Waste Management, Restoration of Contaminated Waste Sites, and Emergency Response (continued)

state, and local managers, encouraging development of in-house expertise for controlled cost. RCRAInfo uses commercial off-the-shelf software to report directly from database tables.

**Material Inadequacy:** There is no material inadequacy for this performance measure.

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### **PERFORMANCE MEASURE:** (Refer to Performance Data Chart page II-59)

LUST cleanups completed. (APG 36)

**Performance Database:** EPA does not maintain a database for this information. FY 2002 performance data are complete.

**Data Source:** Designated state agencies submit semiannual progress reports to the EPA regional offices.

**Data Quality:** EPA regional offices verify and then forward the data to EPA headquarters, where staff examine the data and resolve any discrepancies with regional offices. The data are displayed in a document on a region-by-region basis, which allows regional staff to again verify their data. The process relies on the accuracy and completeness of state records.

The Quality Management Plan (QMP) for the Office of Solid Waste and Emergency Response (OSWER) is currently under review by the Office of Environmental Information.

**Improvements, Material Inadequacy:** Not applicable.

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### **PERFORMANCE MEASURES:** (Refer to Performance Data Chart page II-60)

- Cumulative site assessments. (APG 37)
- Cumulative jobs generated. (APG 37)
- Cumulative leveraging of cleanup and redevelopment funds. (APG 37)

**Performance Database:** The Brownfields Management System (BMS) records the results, both environmental and economic, achieved by the Brownfields Pilots. BMS data are gathered from the Brownfields Pilots' quarterly reports. EPA Regional Pilot Managers review the data for consistency and accuracy. The BMS database contains information such as the number of properties with Pilot-funded assessment, the number of properties cleaned up, the number of properties not requiring cleanup, and jobs generated.

The Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) records regional accomplishments on Brownfields assessments in the Brownfields module. This module tracks Targeted Brownfields Assessments (TBAs) on a property-specific basis. FY 2002 performance data are complete.

**Data Source:** Data are reported by Brownfields Pilots in their quarterly reports as submitted under cooperative assistance agreements. Data are entered into BMS by EPA contractor support and forwarded to EPA Regional Pilot Managers for review and approval. Edits are made as appropriate. EPA regional staff enter the results achieved through Targeted Brownfields Assessments (TBAs) into CERCLIS.

**Data Quality:** Verification relies on reviews by regional staff responsible for Brownfields pilot cooperative agreements.

Several data quality reviews have been conducted by the program and external organizations. In its report, GAO recommended that EPA continue to review data reported by recipients in anticipation of

## Goal 5: Better Waste Management, Restoration of Contaminated Waste Sites, and Emergency Response (continued)

EPA's guidelines for results and make any corrections needed to ensure that the data are consistent with the current guidelines.<sup>47</sup> They also recommended that EPA regions monitor and work to improve recipients' reporting of data on key results measures.

The reporting of results of the Brownfields Pilots is subject to the Paperwork Reduction Act and attendant OMB regulations governing information collection requests (ICRs), as well as the Agency's assistance regulations. Consequently, the Agency is limited to obtaining information from Pilot recipients on specific accomplishments attained with grant funds, such as properties assessed (40 CFR 35.6650(b)(1)). In addition, EPA cannot require private sector entities, which do not receive EPA financial assistance, to provide information related to such accomplishment measures as redevelopment dollars invested or numbers of jobs created. These constraints may lead to an underreporting of accomplishments.

The Quality Management Plan (QMP) for the Office of Solid Waste and Emergency Response (OSWER) is currently under review by the Office of Environmental Information.

**Improvements:** In February 2000 EPA headquarters issued guidance to the regions to standardize quarterly reporting of accomplishment measures. This guidance was developed to ensure that the standardized information collected fell within the scope of regulations and applicable OMB controls for quarterly reporting by assessment Pilot recipients. EPA is also working with recipients to encourage the use of this standardized reporting through workshops and training. To improve recipients' reporting of data on key results measures, EPA has implemented GAO's recommendation that the Agency make it clear to recipients that follow-on awards depend on reported results.

**Material Inadequacy:** There are no material inadequacies for these performance measures.

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### PERFORMANCE MEASURE: (Refer to Performance Data Chart page II-61)

Number of 55-gallon drums of radioactive waste disposed of according to EPA standards. (APG 41)

**Performance Database:** The Department of Energy (DOE) Waste Isolation Pilot Plant (WIPP) database contains the number of drums shipped by DOE waste generator facilities and placed in the DOE WIPP. The DOE National TRU Waste Management Plan Quarterly Supplement contains information on the monthly volumes of waste that are received at the DOE WIPP.<sup>48</sup> FY 2002 performance data from both databases are complete.

**Data Source:** Department of Energy.

**Data Quality:** The performance data used by EPA are collected and maintained by DOE. Under EPA's WIPP regulations, all DOE WIPP-related data must be collected and maintained under a comprehensive quality assurance program meeting consensus standards developed by the American Society of Mechanical Engineers. EPA conducts regular inspections to ensure that these quality assurance systems are in place and functioning properly; no additional QA/QC of the DOE data is conducted by EPA.

The DOE WIPP database contains the number of drums shipped by DOE waste generator facilities and placed in the DOE WIPP.

Before DOE waste generator facilities can ship waste to the WIPP, EPA must approve the waste characterization controls and quality assurance procedures for waste identification at these sites. EPA conducts frequent independent inspections and audits at these sites to verify continued compliance

## Goal 5: Better Waste Management, Restoration of Contaminated Waste Sites, and Emergency Response (continued)

with radioactive waste disposal standards and to determine whether DOE is properly tracking the waste and adhering to specific waste component limits. Once EPA gives its approval, the number of drums shipped to the WIPP facility per year is dependent on DOE priorities and funding. EPA volume estimates are based on projecting the average shipment volumes over 40 years with an initial start-up.

**Improvements, Material Inadequacy:** Not applicable.

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### **PERFORMANCE MEASURE:** (Refer to Performance Data Chart page II-60)

Annual Site Report to Congress detailing 4–6 innovative approaches, their cost savings and future direction; reports summarizing pilot scale evaluation of in-situ remedies for solvents. (APG 39)

**Performance Database:** Program output, no internal tracking system.

**Data Source, Data Quality, Improvements, Material Inadequacy:** Not applicable.

## Goal 6: Reduction of Global and Cross-Border Environmental Risks

### **PERFORMANCE MEASURE:** (Refer to Performance Data Chart page II-70)

People in the Mexico border area protected from health risks because of adequate water and wastewater sanitation systems funded through border environmental infrastructure funding (cumulative). (APG 42)

**Performance Database:** There is no formal EPA database. Performance is tracked and reported quarterly by the Border Environment Cooperation Commission (BECC) and the North American Development Bank (NADBank.) The unit of measure is “population served.” FY 2002 performance data are complete.

**Data Source:** (1) Population figures from the 1990 U.S. Census,<sup>49</sup> (2) data for both U.S. and Mexican populations served by “certified” water/wastewater treatment improvements from the BECC, (3) data on projects funded from the NADBank.

**Data Quality:** Headquarters is responsible for evaluation of reports from BECC and NADBank on drinking water and wastewater sanitation projects.<sup>50</sup> Regional representatives attend meetings of the certifying and financing entities for border projects (BECC and NADBank) and conduct site visits of projects under way to ensure the accuracy of information reported.

**Improvements, Material Inadequacy:** Not applicable.

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### **PERFORMANCE MEASURE:** (Refer to Performance Data Chart page II-73)

Assist in the development or implementation of improved environmental laws or regulations in developing countries. (APG 48)

**Performance Database:** None. Manual collection. FY 2002 performance data are complete.

**Data Source:** Project-specific.

**Data Quality:** Verification does not involve any pollutant database analysis, but will require objective assessment of tasks completed, of compliance with new regulations, and of progress toward project goals and objectives.

