UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

APR - 9 1986

OFFICE OF
WATER

MEMORANDUM

SUBJECT: Interim Guidance Concerning Corrective Action for Prior and Continuing Releases - Underground Injection Control Program Guidance #45

FROM: Michael B. Cook, Director
Office of Drinking Water

TO: Water Division Directors
Water Supply Branch/Section Chiefs
UIC Representatives
Regions I-X

I. Overview.

This guidance describes how the Agency intends to implement the corrective action requirements in §3004 of RCRA (§206 of the HSWA) for injection wells. Because hazardous waste injection wells must be authorized by both RCRA and the Safe Drinking Water Act, the Agency's approach is extremely complex. Indeed, in most cases, the actual implementation of this guidance will require you to coordinate closely with the appropriate staff in the Waste Management Division to assure that the requirement is implemented effectively. In addition, Agency policy on some issues has not been made final and further guidance will be needed. Nevertheless, this guidance will explain the major policies and the areas of responsibilities associated with corrective action.

In this section, we present a broad overview of the major elements and policy decisions surrounding corrective action for injection wells. The discussions in sections II through XII address these elements in greater detail.

1. Authorization.

- A hazardous waste injection well must be authorized by both RCRA and the SDWA.

- A UIC permit issued after November 8, 1984 is a RCRA permit-by-rule only when corrective action requirements for all SWMUs are satisfied. In this case, the well has authorization

by "permit" under both RCRA and SDWA. The Agency will use this approach primarily where a UIC well is the only unit subject to RCRA at a site.

- In most other instances, a UIC permit will address corrective action for the well only. In this case, the well has authorization by permit for SDWA and it maintains interim status under RCRA (provided it is otherwise in compliance with interim status requirements).

2. A special case: Primacy States/Federal Permits issued after November 8, 1984, without Corrective Action Requirements.

- A "rider permit" containing Federally enforceable corrective action requirements will be required for any Federal permit issued after November 8, 1984, which does not contain corrective action requirements.

- A "rider permit" will also be issued for State permits until such time as a State has been delegated authority to administer §3004(u).

- No State has been granted such authority to date.

3. Implementation.

- As a general rule, corrective action requirements for the well will be applied through the UIC permit.

- The Water Division will implement §3004(u) for wells; the Waste Management Division will do so for other units.

II. This Guidance Explains How the Agency Intends to Implement the Corrective Action Requirements of the Hazardous and Solid Waste Amendments (HSWA) When Permitting Class I Injection Wells.

Section 206 of the Hazardous and Solid Waste Amendments (HSWA) of 1984 requires corrective action for all releases of hazardous waste or hazardous constituents at any solid waste management unit before a permit under Subtitle C of the Resource Conservation and Recovery Act (RCRA) may be issued. This requirement was discussed in detail in the final rule codifying the HSWA. See 50 Fed. Reg. 28702, 28711-28716 (July 15, 1985). Class I wells injecting hazardous waste require permits under Subtitle C of RCRA, and therefore, must comply with corrective action requirements. This guidance explains how these requirements affect UIC permitting activities for Class I wells.

III. Corrective Action Requirements Must Be Applied to All Solid Waste Management Units.

Section 206 of HSWA provides that:

> "Standards promulgated under this section shall require, and a permit issued after the date of enactment of the Hazardous and Solid Waste Amendments of 1984 by the Administrator or a State shall require, corrective action for all releases of hazardous waste or constituents from any solid waste management unit at a treatment, storage or disposal facility seeking a permit under this subtitle, regardless of the time at which waste was placed in such unit. Permits issued under section 3005 shall contain schedules of compliance for such corrective action (where such corrective action cannot be completed prior to issuance of the permit) and assurances of financial responsibility for completing such corrective action."

This provision is applicable to all RCRA permits issued after November 8, 1984, including RCRA permits-by-rule.

The new corrective action provision affects all solid waste management units (SWMU) which are within the property boundaries of a RCRA facility. SWMUs are defined as any waste management unit at a facility from which hazardous constituents might migrate, irrespective of whether the units were intended for the management of solid or hazardous wastes. SWMUs include landfills, surface impoundments, waste piles, tanks, waste handling areas, storage areas, incinerators, and injection wells. Each facility seeking a RCRA permit must (a) identify all solid waste management units at the facility; (b) submit information enabling EPA to determine whether there have been releases of hazardous wastes or constituents that have occurred or are likely to have occurred from those units; (c) demonstrate financial assurance for the estimated cost of corrective action; and (d) perform corrective action for releases where necessary to protect human health and the environment. See Final Codification Rule, 50 Fed. Reg. at 28711 to 28716. This provision applies to inactive and closed solid waste management units at such facilities, as well as to the operating units subject to permitting.

