



Office of Inspector General

Audit Report

RCRA CORRECTIVE ACTION

RCRA Corrective Action Focuses on Interim Priorities -- Better Integration with Final Goals Needed

2000-P-0028

September 29, 2000

**Inspector General Division(s)
Conducting the Audit
Contributors**

**Headquarters Audit Division
Washington, DC
Christina Lovingood
Sheila May
Mike Prater**

Region(s) covered

Regions 4, 5, and 6

Program Office(s) Involved

**Office of Solid Waste and Emergency Response:
Office of Solid Waste
Office of Enforcement and Compliance Assurance:
Office of Site Remediation Enforcement**

MEMORANDUM

SUBJECT: RCRA Corrective Action Focuses on Interim Priorities --
Better Integration with Final Goals Needed
Audit Report No. 2000-P-0028

FROM: Mike Prater, Audit Manager
Headquarters Audit Division

TO: Timothy Fields, Jr.
Assistant Administrator
for Solid Waste and Emergency Response

Steven A. Herman
Assistant Administrator
for Enforcement and Compliance Assurance

Attached is the subject audit report for our review of RCRA corrective action permits and orders used to achieve environmental indicators. We issued our draft report on August 10, 2000. The draft was entitled "RCRA Corrective Action Focuses on Interim Results, Broader Implementation of GPRA Needed." The response to the draft is included in Appendix 7 of the attached report, which contains findings that describe problems the Office of Inspector General (OIG) has identified and corrective actions the OIG recommends. This audit report represents the opinion of the OIG and the findings contained in this audit report do not necessarily represent the final EPA position. Final determinations on matters in this audit report will be made by EPA managers in accordance with established audit resolution procedures. Accordingly, the findings described in the audit report are not binding upon EPA in any enforcement proceeding brought by EPA or the Department of Justice.

We would appreciate a response to the report within 90 days of the report date. The response should include an action plan with milestone dates for corrective actions planned but not completed. Should you or your staffs have any questions, please contact Christina (Tina) Lovingood or Sheila May of the Headquarters Audit Division on (202) 260-5105 and (202) 260-5115, respectively; or Carol Jacobson, OIG Audit Liaison, on (202) 260-7604.

Attachment

EXECUTIVE SUMMARY

INTRODUCTION

The Resource Conservation and Recovery Act (RCRA) Corrective Action (CA) Program's goal is to minimize the federal cleanup burden by having current operating facilities clean up their hazardous waste contamination, thereby preventing the RCRA facilities that pose the greatest risk from becoming Superfund sites. Past and present activities at RCRA facilities have sometimes resulted in releases of hazardous substances into soil, groundwater, surface water, and air. In the 1984 Hazardous and Solid Waste Amendments (HSWA) to RCRA, Congress directed EPA to require CA for all releases of hazardous waste and hazardous constituents at facilities seeking RCRA permits. Although the CA program has been in effect since 1984, concerns have been raised that companies are not cleaning up their facilities quickly enough, therefore posing risks to public health and the environment.

As part of the process to formulate EPA goals to achieve outcomes under the Government Performance and Results Act (GPRA), CA officials identified 1,712 high priority baseline facilities needing CA as of April 1999. (As of January 2000, the baseline consisted of 1,714 facilities. However, we sampled from the universe of 1,712 facilities and will be referring to the 1,712 facilities throughout this report.) The current focus of the CA program is to achieve two environmental indicators (EI) by 2005: (1) current human exposures under control and (2) migration of contaminated groundwater under control. These EI are intermediate outcomes of progress made toward the ultimate EPA GPRA goal of restoration. To initiate progress toward the achievement of EI, the Agency requires CA through permits and orders that should include schedules for the CA. In February 1999, the then Acting Assistant Administrator for the Office of Solid Waste and Emergency response (OSWER) emphasized the need to achieve the newly established GPRA goal and made CA his highest priority for the RCRA program.

OBJECTIVES

Our objectives were to answer the following questions.

1. Could the overall implementation of GPRA for the CA program be improved?
2. Have the high priority facilities initiated CA or have states or EPA compelled CA in permits, orders, etc., and are the actions effective (have the EI been achieved)?
3. Do states encounter obstacles to effective CA? Are those obstacles different from EPA's?
4. Have states or EPA planned for sufficient resources to achieve the GPRA goal of 2005 and the intermediate goals?
5. Is EPA receiving timely and accurate information necessary for monitoring progress made toward the GPRA goal?

RESULTS IN BRIEF

The CA program currently focuses on interim environmental results, but broader implementation of GPRA is necessary. By 2005, the CA program plans to have current human exposures and contaminated groundwater migration under control at 95% and 70%, respectively, of the 1,712 high priority baseline facilities. To achieve the interim goals, EPA has issued guidance on how to support the accomplishment of the EI, provided training for CA officials to emphasize a more flexible approach in the cleanup process, and monitors progress made toward achieving the EI. Although the EI are good interim measures of progress, the ultimate GPRA goal of the CA program is to restore sites to uses appropriate for surrounding communities. CA officials interpret restore in this context to mean that cleanup goals for final remedies have been achieved.

The CA program could more effectively achieve GPRA outcomes by: providing a clearer definition of restoration in the context of site cleanup, developing an EI for final remedies that addresses ecological protection, emphasizing the need for an effective reference and rationale for each EI determination, making the EI documentation available to

other regulators and the public, and providing guidance on how the EI determinations should be reevaluated.

The Resource Conservation and Recovery Act Information System (RCRIS) indicates that CA began at a majority of the baseline facilities when EPA required (imposed) the RCRA facility investigation (RFI) in permits or orders. (For the three regions we visited, we reviewed the documentation supporting the RFI imposition. Even though the dates did not always match, the documentation generally supported the fact that the RFI had been imposed.) The baseline facilities are a list of hazardous waste facilities that will be used to measure the environmental progress of the CA program. Where CA has not begun, Agency and authorized state officials are developing site-specific plans to do so. However, some regional and state officials are concerned that several obstacles may prevent EPA from achieving the EI, and potential risk to human health and the environment may continue to exist. Early actions to mitigate the obstacles that EPA can control will be key in achieving the EI by 2005.

CA officials believe they have sufficient resources to address the CA baseline sites, but state resources appear to be limited. In addition, EPA has not specifically aligned its existing grants allocation formula with its GPRA initiatives. Therefore, authorized states that need the resources may not be receiving them. Also, because the resources may not be distributed properly, EPA may not be able to rely on the states' ability to achieve the EI, and thus meet the GPRA cleanup goal of restoration for CA. However, CA officials are expecting an increase in grant funding beginning in fiscal year 2001. This new funding is planned to be allocated according to the number of baseline facilities.

EPA needs to closely monitor the GPRA progress reported in RCRIS because the system does not indicate the date(s) when EI determinations are entered to reflect current and complete EI determinations. Also, the dates EI were accomplished were not always accurately reflected in RCRIS, nor was the EI documentation always available. Because EPA cannot determine the timeliness of the data

reported, and because of the inaccurate or unsupported EI information in RCRIS, EPA or CA officials may not be able to rely on RCRIS for monitoring progress toward the GPRA goal.

RECOMMENDATIONS

We recommended that the Assistant Administrator for Solid Waste and Emergency Response initiate actions to:

- clarify the GPRA goal of restoration, develop an EI for final remedies that addresses ecological protection;
- share EI documentation with regulators and the public;
- clearly document an effective EI reference and rationale;
- develop guidance for periodically reevaluating EI;
- minimize obstacles to achieving the EI goal for 2005;
- address resource concerns by routinely evaluating whether states have sufficient resources for implementing the CA program; and,
- improve the reporting of data into RCRIS.

AGENCY RESPONSE

We received the Agency's response on September 28, 2000, to our draft report. The OSWER officials agreed with all of our recommendations.

ABBREVIATIONS

BIF	Boiler and Industrial Furnace
BYP	Beginning-of-the-Year Plan
CA	Corrective Action
CAWL	Corrective Action Workload
DoD	Department of Defense
DoE	Department of Energy
EI	Environmental Indicator
EPA	Environmental Protection Agency
FMFIA	Federal Managers' Financial Integrity Act
GAO	General Accounting Office
GPRA	Government Performance and Results Act
HSWA	Hazardous and Solid Waste Amendments
NCAPS	National Corrective Action Priority System
NRC	Nuclear Regulatory Commission
OECA	Office of Enforcement and Compliance Assurance
OIG	Office of Inspector General
OSWER	Office of Solid Waste and Emergency Response
RCRA	Resource Conservation and Recovery Act
RCRIS	Resource Conservation and Recovery Act Information System
RFI	RCRA Facility Investigation
SWMU	Solid Waste Management Unit

THIS PAGE INTENTIONALLY LEFT BLANK

TABLE OF CONTENTS

	<u>Page</u>
EXECUTIVE SUMMARY	i
ABBREVIATIONS	v
CHAPTER 1: INTRODUCTION	1
OBJECTIVES	1
BACKGROUND	2
SCOPE AND METHODOLOGY	7
CHAPTER 2: CA FOCUSES ON INTERIM ENVIRONMENTAL RESULTS; BROADER IMPLEMENTATION OF GPRA NEEDED	9
EI ARE GOOD MEASURES OF THE STATE OF THE ENVIRONMENT	9
IMPROVED EI DOCUMENTATION COULD STRENGTHEN CA CREDIBILITY .	12
RECOMMENDATIONS	18
CHAPTER 3: CA COMPELLED IN PERMITS OR ORDERS AT MOST SITES, BUT CONCERNS FOR ACHIEVING THE GPRA GOAL REMAIN	21
CA INITIATED AT MOST BASELINE FACILITIES	21
RCRIS INDICATES THAT CA PROGRAM CURRENTLY ON TRACK TO ACCOMPLISH THE EI; SOME ENVIRONMENTAL ACTIONS TAKEN ..	22
OBSTACLES MAY PREVENT ACCOMPLISHMENT OF THE EI	24
RECOMMENDATIONS	29
CHAPTER 4: EPA OFFICIALS BELIEVE RESOURCES ARE GENERALLY SUFFICIENT, BUT STATE RESOURCES MAY BE LIMITED	31
SOME STATE RESOURCES MAY BE LIMITED	31
OUTDATED GRANTS ALLOCATION FORMULA MAY BE CAUSING RESOURCES TO BE MISALLOCATED	34
RECOMMENDATIONS	36
CHAPTER 5: CLOSER MONITORING OF GPRA PROGRESS NEEDED	39
RCRIS DOES NOT INDICATE WHEN EI ENTERED; TIMELINESS UNDETERMINABLE	39
EI INFORMATION IN RCRIS NOT ALWAYS RELIABLE	40
RECOMMENDATIONS	42

APPENDICES

45 Appendix 1 - Scope, Methodology and Prior Audit Coverage

Appendix 2 - Examples of Acceptable Reference and Rationale 50

Appendix 3 - Examples of Unacceptable Reference and Rationale. 63

Appendix 4 - Accuracy of Region 4 Positive EI Determinations 79

Appendix 5 - Accuracy of Region 5 Positive EI Determinations 83

Appendix 6 - Accuracy of Region 6 Positive EI Determinations 85

Appendix 7 - Agency Response

87 Appendix 8 - Distribution List

89

CHAPTER 1

INTRODUCTION

The goal of the Resource Conservation and Recovery Act (RCRA) Corrective Action (CA) Program is to minimize the federal cleanup burden by requiring current operating facilities to clean up their hazardous waste contamination, thereby preventing the RCRA facilities that pose the greatest risk from becoming Superfund sites. The companies that perform cleanups under the CA program include, among others, chemical manufacturers and waste disposal companies. Past and present activities at RCRA facilities have sometimes resulted in releases of hazardous substances into soil, groundwater, surface water, and air. As part of the process to formulate EPA goals to achieve outcomes under the Government Performance and Results Act (GPRA), RCRA officials identified 1,712 high priority baseline facilities that need CA. The current focus of the CA program is to achieve two environmental indicators (EI) at the 1,712 baseline facilities by 2005: (1) current human exposures under control and (2) migration of contaminated groundwater under control. The EI are interim outcomes of progress toward the ultimate GPRA goal of restoring the baseline facilities. To initiate progress toward the achievement of the EI, EPA or authorized states can require CA through permits or orders which should include schedules for CA.

OBJECTIVES

In response to a request from the EPA Office of Enforcement and Compliance Assurance (OECA), we performed this review to determine whether the EI are being achieved timely.

Specifically, we sought to answer the following questions.

1. Could the overall implementation of GPRA for the CA program be improved?

2. Have the high priority facilities initiated CA or have states or EPA compelled CA in permits, orders, etc., and are the actions effective (have the environmental indicators been achieved)?
3. Do states encounter obstacles to effective CA? Are those obstacles different from EPA's?
4. Have states or EPA planned for sufficient resources to achieve the GPRA goal of 2005 and the interim goals?
5. Is EPA receiving timely and accurate information necessary for monitoring progress made toward the GPRA goal?

We developed the objectives based on discussions with OECA and Office of Solid Waste and Emergency Response (OSWER) officials.

BACKGROUND

Purpose of the CA Program

In the 1984 Hazardous and Solid Waste Amendments (HSWA) to RCRA, Congress directed EPA to require CA for all releases of hazardous waste and hazardous constituents from solid waste management units (SWMU) at facilities seeking RCRA permits. Congress also expanded EPA's authority to address cleanup at permitted RCRA hazardous waste management facilities for releases beyond facility boundaries. Although the CA program has been in effect since 1984, concerns have been raised that companies are not cleaning up their facilities quickly enough and that properties remain contaminated, posing risks to public health and the environment. Since fiscal year (FY) 1996, EPA has provided about \$16 million annually in grants to states and tribes for the oversight of cleanup at RCRA facilities. EPA has also supplemented this figure with an additional \$8.8 million annually bringing the total amount of grant funding (for RCRA cleanups) to states and tribes for the past four years (since FY96) to about \$100 million.