## Goal 6 - Reduction of Global and Cross-Border Environmental Risks (continued)

EPA works with developing countries to improve environmental laws and regulations. Tracking development and implementation of legislation presents few challenges because EPA project staff maintain close contact with their counterparts and because any changes become part of a public record. Assessing the quality of the new or revised laws/regulations, the level of public participation and support for stronger regulations, and the long-term social impacts of legislation is more subjective. Aside from feedback from Agency project staff, EPA relies in part on feedback from its counterparts in the target countries and regions and from non-governmental organizations (NGOs) and other third parties in gauging the efficacy of its work on international legal and regulatory capacity-building. Because EPA works to establish long-term relationships with priority countries, the Agency is often able to assess environmental improvement in these countries and regions for a number of years following legal assistance efforts.

**Improvements:** Under its cooperative programs with USAID in Central America, EPA is developing a set of indicators to measure progress for each activity undertaken.

**Material Inadequacy:** There is no material inadequacy for this performance measure.

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### **PERFORMANCE MEASURE: (Refer to Performance Data Chart page II-73)**

Increase the transfer of environmental best practices among the U.S. and its partner countries and build the capacity of developing countries to collect, analyze, or disseminate environmental data. (APG 48)

**Performance Database:** None. Manual collection. FY 2002 performance data are complete.

**Data Source:** Project-specific.

**Data Quality:** Verification does not involve any pollutant database analysis but will require objective assessment of tasks completed, of compliance with new regulations, and of progress toward project goals and objectives. Data and information related to the outputs and goals of EPA's international urban projects are forwarded to the EPA project officer by the grantee after bimonthly consultation with local, regional, and national urban environmental practitioners.

**Improvements:** Activities in support of this project may result in new or improved data collection systems in developing countries.

**Material Inadequacy:** There is no material inadequacy for this performance measure.

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### **PERFORMANCE MEASURE: (Refer to Performance Data Chart page II-73)**

Increase the capacity of programs in Latin America or Africa to address safe drinking water quality issues. (APG 48)

**Performance Database:** None. Manual collection. FY 2002 performance data are complete.

**Data Source:** Project-specific.

**Data Quality:** Verification does not involve any pollutant database analysis but will require objective assessment of tasks completed, of compliance with new regulations, and of progress toward project goals and objectives. EPA is currently tracking output data for the International Safe Drinking Water Program (ISDWP) in Central America and has plans to begin looking at measuring the longer-term outcomes. On a quarterly basis, EPA collects data through EPA teams, in-country partners, and cooperators on outputs such as number of people trained, number of pilot projects completed, and

## Goal 6: Reduction of Global and Cross-Border Environmental Risks (continued)

number of workshops held. This information is validated through constant contact with the aforementioned groups and through on-site visits by EPA program managers. The information is also shared with donors, specifically USAID, through quarterly reports. The outcome measures of improved capacity of in-country partners and stakeholders to ensure safe drinking water for the communities are under development and will provide indicators of the long-term sustainability potential of the program.

**Improvements:** EPA's ISDWP in Africa is currently in the start-up phase, and the data collection process is under development.

**Material Inadequacy:** There is no material inadequacy for this performance measure.

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### PERFORMANCE MEASURE: (Refer to Performance Data Chart page II-70)

Concentration trends of toxics (PCBs) in Great Lakes top predator fish. (APG 43)

**Performance Database:** Great Lakes National Program Office (GLNPO) base monitoring program.<sup>51</sup> FY 2002 performance data are complete.

**Data Source:** Data are collected as part of GLNPO's ongoing base monitoring program, which has included work with cooperating organizations such as the Great Lakes states, U.S. Geological Survey, and U.S. Food and Drug Administration (no longer participating).

**Data Quality:** This indicator provides concentration of selected organic contaminants in sport fish from the Great Lakes to determine time trends in contaminant concentrations, assess impacts of contaminants on the fishery, and assess potential wildlife exposures from consuming contaminated fish.

This indicator includes data from 600- to 700-mm lake trout (*Salvelinus namaycush*) whole fish composites (five fish) from each of the lakes (walleye, *Stizostedion vitreum vitreum*, in Lake Erie). These data are used to assess time trends in organic contaminants in the open waters of the Great Lakes, using fish as biomonitors. These data can also be used to assess the risks of such contaminants on the health of this important fishery and on wildlife that consume them.

GLNPO's quality management system has been given "outstanding" ratings in previous peer and management reviews. GLNPO has implemented all recommendations from these external audits and complies with Agency quality standards. GLNPO's quality management system conforms to the EPA quality management order and is audited every 3 years in accordance with federal policy for quality management. The current Quality Management Plan that describes this program is undergoing revision and should be approved by December 2002. The quality assurance (QA) plan that supports the fish contaminant analysis program is approved and available on request.<sup>52</sup> The plan that describes the field sampling program is in draft form and should be completed by April 2003.

The top predator fish (lake trout) program was designed specifically for lakewide trends. It is not well suited to portray localized changes. One of the objectives of the fish contaminant program is to be able to detect a 20 percent change in contaminant concentrations in a particular species of fish between consecutive sampling periods and to compare relative changes in contaminant concentrations between Great Lakes. Achieving this can be difficult when taking into account the rather large variance occurring in contaminant concentrations between individual fish. Variance is reduced by compositing five fish for each sample.

## Goal 6: Reduction of Global and Cross-Border Environmental Risks (continued)

**Improvements:** During FY 2002 EPA documented and developed a draft field sampling QA plan that documents field collection procedures. During FY 2003 EPA plans to implement a peer review of the overall program and hopes to conduct on-site review of various aspects of the field and laboratory operations. Additionally the Agency plans to upload the analytical data into its GLENDA database for easy access of analytical results and corresponding quality-assured/quality-controlled data.

**Material Inadequacy:** There is no material inadequacy for this performance measure.

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### PERFORMANCE MEASURE: (Refer to Performance Data Chart page II-70)

Concentration trends of toxic chemicals in the air. (APG 43)

**Performance Database:** Great Lakes National Program Office (GLNPO) integrated atmospheric deposition network (IADN) operated jointly with Canada.<sup>53</sup> FY 2002 performance data are complete. (Preliminary, awaiting 1999 and 2000 loadings calculations before finalizing.)

**Data Source:** GLNPO and Canada are the principal data sources. The database includes data from 1990 to present (with some earlier available data). Concentrations of persistent toxic substances (polychlorinated biphenyls [PCBs], organochlorine pesticides, and polycyclic aromatic hydrocarbons [PAHs]) are measured at 15 stations around the Great Lakes. Environment Canada (Meteorological Service of Canada and Ecosystem Health Division) operates 10 IADN stations. EPA (through a grantee at Indiana University) operates five U.S. stations. These U.S. stations are in Eagle Harbor, Michigan; Sleeping Bear Dunes, Michigan; Sturgeon Point, New York; IIT-Chicago, Illinois; and Brule River, Wisconsin. Because data from the Brule River site have been very similar to those from Eagle Harbor, EPA is in the process of moving equipment from Brule River to Cleveland, Ohio, to further examine impacts of urban areas on atmospheric deposition.

**Data Quality:** There are five master IADN stations, one for each lake, which are supplemented by satellite stations. The master stations are in remote areas and are meant to represent regional background levels. Concentrations from the master stations are used for the performance measure. Data from the satellite station in Chicago are used to demonstrate the importance of urban areas to atmospheric deposition to the Lakes.

Air samples are collected for 24 hours using high-volume samplers containing an adsorbent. Precipitation samples are collected as 28-day composites. Laboratory analysis protocols generally call for solvent extraction of the organic sampling media with addition of surrogate recovery standards. Extracts are then concentrated followed by column chromatographic cleanup, fractionation, nitrogen blow-down to small volume (about 1 mL), and injection (typically 1 µL) into gas chromatograph (GC)-ECD or GC-MS instruments. A regular set of laboratory and field blanks are taken and recorded for comparison to the IADN field samples. In addition, a suite of chemical surrogates and internal standards are used extensively in most analyses. Details of these analyses can be found in the laboratory protocol manuals or the Agency project plans.<sup>54</sup>

Overall results of the project can be found in *Technical Summary of Progress under the Integrated Atmospheric Deposition Program 1990–1996* and the Draft *Technical Summary of Progress under the Integrated Atmospheric Deposition Network 1997–2002*. The former can also be found on the IADN resource page.