IV. Coordinate the Corrective Action Requirement with Permitting Activities.

Class I wells that are used to inject hazardous waste must have authorization under both the Safe Drinking Water Act (SDWA) and RCRA. A well has SDWA authorization either through a UIC permit (see 40 CFR 144 Subpart D) or authorization by rule (see 40 CFR 144 Subpart C). A well has RCRA authorization by either:

(a) qualifying for and maintaining RCRA interim status; (b) obtaining a UIC permit and meeting the requirements for a RCRA permit-by-rule established in 40 CFR 270.60(b)(as amended July 15, 1985); or (c) obtaining a RCRA Part B permit for all units including the operating well.

Until November 8, 1984, Class I hazardous waste wells permitted pursuant to the UIC program had both a UIC permit and a permit-by-rule under RCRA (see 40 CFR 270.60(b)). The permit-by-rule established conditions only for that part of the facility covered by the UIC permit -- i.e., the injection well unit from the well head down, including the tubular goods and the injection zone. Any surface hazardous waste management unit associated with the well required a separate RCRA permit.

However, under the Final Codification Rule for the HSWA, EPA will only issue new RCRA permits-by-rule which include schedules of compliance for corrective action for all SWMUs (unless the owner or operator has completed such corrective action prior to issuance of the RCRA permit). Amendments to the permit-by-rule regulation prohibit a UIC well from obtaining a RCRA permit-by-rule until the owner or operator submits schedules for corrective action for all SWMUs. See 40 CFR 278.60(b)(3) promulgated at 50 Fed. Reg. 28702, 28752, (July 15, 1985).

Because Class I wells and surface hazardous waste units are on different permitting schedules, there are significant questions concerning the timing and implementation of the corrective action requirement. The general problem involves a Class I well and other hazardous waste units in a RCRA facility which has RCRA interim status. The following examples illustrate EPA's permitting procedure for the corrective action requirement.

1. Well at a RCRA interim status facility obtaining a UIC permit.

This category also includes wells with UIC authorization by rule. In these cases, the well owner or operator should obtain a UIC permit which addresses corrective action for prior and continuing releases from the well and the injection zone. The well is authorized under the SDWA by the UIC permit and under RCRA by maintaining interim status 1/ (provided the owner or

---

1/ Under the State law in a State authorized to administer the UIC or RCRA program the issuance of a UIC permit may terminate the well's RCRA interim status. Regional program staff should request that the Office of Regional Counsel determine whether a UIC permit may be issued in a UIC primacy State without terminating the well's interim status. A Class I hazardous waste injection well operates in violation of RCRA if it has neither a RCRA permit (individual or by rule) nor RCRA interim status.

operator has complied with certain other requirements such as the certification required by §3005(e) of RCRA).

In these circumstances, the UIC permit will be the vehicle for implementing corrective action requirements for the well. Corrective action for the remaining SWMUs will be addressed when the facility submits a RCRA Part B permit application (or possibly an interim status corrective action order is issued under §3008(h)). When corrective action has been addressed for all SWMUs at the facility, the UIC well will be deemed to have a RCRA permit-by-rule until such time as the UIC permit expires.

2. Well is the only unit at the facility requiring a RCRA permit.

Where the well is the only hazardous waste management unit at the facility subject to a RCRA permit requirement, the owner or operator must obtain a UIC permit which meets the corrective action requirements of RCRA for all SWMUs at the facility. The UIC permit is then deemed to be a RCRA permit-by-rule. See 40 CFR 270.60(b)(3), promulgated at 50 Fed. Reg. 28702, 28752, (July 15, 1985). The information about SWMUs other than the well, should be submitted with the UIC permit application. Regional Water Supply Branch staff should coordinate with Regional RCRA staff to enable them to address corrective action for SWMUs other than the well.