EPA's Early Attempts to Speed Up CA, GPRA, and the Development of the CA EI

RCRA Implementation Study and the Stabilization Initiative

RCRA conducted the RCRA Implementation Study and issued a report in July 1990. The report recommended that the RCRA CA program use more frequent interim actions to achieve near term environmental results at facilities with the most serious problems. While final cleanup was the long term goal for the CA program, the study emphasized the importance of controlling releases and stabilizing sites to prevent further spread of contamination as the first phase of CA. Stabilization means that the CA program would take whatever action was necessary at as many facilities as possible to address actual exposures (imminent risks) and to prevent the further spread of contamination.

In 1991, the Agency established the Stabilization Initiative as one of the primary objectives for the CA program. The goal of the Stabilization Initiative was to increase the rate of CA by focusing on near term activities to control or abate threats to human health and the environment and to prevent or minimize the further spread of contamination. Controlling exposures or the migration of a release may have stabilized facilities, but this stabilization would not necessarily mean that facilities were completely cleaned up. Stabilization actions were intended to be a component of, or at least consistent with final remedies.

GPRA Requirements and the Goal for CA

In 1993, Congress passed GPRA, which required the federal government to establish measurable and quantitative goals and objectives to clearly define outputs or outcomes. To achieve its mission, EPA's Strategic Plan lists 10 goals. The restoration of contaminated waste sites is addressed within Goal 5 and applies to EPA's cleanup programs including Superfund, RCRA, and the Underground Storage Tank Program. Goal 5 stresses the need for continued work to clean up polluted sites, restoring them to uses appropriate for surrounding communities and responding to and preventing waste related-industrial accidents. Improper hazardous waste

disposal could result in the contamination of groundwater and can be harmful to people who live in nearby communities. EPA's effort for all of its cleanup programs to achieve Goal 5 is centered on protecting human health and the environment by applying the fastest, most effective waste management and cleanup methods available. However, EPA has emphasized a flexible, facility-specific approach to RCRA CA which is needed to account for the variety of CA facilities.

RCRA CA officials believe the ultimate goal for CA is to achieve final remedies appropriate for reasonably anticipated future land use. Officials also believe that the term restoration may not be appropriate for the RCRA CA program because many RCRA facilities will be operating waste management facilities that will continue into the foreseeable future. CA officials plan to work with OSWER's and OECA's Strategic Plan liaisons to examine the term restoration as it applies to CA. For the purpose of this report, we will continue to use the term restoration as the ultimate goal for the CA program because it is not the role of the OIG to define restoration for any of OSWER's programs.

Early Development of EI

Stakeholders continued to raise concerns that the CA program focused on the processes of cleaning up sites instead of environmental outcomes. Therefore, because of GPRA requirements and based on EPA's work on the Stabilization Initiative, in 1994, EPA moved the CA program from focusing on steps in the cleanup process to the achievement of environmental outcomes, or the EI. The RCRA CA program developed two specific EI: (1) human exposures controlled determination, and (2) groundwater releases controlled determination. The human exposures controlled EI is attained when there is no unacceptable risk to humans due to releases of contaminants at or from a facility subject to CA. The groundwater releases controlled EI is attained when the migration of groundwater contamination at or from a facility is controlled across its designated boundaries. These EI were not tied to specific program activities or paperwork deliverables. To support the EI, EPA or state program managers were to prepare a document signed by a Branch Chief or above and enter it into the administrative

file for the facility. The document should state that human exposures or groundwater releases controlled determination had been made, or that a previous determination was no longer applicable, and provide a basis for the determination.

Current EI

In February 1999, the then Acting Assistant Administrator for OSWER emphasized the need to achieve GPRA cleanup Goal 5, and made CA his highest priority for the RCRA program. Concurrently, EPA issued new guidance on EI to help focus program activities on observable, near-term improvements in environmental conditions (outcomes) that were site-wide. The priority and guidance de-emphasized procedural, document-based, or partial-facility milestones of program progress, such as the RCRA facility investigation report (RFI). The RFI (part of the CA process which is contained in RCRIS) is an assessment of potential releases of hazardous waste and can be required from EPA or an authorized state either through a permit or an order.

EPA defined two new EI and created forms to document the accomplishment of EI. The two EI are: (1) current human exposures under control and (2) migration of contaminated groundwater under control. When EPA or authorized state officials complete an EI evaluation, they are to enter the results in the Resource Conservation and Recovery Act Information System (RCRIS). Because EI focus on results, they serve as outcome performance measures for remedial activities. These EI are also designed to aid RCRA site decision makers by clearly showing where risk reduction is necessary, thereby helping regulators and facility owners/operators reach an earlier agreement on measures needed to stabilize a facility. RCRA CA officials believe that the current EI demonstrate EPA's, "flexibility in working with the state partners rather than pushing states directly toward the ultimate goal of final cleanup."

Development of CA GPRA Baseline

EPA developed the GPRA baseline of hazardous waste facilities to meet the CA program's GPRA goal. This list of facilities will be used to measure the environmental progress of the CA program. The baseline was developed from the National RCRA CA Priorities Initiative and each facility was given an initial ranking with input from the states. Most facilities were ranked based on information in the

RCRA Facility Assessment report. The ranking tool took into account (1) type and design of waste management unit, (2) volume of waste, (3) waste toxicity, and (4) likelihood of releases to the environment. Other factors included (1) depth to groundwater, (2) groundwater use, (3) distance to surface water, (4) nearest drinking water intake, (5) nearest sensitive environment, and (6) nearby pollution.

The baseline is comprised of facilities in the CA workload universe (a list of facilities that were actively seeking a permit to operate as a treatment, storage, or disposal facility or sites that were undergoing cleanup) which have, or had at one time, a high National CA Priority System (NCAPS) ranking. Optional facilities were added to the baseline for the purpose of measuring program progress and may have included facilities that were not ranked high at the time the baseline was created, but were identified as high NCAPS in the past. Officials believed these facilities best show the improvement due to CA activities and should not be left out of the GPRA baseline. The individually named high-priority baseline facilities are expected to remain on the baseline through 2005 and will not change unless absolutely necessary. EPA officials allowed states to add additional facilities, up to 15% of their total GPRA baseline, as another example of EPA's flexibility with respect to recognizing state interests and EPA's longstanding policy of partnering with states to address RCRA CA." The added facilities were to be priorities for the states and regions due to significant reasons, such as environmental justice, brownfields, etc. The CA GPRA baseline was finalized and published on July 8, 1999, as part of EPA's RCRA Cleanup Reforms Initiative.

RCRA Cleanup Reforms

In July 1999, the CA program focused on cleanup reforms, which are designed to achieve faster, more flexible cleanups at RCRA facilities that treat, store, or dispose of hazardous waste and have potential environmental contamination. The RCRA Cleanup Reforms are EPA's comprehensive effort to address the key impediments to cleanups, maximize program flexibility, and spur progress toward a set of ambitious national cleanup goals. The national cleanup goals focus on the 1,712 RCRA baseline facilities that warrant attention over the next several years because of the

potential for unacceptable exposure to pollutants and/or for groundwater contamination.

To speed cleanup, EPA also developed alternatives to help facilitate a results-based approach so that the EI can be achieved sooner than if the traditional CA process had been used. For example, EPA has recently begun to enter into voluntary agreements with facilities. Rather than going through what can be a multi-year process of obtaining a permit and then beginning cleanup, EPA is encouraging facilities to perform cleanup with minimal oversight. With signed voluntary agreements, facilities can begin cleanup more promptly than they would have if they had obtained a permit. EPA retains the right to order CA, should the facilities become unwilling or unable to complete the CA. Another alternative to the CA process has been States' use of state Superfund-like authorities to clean up RCRA facilities.

SCOPE AND METHODOLOGY

We conducted this review from August 1999 to May 2000. To accomplish our objectives, we conducted fieldwork in Headquarters OECA and OSWER and in Regions 4, 5, and 6. During the accomplishment of our objectives, we considered the overall implementation of GPRA for the CA program. The examination of the overall implementation included: the GPRA goal, the EI, obstacles to successful achievement of the EI, source documentation, RCRIS data accuracy (for the EI), resources allocated to achieve the EI, and management oversight.

We performed our review in accordance with the U.S. General Accounting Office (GAO) Government Auditing Standards, issued by the Comptroller General of the United States (1994 Revision.) Appendix 1 presents additional information on the scope, methodology, and prior audit coverage.

THIS PAGE INTENTIONALLY LEFT BLANK

CHAPTER 2

CA FOCUSES ON INTERIM ENVIRONMENTAL RESULTS; BROADER IMPLEMENTATION OF GPRA NEEDED

By 2005, the CA program plans to have current human exposures and contaminated groundwater migration under control at 95% and 70%, respectively, of the 1,712 high priority baseline facilities. Accomplishing these EI is the highest priority for the RCRA program. Overall, the CA program has underscored this priority by: (1) providing guidance on how to support the accomplishment of the EI , (2) conducting training in each region and its plans to adapt the training to be available to all stakeholders via interactive Internet, (3) following up on the training with regional and state visits, and (4) encouraging flexibility in the cleanup process through its cleanup reforms. In addition, Headquarters officials are closely monitoring continued progress toward the accomplishment of the indicators.

While the EI are good interim measures of progress, the ultimate GPRA goal of the CA program is, "Restoration of Contaminated Waste Sites...to uses appropriate for the surrounding communities." The CA program could more effectively achieve GPRA outcomes by: providing a clearer definition of restoration to stakeholders, developing an EI for final remedies that addresses ecological protection, emphasizing the need for an effective reference and rationale for each EI determination, making the EI documentation available to other regulators and the public, and providing guidance on how often the EI determinations should be reevaluated. Chapters 3 through 5 will also discuss ways GPRA could be more effectively implemented.

EI ARE GOOD MEASURES OF THE STATE OF THE ENVIRONMENT

CA officials have developed two good interim EI that measure the current state of the environment at RCRA facilities: (1) current human exposures under control and (2) current contaminated groundwater migration under control. Unlike other EPA programs which, have performance measures that are process-oriented and measure the completion of an output or step in a process, CA measures

environmental results or status. In fact, the U.S. General Accounting Office (GAO) credits the CA program for using outcome performance measures where other EPA programs use output measures. Also, Congressional officials expect other EPA programs, such as the Superfund program, which uses process-oriented measures, to emulate the CA program by implementing similar risk-based EI.

The CA program has been working since 1994 to develop EI that are designed to measure the environmental status of facilities undergoing CA. Through the use of the EI - - human exposures controlled and groundwater releases controlled - - the program could report on actual environmental accomplishments of cleanup activities rather than focusing strictly on process events. In February 1999, EPA refined its definition of the environmental indicators and created new forms to document achievement of the indicators.

To help achieve CA goals, CA officials conducted a series of training events called the RCRA CA Workshop to emphasize a more flexible cleanup approach that will allow timely completion of the EI and to instruct regional, state, and responsible party officials on how to use the new EI guidance to evaluate and document whether or not current human exposures and migration of contaminated groundwater are under control. To underscore the training, Headquarters officials are also visiting regions and states to emphasize the importance of achieving the EI. CA officials will also place a priority on authorizing additional states to implement CA or enhancing work sharing arrangements with states that are not authorized for the program. Finally, Headquarters and regional officials are emphasizing that the EI are only an interim step toward the ultimate GPRA goal of “restoring” each site.

**Goal of “Restoration”
Needs to Be Clarified**

While CA program officials are emphasizing that the two EI are only interim steps toward the goal of restoration, they (and Superfund officials) could improve implementation of GPRA by clarifying the ultimate goal of “Restoration.” While we commend Agency officials for their efforts to achieve the interim EI, and their emphasis on final cleanup, we are concerned that the GPRA goal of “restoration of contaminated sites” may not be clear. Restoration could

mean (1) cleanup so that unrestricted access and unlimited use is allowed, (2) limiting access with institutional controls, (3) completion of work specified in an order or agreement, or (4) redevelopment of property or reuse of land for beneficial purposes, such as a golf course. Without a clear definition of what restoration means or an indicator to mark restoration, and the emphasis on the *interim* step of EI accomplishment, some stakeholders may be interpreting the message that the final remedy is not the ultimate goal. For example, to accomplish the EI at one facility, officials in one region suspended review of corrective measures studies or other reports to further the cleanup process at another facility. As another example, when a RCRA facility investigation would be performed, the investigation may be suspended and resources directed to determine whether humans were exposed at the facility so that the EI could be accomplished. The short-term goal of achieving the EI was the focus instead of restoration.

By clarifying and emphasizing the ultimate goal of restoration, EPA would help motivate facility owners and operators (or responsible parties) to complete cleanup by knowing when they will be finished with the CA or cleanup process.

Addition of An Ecological Environmental Indicator

In addition to clearly defining restoration, we believe that an ecological environmental indicator is needed to more fully balance and measure progress toward the ultimate goal of restoring RCRA facilities. An ecological environmental indicator is a measure that characterizes an ecosystem or one of its critical elements. The officials believed it was ironic that the current interim EI were called “environmental” indicators when the environment (other than groundwater or surface water affected by groundwater) was not considered. For example, the guidance does not address effects on non-human receptors that might be affected by contamination, but does indicate that an environmental indicator for these receptors will be developed in the future. Regional officials believed that the reason ecological environmental indicators were not considered was because ecological indicators take too much time to address.

EPA managers agreed that an ecological indicator is needed, and have created a task force to discuss the development of an ecological indicator. However, the task force has no firm plans to develop the ecological indicator at this time. We recognize the complexity of the development of an ecological indicator, and do not intend that its development detract from the achievement of the current EI by 2005. However, we agree that an ecological indicator needs to be developed to more fully balance progress toward the goal of restoration.

**IMPROVED EI
DOCUMENTATION
COULD STRENGTHEN
CA CREDIBILITY**

To complement improvements to the GPRA goal of restoration and the EI, CA officials could strengthen the credibility of the EI determinations. RCRA officials could: (1) clarify the EI guidance and make the EI documentation available to regulators and the public, (2) emphasize the need for an effective reference and rationale for each environmental indicator determination, and (3) emphasize in new guidance, training, and routine interactions that EI determinations are meant to reflect current conditions. By improving the EI documentation and sharing it, EPA officials will be held more accountable for the decisions that are made and the documentation may be more consistent nationwide. EPA officials will also be able to provide congressional customers and other stakeholders with more reliable support for the environmental results it has achieved while working to restore sites.