A centralized database was established in 1995. All IADN data are loaded and quality-controlled using the Research Database Management System (RDMS), an SAS program. RDMS provides a unified set of quality-assured data, and additional information for each data point that can be used to evaluate the

## Goal 6: Reduction of Global and Cross-Border Environmental Risks (continued)

usability of the data. Statistical summaries of annual concentrations are generated by the program and used as input into an atmospheric loadings calculation. The loadings calculation is described in detail in the Technical Summary mentioned above. However, the averaged concentrations rather than the loadings are used in the performance measure.

Multiple quality assurance personnel and a scientific peer review panel have judged the IADN data to be of good quality for the purposes for which they are used. IADN data have been collected for the same purposes throughout the program—to calculate atmospheric loadings and to examine spatial and temporal trends in concentrations and loadings to the Great Lakes. GLNPO has in place a quality management system that conforms to the EPA quality management order and is audited every 3 years in accordance with federal policy for quality management, currently being revised. Approved Quality Assurance Project Plans are in place for the laboratory grantee, as well as for the network as a whole. A jointly funded QA contractor conducts laboratory audits and intercomparisons and tracks QA statistics.

The sampling design is dominated by rural sites that underemphasize urban contributions to deposition; thus, although the data are very useful for trends information, there is less assurance of the representativeness of deposition to the whole lake. The performance measure examines the long-term trend. There are gaps in open lake water column organics data, thus limiting EPA's ability to calculate atmospheric loadings.

Error estimate: Concentrations have an error of +/- 40 percent, usually less. Differences between laboratories have been found to be 40 percent or less. This is outstanding given the very low levels of these pollutants in the air and the difficulty in analysis.

**Improvements:** A quality assurance work group was formed during FY 2002 to develop a systematic plan for reporting on quality assurance statistics and information. The group is also investigating differences in protocols, trying to pinpoint stages in sampling and analytical processes where interlaboratory data comparability is reduced. The IADN Steering Committee is also looking into ways to reduce time frames for release of information.

**Material Inadequacy:** There is no material inadequacy for this performance measure.

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### PERFORMANCE MEASURE: (Refer to Performance Data Chart page II-70)

Trophic status and phosphorus concentrations in the Great Lakes. (APG 43)

**Performance Database:** Great Lakes National Program Office (GLNPO) base monitoring program. FY 2002 performance data are complete.<sup>55</sup>

**Data Source:** Data are part of GLNPO's ongoing base monitoring program for the open waters of the five Great Lakes. GLNPO is the principal source of those data.

**Data Quality:** GLNPO has in place a quality management system that conforms to the new EPA quality management order and is audited every 3 years in accordance with federal policy for quality management. GLNPO has implemented all recommendations from these external audits and complies with Agency QA standards.

Data are gathered from the open-water, central areas of the Great Lakes. Although representative of the main volume of each lake, the data provide little information on the shallower, nearshore areas of the lakes. The open-water environment is an area of relatively low nutrient concentrations, and in some lakes, particularly Lakes Superior and Huron, total phosphorus and total dissolved phosphorus measurements are sometimes at or below the limits of detection.

## Goal 6: Reduction of Global and Cross-Border Environmental Risks (continued)

**Improvements:** EPA tries for continuous improvement through implementation of a survey Quality Assurance Project Plan (QAPP), which includes an annual update to standard operating procedures (SOPs). To complement this, there is a training session for those involved with field work and laboratory work. EPA has made efforts to implement data entry aboard ship, with preloading of sample information in the database to ease data entry. The Agency is developing procedures for internal review of the data and a process for uploading and merging the various components of the data (field and laboratory results).

**Material Inadequacy:** There is no material inadequacy for this performance measure.

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### PERFORMANCE MEASURES: (Refer to Performance Data Chart page II-71)

- Reductions from EPA's buildings sector programs (ENERGY STAR). (APG 44)
- Greenhouse gas reductions from EPA's industrial efficiency/waste management programs. (APG 44)
- Greenhouse gas reductions from EPA's industrial methane outreach programs. (APG 44)
- Greenhouse gas reductions from EPA's industrial HFC/PFC programs. (APG 44)
- Greenhouse gas reductions from EPA's transportation programs. (APG 44)
- Greenhouse gas reductions from EPA's state and local programs. (APG 44)

**Performance Database:** Baseline data on greenhouse gas emissions are from the Climate Protection Partnerships Division Tracking System. Performance data lag by approximately 9 months and are not currently available. Data will be reported in the FY 2003 Annual Report.

**Data Source:** Baseline data for carbon emissions related to energy use come from the Energy Information Agency (EIA). Baseline data for non-carbon dioxide emissions, including nitrous oxide and other global warming potential gases, are maintained by EPA. EPA develops the methane emissions baselines and projections using information from industrial partners, which include the natural gas, coal, and landfill gas development industries. EPA continues to develop annual inventories as well as update methodologies as new information becomes available.

EPA's voluntary programs collect partner reports on facility-specific improvements (e.g., space upgraded, kilowatt-hours reduced.) A carbon-conversion factor is used to convert this information to estimated greenhouse gas (GHG) reductions. EPA maintains a "tracking system" for emissions reductions based on the reports submitted by partners.

**Data Quality:** EPA devotes considerable effort to obtaining the best possible information on which to evaluate emissions reductions from voluntary programs. For example, EPA has a quality assurance process in place to check the validity of partner reports.

Peer-reviewed carbon-conversion factors are used to ensure consistency with generally accepted measures of GHG emissions. The Administration regularly evaluates the effectiveness of its climate programs through interagency evaluations. The first such interagency evaluation, chaired by the White House Council on Environmental Quality, examined the status of the Climate Change Action Plan. The review included participants from EPA, the Department of Energy (DOE), the Department of Commerce (DOC), the Department of Transportation (DOT), and the U.S. Department of Agriculture (USDA). The results were published in *U.S. Climate Action Report—1997* as part of the United States' submission to the Framework Convention on Climate Change (FCCC). A 1997 audit by EPA's Office of the Inspector General concluded that the climate programs examined "used good management practices" and "effectively estimated the impact their activities had on reducing risks to health and the environment . . . ."

## Goal 6: Reduction of Global and Cross-Border Environmental Risks (continued)

These are indirect measures of GHG emissions (carbon-conversion factors and methods to convert material-specific reductions to GHG emissions reductions). The voluntary nature of the programs might affect reporting. Further research will be necessary to fully understand the links between GHG concentrations and specific environmental impacts, such as impacts on health, ecosystems, crops, weather events, and so forth.

**Improvements:** The Administration regularly evaluates the effectiveness of its climate programs through interagency evaluations. EPA continues to update inventories and methodologies as new information becomes available.

**Material Inadequacy:** There are no material inadequacies for these performance measures.

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### PERFORMANCE MEASURE: (Refer to Performance Data Chart page II-72)

Annual energy savings. (APG 45)

**Performance Database:** Climate Protection Partnerships Division Tracking System.

**Data Source:** Data collected by EPA's voluntary programs include partner reports on facility-specific improvements (e.g., space upgraded, kilowatt-hours reduced), national market data on shipments of efficient products, and engineering measurements of equipment power levels and usage patterns. Performance data lag by approximately 9 months and are not currently available. Data will be reported in the FY 2003 Annual Report.

**Data Quality:** EPA devotes considerable effort to obtaining the best possible information on which to evaluate energy savings from its voluntary programs. For example, EPA has a quality assurance process in place to check the validity of partner reports and peer-reviewed methodologies are used to calculate energy savings from these programs.

The Administration regularly evaluates the effectiveness of its climate programs through interagency evaluations. The second such interagency evaluation, led by the White House Council on Environmental Quality, examined the status of U.S. climate change programs. The review included participants from EPA and the Departments of State, Energy, Commerce, Transportation, and Agriculture. The results were published in *U.S. Climate Action Report—2002* as part of the United States' submission to the Framework Convention on Climate Change (FCCC).<sup>56</sup> The previous evaluation had been published in *U.S. Climate Action Report—1997*. A 1997 audit by EPA's Office of the Inspector General concluded that the climate programs examined "used good management practices" and effectively estimated the impact their activities had on reducing risks to health and the environment.