3. Surface facility obtains a RCRA Part B permit prior to the well obtaining a UIC permit.

In this situation the RCRA Part B permit for the surface facility must address corrective action for all SWMUs - including the hazardous waste injection well. The corrective action information for the well described in section VIII of this memo should be submitted as part of the Part B application. The Waste Management Division should coordinate with the Water Supply Branch to develop corrective action requirements for releases from the well.

4. Renewal of UIC permit for the well prior to issuing a RCRA Part B permit for the surface facility.

This category involves permit renewal for operating wells with a UIC permit and RCRA permit-by-rule issued prior to November 8, 1984. There is a very limited number of UIC facilities that might be in this category. Agency policy is evolving, and the appropriate treatment for such units will be the subject of a later guidance.

V. Use of a Rider Permit to Apply Corrective Action Requirements.

Any State with RCRA permitting authority or UIC primacy must also receive specific authorization to administer the corrective action requirements of RCRA. In many cases, this will require the State to adopt legislation which provides authority to require corrective action before such authorization would be granted to the State. As of this time, no State has received this authorization. Absent such delegation, even though the State applies corrective action requirements, it does not satisfy the HSWA and the permit is not a valid RCRA permit. Section 227 of HSWA [RCRA §3006(c)(4)] gives EPA "authority in such a State [without HSWA authorization] to issue or deny permits or those portions of permits affected by the requirements and prohibitions established by the HSWA."

The Agency will implement the RCRA corrective action requirement in primacy States through the use of a joint Federal-State permit. The Federal portion, termed a "rider permit," will address the RCRA requirements that the State cannot address. Until a State receives authorization to administer all applicable sections of HSWA, only the combination of a State permit and a Federal permit constitutes a valid RCRA permit.

It is EPA policy that State and Federal portions of the RCRA permit issue simultaneously (See Reauthorization Statutory Interpretation #5 (RSI) signed April 8, 1985). States that issue UIC permits which do not have Federal rider permits issued concurrently should be aware that the State UIC permits will fulfill State law but they will not be RCRA permits: such wells will maintain interim status (unless State law terminates interim status) and the permit requirements will constitute interim status requirements. See 40 CFR 144.1(a) (UIC requirements for hazardous waste injection wells are RCRA requirements).

EPA will assign a high priority to these facilties, so that the Federal portion of the permit (requiring corrective action) can be issued as soon as possible, or a rapid determination can be made that corrective action is unnecessary. Such an approach will provide RCRA authorization, but for future permit actions, States and EPA should plan on simultaneous issuance of the State and Federal portions of the RCRA permit. EPA Regional Offices and the States are encouraged to work out cooperative agreements wherever the "rider-permit" is to be used.

In States where the Federal RCRA and UIC programs are Federally administered, the joint permit is not needed. EPA will incorporate the section 3004(u) corrective action requirements into the Class I permit (and any necessary RCRA permit).

Suggested language for the Federal portion of the UIC permit is being developed. As a general rule, we will require the Preliminary Assessment and Site Investigation to be completed prior to issuing a UIC permit. Indeed, in some cases, the information contained in a UIC permit application will be sufficient to move to the remedial investigation stage in the permit. (See also section IX, compliance schedules). The language will contain a clause specifically allowing a permit modification if more action is necessary in order to address a release to the environment. This boilerplate when available, may also be incorporated into EPA permits in Direct Implementation States. In all cases in which a compliance schedule is used for corrective action, financial responsibility for completing the corrective action must be addressed. Financial responsibility will be the subject of further guidance.

VI. Re-opener Clause.

All Class I hazardous well UIC permits issued after November 8, 1984, should include a "re-opener" clause. This clause allows the Federal or State permitting authority to change permit conditions, if necessary, to reflect the banning of any hazardous waste from the deep well injection pursuant to HSWA §§201(f) and (g) (3004 (f) and (g) of RCRA). A ban on deep well injection of certain hazardous waste through regulations operates regardless of whether the UIC permit reflects this ban or not, since a UIC permit is a shield only for the purpose of the SDWA. See 40 CFR 144.35. Thus, the purpose of this reopener clause is simply to maintain consistency between the SDWA and RCRA authorization.

VII. Definition of Release.

The agency is interpreting the term "release" broadly. Similar to the CERCLA definition, release will include any spilling leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping or disposing into the environment. The discharge of hazardous waste or constituents into the injection zone of a permitted or authorized Class I hazardous waste injection well is not a release for the purpose of this guidance.