**Share EI Determinations
Internally and Publicly**

Our first concern about the EI documentation is that it was not always available because state officials were reluctant to share the documentation. Some officials were uncomfortable with their understanding of the guidance and not all of the state officials attended the CA workshop training. As a result, Agency officials may not be able to account for all of the environmental results they have achieved while working toward the GPRA goal, and EI documentation may not be consistent. By sharing the EI documentation internally, EPA and authorized state officials could benefit from each other's technical expertise. Also, sharing the EI forms publicly could encourage more activity by regulators and industry officials and would also be consistent with the Agency's efforts to enhance public access to EPA documents to which the public is entitled.

EI documentation was not always available because state project managers were reluctant to share the information since they were not comfortable with how the EI forms should be completed, or they were using interpretations not in the guidance. One of the reasons state managers were reluctant to provide the EI documentation was because of a lack of training. Some state officials did not have the opportunity to attend the CA workshop training. EPA was able to pay for three officials from each state to attend the course.

Training notwithstanding, some state project managers are having difficulty understanding EPA's definitions and do not understand the CA guidance. As a result, state officials are completing the forms inconsistently or using interpretations not in the guidance. For example, some state officials are uncomfortable in making "current" determinations. When EI determinations are made, they should remain in RCRIS only as long as they remain true (i.e., the determinations must be changed in RCRIS when the regulatory authorities become aware of contrary information). Other state officials have indicated they will only complete the EI documentation when the determination for the environmental indicator is final.

Since February 1999, the Agency has been stressing the importance of completing the EI. Because this commitment is relatively new, and because EPA officials recognize that the learning curve for fully understanding and completing the EI documentation is high, Headquarters officials are not asking state officials to go back and complete documentation for the EI that were accomplished prior to the guidance in February 1999. However, Headquarters officials do expect states to complete the EI documentation when they reevaluate each EI determination.

To help state officials better learn how to complete the EI evaluation forms and understand the guidance, regional staff are clarifying guidance during visits with state officials. Regional officials plan to use these visits as an educational opportunity so that regions and states consistently complete EI documentation. In addition, CA officials held an EI Forum to discuss in detail EI guidance. EPA could help clarify the EI guidance by developing a list of frequently

asked questions and answers about the guidance. Another way state officials could also make the completion of the EI forms consistent would be to share the completed forms electronically. Since EPA intended in its guidance to facilitate more consistent determinations across the regions and states, and with the GPRA deadline of 2005 fast approaching, sharing the EI forms early will be crucial in helping the Agency meet its GPRA goal. Sharing the completed EI forms internally and with authorized states would also strengthen accountability because project managers may be more careful in completing the forms knowing that the forms were available to other technical experts.

After more consistency in completing the EI forms has been established, EPA may also share the EI forms publicly. One regional official believes that the EI forms were not intended to be public documents because the forms may require technical assistance to be understood. However, because achievement of EI is a GPRA commitment and Congress relies on the information in each EI determination, the public has the right to know and easily understand the rationale for the decisions made by EPA or authorized states.

Emphasize Importance of Effective Reference and Rationale

Our second concern about EI documentation was that some of the EI documents we reviewed contained insufficient references or unclear explanations of how the EI determinations were made because the guidance is not specific about the details needed for a reference and does not emphasize the need for a rationale. Rather, the "Rationale" portion of the forms *can be* [emphasis added] filled in to explain unique situations to any length necessary. In its guidance, EPA required the minimal level of documentation to ensure that the determinations will be verifiable. However, without an effective reference and rationale, a reader is not able to clearly understand how the EPA or state project manager came to the conclusion that current human exposures or contaminated groundwater migration were under control. Understanding how the determinations for the EI were made is crucial for verifying the accomplishments made toward achieving the GPRA goal.

In addition, some EI documentation included incomplete or technical references and rationale to support the project managers' conclusions. For example, documentation for one EI said, "RCRA Facility Investigation [RFI] Report" in the reference and rationale portion and did not explain how EPA determined that the human exposures were under control. The documentation did not explain how EPA determined that the pathways (groundwater, indoor air, surface soil, surface water, sediment subsurface soil, or air) were not contaminated. In addition, the reference to the RFI report did not include a date or page number(s) so that one could easily review the reference document and understand how the determination was made. See Appendix 2 for two examples of EI determinations (CA725 and CA750) that have an effective reference and rationale section and Appendix 3 for two examples of those that we considered lacking.

Because the EI determinations are public documents used to support the GPRRA goal, the documents should always be clear enough for the general public to understand. We recognize that the EI documents are technical documents. However, some of the documents contained abbreviations or technical language or acronyms which the general public may not fully understand. For example, on one of the forms, the reference and rationale(s) stated "VOCs above MCLs, see draft Phase I RFI report." While EPA and state employees may understand that this rationale means "volatile organic compounds above maximum contaminant levels," the average citizen may not understand these technical terms. Again, the draft Phase I RFI report did not contain a date or a page number for someone to easily verify the information in the determination.

In his June 1, 1998, Memorandum to Heads of Executive Departments and Agencies, President Clinton stated that,

The Federal Government's writing must be in plain language. By using plain language, we send a clear message about what the Government is doing, what it requires, and what services it offers.

It also requires that all documents explain how to comply with a requirement that EPA and authorized states

administer or enforce. If such plain language were included in the reference and rationale portion of EI document to support the determination, we believe the average reader should be able to clearly understand how the determination was made, and EPA would be able to easily account for its EI accomplishments.

Because the EI guidance did not specify the type of reference needed, nor did it strongly emphasize the need for a rationale, project managers did not always include an effective reference or rationale. Therefore, an average reader may not be able to understand how the project manager concluded that current human exposure and groundwater determinations were under control. In addition, Agency officials may not be able to account for the accomplished EI determination because of insufficient support for the decisions made.

Develop Guidance for Reevaluating EI Determinations

Lastly, the CA program could improve overall GPRA outcomes by developing guidance on reevaluating the determinations made in the EI documentation. The EI guidance currently provides that the determinations remain in RCRIS as long as they remain true. Regulatory authorities must change RCRIS codes when they become aware of contrary information. However, EPA program managers indicated that the guidance was not available. EPA project managers asked whether guidance would be provided as to how often the EI should be revisited or updated. Without guidance on updating the EI determinations, RCRIS may become inaccurate, and potential human exposures or migration of groundwater contamination may go unnoticed.

EPA does not have sufficient guidance on reevaluating the EI, because CA officials focused on completing its *initial* EI evaluations of the RCRA baseline facilities. They also trained regional and state officials on completing the EI evaluations so that they could achieve their GPRA goal in the short time frame allowed. In addition, Headquarters CA officials do not want to specify a specific interval for reevaluation because they want program managers to make sure that the information remains current. Headquarters officials commented that program managers are continuously receiving information regarding a facility, and

that information should allow program managers the ability to continuously determine whether the EI status should change. Headquarters officials “never saw the reevaluations leading to new dates in RCRIS.” Headquarters officials have empowered regional officials to make those determinations as needed. Headquarters officials also suggested that their oversight role would be key in making sure the EI information in the RCRA information system remains current.

When CA officials perform periodic reevaluations, the accuracy of the date in RCRIS may be key for determining when the reevaluations might be needed. Chapter 5 details concerns about the accuracy of RCRIS data that EPA may want to address to ensure that managers rely on accurate data to make reevaluations more timely.

Because hazardous waste may remain at a facility, and conditions may change after an EI determination has been made, EPA needs to periodically review prior EI determinations. If EPA does not reevaluate prior determinations, they may become outdated and inaccurate in RCRIS. In fact, some of the EI documents were completed in 1996 and in 1997. Furthermore, potential risks to human health and the environment could go unnoticed. By reevaluating EI determinations, EPA may prevent the risk of exposure to humans and migration of contaminated groundwater. To make sure that the EI evaluations remain accurate and to plan for resources to accomplish them, EPA needs to develop guidance for reevaluating its EI determinations.

Conversely, where hazardous waste is not left at facilities after clean up, reevaluations may no longer be needed. CA management may want to consider adding a code in RCRIS indicating that a reevaluation is not necessary. Therefore, stakeholders will be able understand why the original EI accomplishment date in RCRIS may not appear to be current.

RECOMMENDATIONS

We recommend that the Assistant Administrator for Solid Waste and Emergency Response:

- 2-1 Facilitate achievement of OSWER's ultimate GPRA goal by providing a clear definition of restoration in the context of site cleanup, or clarify the strategic goal as it applies to RCRA CA.
- 2-2 Emphasize in guidance, training and routine interactions with stakeholders, that the Migration of Contaminated Groundwater Under Control environmental indicator has a significant ecological component with regard to surface water ecosystem protection for situations where contaminated groundwater enters surface water. Also, develop an ecological environmental indicator for final remedies to be achieved before, or concurrent, with the ultimate goal of restoration, which includes an ecological protection component. (CA officials interpret restoration in this context to mean that cleanup goals for final remedies have been achieved.)
- 2-3 Develop a list of frequently asked questions and answers about the EI guidance, and share the EI evaluation forms electronically, first to EPA and state regulators internally, and then publicly.
- 2-4 Emphasize the need for a clear and effective reference and rationale for each EI determination.
- 2-5 a) During your annual planning process, commit to maintaining current information on EI in RCRIS.
- b) Emphasize in new guidance, training and routine interactions that EI determinations are meant to reflect current conditions. As such, regulators should modify EI determinations when warranted based on information (e.g., monitoring, inspections, site visits, etc.) obtained during the course of carrying out their oversight responsibilities.
- c) Devote special attention to making sure that the EI determinations made prior to the February 1999, guidance, or those that do not have the new EI documentation supporting them, are reevaluated and have the proper documentation to support RCRIS.

THIS PAGE INTENTIONALLY LEFT BLANK

CHAPTER 3

CA COMPELLED IN PERMITS OR ORDERS AT MOST SITES, BUT CONCERNS FOR ACHIEVING THE GPRA GOAL REMAIN

According to RCRIS, CA has been initiated in permits or orders at a majority of the baseline facilities. (For the three regions we visited, we reviewed the documentation supporting the RFI imposition. Even though the dates did not always match, the documentation generally supported the fact that the RFI had been imposed.) Where CA has not been initiated, Agency or authorized state officials in Regions 4, 5, and 6, have or are developing detailed site-specific plans to compel CA. However, regional and state officials had concerns about achieving the EI goals for 2005. Several obstacles may prevent EPA from achieving the EI and from restoring sites, and potential risk to human health and the environment may still exist.

CA INITIATED AT MOST BASELINE FACILITIES

EPA or authorized states began CA when they required (imposed) the RFI in permits or orders at 1,287 (75%) of the 1,712 RCRA baseline facilities as of April 1999. Where CA has not been initiated, Agency or authorized state officials in Regions 4, 5, and 6, have or are developing detailed site-specific plans to compel CA. For example, Region 4 has imposed CA at 238 (84%) of the 285 baseline facilities in its region. Region 4 officials have begun to develop a strategy using site specific schedules to achieve the EI. Region 4 officials asked their authorized states to complete two-page site summaries explaining the status of CA. The site summaries will be used by the regional staff to negotiate CA and EI completion with facility owners. For the states that are not authorized, EPA is developing in-house schedules for EI accomplishments. Also, the beginning-of-the-year plan (BYP) that the Region negotiated with its states for FY 2000, included site-specific schedules for completion of the EI.

Region 5 or state officials imposed CA at 202 (71%) of the 286 baseline facilities in the region. For facilities that the Region has the lead and has not imposed CA, officials

developed a plan in September 1999, to address the facilities.

Region 5 management is closely monitoring the progress of EI by holding quarterly meetings with individual project managers. Region 5 officials are also concerned about the amount of work at state lead sites they may have to do themselves. Region 5 officials have begun to implement innovative tools to move more quickly towards cleanup and are including language which requires facilities to achieve EI by specific dates. For example, on October 28, 1999, EPA and the Hoover Company established a voluntary CA agreement to work independently to clean up releases of hazardous waste or hazardous constituents at the Hoover facility located in North Canton, Ohio. The parties believe that Hoover will appropriately and effectively investigate and remediate the facility on an accelerated basis. EPA and Hoover are to achieve the EI by September 2001. As another example, EPA and General Motors signed a CA order on August 30, 1999, which required completion of the EI by September 2001.

Region 6 or state officials imposed CA at 136 (74%) of the 184 baseline facilities in the region. For facilities where the Region has not imposed CA, Regional officials asked state officials for the status of baseline facilities. Two states in the Region that contain the vast majority of the baseline facilities and for which it is critical for the Region to accomplish the GPRA goal - - Texas and Louisiana - - sent environmental questionnaires to each of their baseline facilities. Regional officials believe that the information will help state officials accomplish the EI. Region 6 officials are also including EI accomplishments in their grant agreements with states to encourage accomplishment of the EI.

**RCRIS INDICATES THAT
CA PROGRAM
CURRENTLY ON TRACK
TO ACCOMPLISH THE
EI; SOME
ENVIRONMENTAL
ACTIONS TAKEN**

The actions the regions have taken thus far appear to be effective since the EI are being achieved in accordance with the plans. As of January 2000, when we last queried RCRIS, it indicated that the CA program is on track to accomplish the EI. Agency officials planned to have under control current human exposures at 344 facilities and migration of contaminated groundwater at 256 facilities by the end of FY 2000. According to RCRIS, the Agency exceeded its expectations by 110 and 120 EI, respectively.

However, we had concerns about the accuracy of some of the EI data entered in RCRIS, which will be discussed in Chapter 5.

We also considered the effectiveness of the positive EI determinations that were claimed. EPA or an authorized state official makes a positive determination when there are no “unacceptable” human exposures to “contamination” that can be reasonably expected under current land and groundwater use conditions and enters code CA725 in RCRIS. Code CA750 should also be entered in RCRIS when an EPA or authorized state official determines that the migration of “contaminated” groundwater has stabilized, and that monitoring will be conducted to confirm that the contaminated groundwater remains within the original “area of contaminated groundwater.” These codes are to remain in RCRIS as long as they remain true (i.e., RCRIS codes must be changed when the regulatory authorities become aware of contrary information.) For the purpose of this report, a positive EI will also include those facilities where EPA or states determined that no control measures were needed or that there were no releases to groundwater.