**Improvements:** The Administration regularly evaluates the effectiveness of its climate programs through interagency evaluations. EPA continues to update inventories and methodologies as new information becomes available.

**Material Inadequacy:** There is no material inadequacy for this performance measure.

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### PERFORMANCE MEASURE: (Refer to Performance Data Chart page II-72)

Assistance to countries working under Montreal Protocol. (APG 46)

**Performance Database:** Database is maintained by the Global Programs Division (GPD). FY 2002 performance data are complete and final.

## Goal 6: Reduction of Global and Cross-Border Environmental Risks (continued)

**Data Source:** The progress of international implementation goals is measured by tracking the number of countries receiving assistance, dollars allocated to each, and the expected reduction in ozone-depleting substances in assisted countries. The United Nations Environment Program (UNEP) and the GPD maintain the data.

**Data Quality:** The GPD receives periodic reports on the financial status of participating countries from UNEP. This information is then cross-checked with GPD records to ensure the accuracy of the performance data.

**Improvements, Material Inadequacy:** Not applicable.

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### **PERFORMANCE MEASURE:** (Refer to Performance Data Chart page II-73)

Domestic consumption of Class II hydrochlorofluorocarbons (HCFCs). (APG 47)

**Performance Database:** The Allowance Tracking System (ATS) database is maintained by GPD. Performance data lag by approximately 6 months and are not currently available. FY 2002 performance data will be reported in the FY 2003 Annual Report.

**Data Source:** Progress on restricting domestic consumption of Class II HCFCs is tracked by monitoring industry reports of compliance with EPA's phaseout regulations. Monthly information on domestic production, imports, and exports from the International Trade Commission is maintained in the ATS.

**Data Quality:** Reporting and record-keeping requirements are published in 40 CFR part 82, subpart A, sections 92.9 through 82.13. These sections of the Stratospheric Ozone Protection Rule specify the required data and accompanying documentation that companies must submit or maintain onsite to demonstrate their compliance with the regulation.

The ATS data are subject to a Quality Assurance Plan. In addition, the data are subject to an annual quality assurance review, coordinated by Office of Air and Radiation (OAR) staff separate from those on the team normally responsible for data collection and maintenance. The ATS is programmed to ensure consistency of the data elements reported by companies. The tracking system flags inconsistent data for review and resolution by the tracking system manager. This information is then cross-checked with compliance data submitted by reporting companies. The GPD maintains a user's manual for the ATS that specifies the standard operating procedures for data entry and data analysis. Regional inspectors perform inspections and audits onsite at the facilities of producers, importers, and exporters. These audits verify the accuracy of compliance data submitted to EPA through examination of company records.

**Improvements, Material Inadequacy:** Not applicable.

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### **PERFORMANCE MEASURE:** (Refer to Performance Data Chart page II-73)

Domestic exempted production and import of newly produced Class I chlorofluorocarbons (CFCs) and halons. (APG 47)

**Performance Database:** ATS database is maintained by GPD. Performance data lag by approximately 6 months and are not currently available. Data will be reported in the FY 2003 Annual Report.

**Data Source:** Progress on restricting domestic exempted consumption of Class I CFCs and halons is tracked by monitoring industry reports of compliance with EPA's phaseout regulations. Monthly

## Goal 6: Reduction of Global and Cross-Border Environmental Risks (continued)

information on domestic production, imports, and exports from the International Trade Commission is maintained in the ATS.

**Data Quality:** Reporting and record-keeping requirements are published in 40 CFR part 82, subpart A, sections 82.9 through 82.13. These sections of the Stratospheric Ozone Protection Rule specify the required data and accompanying documentation that companies must submit or maintain onsite to demonstrate their compliance with the regulation.

The ATS data are subject to a Quality Assurance Plan. In addition, the data are subject to an annual quality assurance review, coordinated by OAR staff separate from those on the team normally responsible for data collection and maintenance. The ATS is programmed to ensure consistency of the data elements reported by companies. The tracking system flags inconsistent data for review and resolution by the tracking system manager. This information is then cross-checked with compliance data submitted by reporting companies. The GPD maintains a user's manual for the ATS that specifies the standard operating procedures for data entry and data analysis. Regional inspectors perform inspections and audits on-site at the facilities of producers, importers, and exporters. These audits verify the accuracy of compliance data submitted to EPA through examination of company records.

**Improvements, Material Inadequacy:** Not applicable.

## Goal 7: Quality Environmental Information

### **PERFORMANCE MEASURE:** (Refer to Performance Data Chart page II-82)

Make 90 percent of enforcement and compliance policies and guidance issued this fiscal year available on the Internet within 30 days of issuance. (APG 49)

**Performance Database:** Output measure; internal tracking system. FY 2002 performance data are complete.

**Data Source:** Manual system. Headquarters tracks date document was issued and uploaded to the Internet.

**Data Quality, Improvements, Material Inadequacy:** Not applicable.

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### **PERFORMANCE MEASURE:** (Refer to Performance Data Chart page II-82)

Total electronic reporting of all chemical submissions processed. (Includes diskette submissions created by ATRS, TRI-ME, and other reporting software programs, as Web-based submissions.) (APG 50)

**Performance Database:** Toxic Release Inventory System.

**Data Source:** TRI chemical reports provided by reporting facilities.

**Data Quality:** Data are simple frequencies, checked informally for accuracy.

**Improvements, Material Inadequacy:** Not applicable.

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### **PERFORMANCE MEASURE:** (Refer to Performance Data Chart page II-83)

States using the Central Data Exchange to send data to EPA. (APG 51)

**Performance Database:** Output measure; no database.

## Goal 7: Quality Environmental Information (continued)

**Data Source, Data Quality, Improvements, Material Inadequacy:** Not applicable.

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### **PERFORMANCE MEASURE:** (Refer to Performance Data Chart page II-83)

Award 90 grants to organizations which address environmental problems in communities disproportionately impacted by environmental hazards. (APG 52)

**Performance Database:** Each region awards the grants from funds transferred from the Office of Environmental Justice (OEJ). Upon completion of each year's cycle, the regions submit their award selections to OEJ, from which a master list is compiled. OEJ maintains the annual lists.

**Data Source:** The OEJ compiles lists of annual grant awards, based on information submitted by the regions.

**Data Quality:** Prior to award, each grant application is reviewed in accordance with EPA quality management protocols in each region. Each grant is for a maximum of \$20,000, and most do not involve data collection or manipulation. The few that do are required to have a Quality Management Plan.

**Improvements, Material Inadequacy:** Not applicable.

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### **PERFORMANCE MEASURE:** (Refer to Performance Data Chart page II-83)

Hold meetings with the NEJAC, all stakeholders involved in the environmental justice dialogue, and communities disproportionately impacted by environmental hazards. (APG 52)

**Performance Database:** Output measure; internal manual tracking system.

**Data Source, Data Quality, Improvements, Material Inadequacy:** Not applicable.

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### **PERFORMANCE MEASURE:** (Refer to Performance Data Chart page II-84)

Publicly available facility data from EPA's national systems, accessible on the EPA Web site, will be part of the Integrated Error Correction Process. (APG 53)

**Data Source, Data Quality, Improvements, Material Inadequacy:** Not applicable.

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### **PERFORMANCE MEASURE:** (Refer to Performance Data Chart page II-84)

Critical financial systems risk assessment findings will be formally documented and transmitted to systems owners and managers in a formal Risk Assessment document. (APG 54)

**Performance Database:** Output measure; no database.

**Data Source, Data Quality, Improvements, Material Inadequacy:** Not applicable.

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### **PERFORMANCE MEASURE:** (Refer to Performance Data Chart page II-84)

Critical infrastructure systems risk assessment findings will be formally documented and transmitted to systems owners and managers in a formal Risk Assessment document. (APG 54)