VIII. Implementation of Corrective Action for Injection Wells to Apply to Releases from the Well and the Injection Zone.

The RCRA corrective action requirements for the well and injection zone will be carried out in three stages:

1) Preliminary Assessment/Site Investigation - to identify releases and to assess the need for corrective action

2) Remedial Investigation - to determine the nature and extent of contamination and to identify appropriate response measures

3) Selection and Performance of Corrective Action - the corrective action plan may be placed on a schedule of compliance and be made a condition of the permit.

Stage 1 is the preliminary assessment/site investigation
This is a "desk-top" evaluation similar to the CERCLA "Preliminary Assessment/Site Investigation". During this stage, the investigator will review information supplied by operators and gathered from State files. As a practical matter, the permit application will contain the information necessary to conduct the PA/SI stages of an investigation and much of the information needed to conduct the remedial investigation. The information to be considered will include but not be limited to:

a) available hydrologic data and all available ground-water and soil testing or monitoring data or related information
b) any citizen complaints on file
c) public hearing records
d) compliance history
e) well records, including: results of monitoring the annulus pressure, and injection flow rate, volume, and pressure; records of injection fluid characteristics and composition
f) all mechanical integrity test results
g) the completed permit application
h) any other helpful information from State, local, or Federal agencies, environmental groups, industry or any other interested party.

If all the information is complete and it fully demonstrates a well has been operated properly and has a good mechanical integrity record (or if the well is new) and there have been no releases, then the well passes the preliminary assessment and no further investigation is necessary. If, however, there is some evidence of a release or a lack of information on which to base a determination, a site inspection and further investigation in stage 2 will be required.

In assessing whether the information is adequate, two factors are important. First, is the information continuous, i.e., are there significant periods for which monitoring information can not be reviewed? Second, is the information sufficiently detailed, i.e., can the operator provide continous annulus pressure, data on mechanical integrity testing, and records of any two of the following: flow rate, pressure, or volume?

The stage 2 remedial investigation will begin with a full mechanical integrity test designed to find and pinpoint any leaks. If the well passes the test, it can be assumed that no releases are occurring. (Note: mechanical integrity tests will be performed as part of the UIC permitting activities). If well records or other information indicate a likely release, but the well has been repaired to regain mechanical integrity, the Regional Administrator nonetheless may require the installation of ground-water monitoring wells. This would determine the extent of the release if the repaired leak was located at a point which would have allowed fluids to enter an underground source of drinking water (USDW). If the well fails the test, then remedial action on the well should be performed and the well retested. In determining what corrective action is necessary, the investigator should consider the following: the age of the well, well construction, depth of the injection zone, separation of injection zone and lowest USDW, area of review, waste characteristics and quantity, the depth of release, the local environment, and the proximity of human populations. If necessary to determine the extent of a release, the Regional Administrator may require the installation of ground-water monitoring wells. After the release has been identified and the permitting authority has confirmed the need to perform corrective action, plans of corrective action should be developed and submitted to the Water Supply Branch for review. Remedial investigations to characterize the nature and extent of releases can be carried out under a schedule of compliance as part of a permit.

During stage 3, a plan for corrective action is selected and carried out. The corrective action may be carried out under a schedule of compliance that is part of a permit. The operator must make a demonstration of adequate financial responsibility to complete the corrective action. Such demonstration should be made at the time the remedy has been identified.

IX. Use of Compliance Schedules for Injection Wells.

One of the more controversial aspects of §3004(u) has been how and when to use compliance schedules in implementing corrective action requirements. Agency policy on this matter is still evolving; the Final Codification Rule at 50 Fed. Reg. pp 28714 - 28715, provided an explanation of how the Agency interpreted Congressional intent. The general framework established in that discussion remains valid.

In this section we will briefly outline that discussion and explain how, within the framework established, we intend to use compliance schedules for injection wells.

Corrective action can be viewed as a process which includes determining whether a leak has occurred, defining the extent of the release, developing appropriate remedial action plans, conducting the clean up, and performing follow-up monitoring. The main issue surrounding the use of compliance schedules has been the extent of corrective action that must be completed before a permit containing a compliance schedule may be issued. If we look at the cleanup activities in the conventional CERCLA framework the basic steps are:

- Preliminary Assessments/Site Investigations
- Remedial Investigation/Feasibility Study
- Implementation and follow-up activities.