We received 62 positive EI determinations from Regions 4, 5, and 6. Based on our review of the EI documents, we concluded that for a little more than half (36 of 62) of the positive EI determinations, owners/operators took some environmental action to accomplish the EI. Some examples of the environmental actions taken included installation of groundwater systems to treat or hydraulically contain groundwater, removal of contaminated soil, or capping of contaminated areas. No environmental action, except for institutional controls, was needed to accomplish about one-third (20 of 62) of the positive EI determinations. Examples of institutional controls included the construction of a fence, restriction on drinking water wells, or residents being provided with alternate drinking water sources. (Note: The Agency is currently refining its definition of institutional controls.) Finally, for the six remaining positive EI, the documentation did not clearly explain whether any action was taken in the reference or rationale sections of the EI documentation. The details of the positive EI documentation are summarized in Table 3-1.

**Table 3-1
Summary of Environmental Actions Taken as Described in Positive EI Documentation**

EI Code	Number of Positive EI Received	Environmental Action Taken	No Action Taken Except For Institutional Controls	Action Taken Unclear
CA725 Human Exposures	32	15	13	4
CA750 Contaminated Ground Water	28	19	7	2
Totals	60	34	20	6

OBSTACLES MAY PREVENT ACCOMPLISHMENT OF THE EI

EPA appears to be on track to achieve the EI by 2005, and has efforts underway to speed cleanup. However, regional officials expressed concerns that the goal may not be achieved because of several obstacles. Most of the following obstacles were the same for states as for EPA. Some of the obstacles are out of EPA's or states' control while others are not. The following obstacles can be compounded by the fact that some regional officials believe that action has been completed at the "easy" facilities first, and that this will result in an even greater challenge to accomplish the remaining EI at the most complex facilities. The table above supports this belief because approximately one-third of the EI accomplished thus far required only institutional controls for achievement of the EI.

Another obstacle, which will be discussed in Chapter 4, was the lack of resources for some states.

Federal Facilities' Size, Complexity, and Funding Present an Obstacle

The obstacle that may be the hardest to overcome was that many of the facilities were large and complex federal facilities that have numerous SWMU. For example, approximately 40 (14%) of the 287 Region 4 facilities requiring EI completion are federal facilities. According to Regional officials, the federal facilities are large, have a lot of SWMU, and will require a significant amount of work. Region 4 officials indicated they may not meet the EI goals

for federal facilities. However, regional officials are meeting with the Air Force and Department of Defense (DoD) to begin partnering and creating teams with EPA, state, and federal representatives.

Region 5 officials expressed similar concerns about federal facilities. While they indicated that federal agencies in their region were cooperative, they said that the agencies do not always have the funding necessary to initiate or complete CA. Facilities have to compete with each other to get funding and the fastest way to get funding is to do quick fixes such as removal actions.

One state official also indicated that the ability of the federal government to clean up federal facilities sets precedent for private facilities and creates a credibility problem. Some facilities have commented to the state officials that if the government is not doing its job to clean up facilities, why should they. Addressing federal facilities seemed especially important for these officials.

Finally, Headquarters and state officials also mentioned that some federal agencies' GPRA goals are not the same as EPA's. RCRA officials are meeting with relevant federal agency officials to address these obstacles.

Grants Did Not Encourage Accomplishment of EI

Though recently changed in at least Regions 5 and 6, the grant process was not designed to encourage accomplishment of EI because the grants were awarded based on the achievement of EI instead of the CA process. To try to make the cleanup process performance based, some of the regions have changed their grants in FY 2000 to require EI completion. Region 6 officials have initiated a "best practice" and have been able to encourage states to accomplish EI by requiring their completion in the grants and providing funding based on the completion of the EI. The Region no longer provides funding for accomplishment of the CA process steps. This best practice appears to be a technique that other regions may emulate and implement to help achieve the EI.

As another example, in Region 5, states' priorities are often enforcement and inspections, and may differ from district to district, state to state, or from EPA's priorities. As a result,

**EI May Not Be
Accomplished at Bankrupt
Facilities or Facilities with
Limited Funding**

Regional officials have changed their grant agreements with states to require states to focus on achieving the EI instead of the CA process steps.

Region 4 officials are concerned that a number of facilities in their Region may be bankrupt facilities. They estimate that as many as ten percent of their baseline facilities may be bankrupt. Some of these facilities may be high priority and may be addressed by the Superfund program. For example, one facility in our sample was deferred to the Superfund program because the company became insolvent. For similar facilities, RCRA officials will have to coordinate closely with Superfund officials who may not be emphasizing accomplishment of EI at RCRA facilities. Regional officials are also concerned about the facilities that might not be ranked high enough for Superfund to address. Because the facilities may not have the funding and they are not ranked high enough for Superfund to address, officials are calling these sites “gap” sites. At some of these sites, the only way EI may be accomplished is if states have the authority and the resources to clean up the facilities.

Headquarters and regional officials expressed concern about facilities that have limited funding. The concern of limited funding is important, and this issue was discussed at the RCRA Senior Policy Management Meeting in May 2000. One Headquarters official told us that several facilities in each region are economically strained, and the Agency is concerned that putting these facilities on a tight schedule to achieve the EI by the GPRA deadline may cause the facilities to go into bankruptcy. However, if the cleanup cost is marginal, EPA will attempt to collect money up front from facility owners so that Superfund would not have to pay as much to clean up the facility. Because of the importance of this issue, the Assistant Administrator for OSWER directed his staff to develop guidance to address various tools used to speed up the cleanup process. In addition, regulators could also use Superfund removal authorities to speed up the cleanup process.

In response to the draft report, Region 6 officials indicated that the obstacle related to “gap” sites does not appear to exist in Region 6.

Complexity and Size of Sites

Region 6 officials commented that the complexities in Region 6 involve large industrial sites. Region 6 facilities may be comprised of many acres. Region 6 is the largest generator of waste and the largest disposer of waste, with Texas ranking first and Louisiana second for the entire United States. Texas also has the fourth largest number (93) of baseline facilities in the country where EI must be accomplished by 2005.

Region 5 officials also described similar obstacles. For example, they described one site that had 107 SWMU. This facility was being contaminated by various types of pollution from yet another facility. Another similar complexity was exhibited at a facility that is listed as a Superfund site and has overlapping Superfund concerns.

Indoor Air

Recent studies from RCRA remediation sites show that buildings located above a contaminated groundwater plume contain gases from volatile pollutants in the contaminated groundwater, exposing the residents to unacceptably high levels of possible carcinogens. The resulting high indoor air concentrations in these homes exceeded Superfund program's cancer risk cleanup standard. As a result of this concern, one Headquarters official instructed regional officials not to make positive EI determinations until they have considered indoor air along with other potentially contaminated media and exposure pathways. The additional work that may be required to review the indoor air concern may prevent accomplishments of the EI at these sites by 2005.

Other Obstacles

Regional or state officials cited other obstacles that may prevent them from achieving the EI by 2005.

- *Litigation:* Both regional and state officials commented that once a facility litigates, chances for completing EI by 2005 decrease.
- *State Buy-in and Understanding of EI:* Region 5 officials commented that states may not be fully aware of GPRA goals or understand the purpose of the EI documents. Two of the regions have limited resources. Officials also commented that some state

officials may see the GPRA goal as an EPA mandate, not a state goal. See Chapter 4 for more information on state resources.

- *Other State Priorities:* One state official commented that it has a large state universe of RCRA facilities and that the baseline facilities in the state make up less than ten percent of the facilities the state oversees. Also, most of the baseline facilities are big facilities and resources will be stretched in addressing these facilities. Another state's official commented that the state's other priorities are the voluntary cleanup program and working on the state inventory of hazardous waste facilities.
- *Many Facilities Are in the Early Stages of Cleanup:* Region 5 officials indicated in their BYP that their biggest obstacle is that so many CA projects are in the early stages of the cleanup process. Region 5 management will address this obstacle by working with project managers and facilities. Also, management plans to reinforce the EI priority by conducting quarterly meetings with each project manager to ensure all possible progress is made at each facility.
- *Other GPRA Priorities:* State officials also mentioned that they have other EPA GPRA goals they are trying to meet for other RCRA programs, Superfund, etc. Even though the CA EI are the highest RCRA priority for RCRA, one state official believed that all GPRA goals had equal priority.
- *Groundwater-Surface water interaction:* Some regional officials reported that many GPRA baseline facilities are located adjacent or very close to surface water bodies. To meet the migration of contaminated groundwater under control EI at such facilities (according to the February 5, 1999,

Agency guidance), regulators need to document whether or not contaminated groundwater is discharging into surface water, and if it is, whether or not that discharge is causing impacts to surface water, sediments or ecosystems that should not be allowed until a final remedy decision is made and implemented. Regulators described that meeting the EI goals at these facilities may be difficult due to the lack of detailed Agency guidance on assessing groundwater/surface water interaction, and that such assessments often warrant eco-risk experts who are not always available.

Agency officials are working hard to accomplish EI. However, as a result of the many obstacles, it is possible that regions may not accomplish the EI goals for 2005. Early actions to mitigate the obstacles that EPA can control may be key in achieving the EI by 2005. But because the deadline is short, facilities may be forced into insolvency, and the Superfund Trust Fund may have to absorb the cost of cleanup. To try to address this concern, Agency management is developing guidance to help facilities with the cleanup process.

RECOMMENDATIONS

We recommend that the Assistant Administrator for Solid Waste and Emergency Response:

- 3-1 Minimize obstacles to achieving the EI goals for 2005. More specifically, work with other federal agency management officials, such as DoD, Department of Energy, Nuclear Regulatory Commission, etc., to minimize obstacles to achieving the EI, including developing consistent environmental goals.
- 3-2 Encourage the use and transfer of the best practices that regions are developing through the use of regular communication calls, meetings, bulletins, or newsletters.

- 3-3 Instruct RCRA and Superfund officials to coordinate work that Superfund is completing on the baseline facilities so that the EI can be achieved.
- 3-4 Work with states and EPA regions to identify potential “gap” facilities (from the 1,712 GPRA baseline) and provide guidance on the variety of tools (e.g., state cleanup authorities, EPA Superfund removal authorities, etc.) available to help states and EPA regions meet the CA programs’ GPRA EI objectives at these facilities.
- 3-5 Develop guidance on groundwater/surface water interaction which identifies situations where ecological risk experts would typically be needed for making EI determinations, and assist regions in locating the sources of this expertise.

CHAPTER 4

EPA OFFICIALS BELIEVE RESOURCES ARE GENERALLY SUFFICIENT, BUT STATE RESOURCES MAY BE LIMITED

While the CA employees generally believe they have adequate resources to address the CA baseline facilities, state resources may be limited. Also, EPA has not aligned its grants allocation formula with its priorities for achieving the EI. As a result, authorized states that need resources may not be receiving them. EPA and state program managers may experience additional pressure to accomplish the GPRA goal, particularly as the goal date draws nearer. In order to achieve the GPRA goal, EPA has already begun to take on a share of authorized states' workload.

In May 2000, we presented an analysis of the grants allocation formula to Headquarters officials who reviewed it and used it to develop options for updating the formula. Officials told us they reviewed the data, and because the cost of the disruption was not worth the benefit of aligning the funding with the new priorities, and because the changes would result in too much disruption, they concluded that the grant allocation would not be changed. However, CA officials are expecting an increase in grant funding beginning in fiscal year 2001. This new funding is planned to be allocated according to the number of baseline facilities.

SOME STATE RESOURCES MAY BE LIMITED

The resources dedicated by some authorized states to achieving the EI appear to be limited due to the existing heavy workload; differing state management priorities; the lack of training of state staff about the EI; state personnel rules that prevent certain states from hiring at all (hiring freezes), hiring experienced staff who can assume greater responsibilities for the state, or from hiring replacement employees when others leave; and increased pressure to meet the GPRA 2005 deadline. As a result, some states initially had difficulty supporting EPA in its quest to achieve its GPRA goal, and EPA has had to assume some of the authorized states' workload. (Some of this work sharing,

however, can also occur because of technical or policy reasons or because the states have asked for a Federal presence at a facility.)

Existing Heavy State Workload

Regional officials believe that some states are especially overworked and overwhelmed, and lack experience and expertise, especially in the area of assessing risk. They are responsible for conducting inspections, issuing permits, remedial actions, enforcement, CA, closures, etc. For example, one state's responsibilities include permit renewals and modifications, post closure reviews to determine which facilities have controls in place, closure plan reviews, and significant non-complier enforcement. In addition to the GPR A goal for CA, EPA has assigned other GPR A goals for which the state is responsible to achieve. State officials believe that all EPA GPR A goals have equal priority. To compound matters, EPA has now imposed a deadline for the GPR A goals, including CA EI, to be achieved by 2005, without yet providing any additional resources. However, if the requested budget is approved by Congress, beginning in fiscal year 2001, EPA will supplement the CA program funding with an additional \$8 million in grant funding to states and tribes.

An official from another state indicated concerns about the addition of the GPR A goal to their existing workload, which includes the oversight of cleanup at facilities in the state inventory as well as the implementation of RCRA at the CA baseline facilities. Some state officials may perceive the requirement to achieve the GPR A goal as a federal responsibility and not a state responsibility. State officials are already responsible for implementing other parts of RCRA. One state official told us that they are also responsible for conducting site assessments and inspections of currently operating facilities, issuing permits and permit modifications, providing technical assistance to facilities, and overseeing closure and post-closure of facilities. In the same state, there was a significant backlog of documents, such as corrective measures studies, that state officials needed to review. At one time, about 2,000 documents needed to be reviewed; the backlog has been reduced to approximately 800. The priorities EPA imposes put constraints on state resources and the state has to channel its resources from other areas to address EPA's priorities.

Differing Management Priorities and Increased Pressure to Meet GPRA Deadlines

In addition to the existing heavy workload, states have other priorities that may conflict with EPA priorities. Regional officials recognize the states' differing priorities. For example, one state is working to implement new risk reduction rules to address facilities in the state inventory as well as EPA's. In the past there were no time lines to complete cleanup; now the project managers are pressured to achieve the GPRA goal by the deadline of 2005. While GPRA baseline sites make up less than 10% of the state's universe of sites, the pressure on this state's project managers may be greater than those of other states because this state has a proportionately large share of baseline sites.