**Performance Database:** Output measure; no database.

**Data Source, Data Quality, Improvements, Material Inadequacy:** Not applicable.

## Goal 7: Quality Environmental Information (continued)

### **PERFORMANCE MEASURE:** (Refer to Performance Data Chart page II-84)

Mission critical environmental systems risk assessment findings will be formally documented and transmitted to systems owners and managers in a formal Risk Assessment document. (APG 54)

**Performance Database:** Output measure; no database.

**Data Source, Data Quality, Improvements, Material Inadequacy:** Not applicable.

## Goal 8: Sound Science, Improved Understanding of Environmental Risk, and Greater Innovation to Address Environmental Problems

### **PERFORMANCE MEASURE:** (Refer to Performance Data Chart page II-93)

Trends in acidity in lakes and streams in the Northeast and Mid Atlantic Regions of the United States. (APG 55)

**Performance Database:** Program output; no internal tracking system.

**Data Source, Data Quality, Improvements, Material Inadequacy:** Not applicable.

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### **PERFORMANCE MEASURE:** (Refer to Performance Data Chart page II-94)

Enhance the Waste Reduction Algorithm environmental impact assessment tool used to design or retrofit chemical processes with (1) a better assessment methodology and (2) new features (costing). (APG 56)

**Performance Database:** Program output; no internal tracking system.

**Data Source, Data Quality, Improvements, Material Inadequacy:** Not applicable.

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### **PERFORMANCE MEASURE:** (Refer to Performance Data Chart page II-94)

Prepare a pest resistance management framework to prolong the effectiveness of genetically-modified corn pesticide characteristics for the Office of Pesticide Programs during product registration. (APG 56)

**Performance Database:** Program output; no internal tracking system.

**Data Source, Data Quality, Improvements, Material Inadequacy:** Not applicable.

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### **PERFORMANCE MEASURE:** (Refer to Performance Data Chart page II-94)

Provide a PC-based tool for use by EPA and the metal finishing sector in evaluating exposure and inhalation health risks to workers and residents living near metal finishing facilities. (APG 56)

**Performance Database:** Program output; no internal tracking system.

**Data Source, Data Quality, Improvements, Material Inadequacy:** Not applicable.

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### **PERFORMANCE MEASURE:** (Refer to Performance Data Chart page II-94)

Complete 20 stakeholder approved and peer-reviewed test protocols in all environmental technology categories under ETV, and provide them to testing organizations world-wide. (APG 57)

## Goal 8: Sound Science, Improved Understanding of Environmental Risk, and Greater Innovation to Address Environmental Problems (continued)

**Performance Database:** Program output; no internal tracking system.

**Data Source, Data Quality, Improvements, Material Inadequacy:** Not applicable.

## Goal 9: A Credible Deterrent to Pollution and Greater Compliance with the Law

### **PERFORMANCE MEASURES:** (Refer to Performance Data Chart pages II-105, II-108)

- 75 percent of concluded enforcement actions identify pollutant reductions and/or changes in facility management or information practices. (APG 58)
- Millions of pounds of pollutants required to be reduced through enforcement actions settled this fiscal year. (APG 58)
- Facilities voluntarily self-disclose and correct violations with reduced or no penalty as a result of EPA self-disclosure policies. (APG 64)

**Performance Database:** ICIS, which tracks EPA civil, judicial, and enforcement actions. FY 2002 performance data are complete.<sup>57</sup>

**Data Source:** Most of the essential data on environmental results in ICIS are collected through the use of the Case Conclusion Data Sheet (CCDS), which Agency staff prepare after the conclusion of each civil (judicial and administrative) enforcement action. EPA implemented the CCDS in 1996 to capture relevant information on the results and environmental benefits of concluded enforcement cases.<sup>58</sup> The information generated through the CCDS is used to track progress for several of the performance measures. The CCDS form consists of 27 specific questions which, when completed, describe specifics of the case; the facility involved; information on how the case was concluded; the compliance actions required to be taken by the defendant(s); the costs involved; information on any Supplemental Environmental Project to be undertaken as part of the settlement; the amounts and types of any penalties assessed; and any costs recovered through the action, if applicable. The CCDS requires that the staff identify whether the facility/defendant, through injunctive relief, must (1) reduce pollutants and (2) improve management practices to curtail, eliminate, or better monitor and handle pollutants in the future. For actions that result in pollution reductions, the staff estimate the amounts of pollution reduced over the lifetime of the enforcement action. There are established procedures for the staff to calculate, by statute (e.g., Clean Water Act), the pollutant reductions or eliminations. The procedure first entails the determination of the difference between the current “out of compliance” concentration of the pollutant(s) and the post enforcement action “in compliance” concentration. This difference is then converted to mass per time using the flow or quantity information derived during the case.

**Data Quality:** Quality assurance/quality control procedures are in place for both the CCDS and ICIS entry. A Case Conclusion Data Sheet Training Booklet and a Case Conclusion Data Sheet Quick Guide have been distributed throughout regional and headquarters offices. Separate CCDS Calculation and Completion Checklists are required to be filled out at the time the CCDS is completed. A Quality Management Plan for ICIS is under development.

Information contained in the CCDS and ICIS is reviewed by regional and headquarters staff for completeness and accuracy. The pollutant reductions or eliminations reported in the CCDS are estimates of what will be achieved if the defendant carries out the requirements of the settlement. The estimates are based on information available at the time a case is settled or an order is issued. In some instances, this information will be developed and entered after the settlement in continued discussions over specific plans for compliance. There may be delay. Because of unknowns at the

## Goal 9: A Credible Deterrent to Pollution and Greater Compliance with the Law (continued)

time of settlement, level of technical proficiency, or the nature of a case, the enforcement office's expectation is that based on information on the CCDS, the amount of pollutant reduction/elimination will be underestimated. Information on expected outcomes of state enforcement is not available.

**Improvements:** In November 2000 EPA completed a comprehensive guidance package on the preparation of the CCDS. This guidance, issued to headquarters and regional managers and staff, was made available in print and CD-ROM, and was supplemented in FY 2002. The guidance contains work examples to ensure better calculation of the amounts of pollutants reduced or eliminated through concluded enforcement actions. EPA trained each of its 10 regional offices during FY 2002. Additionally, OECA began implementing an Information Quality Strategy in FY 2002.<sup>59</sup> The Office of Compliance's (OC) Information Quality Strategy is a plan, developed with participation across OC, the Office of Environmental Information (OEI), EPA's regional offices, and states, to ensure that information used and produced from national data systems and associated information are reviewed for quality, that preventive processes are adhered to, and that problems are identified and corrective steps followed. It includes an implementation plan that describes a series of projects OC is undertaking to carry the strategy forward. These projects will be updated annually. Additionally, the IQS provides the basis for OC's Quality Management Plans produced in accordance with the Agency's data quality requirements.

**Material Inadequacy:** There are no material inadequacies for these performance measures.

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### PERFORMANCE MEASURE: (Refer to Performance Data Chart page II-105)

Develop and use valid compliance rates or other indicators of compliance for selected populations. (APG 58)

**Performance Databases:** The Permit Compliance System (PCS) tracks National Pollutant Discharge Elimination System (NPDES) permit and enforcement actions, as well as reporting and scheduling requirements. The Airs Facility Subsystem (AFS) captures emission, compliance, and permit data for major stationary sources of air pollution. The Resource Conservation and Recovery Act Information System (RCRAInfo) supports permit, compliance, and corrective action activities carried out by hazardous waste handlers. Performance data are preliminary and should be finalized late first quarter or early second quarter of FY 2003.

**Data Source:** EPA regional offices and delegated states.

**Data Quality:** All of the systems have been developed in accordance with the Office of Information Management's Lifecycle Management Guidance,<sup>60</sup> which includes data validation processes, internal screen audit checks and verification, system and user documents, data quality audit reports, third-party testing reports, and detailed report specifications for showing how data are calculated.

Regarding AFS, EPA Inspector General (IG) reports in 1997 and 1998 highlighted states' problems with identifying and reporting significant violators of the Clean Air Act, impairing EPA's ability to assess noncompliance.<sup>61</sup> EPA issued High Priority Violator Guidance to improve tracking of sources of violations.<sup>62</sup> As a result of the reports, EPA has enhanced oversight and headquarters' outreach to regions, states, and local governments.