There are two approaches when issuing permits containing compliance schedules: one applicable to "regulated units" 2/ and the other to SWMUs. The general Agency policy is that a permit containing a compliance schedule for ground-water releases from a regulated unit can only address construction, operation and maintenance, and post-response monitoring. Permits containing compliance schedules for SWMUs, however, may include the preliminary stages of the corrective action process.

Although injection wells are SWMUs, we intend to limit the use of compliance schedules in UIC permits. The technology used in injection wells is sufficiently different to warrant this approach. Unlike land disposal units, in general it is reasonably easy to determine whether a release has occurred from a well when good records are available. If appropriate testing was performed, the location of any past leak can also be ascertained relatively easily. The records necessary to make this determination include mechanical integrity tests and operating data (discussed in more detail in section VIII).

Since this data is available as part of a UIC permit application, it is usually not necessary to allow permits to contain compliance schedules beginning at the preliminary assessment stage. More typically, by the time a well is permitted it can be determined whether a leak <u>may</u> have occurred. Thus, as a general rule UIC permits should not be issued until a PA and (if necessary) an SI has been completed, or a finding has been made that corrective action is not necessary.

Compliance schedules in UIC permits should begin with the development of remedial investigation plans. In some circumstances, data may not be complete, and the permit writer will not be able to establish whether a release has or has not occurred.

2/ A "regulated" unit is defined as a landfill, surface impoundment, waste pile or land treatment unit that received hazardous waste after July 26, 1982.

(A permit must not be issued for a well that is known to be leaking. Section 146.13 requires that all wells have mechanical integrity prior to receiving a permit). In these instances, it may be appropriate to formulate a compliance schedule that seeks to provide such information.

X. Notification to Class I HW Operators.

Notice should be sent to each Class I HW injection well operator who did not receive a final UIC permit prior to November 8, 1984. This notice should provide a general explanation of our policy on corrective action requirements, and should note that additional information must be submitted in order to satisfy the requirement. (See RSI #3 and the proposed regulations under §270.14(d)). We recommend that, in most cases, applicants who have already submitted their Class I permit applications should be given about 45 days to submit this information. Failure to submit this data could be grounds for permit denial. The Regions may also wish to cite 40 CFR 144.27, which allows the Regional Administrator to establish a date after which an operator's authorization to inject will terminate unless the information requested is submitted on time.

XI. What Is Appropriate Corrective Action?

In accordance with the legislative history of the HSWA, EPA will require corrective action at all sites where necessary to protect human health and the environment. See 40 CFR 264.101, Final Codification Rule, 50 Fed. Reg. at 28713. In the case of injection wells, a release could possibly occur into a USDW or into a non-USDW. Because the standard for cleanup under §3004(u) of RCRA is protection of human health and the environment, releases from injection wells into non-USDWs may be subject to corrective action requirements. In the case of a release into a non-USDW which would not pose a threat to either human health or the environment, corrective action to clean up the wastes may not be necessary beyond repair of the well. Of course, a release to a non-USDW in certain cases may endanger a USDW, human health or the environment. In such cases, corrective action would be required. The corrective action should remove these threats.

XII. Financial Responsibility.

Congress has directed EPA to require financial assurance for the costs of completing any corrective action. This is especially important when the corrective action is carried out under a schedule of compliance.

The owner or operator must demonstrate financial assurance for the costs of completing any corrective action once the corrective measures and estimates of costs have been identified. The acceptable mechanisms for showing adequate finances are:

a) Financial test
b) Letter of Credit
c) Trust Funds
d) State-Required Mechanisms
e) Surety Bonds Guaranteeing Performance
f) Combinations of the above.

The mechanisms shall remain in effect until EPA deems the corrective measures successful.

XIII. Distribution and Use of this Guidance.

Regional Offices should use this guidance in administering UIC programs where EPA has primary enforcement responsibility. Further, Regional Offices should make this guidance available to States with primacy and those States working towards primacy and advise the State director that these interpretations represent EPA policy.

XIV. Filing Instructions.

This guidance should be filed as Underground Injection Control Program Guidance No. 45.

XV. Action Responsibility.

For further information on this guidance contact:

Thomas E. Belk
U.S. EPA
Office of Drinking Water (WH-550)
401 M Street, S.W.
Washington, D.C. 20460
(202) 382-5530