Increasing Regulatory Responsibilities

In addition to the heavy workload and other state priorities, states have increasing regulatory responsibilities, but the staffing level is kept the same or decreased. For example, in Regions 5 and 6, Regional officials indicated that the authorized states have been delegated the regulations for boilers and industrial furnaces (BIF). Region 6 has a very significant BIF and incinerator universe. As a result, combustion and associated risk assessment are a priority. To address the universe, Region 6 officials have entered into a work sharing arrangement with one state and are involved with many combustion facilities in the Region. Region 4 also provides significant technical support to the states on certain regulations.

Another state officials expressed concern that in addition to other competing non-GPRA goals for which they are responsible, they have other state priorities, such as the state's voluntary cleanup program and other state sites which they need to address. The state also has to ensure compliance, issue permits, and still achieve the EI by 2005.

EI Training

As discussed in Chapter 2, only a few state employees in each region were able to attend the RCRA CA workshop regarding EI. Regional officials are visiting states and working with state officials to teach them how to apply the EI guidance and complete the EI forms. In addition, one state in Region 5 has only been authorized for CA for about 3 years so it has less program experience. Six other states may also be experiencing a similar learning curve as they were authorized for CA at about the same time or later.

Again, EPA held the EI forum in August 2000, to discuss the EI guidance.

State Personnel Rules

One state official said that his state has a hiring freeze. In addition, the state's policy requires that entry level staff, instead of experienced staff, be hired. Officials have four months to backfill any positions, and if they are not filled in that time frame, the state loses the position. Also, remaining state employees have increased responsibilities because, in addition to their own jobs, senior project managers must train new entry-level staff, or must assume departing employees' responsibilities.

OUTDATED GRANTS ALLOCATION FORMULA MAY BE CAUSING RESOURCES TO BE MISALLOCATED

EPA offers grants to states to assist them in developing or implementing authorized hazardous waste management programs. Each EPA regional office receives an allotment based on a formula that considers multiple factors, such as population and the amounts and types of hazardous waste generated in each region. States then submit proposed work plans that outline planned activities in the upcoming year, including CA, permitting, enforcement, and program management. EPA regions then negotiate with each state about the specific work to be accomplished with these grants.

To compound the limited state resources, EPA has not recently updated the data used in the formula, nor the formula itself, to allocate grant resources among states and tribes. The grant allocation formula has not been updated since May 25, 1995. The data used to calculate grant resources allocated to each region has not been updated since FY 1996. Neither the formula, nor the data, has been changed because some states would have received more funding and some less, and these changes in the allocation would have caused too much disruption. Also, the budget has remained the same since FY 1996, the staff member that developed the formula left the program, other resources have not been available for the potentially resource-intensive effort of changing the formula and updating the data, and there is no consensus among the regions on how the formula should change. However, the priorities, and the related data that should be used in allocating resources for the program, have changed. As a result: (1) EPA's resources may not be aligned with its priorities, and

accomplishing EI may be more challenging; (2) some of the states may not be receiving funding they need, and may find it more difficult to contribute to the accomplishment of EI; and (3) EPA may potentially be wasting resources when it provides more funding than necessary to some states.

Since FY 1996, RCRA has had an annual budget of approximately \$98.6 million to allocate to states and tribes. Approximately \$11.7 million of the budget was allocated to special initiatives called geographic and combustion initiatives, such as the Great Lakes Initiative. The remaining budget of \$86.9 million was distributed to states and tribes for enforcement, permitting, CA, and other activities. The CA program has had a steady budget allocation of approximately \$25 million in state and tribal grants since FY 1996. The allocations for CA for the states and tribes were based on the number of CA workload (CAWL) facilities in each region. As mentioned earlier, the CAWL is a list of facilities that were actively seeking a permit to operate as a treatment, storage, or disposal facilities or sites that were undergoing cleanup. In FY 1996, the CAWL was comprised of 4,910 facilities. In July 1999, the CA program changed its priorities and focused its efforts on achieving EI and the overall GPRA goal of restoring sites. To measure its progress toward the GPRA goal, in July 1999, CA officials finalized a list of 1,712 facilities called the GPRA baseline.

Based on the concerns we heard about limited state resources, we believed some analysis of how the state and tribal grant resources were allocated was needed. Headquarters officials provided us with the best available CAWL data that they believed was used for the FY 1996 grant allocation. We compared the GPRA baseline and CAWL data. The number of baseline sites in each region was not always proportionately similar to the number of CA workload sites in each region.

In May 2000, we presented an analysis to Headquarters officials who reviewed it and used it to develop options for updating the formula. Officials told us they reviewed the data, and because the cost of the disruption was not worth the benefit of aligning the funding with the new priorities,

and because the changes would result in too much disruption, they concluded that the grant allocation would not be changed. However, CA officials are expecting an increase in grant funding beginning in fiscal year 2001. This new funding is planned to be allocated according to the number of baseline facilities.

Increased Grant Resources May Not Solve All Concerns

While the increase of grant funding to some states may in fact be needed, the provision of additional grants may not solve all of the resource concerns, because EPA may not be assured that the additional funding will be spent on achieving EI for CA. EPA provides funds to states using performance partnership agreements or cooperative agreements. However, under performance partnership agreements, states may commit to a number of sites to be addressed, but they do not have to provide site-specific details on the grant funding spent, nor do states have to specify that the grant funding was spent on CA. Therefore, before providing additional grant resources, EPA needs to hold the states accountable for achieving the CA work for which the additional grant resources are intended.

One thing EPA officials could do to best prepare themselves and state officials to achieve the GPRA goal would be to examine the states' ability to meet the demands EPA is placing on states. In BYPs that regions prepared for FY 2000, only one indicated that the region had evaluated the states' capability for the delegated work. Some regional officials indicated that they remain constantly aware of states' capability. However, BYPs for many of these same regions indicated that they were sharing more work with the states. To help accomplish the EI goal by 2005, EPA may have to assume a greater share of authorized states' work.

RECOMMENDATIONS

We recommend that the Assistant Administrator for Solid Waste and Emergency Response:

- 4-1 Routinely evaluate whether the states have sufficient resources, technical capabilities, and legal authority (consistent with RCRA CA) to ensure EI goals are met by using numerous existing mechanisms (e.g., state visits, annual work planning/work sharing discussions) for assessing and enhancing performance of authorized states. Where issues are identified which would significantly impact a state's ability to meet EI goals, Regional officials should

document those issues and develop a written plan to work aggressively with that state to resolve those issues and ensure that progress continues towards meeting those goals. Additionally, regions should continue to share work with states where needed.

- 4-2 Monitor states' accomplishments achieved with EPA funds so that states are held accountable for achieving the CA work for which the additional grant resources are intended.

THIS PAGE INTENTIONALLY LEFT BLANK

CHAPTER 5

CLOSER MONITORING OF GPRA PROGRESS NEEDED

EPA needs to more closely monitor the GPRA progress reported in RCRIS because the system (RCRIS) does not indicate the date(s) when EI determinations are entered to reflect current and complete EI determinations. Also, RCRIS did not always accurately reflect dates that EI were accomplished, and EI documentation was not always available. Because EPA cannot determine the timeliness of the data reported, and because of the inaccurate or unsupported EI information in RCRIS, EPA or Congressional officials may not be able to rely on RCRIS for monitoring progress toward the GPRA goal.

**RCRIS DOES NOT
INDICATE WHEN EI
ENTERED; TIMELINESS
UNDETERMINABLE**

RCRIS does not allow RCRA officials to determine whether or not EPA is receiving timely information from authorized states regarding the accomplishment of EI. The OSWER FY 2000-2001 Consolidated Guidance states that RCRIS should accurately reflect program progress and that important milestones, including EI accomplishments, must be entered. State officials did tell us that they enter EI accomplishments as they are achieved. RCRIS does reflect some EI accomplishments (dates EI documentation is signed), but it does not indicate when the accomplishments were entered into RCRIS. Therefore, EPA officials are unable to determine whether they are receiving timely EI information.

Even though RCRIS does not indicate when EI are entered, regional officials say they are able to monitor EI progress. Regional officials told us that they are able to monitor the progress made by state officials by holding periodic (semi-annual) meetings with officials from authorized states. During these meetings they discuss progress toward achieving goals set in the BYPs. Communication on progress also occurs when regional officials work with authorized state officials who are gathering information from facilities to develop strategies for accomplishing EI.

CA officials told us that a new information system called RCRAInfo will be implemented on or about October 1, 2000. However, this new system will not track the dates when the EI accomplishments were entered so that timeliness can be determined.

**EI INFORMATION IN
RCRIS NOT ALWAYS
RELIABLE**

RCRIS was not accurate because EI data quality may only be reviewed twice annually and because supporting documentation was not made available by states. As a result, CA officials may not be able to rely on the data for monitoring progress and may not be able to rely on the EI accomplishment dates in RCRIS for the purpose of knowing when potential reevaluations may be needed. Also, Congress may not be able to rely on the RCRIS data in the Agency's annual performance report.

EPA and authorized states are required to work together to achieve results for the success of the program. In order for the RCRIS database to accurately reflect program progress, complete information on actions to initiate CA, stabilization, or cleanups, and the EI determinations must be entered into RCRIS. State officials indicated that the primary means of communicating progress to EPA is via RCRIS. When we asked state officials how they ensure accuracy of the data that they enter in RCRIS, one official told us that his state meets twice each year - - at mid-year and year-end - - with EPA officials. Another state's official indicated that the state were responsible for data accuracy. The person that completes an EI report provides the report to the supervisor who reviews and approves it. However, the official did not think RCRIS would ever give an accurate date of accomplishment. Because the date does give EPA and state management the information on how "current" the EI determinations are, the EI date may be critical to making sure that the EI determinations in RCRIS remain valid and that data presented to Congress and the public is reliable.

Regional officials in Regions 4, 5, and 6 provided 39, 17, and 4 positive EI, respectively. Only 23 (38%) of the 60 positive EI were accurate (the date the EI document was signed matched date of accomplishment in RCRIS); less than half of the documentation accurately supported the information in RCRIS (the date the EI document was signed did not match the date of accomplishment in RCRIS). Also,

eight of the EI were incomplete because they were not dated or because an accurate conclusion was not selected on the EI form. In this case, regional officials are making conclusions about the facility using a previous definition for EI specified in EI guidance issued in 1994. Twenty-four documents had dates that varied from RCRIS, from two days up to one year. Five of the positive determinations were not included in RCRIS as of January 2000, even though they were accomplished in March 1999. (When we spoke with Region 5 officials about some of these sites, they provided documentation that showed that they had entered the accomplishment dates in RCRIS as of May 2000.) In total, 37 of the EI determinations were different than, did not support, or were not included in RCRIS. Table 5-1 below summarizes the data quality for the positive EI determinations. Appendices 4, 5, and 6 list the site specific data for the determinations.

**TABLE 5-1
Analysis of Positive EI Determinations in RCRIS**

Regions	Number of Positive EI Documents Received for Sampled Facilities	Accurate (Documentation Matches Database)	Incomplete Determination	Inaccurate Date in Database	Not in Database
4	41	17	7	15	2
5	17	8	1	5	3
6	4	0	0	4	0
Totals	62	25	8	24	5

Also, Regional officials were not always able to provide documentation supporting the EI determinations. Regional officials in Regions 5 and 6, where all of the states are authorized for CA, told us they would only provide supporting documentation for EI determinations made after February 1999 (when the guidance was issued), or after FY 1999, respectively. For those completed prior to the February 1999 guidance, EPA Headquarters officials are

requiring the EI evaluation forms to be completed upon reevaluation of the facilities' status.

Since RCRIS does not indicate when EI determinations are entered into the system, and even though regional officials say they are able to monitor progress made by state officials, EPA CA officials may need to establish additional procedures to ensure that the Agency is able to verify when EI determinations are accomplished so that it can effectively monitor progress toward the GPRA goal. Unless these procedures are in place, Agency officials may not be able to properly account for the number of EI accomplished. In addition, Congress may not be able to rely on the EI data in EPA's annual performance reports. Because EPA is ultimately responsible for the data it presents in its annual performance report to Congress, EPA officials may want to perform periodic data quality reviews of the EI documentation that states provide.

RECOMMENDATIONS

We recommend that the Assistant Administrator for Solid Waste and Emergency Response:

- 5-1 Emphasize the importance of entering each EI accomplishment date in the RCRA information system concurrent with the date the EI documentation is signed by the approving official. Also, add a code in the RCRA information system to track the dates EI accomplishments are entered into the system.
- 5-2 Establish additional procedures to periodically reconcile EI accomplishments during meetings with state officials or at least annually to verify the accuracy of EI determinations in RCRIS. Additionally, ensure that all EI changes are documented on EI forms and are reflected in the RCRA information system on at least an annual basis.
- 5-3 Reemphasize the need that all EI accomplishments entered in the RCRA information system should be supported by documentation.

THIS PAGE INTENTIONALLY LEFT BLANK

Scope, Methodology, and Prior Audit Coverage**SCOPE AND METHODOLOGY**

We conducted this review from August 1999 to May 2000. To accomplish our objectives, we conducted field work in the Headquarters Offices of Solid Waste and Emergency Response and Enforcement and Compliance Assurance, and in Regions 4, 5, and 6. We reviewed various background documentation and attended the CA Workshop training that instructs regional and state officials how to accomplish and document the EI.

We reviewed OSWER's 1999 Report on Management Controls required by the Federal Managers' Financial Integrity Act (FMFIA). The report identified concerns that OSWER officials had with: the RCRA Listings Program, organizational assessment, GPRC Implementation, human resources management, financial resources management, data information management, contract/assistance agreement resources management and OIG audits. The report also discusses GAO and OIG proposed material weaknesses candidates, including RCRA CA. GAO proposed that the Agency declare CA a material weakness under the Agency management integrity process. Based on substantial action already taken to address the speed of CA cleanups, including the RCRA reforms, OSWER declared CA as an Agency-level weakness rather than a material weakness.