**Improvements:** PCS modernization is under way and will near completion in FY 2004. EPA is preparing Quality Management Plans (data quality objectives, quality assurance project plans, baseline assessments) for all major systems. A new Integrated Compliance Information System

## Goal 9: A Credible Deterrent to Pollution and Greater Compliance with the Law (continued)

(ICIS) supports core program needs and consolidates and streamlines existing systems. A pilot project to develop statistically valid compliance rates for selected universes of regulated facilities will be completed in 2003. A National Congressional Performance Measure Strategy project on the impact of EPA strategies on recidivism focuses attention on better compliance assurance targeting (i.e., monitoring, compliance assistance, incentives, and enforcement).

For all systems, there are concerns about quality and completeness of data and the ability of existing systems to meet data needs. Incompatible database structures/designs and differences in data definitions impede integrated analyses. Additionally, there are incomplete data available on the universe of regulated facilities because not all such facilities are inspected/permitted. System modernization will resolve many of these problems. There are also issues of programmatic scheduling that influence when statistically valid compliance measures can be calculated. For example, rates based on self-reported Discharge Monitoring Reports in the NPDES program cannot be calculated until more than a fiscal quarter after the reports are received because of programmatic and associated system rules for determining significant noncompliance.

**Material Inadequacy:** There is no material inadequacy for this performance measure.

### PERFORMANCE MEASURES: (Refer to Performance Data Chart page II-105)

- Reduce by 2 percentage points overall the level of significant noncompliance recidivism among the Clean Air Act, Clean Water Act, and Resource Conservation and Recovery Act programs from FY 2000 levels. (APG 58)
- Increase by 2 percentage points over FY 2000 levels the proportion of significant noncomplier facilities under the Clean Air Act, Clean Water Act, and Resource Conservation and Recovery Act which returned to full physical compliance in less than two years. (APG 58)

**Performance Databases:** PCS tracks NPDES permit and enforcement actions, as well as reporting and scheduling requirements. AFS captures emission, compliance, and permit data for major stationary sources of air pollution. RCRAInfo supports permit, compliance, and corrective action activities carried out by hazardous waste handlers. FY 2002 performance data will be available in FY 2003.

**Data Source:** EPA regional offices and delegated states.

**Data Quality:** All the systems have been developed in accordance with the Office of Information Management's life cycle management<sup>63</sup> guidance, which includes data validation processes, internal screen audit checks and verification, system and user documents, data quality audit reports, third-party testing reports, and detailed report specifications for showing how data are calculated.

Regarding AFS, EPA's OIG reports in 1997 and 1998 highlighted states' problems with identifying and reporting significant violators of the Clean Air Act, impairing EPA's ability to assess noncompliance.<sup>64</sup> EPA issued High Priority Violator Guidance to improve tracking of sources of violations.<sup>65</sup> As a result of the reports, EPA has enhanced oversight and headquarters' outreach to regions, states, and local areas.

**Improvements:** PCS modernization is under way. EPA is preparing QMPs (data quality objectives, quality assurance project plans, baseline assessments) for all major systems. A new system, ICIS, will support core program needs and consolidate and streamline existing systems. A pilot project to develop statistically valid compliance rates for selected universes of regulated facilities will be completed in 2003. A National Congressional Performance Measure Strategy project on the impact of EPA strategies on recidivism focuses attention on better compliance assurance targeting (i.e., monitoring, compliance assistance, incentives, and enforcement).

## Goal 9: A Credible Deterrent to Pollution and Greater Compliance with the Law (continued)

**Material Inadequacy:** There are no material inadequacies for any of these performance measures.

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### **PERFORMANCE MEASURES:** (Refer to Performance Data Chart pages II-105, 107)

- Produce a report on the number of civil and criminal enforcement actions initiated and concluded. (APG 58)
- Have Phase I of the Integrated Compliance Information System fully operational in March 2002. (APG 61)
- Operate 14 information systems housing national enforcement and compliance assurance data with a minimum of 95 percent operational efficiency. (APG 61)

**Performance Database:** Output measures; internal tracking.

**Data Source, Data Quality, Improvements, Material Inadequacy:** Not applicable.

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### **PERFORMANCE MEASURE:** (Refer to Performance Data Chart page II-106)

Number of criminal investigations. (APG 59)

**Performance Databases:** The Criminal Docket System (CRIMDOC) is a criminal case management, tracking, and reporting system. Information about criminal cases investigated by EPA's Criminal Investigation Division (CID) is entered into CRIMDOC at case initiation, and investigation and prosecution information is tracked until case conclusion. Performance data are preliminary and should be finalized late first quarter or early second quarter of FY 2003.

**Data Source:** EPA-CID offices.

**Data Quality:** The system administrator performs regularly scheduled quality assurance/quality control checks of the CRIMDOC database to validate data and to evaluate and recommend enhancements to the system.

**Improvements:** A new case management, tracking, and reporting system (Case Reporting System) that will replace CRIMDOC is being developed. This new system will be a more user-friendly database with greater tracking, management, and reporting capabilities.

**Material Inadequacy:** There is no material inadequacy for this performance measure.

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### **PERFORMANCE MEASURES:** (Refer to Performance Data Chart page II-106)

- Number of EPA inspections conducted. (APG 59)
- Number of civil investigations. (APG 59)

**Performance Databases:** Integrated Data for Enforcement Analysis (IDEA). IDEA integrates data from major enforcement and compliance systems, such as PCS, AFS, RCRAInfo, and the Emergency Response Notification System (ERNS). FY 2002 performance data are complete.

**Data Source:** EPA regional offices.

**Data Quality:** All the systems have been developed in accordance with the Office of Information Management's life cycle management guidance,<sup>66</sup> which includes data validation processes, internal screen audit checks and verification, system and user documents, data quality audit reports, third-party testing reports, and detailed report specifications for showing how data are calculated.

## Goal 9: A Credible Deterrent to Pollution and Greater Compliance with the Law (continued)

Regarding AFS, EPA's OIG reports in 1997 and 1998 highlighted states' problems with identifying and reporting significant violators of the Clean Air Act, impairing EPA's ability to assess noncompliance.<sup>67</sup> EPA issued High Priority Violator Guidance to improve tracking of sources of violations.<sup>68</sup> As a result of the reports, EPA has enhanced oversight and headquarters' outreach to regions, states, and local areas.

**Improvements:** PCS modernization is under way. EPA is preparing QMPs (data quality objectives, quality assurance project plans, baseline assessments) for all major systems. A new system, ICIS, will support core program needs and consolidate and streamline existing systems. A pilot project on developing statistically valid compliance rates will be completed in 2003.

**Material Inadequacy:** There are no material inadequacies for these performance measures.

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### **PERFORMANCE MEASURE: (Refer to Performance Data Chart page II-107)**

Conduct EPA-assisted inspections to help build state program capacity. (APG 60)

**Performance Database:** Output measure; internal regional tracking system.

**Data Source:** Internal regional tracking system and ICIS.

**Data Quality:** EPA regional and headquarters' managers check information to confirm accuracy.

**Improvements:** ICIS has ability to assist regions in tracking inspections.

A new measurement tool, the Inspection Conclusion Data Sheet (ICDS), will be used to analyze the results from inspections conducted under some of EPA's major statutes. Data on communication of problems to industry, compliance assistance delivered by inspectors, and immediate corrections made by industry will be analyzed by region, nationally, and by industry sector.

**Material Inadequacy:** There is no material inadequacy for this performance measure.

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### **PERFORMANCE MEASURES: (Refer to Performance Data Chart page II-107)**

- Number of EPA training classes/seminars delivered to states, localities, and tribes to build capacity. (APG 60)
- Total number of state and local students trained. (APG 60)

**Performance Database:** National Enforcement Training Institute's (NETI's) course information management systems, the Automated Blue Form, and the registrar. Performance data are complete.

**Data Source:** Manual reports.

**Data Quality:** Managers ensure the quality assurance/quality control of information in the system.

**Improvements, Material Inadequacy:** Not applicable.

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### **PERFORMANCE MEASURE: (Refer to Performance Data Chart page II-108)**

Evaluate 100 percent of the notices for transboundary movement of hazardous wastes, ensuring their proper management in accordance with international agreements. (APG 62)

**Performance Database:** Waste Import Tracking System (WITS), Hazardous Waste Export System (HWES). Performance data are complete.

## Goal 9: A Credible Deterrent to Pollution and Greater Compliance with the Law (continued)

**Data Source:** Manual reports (notifications) submitted by U.S. exporters and by foreign governments for imports.

**Data Quality:** EPA reviews the notifications, manifests, and annual reports to ensure they are timely and accurate before they are entered into the database.

**Improvements, Material Inadequacy:** Not applicable.

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### **PERFORMANCE MEASURES:** (Refer to Performance Data Chart page II-107)

- Train tribal personnel. (APG 60)
- Provide tribal governments with 50 computer-based training (CBT) modules. (APG 60)

**Performance Database:** National Enforcement Training Institute Registration System. FY 2002 performance data are complete.

**Data Source:** Data come from registration forms.

**Data Quality:** Managers ensure quality assurance/quality control of information in system.

**Improvements, Material Inadequacy:** Not applicable.

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### **PERFORMANCE MEASURE:** (Refer to Performance Data Chart page II-109)

Increase Environmental Management Systems (EMS) use by developing tools, such as training and best practice manuals that encourage improved environmental performance. (APG 65)

**Performance Database:** Internal tracking system is currently being developed.

**Data Source:** Headquarters will report on progress.

**Data Quality, Improvements, Material Inadequacy:** Not applicable.

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## Goal 10 - Effective Management

### **PERFORMANCE MEASURE:** (Refer to Performance Data Chart page II-117)

Agency's audited financial statements and Annual Report are submitted on time. (APG 66)

**Performance Database:** There is no formal database.

**Data Source:** OMB acknowledgment of receipt of financial statements and reference in OMB government-wide reports.

**Data Quality, Improvements, Material Inadequacy:** Not applicable.

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### **PERFORMANCE MEASURE:** (Refer to Performance Data Chart page II-117)

Agency's audited financial statements receive an unqualified opinion and provide information that is useful and relevant to the Agency and external parties. (APG 66)

**Performance Database:** There is no formal database.

**Data Source:** OMB acknowledgment of receipt of financial statements and reference in OMB government-wide reports.

**Data Quality, Improvements, Material Inadequacy:** Not applicable.

## Goal 10 - Effective Management (continued)

### **PERFORMANCE MEASURE:** (Refer to Performance Data Chart page II-118)

Percentage of increase in outcome-oriented annual performance goals and performance measures (APGs/PMs) in the Agency's FY 2003 Annual Performance Plan and Congressional Justification submission. (APG 67)

**Performance Database:** Performance and Environmental Results System (PERS) and Budget Automation System (BAS) are used for internal tracking. The performance data are complete for assessment of FY 2002 performance.

**Data Source:** PERS, BAS, and OCFO staff evaluation.

**Data Quality:** Because PERS and BAS are databases that primarily house information from Agency program databases, most of the quality assurance and control efforts focus on ensuring effective data entry. However, internal staff evaluation allows the Agency to develop trend data and analyze information submitted to these centralized databases.

**Improvements, Material Inadequacy:** Not applicable.

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### **PERFORMANCE MEASURE:** (Refer to Performance Data Chart page II-118)

Percentage of EPA personnel consolidated into headquarters complex. (APG 68)

**Performance Database:** Program output measure; no internal tracking system.

**Data Source, Data Quality, Improvements, Material Inadequacy:** Not applicable.

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### **PERFORMANCE MEASURE:** (Refer to Performance Data Chart page II-118)

Percentage of complete build out of Customs and Connecting Wing buildings. (APG 69)

**Performance Database:** Program output measure; no internal tracking system.

**Data Source, Data Quality, Improvements, Material Inadequacy:** Not applicable.

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### **PERFORMANCE MEASURE:** (Refer to Performance Data Chart page II-119)

Percentage of fuel cell components in place. (APG 70)

**Performance Database:** No relevant database used to track this performance measure.

**Data Source, Data Quality, Improvements, Material Inadequacy:** Not applicable.

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### **PERFORMANCE MEASURE:** (Refer to Performance Data Chart page II-119)

Percentage of structure completed. (APG 70)

**Performance Database:** No relevant database used to track this performance measure.

**Data Source, Data Quality, Improvements, Material Inadequacy:** Not applicable.

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### **PERFORMANCE MEASURE:** (Refer to Performance Data Chart page II-119)

Number of environmental improvements made, reductions in environmental risks, and best environmental practices identified. (APG 71)

## Goal 10 - Effective Management (continued)

**Performance Database:** The OIG Performance Results and Measurement System is used to capture and aggregate information on an array of measures in logic model format, linking immediate outputs with longer-term intermediate outcomes and results. Database<sup>69</sup> measures include numbers of (1) recommendations for environmental improvement; (2) legislative and regulatory changes; (3) policy, directive, or process changes; (4) environmental risks identified, reduced, or eliminated; (5) best practices identified and transferred; and (6) examples of environmental improvement.

**Data Source:** Designated OIG staff are responsible for entering data into the system. Data are from OIG independent follow-up, performance evaluations, audits, and research and from EPA data systems and reports to determine the extent of environmental improvements, risks reduced or avoided, and best practices transferred, as well as from certifications of actions taken by EPA officials. OIG also collects independent data from EPA's partners.

**Data Quality:** All performance data submitted to the database require at least one verifiable source assuring data accuracy and reliability. OIG products and services are subject to rigorous compliance with the Government Auditing Standards of the Comptroller General<sup>70</sup> and are regularly reviewed by OIG management, an independent OIG Management Assessment Review Team, and external independent peer reviewers. The statutory mission of the OIG is to conduct independent audits, evaluations, and investigations to promote, among other things, integrity in Agency operations and reporting systems.

All OIG staff are responsible for data accuracy in their products and services. However, there is the possibility of incomplete, miscoded, or missing data in the system due to human error. Data supporting achievement of results are often from indirect or external sources, with their own methods or standards for data verification/validation.

**Improvements:** The OIG developed the Performance Results and Accountability System as a prototype in FY 2001 and continued enhancing it in FY 2002 by refining measures, refining targets, and expanding OIG-wide understanding of the system. The system was enhanced to sort results by OIG Strategic Areas and improve the linkages of measures. The use of the system and the quality of the data were improved by refining the definitions of measures, developing a comprehensive system handbook, publishing the results of the data collected in the system, and providing tutorials to all OIG staff. EPA expects the quality of the data to improve with greater familiarity with the new system and definitions of measures.