We also reviewed OECA's FY 1999 Integrity Act Annual Assurance Letter to comply with FMFIA. The assurance letter identified a weakness in the area of environmental data quality in its information systems, including RCRIS. To address this weakness, OECA planned to evaluate RCRIS and 4 other information systems it uses. Along with other efforts, OECA also conducted a baseline data quality audit of RCRIS and plans to continue efforts to address this weakness.

We considered the overall implementation of GPRC for the CA program. The examination of the overall implementation included: the GPRC goal of restoration of sites, the EI, obstacles to a successful achievement of the EI, source documentation, RCRIS data accuracy for the EI, resources allocated to achieve the EI, and management oversight.

OSWER CA officials provided us with the universe of 1,712 (as of April, 1999) high priority facilities against which the progress toward the GPRC goal of restoring sites will be measured. From this RCRIS universe, we selected Regions 4, 5, and 6 primarily based on the total number of high priority baseline facilities, when compared with the total number of baseline facilities in the other regions, and based on whether or not states were authorized for CA in each region. However, we did not verify the accuracy of the baseline, nor did we visit facilities to confirm how the EI determinations were made.

Scope, Methodology, and Prior Audit Coverage

Because we believed most of the EI would be accomplished at facilities where an RFI was imposed and we wanted to increase our chances of selecting facilities where EI were accomplished, we divided the GPRA universe in each region into two universes: RFI imposed and no RFI imposed. We selected random samples from each of the two universes in each region. After learning from our review in Region 4 that only the most recent permits or orders may contain EI language, we also selected a judgmental sample of facilities in Regions 5 and 6, where an RFI was imposed after the February 1999 EI guidance was issued, to determine whether any orders or permits issued after this date contained language which required the EI to be accomplished.

To accomplish objective 1 (Could the overall implementation of GPRA for the CA program be improved?), we interviewed regional and headquarters officials. We also reviewed the GPRA goal of restoration to determine how the EI supported the achievement of the goal.

To accomplish objective 2 (Have the high priority facilities initiated CA or have states or EPA compelled CA in permits, orders, etc., and are these actions effective?), we analyzed the information provided by OSWER. We searched the data to determine whether an RFI was imposed, whether or not each site was in a state that was authorized for CA, and whether at least one EI had been accomplished. We conducted file reviews and obtained source EI documentation for our sampled facilities. We also conducted a data quality review of the RFI imposed for the purposes of supporting our sampling methodology. We interviewed regional and state officials to discuss their plans for accomplishing the GPRA goals by 2005, including the innovative steps they were taking to accomplish the EI. We also obtained corroborating documentation, including BYPs, and analyzed the EI documentation to determine what environmental effect occurred as a result of the achievement of the EI.

To accomplish objective 3 (Do states encounter obstacles to effective CA? Are those obstacles different from EPA's?), we interviewed EPA officials and state officials from Georgia, Ohio, and Texas.

To accomplish objective 4 (Have states or EPA planned for sufficient resources to achieve the GPRA goal of 2005 and the intermediate goals?), we conducted fieldwork in Regions 4, 5, and 6, which included interviews of regional and state officials. We also obtained limited resource information from regions and states. We conducted a limited analysis of grant allocation information, including the grant allocation formula and related data.

To accomplish objective 5 (Is EPA receiving timely and accurate information necessary for monitoring progress made toward the GPRA goal?), we spoke to a key headquarters official about whether the dates EI accomplishments were entered in RCRIS were available. We also interviewed state officials about how they communicate progress to EPA and how they make sure

Scope, Methodology, and Prior Audit Coverage

the data they provide EPA in RCRIS is accurate. We also analyzed the EI documentation to determine whether it was accurately reflected in RCRIS.

PRIOR AUDIT COVERAGE

No other audits regarding the CA program's implementation of GPRA have been performed. However, some reviews of related subjects have been performed. On May 2, 2000, GAO delivered testimony before the Senate Committee on Environment and Public Works on the "Collaborative EPA-State Effort Needed to Improve [the] Performance Partnership System." In the testimony, GAO discussed long-standing issues that affect the EPA-State working relationship. First, EPA regions are inconsistent in their oversight of states. Second, EPA sometimes micro manages programs. Third, EPA does not provide sufficient technical support for the increasingly complex requirements of the states' programs. Finally, EPA often does not adequately consult the states before making key decisions affecting them. To address these concerns, EPA developed performance partnership agreements to increase flexibility, enhance accountability and reduce federal oversight. However, GAO found limited participation with the performance partnership agreements, and has found that reduced federal oversight has only been realized to a limited degree. GAO also found that EPA and states have agreed on improved core performance measures and have also improved the ability to try innovative or unique projects. In response to the testimony, EPA and the Environmental Council of States agreed to conduct a joint evaluation.

GAO issued an audit report in October 1997, entitled, "Progress Under the Corrective Action Program Is Limited, but New Initiatives May Accelerate Cleanups" (GAO/RCED-98-3). This report evaluated the cleanup completions of the CA workload in the RCRA program. This report concluded that, "the step by step process for cleanup is drawn out and cumbersome, and the cost of implementing it discourages companies from initiating more cleanups. Protracted disagreements among EPA, the states, and affected companies over the cleanup standards to be met and the methods used to meet them have also delayed cleanups. Both of these factors can contribute to the economic disincentives that companies face in performing cleanups. Furthermore, these two problems are exacerbated by the limited resources EPA and the states have for implementing the [Corrective Action] program." GAO generally recommended that EPA reform the program to make it more streamlined and consistent nationwide. EPA generally agreed to these recommendations.

In September, 1996, EPA OIG issued a report entitled, "RCRA Corrective Action Oversight" (Report Number E1DSB6-11-0006-6300036), which stated that tiered (a type of limited) oversight was being used by the regions. However, formal decisions on tiered oversight were not documented as was required in the cases reviewed. The report also summarized some of the factors program managers consider when deciding on the level of oversight to be applied,

Scope, Methodology, and Prior Audit Coverage

including the NCAPS ranking a facility had or the activity being conducted at the site. It also summarized some of the problems and contradictions with the theory of tiered oversight. No response to the report was required of the Agency.

According to an October 1997 GAO report, under the requirements of the CA program, the nearly 3,700 non-federal facilities that treat, store, or dispose of hazardous waste in the United States could spend about \$16 billion to clean up their properties contaminated by hazardous substances. The CA program attempts to minimize the federal cleanup burden by having current operating facilities clean up their hazardous waste contamination. The companies that perform cleanups under the program include chemical manufacturers and waste disposal companies. Past and present activities at RCRA facilities have sometimes resulted in releases of hazardous substances into soil, groundwater, surface water, and air. Although the CA program has been in effect since 1984, concerns have been raised that companies are not cleaning up their facilities quickly enough and that properties remain contaminated, posing risks to public health and the environment.

Examples of Acceptable Reference and Rationale

DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION
Interim Final 2/5/99
RCRA Corrective Action
Environmental Indicator (EI) RCRIS code (CA725)

Current Human Exposures Under Control

Facility Name:
Facility Address:
Facility EPA ID #:

1. Has **all** available relevant/significant information on known and reasonably suspected releases to soil, groundwater, surface water/sediments, and air, subject to RCRA Corrective Action (e.g., from Solid Waste Management Units (SWMU), Regulated Units (RU), and Areas of Concern (AOC)), been **considered** in this EI determination?

X If yes - check here and continue with #2 below.

If no - re-evaluate existing data, or

if data are not available skip to #6 and enter "IN" (more information needed) status code.

BACKGROUND**Definition of Environmental Indicators (for the RCRA Corrective Action)**

Environmental Indicators (EI) are measures being used by the RCRA Corrective Action program to go beyond programmatic activity measures (e.g., reports received and approved, etc.) to track changes in the quality of the environment. The two EI developed to-date indicate the quality of the environment in relation to current human exposures to contamination and the migration of contaminated groundwater. An EI for non-human (ecological) receptors is intended to be developed in the future.

Definition of "Current Human Exposures Under Control" EI

A positive "Current Human Exposures Under Control" EI determination ("YE" status code) indicates that there are no "unacceptable" human exposures to "contamination" (i.e., contaminants in concentrations in excess of appropriate risk-based levels) that can be reasonably expected under current land- and groundwater-use conditions (for all "contamination" subject to RCRA corrective action at or from the identified facility (i.e., site-wide)).

Relationship of EI to Final Remedies

While Final remedies remain the long-term objective of the RCRA Corrective Action program the EI are near-term objectives which are currently being used as Program measures for the Government Performance and Results Act of 1993, GPRA). The "Current Human Exposures Under Control" EI are for reasonably expected human exposures under current land- and groundwater-use conditions ONLY, and do not consider potential future land- or groundwater-use conditions or ecological receptors. The RCRA Corrective Action program's overall mission to protect human health and the environment requires that Final remedies address these issues (i.e., potential future human exposure scenarios, future land and groundwater uses, and ecological receptors).

Duration / Applicability of EI Determinations

EI Determinations status codes should remain in RCRIS national database ONLY as long as they remain true (i.e., RCRIS status codes must be changed when the regulatory authorities become aware of contrary information).

Examples of Acceptable Reference and Rationale

**Current Human Exposures Under Control
Environmental Indicator (EI) RCRIS code (CA725)
Page 2**

2. Are groundwater, soil, surface water, sediments, or air **media** known or reasonably suspected to be **"contaminated"**¹ above appropriately protective risk-based "levels" (applicable promulgated standards, as well as other appropriate standards, guidelines, guidance, or criteria) from releases subject to RCRA Corrective Action (from SWMUs, RUs or AOCs)?

	<u>Yes</u>	<u>No</u>	<u>?</u>	<u>Rationale / Key Contaminants</u>
Groundwater	<u> </u>	<u> X </u>	<u> </u>	_____
Air (indoors) ²	<u> </u>	<u> </u>	<u> NA </u>	_____
Surface Soil (e.g., <2 ft)	<u> </u>	<u> X </u>	<u> </u>	_____
Surface Water	<u> </u>	<u> X </u>	<u> </u>	_____
Sediment	<u> </u>	<u> X </u>	<u> </u>	_____
Subsurf. Soil (e.g., >2 ft)	<u> </u>	<u> X </u>	<u> </u>	_____
Air (outdoors)	<u> </u>	<u> X </u>	<u> </u>	_____

 X If no (for all media) - skip to #6, and enter "YE," status code after providing or citing appropriate "levels," and referencing sufficient supporting documentation demonstrating that these "levels" are not exceeded.

 If yes (for any media) - continue after identifying key contaminants in each "contaminated" medium, citing appropriate "levels" (or provide an explanation for the determination that the medium could pose an unacceptable risk), and referencing supporting documentation.

 If unknown (for any media) - skip to #6 and enter "IN" status code.

Rationale and Reference(s): This facility is permitted as a municipal solid waste landfill. The landfill contains a closed hazardous waste disposal cell within its boundaries for which the closure certification was accepted. The cell is subject to post-closure care, including ground water monitoring. The monitoring system for the closed cell encircles it. The leachate collection system for the closed cell is part of the cell's design.

The facility's ground water monitoring system is currently in compliance with the applicable rules. The facility is currently implementing its ground water indicator evaluation program as no releases to ground water have been detected. This confirms that there are no uncontrolled exposures to humans through the ground water pathway resulting from the past disposal activity at the facility. As the closed disposal cell is the only other unit at the facility, beyond the operating solid waste landfill which is subject to equivalent of the Subtitle D regulations, including ground water monitoring, a RCRA Facility Investigation continues to be unnecessary.

Footnotes:

¹ "Contamination" and "contaminated" describes media containing contaminants (in any form, NAPL and/or dissolved, vapors, or solids, that are subject to RCRA) in concentrations in excess of appropriately protective risk-based "levels" (for the media, that identify risks within the acceptable risk range).

² Recent evidence (from the Colorado Dept. of Public Health and Environment, and others) suggest that unacceptable indoor air concentrations are more common in structures above groundwater with volatile contaminants than previously believed. This is a rapidly developing field and reviewers are encouraged to look to the latest guidance for the appropriate methods and scale of demonstration necessary to be reasonably certain that indoor air (in structures located above (and adjacent to) groundwater with volatile contaminants) does not present unacceptable risks.

Examples of Acceptable Reference and Rationale

**Current Human Exposures Under Control
Environmental Indicator (EI) RCRIS code (CA725)
Page 3**

3. Are there **complete pathways** between “contamination” and human receptors such that exposures can be reasonably expected under the current (land- and groundwater-use) conditions?

Summary Exposure Pathway Evaluation Table

Potential **Human Receptors** (Under Current Conditions)

"Contaminated" Media	Residents	Workers	Day-Care	Construction	Trespassers	Recreation	Food ³
Groundwater	_____	_____	_____	_____	_____	_____	_____
Air (indoors)	_____	_____	_____	_____	_____	_____	_____
Soil (surface, e.g., <2 ft)	_____	_____	_____	_____	_____	_____	_____
Surface Water	_____	_____	_____	_____	_____	_____	_____
Sediment	_____	_____	_____	_____	_____	_____	_____
Soil (subsurface e.g., >2 ft)	_____	_____	_____	_____	_____	_____	_____
Air (outdoors)	_____	_____	_____	_____	_____	_____	_____

Instructions for Summary Exposure Pathway Evaluation Table:

- Strike-out specific Media including Human Receptors' spaces for Media which are not "contaminated") as identified in #2 above.
- enter "yes" or "no" for potential "completeness" under each "Contaminated" Media -- Human Receptor combination (Pathway).

Note: In order to focus the evaluation to the most probable combinations some potential "Contaminated" Media - Human Receptor combinations (Pathways) do not have check spaces ("_____"). While these combinations may not be probable in most situations they may be possible in some settings and should be added as necessary.

_____ If no (pathways are not complete for any contaminated media-receptor combination) - skip to #6, and enter "YE" status code, after explaining and/or referencing condition(s) in-place, whether natural or man-made, preventing a complete exposure pathway from each contaminated medium (e.g., use optional Pathway Evaluation Work Sheet to analyze major pathways).

_____ If yes (pathways are complete for any "Contaminated" Media - Human Receptor combination) - continue after providing supporting explanation.

_____ If unknown (for any "Contaminated" Media - Human Receptor combination) - skip to #6 and enter "IN" status code

Rationale and Reference(s): _____

³ Indirect Pathway/Receptor (e.g., vegetables, fruits, crops, meat and dairy products, fish, shellfish, etc.)

Examples of Acceptable Reference and Rationale

**Current Human Exposures Under Control
Environmental Indicator (EI) RCRIS code (CA725)
Page 5**

- 5 Can the "significant" **exposures** (identified in #4) be shown to be within **acceptable** limits?
- _____ If yes (all "significant" exposures have been shown to be within acceptable limits) - continue and enter "YE" after summarizing and referencing documentation justifying why all "significant" exposures to "contamination" are within acceptable limits (e.g., a site-specific Human Health Risk Assessment).

 - _____ If no (there are current exposures that can be reasonably expected to be "unacceptable")- continue and enter "NO" status code after providing a description of each potentially "unacceptable" exposure.

 - _____ If unknown (for any potentially "unacceptable" exposure) - continue and enter "IN" status code

Rationale and Reference(s): _____

Examples of Acceptable Reference and Rationale

**Current Human Exposures Under Control
Environmental Indicator (EI) RCRIS code (CA725)
Page 6**

6. Check the appropriate RCRIS status codes for the Current Human Exposures Under Control EI event code (CA725), and obtain Supervisor (or appropriate Manager) signature and date on the EI determination below (and attach appropriate supporting documentation as well as a map of the facility):

YE - Yes, "Current Human Exposures Under Control" has been verified. Based on a review of the information contained in this EI Determination, "Current Human Exposures" are expected to be "Under Control" at the _____ Landfill facility, EPA ID # _____ located at _____ under current and reasonably expected conditions. This determination will be re-evaluated when the Agency/State becomes aware of significant changes at the facility.

NO - "Current Human Exposures" are NOT "Under Control."

IN - More information is needed to make a determination.

Completed by (signature) _____
(print) _____
(title) _____

Supervisor (signature) _____ Date _____
(print) _____
(title) _____
(EPA Region or State) _____

Locations where References may be found: Hard copy files in Ohio EPA, Division of Hazardous Waste Management's Central Office, Columbus, and the same files located in the division's Northwest District Office, located in Bowling Green, Ohio.

Contact telephone and e-mail numbers

(name) _____
(phone #) _____
(e-mail) _____

FINAL NOTE: THE HUMAN EXPOSURES EI IS A QUALITATIVE SCREENING OF EXPOSURES AND THE DETERMINATIONS WITHIN THIS DOCUMENT SHOULD NOT BE USED AS THE SOLE BASIS FOR RESTRICTING THE SCOPE OF MORE DETAILED (E.G., SITE-SPECIFIC) ASSESSMENTS OF RISK.

Examples of Acceptable Reference and Rationale**DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION**

Interim Final 2/5/99

RCRA Corrective Action**Environmental Indicator (EI) RCRIS code (CA750)****Migration of Contaminated Groundwater Under Control****Facility Name:** _____**Facility Address:** _____**Facility EPA ID #:** _____

1. Has all available relevant/significant information on known and reasonably suspected releases to the groundwater media, subject to RCRA Corrective Action (e.g., from Solid Waste Management Units (SWMU), Regulated Units (RU), and Areas of Concern (AOC)), been **considered** in this EI determination?

If yes - check here and continue with #2 below.

If no - re-evaluate existing data, or

if data are not available skip to #6 and enter "IN" (more information needed) status code.

BACKGROUND**Definition of Environmental Indicators (for the RCRA Corrective Action)**

Environmental Indicators (EI) are measures being used by the RCRA Corrective Action program to go beyond programmatic activity measures (e.g., reports received and approved, etc.) to track changes in the quality of the environment. The two EI developed to-date indicate the quality of the environment in relation to current human exposures to contamination and the migration of contaminated groundwater. An EI for non-human (ecological) receptors is intended to be developed in the future.

Definition of "Migration of Contaminated Groundwater Under Control" EI

A positive "Migration of Contaminated Groundwater Under Control" EI determination ("YE" status code) indicates that the migration of "contaminated" groundwater has stabilized, and that monitoring will be conducted to confirm that contaminated groundwater remains within the original "area of contaminated groundwater" (for all groundwater "contamination" subject to RCRA corrective action at or from the identified facility (i.e., site-wide)).

Relationship of EI to Final Remedies

While Final remedies remain the long-term objective of the RCRA Corrective Action program the EI are near-term objectives which are currently being used as Program measures for the Government Performance and Results Act of 1993, GPRA). The "Migration of Contaminated Groundwater Under Control" EI pertains ONLY to the physical migration (i.e., further spread) of contaminated ground water and contaminants within groundwater (e.g., non-aqueous phase liquids or NAPLs). Achieving this EI does not substitute for achieving other stabilization or final remedy requirements and expectations associated with sources of contamination and the need to restore, wherever practicable, contaminated groundwater to be suitable for its designated current and future uses.

Duration / Applicability of EI Determinations

EI Determinations status codes should remain in RCRIS national database ONLY as long as they remain true (i.e.,

Examples of Acceptable Reference and Rationale

RCRIS status codes must be changed when the regulatory authorities become aware of contrary information).

**Migration of Contaminated Groundwater Under Control
Environmental Indicator (EI) RCRIS code (CA750)**

Page 2

2. Is **groundwater** known or reasonably suspected to be "**contaminated**"¹ above appropriately protective "levels" (i.e., applicable promulgated standards, as well as other appropriate standards, guidelines, guidance, or criteria) from releases subject to RCRA Corrective Action, anywhere at, or from, the facility?

- If yes - continue after identifying key contaminants, citing appropriate "levels," and referencing supporting documentation.
- If no - skip to #8 and enter "YE" status code, after citing appropriate "levels," and referencing supporting documentation to demonstrate that groundwater is not "contaminated."
- If unknown - skip to #8 and enter "IN" status code.

Rationale and Reference(s):

The June 1996 RCRA Facility Investigation (RFI) Report (revised in October 1996), the August 1997 Corrective Measures Study (CMS), and the December 1997 Statement of Basis document the presence of contaminant levels above Federal guidelines in groundwater. Highest on-site concentration of contaminants found in groundwater identified in the RFI: Trichlorethane (TCA) at 51,000 parts per billion (ppb); 1,1 Dichloroethene (DCE) at 4500 ppb; Trichloroethene (TCE) at 960 ppb; Tetrachloroethene (PCE) at 940 ppb. Safe Drinking Water Act Maximum Contaminant Levels (MCLs) for TCA, DCE, TCE and PCE are 200 ppb, 7 ppb, 5 ppb and 5 ppb, respectively. Highest off-site groundwater concentrations were: TCA = 1900 ppb; DCE = 180 ppb; TCE = 1100 ppb; PCE = 150 ppb.

**Migration of Contaminated Groundwater Under Control
Environmental Indicator (EI) RCRIS code (CA750)**

Page 3

Footnotes:

¹"Contamination" and "contaminated" describes media containing contaminants (in any form, NAPL and/or dissolved, vapors, or solids, that are subject to RCRA) in concentrations in excess of appropriate "levels" (appropriate for the protection of the groundwater resource and its beneficial uses).

3. Has the **migration** of contaminated groundwater **stabilized** (such that contaminated groundwater is expected to remain within "existing area of contaminated groundwater"² as defined by the monitoring locations designated at the time of this determination)?

Examples of Acceptable Reference and Rationale

- X If yes - continue, after presenting or referencing the physical evidence (e.g., groundwater sampling/measurement/migration barrier data) and rationale why contaminated groundwater is expected to remain within the (horizontal or vertical) dimensions of the "existing area of groundwater contamination").
- _____ If no (contaminated groundwater is observed or expected to migrate beyond the designated locations defining the "existing area of groundwater contamination") - skip to #8 and enter "NO" status code, after providing an explanation.
- _____ If unknown - skip to #8 and enter "IN" status code.

Rationale and Reference(s):

The RCRA Facility Investigation Report (RFI) (June 1996; rev. Oct. 1996) reports elevated volatile and semivolatile organic compounds in groundwater beneath the _____ facility. The RFI also reports extensive offsite migration of contaminants in groundwater. To provide protection to downgradient groundwater users, two interim corrective measures have been employed. The first, a private well sampling program, was initiated in 1993. Semi-annual sampling of downgradient private wells provide residential users with information concerning their wells. If contaminant levels exceed regulatory guidelines (i.e., Maximum Contaminant Levels, or MCLs) at the well, users will be provided, at _____ expense, with either connection to the municipal well system or installation of a filtering system on the user's well. The Administrative Consent Order for the implementation of the corrective measures (CMI Order), dated September 30, 1999, calls for quarterly groundwater sampling for the first year, and semi-annual residential well sampling thereafter, provided groundwater concentrations remain below MCLs. The most recent sampling event (January 1999) indicated no contaminant levels greater than the MCLs at the residential wells. A second interim measure involved the design and construction of a groundwater recovery system (pump & treat system). This system consists of two high production recovery wells - the first of which was operational in December 1996, the second in November 1998) which serve to draw in contaminated groundwater from the furthest boundary of the migrating contaminated groundwater (i.e., perimeter of plume). The "inward hydraulic gradient" thereby produced by the extraction wells serves as a protective "barrier" which prevents the contaminants from traveling further and further away, toward either other residents or the _____ River. As part of the final remedy, _____ will install and operate an above-ground groundwater treatment system, which will remove contaminants in groundwater to safe levels. Organic contaminants in the unsaturated zone will be treated by a soil vapor extraction system. Contaminated soils (containing metals) will be stabilized and capped, thereby providing a significant reduction in future leaching of contaminants into the groundwater. In summary, current groundwater containment measures are protective of downgradient private well users and the nearby surface water body. Future corrective action measures, coupled with natural attenuation processes, will provide, in the long term, restoration of

Examples of Acceptable Reference and Rationale**Migration of Contaminated Groundwater Under Control
Environmental Indicator (EI) RCRIS code (CA750)**

Page 4

the aquifer.

² "existing area of contaminated groundwater" is an area (with horizontal and vertical dimensions) that has been verifiably demonstrated to contain all relevant groundwater contamination for this determination, and is defined by designated (monitoring) locations proximate to the outer perimeter of "contamination" that can and will be sampled/tested in the future to physically verify that all "contaminated" groundwater remains within this area, and that the further migration of "contaminated" groundwater is not occurring. Reasonable allowances in the proximity of the monitoring locations are permissible to incorporate formal remedy decisions (i.e., including public participation) allowing a limited area for natural attenuation.

4. Does "contaminated" groundwater **discharge** into **surface water** bodies?

_____ If yes - continue after identifying potentially affected surface water bodies.

 X If no - skip to #7 (and enter a "YE" status code in #8, if #7 = yes) after providing an explanation and/or referencing documentation supporting that groundwater "contamination" does not enter surface water bodies.

_____ If unknown - skip to #8 and enter "IN" status code.

Rationale and Reference(s):

**Migration of Contaminated Groundwater Under Control
Environmental Indicator (EI) RCRIS code (CA750)**

Page 5

**Migration of Contaminated Groundwater Under Control
Environmental Indicator (EI) RCRIS code (CA750)**

Page 6

5. Is the **discharge** of "contaminated" groundwater into surface water likely to be "**insignificant**" (i.e., the maximum concentration³ of each contaminant discharging into surface water is less than 10 times their appropriate groundwater "level," and there are no other conditions (e.g., the nature, and number, of discharging contaminants, or environmental setting), which significantly increase the potential for unacceptable impacts to surface water, sediments, or eco-systems at these concentrations)?

Examples of Acceptable Reference and Rationale

_____ If yes - skip to #7 (and enter "YE" status code in #8 if #7 = yes), after documenting: 1) the maximum known or reasonably suspected concentration³ of key contaminants discharged above their groundwater "level," the value of the appropriate "level(s)," and if there is evidence that the concentrations are increasing; and 2) provide a statement of professional judgement/explanation (or reference documentation) supporting that the discharge of groundwater contaminants into the surface water is not anticipated to have unacceptable impacts to the receiving surface water, sediments, or eco-system.

_____ If no - (the discharge of "contaminated" groundwater into surface water is potentially significant) - continue after documenting: 1) the maximum known or reasonably suspected concentration³ of each contaminant discharged above its groundwater "level," the value of the appropriate "level(s)," and if there is evidence that the concentrations are increasing; and 2) for any contaminants discharging into surface water in concentrations³ greater than 100 times their appropriate groundwater "levels," the estimated total amount (mass in kg/yr) of each of these contaminants that are being discharged (loaded) into the surface water body (at the time of the determination), and identify if there is evidence that the amount of discharging contaminants is increasing.

_____ If unknown - enter "IN" status code in #8.

Rationale and Reference(s):

³ As measured in groundwater prior to entry to the groundwater-surface water/sediment interaction (e.g., hyporheic) zone.

**Migration of Contaminated Groundwater Under Control
Environmental Indicator (EI) RCRIS code (CA750)**

Page 7

6. Can the **discharge** of "contaminated" groundwater into surface water be shown to be "**currently acceptable**" (i.e., not cause impacts to surface water, sediments or eco-systems that should not be allowed to continue until a final remedy decision can be made and implemented⁴)?

_____ If yes - continue after either: 1) identifying the Final Remedy decision incorporating these conditions, or other site-specific criteria (developed for the protection of the site's surface water, sediments, and eco-systems), and referencing supporting documentation demonstrating that these criteria are not exceeded by the discharging groundwater. OR 2) providing or referencing an interim-assessment,⁵ appropriate to the potential for impact, that shows the discharge of groundwater contaminants into the surface water is (in the opinion of a trained specialists, including ecologist) adequately protective of receiving surface water, sediments, and eco-systems, until such time when a full assessment and final remedy decision can be made. Factors which should be considered in the interim-assessment (where appropriate to help identify the impact associated with discharging groundwater) include: surface water body size, flow, use/classification/habitats and contaminant loading limits, other sources of surface water/sediment contamination, surface water and sediment sample results and comparisons to available and appropriate surface water and sediment "levels," as well as any other factors, such as effects on ecological receptors (e.g., via bio-assays/benthic surveys or site-specific ecological Risk Assessments), that the overseeing regulatory agency would deem appropriate for making the EI determination.