**Material Inadequacy:** There are no material inadequacies for this performance measure.

## Notes:

1. For additional information about criteria pollutant data, nonattainment areas, and other related information, see U.S. EPA, Air Trends, at <http://www.epa.gov/airtrends>.
2. For additional information about mobile source programs and NOx and VOC emissions in particular, see U.S. EPA, Transportation and Air Quality, Office of Transportation and Air Quality, at <http://www.epa.gov/otaq>.
3. Information on the development of the 1996 and 1999 NTI is available, respectively, on the Internet: <http://www.epa.gov/ttn/chief/nti/index.html#nti> and [www.epa.gov/ttn/chief/net/index.html#1999](http://www.epa.gov/ttn/chief/net/index.html#1999).
4. Information on EMS-HAP is available on the Internet at <http://www.epa.gov/ttn/scram/tt22.htm#aspen>.
5. U.S. EPA, Office of Air Quality Planning and Standards, *Clean Air Status and Trends Network (CASTNet) Quality Assurance Project Plan* (Research Triangle Park, NC: U.S. EPA, November 2001). Available at <http://www.epa.gov/castnet/library/qapp.html>.
6. U.S. EPA, Acid Rain Program, *Quarterly Report Review Process for Determining Final Annual Data*. Available at <http://www.epa.gov/airmarkets/reporting/arp/closurearp2001nov.pdf>.
7. R. Enyeart, EPA Protocol for Participation in a PWSS Program Data Verification, Version 9.0. Internal document in perpetual draft referred to as the PWSS Data Verification Protocol (Washington, DC: U.S. EPA, revised June 1999).
8. F. Haertel, Data Reliability Action Plan, Agency internal work plan document (Washington, DC: U.S. EPA, Office of Groundwater and Drinking Water, October 2002).
9. U.S. EPA, Office of Water, Office of Ground Water and Drinking Water, *Options for OGWDW Information Strategy* (working draft), EPA 816-O-01-001 (Washington, DC: U.S. EPA, February 2001). Available at <http://www.epa.gov/safewater/data/informationstrategy.html>.
10. SDWIS/STATE (Version 8.1) is an optional Oracle database application available for use by states and EPA regions to support implementation of their drinking water programs. See U.S. EPA, Office of Ground Water and Drinking Water, *Drinking Water Data & Databases* (Washington, DC: U.S. EPA, July 2002). Information available on the Internet at <http://www.epa.gov/safewater/databases.html>.
11. U.S. EPA, Office of Water, *National Information Management System Reports: Clean Water State Revolving Fund (CWSRF)* (Washington, DC: U.S. EPA, November 7, 2000). Available at <http://www.epa.gov/r5water/cwsrf/>.
12. U.S. EPA, Office of Water, *Clean Water SRF Program: Data Definitions for the National Information Management System* (Washington, DC: U.S. EPA). Available at <http://www.epa.gov/r5water/cwsrf/pdf/nimsdef.pdf>.
13. U.S. EPA, Office of Water, Wetlands, Oceans, and Watersheds, *Performance Indicators Visualization and Outreach Tool Introduction (PIVOT)* (Washington, DC: U.S. EPA). Available at <http://www.epa.gov/owow/estuaries/pivot/overview/intro.htm>.
14. U.S. EPA, Office of Water, *National Estuary Program FY2002 Funding Guidance and Requirements for Grants* (Washington, DC: U.S. EPA, March 2002).
15. U.S. EPA, Office of Water, *EPA's BEACH Watch Program: 2001 Swimming Season*, EPA823-F-02-008 (Washington, DC: U.S. EPA, May 2002). Available at <http://www.epa.gov/OST/beaches/>.
16. U.S. EPA, Office of Enforcement and Compliance Assurance (OECA), Permit Compliance System (database) (Washington, DC: U.S. EPA, 2002).
17. U.S. EPA, Office of Wastewater Management, Permit Compliance System reports (Washington, DC: U.S. EPA, 2002). Available (with password) at <http://clients.limno.com/protected/pcscleanup>.
18. U.S. EPA, Office of Water, Office of Science and Technology, Loadings Reduction Spread Sheet for Direct Dischargers from Point Sources Subject to Effluent Guidelines (unpublished Lotus 1-2-3 spread sheet) (Washington, DC: U.S. EPA, updated 2002).
19. U.S. EPA, OECA, Permit Compliance System (database).

20. The Technical Development Documents produced at the time of the effluent guidelines are the following:
- U.S. EPA, Office of Water. June 2000. *Final Development Document for Effluent Limitations Guidelines and Standards for the Transportation Equipment Cleaning Category*. EPA-821-R-00-012. Washington, DC: U.S. EPA. Available at <http://www.epa.gov/waterscience/guide/>.
- U.S. EPA, Office of Water. December 1998. *Development Document for Proposed Effluent Limitations Guidelines and Standards for the Centralized Waste Treatment Industry*. EPA 821-R-98-020. Washington, DC: U.S. EPA. Available at <http://www.epa.gov/waterscience/guide/>.
- U.S. EPA, Office of Water. January 2001. *Development Document for the Proposed Revisions to the National Pollutant Discharge Elimination System Regulation and the Effluent Guidelines for Concentrated Animal Feeding Operations*. EPA-821-R-01-003. Washington, DC: U.S. EPA. Available at <http://www.epa.gov/waterscience/guide/>.
- U.S. EPA, Office of Water. January 2000. *Development Document for Final Effluent Limitations Guidelines and Standards for Commercial Hazardous Waste Combustors*. EPA-821-R-99-020. Washington, DC: U.S. EPA. Available at <http://www.epa.gov/waterscience/guide/>.
- U.S. EPA, Office of Water. January 2000. *Development Document for Final Effluent Limitations Guidelines and Standards for the Landfills Point Source Category*. EPA-821-R-99-019. Washington, DC: U.S. EPA. Available at <http://www.epa.gov/waterscience/guide/>.
- U.S. EPA, Office of Water. September 1998. *Development Document for Final Effluent Limitations Guidelines and Standards for the Pharmaceutical Manufacturing Point Source Category*. EPA-821-R-98-005. Washington, DC: U.S. EPA. Available at <http://www.epa.gov/waterscience/guide/>.
- U.S. EPA, Office of Water. October 1997. *Technical Support Document for Best Management Practices for Spent Pulping Liquor Management, Spill Prevention and Control*. EPA-821-R-97-011. Washington, DC: U.S. EPA. Available at <http://www.epa.gov/waterscience/guide/>.
- U.S. EPA, Office of Water. 1993. *Development Document for Effluent Limitations Guidelines, Pretreatment Standards, and New Source Performance Standards for the Pesticide Chemicals Manufacturing Point Source Category*, Final. EPA 821/R-93-016. Washington, DC: U.S. EPA. Available at <http://www.epa.gov/waterscience/guide/>.
- U.S. EPA, Office of Water. 1996. *Development Document for Best Available Technology, Pretreatment Technology, and New Source Performance Technology for the Pesticide Formulating, Packaging, and Repackaging Industry*, Final. EPA 821/R-96-019. Washington, DC: U.S. EPA. Available at <http://www.epa.gov/waterscience/guide/>.
- U.S. EPA, Office of Water. December 2000. *Development Document for Final Effluent Limitations Guidelines and Standards for Synthetic-based Drilling Fluids and Other Non-aqueous Drilling Fluids in the Oil and Gas Extraction Point Source Category*. EPA-821-B-00-013. Washington, DC: U.S. EPA. Available at <http://www.epa.gov/waterscience/guide/>.
- U.S. EPA, Office of Water. January 1993. *Development Document for Effluent Limitations Guidelines and New Source Performance Standards for the Offshore Subcategory of the Oil and Gas Extraction Point Source Category*. EPA-821-AR-93-003. Washington, DC: U.S. EPA.
- U.S. EPA. October 1996. *Cost Effectiveness Analysis of Final Effluent Limitations Guidelines and Standards for the Coastal Subcategory of the Oil and Gas Extraction Point Source Category*. EPA-821-R-96-021. Washington, DC: U.S. EPA.
21. U.S. EPA. *Verification of Pollutant Loadings Reduction Estimation Methodology*, draft summary of findings, 68-C-00-174, prepared for U.S. EPA by Parsons. (Washington, DC: U.S. EPA, September 2002). K. Metchis, Tetra Tech, Inc., *Assessment of Potential Pollutant Reductions for Renewed CSO Permits* (Year 2003) (October 17, 2002).
22. U.S. EPA, Office of Water, Clean Water Needs Survey 2000 (electronic database) (Washington, DC: U.S. EPA, 2000).
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33. U.S. EPA, *The National Advisory Council For Environmental Policy and Technology (NACEPT)*, EPA 100-R-98-006 (July 1998).
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35. National Research Council, Committee to Assess the Scientific Basis of the Total Maximum Daily Load Approach to Reduce Water Pollution, Water Sciences and Technology Board, Division of Earth and Life Sciences, *Assessing the TMDL Approach to Water Quality Management* (Washington, DC: National Academy Press, 2001).
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41. See U.S. Department of Education, National Center for Education Statistics. Information available on the Internet at <http://www.nces.ed.gov>. U.S. EPA, *Indoor Air Quality Tools for Schools Kit*, 402-K-95-001. Available on the Internet at <http://www.epa.gov/iaq/schools>.
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