Examples of Acceptable Reference and Rationale

_____ If no - (the discharge of "contaminated" groundwater can not be shown to be "currently acceptable") - skip to #8 and enter "NO" status code, after documenting the currently unacceptable impacts to the surface water body, sediments, and/or eco-systems.

_____ If unknown - skip to 8 and enter "IN" status code.

Rationale and Reference(s):

⁴ Note, because areas of inflowing groundwater can be critical habitats (e.g., nurseries or thermal refugia) for many species, appropriate specialist (e.g., ecologist) should be included in management decisions that could eliminate these areas by significantly altering or reversing groundwater flow pathways near surface water bodies.

⁵ The understanding of the impacts of contaminated groundwater discharges into surface water bodies is a rapidly developing field and reviewers are encouraged to look to the latest guidance for the appropriate methods and scale of demonstration to be reasonably certain that discharges are not causing currently

**Migration of Contaminated Groundwater Under Control
Environmental Indicator (EI) RCRIS code (CA750)**

Page 8

unacceptable impacts to the surface waters, sediments or eco-systems.

7. Will groundwater **monitoring** / measurement data (and surface water/sediment/ecological data, as necessary) be collected in the future to verify that contaminated groundwater has remained within the horizontal (or vertical, as necessary) dimensions of the "existing area of contaminated groundwater?"

 X If yes - continue after providing or citing documentation for planned activities or future sampling/measurement events. Specifically identify the well/measurement locations which will be tested in the future to verify the expectation (identified in #3) that groundwater contamination will not be migrating horizontally (or vertically, as necessary) beyond the "existing area of groundwater contamination."

_____ If no - enter "NO" status code in #8.

_____ If unknown - enter "IN" status code in #8.

Rationale and Reference(s):

The CMI Order requires _____ to continue the private well sampling program on a quarterly basis for one year. Subsequent years will be reduced to a semi-annual basis if the first year indicates no increased contaminant concentrations. The CMI Order also requires _____ to continue, for 30 years, its groundwater pump & treat system.

Examples of Acceptable Reference and Rationale

**Migration of Contaminated Groundwater Under Control
Environmental Indicator (EI) RCRIS code (CA750)
Page 9**

- 8. Check the appropriate RCRIS status codes for the Migration of Contaminated Groundwater Under Control EI (event code CA750), and obtain Supervisor (or appropriate Manager) signature and date on the EI determination below (attach appropriate supporting documentation as well as a map of the facility).

X YE - Yes, "Migration of Contaminated Groundwater Under Control" has been verified. Based on a review of the information contained in this EI determination, it has been determined that the "Migration of Contaminated Groundwater" is "Under Control" at the _____ facility , EPA ID # _____

_____, located at _____ . Specifically, this determination indicates that the migration of "contaminated" groundwater is under control, and that monitoring will be conducted to confirm that contaminated groundwater remains within the "existing area of contaminated groundwater" This determination will be re-evaluated when the Agency becomes aware of significant changes at the facility.

 NO - Unacceptable migration of contaminated groundwater is observed or expected.

 IN - More information is needed to make a determination.

Cc

Su

Locations where References may be found:
EPA Files at EPA offices in

Contact telephone and e-mail numbers

THIS PAGE INTENTIONALLY LEFT BLANK

Examples of Unacceptable Reference and Rationale

DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION

Interim Final 2/5/99

**RCRA Corrective Action
Environmental Indicator (EI) RCRIS code (CA725)**

Current Human Exposures Under Control

Facility Name: _____
 Facility Address: _____
 Facility EPA ID #: _____

1. Has all available relevant/significant information on known and reasonably suspected releases to soil, groundwater, surface water/sediments, and air, subject to RCRA Corrective Action (e.g., from Solid Waste Management Units (SWMU), Regulated Units (RU), and Areas of Concern (AOC)), been considered in this EI determination?

- If yes - check here and continue with #2 below.
- If no - re-evaluate existing data, or
- if data are not available skip to #6 and enter "IN" (more information needed) status code.

BACKGROUND

Definition of Environmental Indicators (for the RCRA Corrective Action)

Environmental Indicators (EI) are measures being used by the RCRA Corrective Action program to go beyond programmatic activity measures (e.g., reports received and approved, etc.) to track changes in the quality of the environment. The two EI developed to-date indicate the quality of the environment in relation to current human exposures to contamination and the migration of contaminated groundwater. An EI for non-human (ecological) receptors is intended to be developed in the future.

Definition of "Current Human Exposures Under Control" EI

A positive "Current Human Exposures Under Control" EI determination ("YE" status code) indicates that there are no "unacceptable" human exposures to "contamination" (i.e., contaminants in concentrations in excess of appropriate risk-based levels) that can be reasonably expected under current land- and groundwater-use conditions (for all "contamination" subject to RCRA corrective action at or from the identified facility (i.e., site-wide)).

Relationship of EI to Final Remedies

While Final remedies remain the long-term objective of the RCRA Corrective Action program the EI are near-term objectives which are currently being used as Program measures for the Government Performance and Results Act of 1993, GPRA). The "Current Human Exposures Under Control" EI are for reasonably expected human exposures under current land- and groundwater-use conditions ONLY, and do not consider potential future land- or groundwater-use conditions or ecological receptors. The RCRA Corrective Action program's overall mission to protect human health and the environment requires that Final remedies address these issues (i.e., potential future human exposure scenarios, future land and groundwater uses, and ecological receptors).

Duration / Applicability of EI Determinations

EI Determinations status codes should remain in RCRIS national database ONLY as long as they remain true (i.e., RCRIS status codes must be changed when the regulatory authorities become aware of contrary information).

Examples of Unacceptable Reference and Rationale

Current Human Exposures Under Control
Environmental Indicator (EI) RCRIS code (CA725)
 Page 2

2. Are groundwater, soil, surface water, sediments, or air **media** known or reasonably suspected to be "**contaminated**"¹ above appropriately protective risk-based "levels" (applicable promulgated standards, as well as other appropriate standards, guidelines, guidance, or criteria) from releases subject to RCRA Corrective Action (from SWMUs, RUs or AOCs)?

	<u>Yes</u>	<u>No</u>	<u>?</u>	<u>Rationale / Key Contaminants</u>
Groundwater	—	✓	—	_____
Air (indoors) ²	—	✓	—	_____
Surface Soil (e.g., <2 ft)	—	✓	—	_____
Surface Water	—	✓	—	_____
Sediment	—	✓	—	_____
Subsurf. Soil (e.g., >2 ft)	—	✓	—	_____
Air (outdoors)	—	✓	—	_____

✓ If no (for all media) - skip to #6, and enter "YE," status code after providing or citing appropriate "levels," and referencing sufficient supporting documentation demonstrating that these "levels" are not exceeded.

— If yes (for any media) - continue after identifying key contaminants in each "contaminated" medium, citing appropriate "levels" (or provide an explanation for the determination that the medium could pose an unacceptable risk), and referencing supporting documentation.

— If unknown (for any media) - skip to #6 and enter "IN" status code.

Rationale and Reference(s): *RCRA Facility Investigation Report*

Footnotes:

¹ "Contamination" and "contaminated" describes media containing contaminants (in any form, NAPL and/or dissolved, vapors, or solids, that are subject to RCRA) in concentrations in excess of appropriately protective risk-based "levels" (for the media, that identify risks within the acceptable risk range).

² Recent evidence (from the Colorado Dept. of Public Health and Environment, and others) suggest that unacceptable indoor air concentrations are more common in structures above groundwater with volatile contaminants than previously believed. This is a rapidly developing field and reviewers are encouraged to look to the latest guidance for the appropriate methods and scale of demonstration necessary to be reasonably certain that indoor air (in structures located above (and adjacent to) groundwater with volatile contaminants) does not present unacceptable risks.

Examples of Unacceptable Reference and Rationale

**Current Human Exposures Under Control
Environmental Indicator (EI) RCRIS code (CA725)
Page 3**

3. Are there **complete pathways** between "contamination" and human receptors such that exposures can be reasonably expected under the current (land- and groundwater-use) conditions?

Summary Exposure Pathway Evaluation Table

<u>"Contaminated" Media</u>	<u>Potential Human Receptors</u> (Under Current Conditions)					
	Residents	Workers	Day-Care	Construction	Trespassers	Recreation
Food ³						
Groundwater	___	___	___	___		___
Air (indoors)	___	___	___			
Soil (surface, e.g., <2 ft)	___	___	___	___	___	___
Surface Water	___	___			___	___
Sediment	___	___			___	___
Soil (subsurface e.g., >2 ft)	___	___		___		___
Air (outdoors)	___	___	___	___	___	

Instructions for Summary Exposure Pathway Evaluation Table:

- Strike-out specific Media including Human Receptors' spaces for Media which are not "contaminated") as identified in #2 above.
- enter "yes" or "no" for potential "completeness" under each "Contaminated" Media -- Human Receptor combination (Pathway).

Note: In order to focus the evaluation to the most probable combinations some potential "Contaminated" Media - Human Receptor combinations (Pathways) do not have check spaces ("___"). While these combinations may not be probable in most situations they may be possible in some settings and should be added as necessary.

- ___ If no (pathways are not complete for any contaminated media-receptor combination) - skip to #6, and enter "YE" status code, after explaining and/or referencing condition(s) in-place, whether natural or man-made, preventing a complete exposure pathway from each contaminated medium (e.g., use optional Pathway Evaluation Work Sheet to analyze major pathways).
- ___ If yes (pathways are complete for any "Contaminated" Media - Human Receptor combination) - continue after providing supporting explanation.
- ___ If unknown (for any "Contaminated" Media - Human Receptor combination) - skip to #6 and enter "IN" status code

Rationale and Reference(s): _____

³ Indirect Pathway/Receptor (e.g., vegetables, fruits, crops, meat and dairy products, fish, shellfish, etc.)

Examples of Unacceptable Reference and Rationale

**Current Human Exposures Under Control
Environmental Indicator (EI) RCRIS code (CA725)
Page 4**

4 Can the **exposures** from any of the complete pathways identified in #3 be reasonably expected to be "**significant**"⁴ (i.e., potentially "unacceptable" because exposures can be reasonably expected to be: 1) greater in magnitude (intensity, frequency and/or duration) than assumed in the derivation of the acceptable "levels" (used to identify the "contamination"); or 2) the combination of exposure magnitude (perhaps even though low) and contaminant concentrations (which may be substantially above the acceptable "levels") could result in greater than acceptable risks)?

_____ If no (exposures can not be reasonably expected to be significant (i.e., potentially "unacceptable") for any complete exposure pathway) - skip to #6 and enter "YE" status code after explaining and/or referencing documentation justifying why the exposures (from each of the complete pathways) to "contamination" (identified in #3) are not expected to be "significant."

_____ If yes (exposures could be reasonably expected to be "significant" (i.e., potentially "unacceptable") for any complete exposure pathway) - continue after providing a description (of each potentially "unacceptable" exposure pathway) and explaining and/or referencing documentation justifying why the exposures (from each of the remaining complete pathways) to "contamination" (identified in #3) are not expected to be "significant."

_____ If unknown (for any complete pathway) - skip to #6 and enter "IN" status code

Rationale and Reference(s):

⁴ If there is any question on whether the identified exposures are "significant" (i.e., potentially "unacceptable") consult a human health Risk Assessment specialist with appropriate education, training and experience.

Examples of Unacceptable Reference and Rationale

Current Human Exposures Under Control
Environmental Indicator (EI) RCRIS code (CA725)
Page 5

- 5 Can the "significant" exposures (identified in #4) be shown to be within acceptable limits?
- _____ If yes (all "significant" exposures have been shown to be within acceptable limits) - continue and enter "YE" after summarizing and referencing documentation justifying why all "significant" exposures to "contamination" are within acceptable limits (e.g., a site-specific Human Health Risk Assessment).
 - _____ If no (there are current exposures that can be reasonably expected to be "unacceptable")- continue and enter "NO" status code after providing a description of each potentially "unacceptable" exposure.
 - _____ If unknown (for any potentially "unacceptable" exposure) - continue and enter "IN" status code

Rationale and Reference(s): _____

Examples of Unacceptable Reference and Rationale

**Current Human Exposures Under Control
Environmental Indicator (EI) RCRIS code (CA725)
Page 6**

6. Check the appropriate RCRIS status codes for the Current Human Exposures Under Control EI event code (CA725), and obtain Supervisor (or appropriate Manager) signature and date on the EI determination below (and attach appropriate supporting documentation as well as a map of the facility):

YE - Yes, "Current Human Exposures Under Control" has been verified. Based on a review of the information contained in this EI Determination, "Current Human Exposures" are expected to be "Under Control" at the _____ facility, EPA ID # _____, located at _____ under current and reasonably expected conditions. This determination will be re-evaluated when the Agency/State becomes aware of significant changes at the facility.

____ NO - "Current Human Exposures" are NOT "Under Control."

____ IN - More information is needed to make a determination.

Completed by (s)
(p)
(t)

Supervisor (s)
(p)
(title) _____
(EPA Region or State) _____

Locations where References may be found:

Cutback

Contact telephone and e-mail numbers

(name) _____
(phone) _____
(e-mail) _____

FINAL NOTE: THE HUMAN EXPOSURES EI IS A QUALITATIVE SCREENING OF EXPOSURES AND THE DETERMINATIONS WITHIN THIS DOCUMENT SHOULD NOT BE USED AS THE SOLE BASIS FOR RESTRICTING THE SCOPE OF MORE DETAILED (E.G., SITE-SPECIFIC) ASSESSMENTS OF RISK.

Examples of Unacceptable Reference and Rationale

DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION

Interim Final 2/5/99

**RCRA Corrective Action
Environmental Indicator (EI) RCRIS code (CA725)**

Current Human Exposures Under Control

Facility Name: _____
 Facility Address: _____
 Facility EPA ID #: _____

1. Has all available relevant/significant information on known and reasonably suspected releases to soil, groundwater, surface water/sediments, and air, subject to RCRA Corrective Action (e.g., from Solid Waste Management Units (SWMU), Regulated Units (RU), and Areas of Concern (AOC)), been considered in this EI determination?

If yes - check here and continue with #2 below.

If no - re-evaluate existing data, or

if data are not available skip to #6 and enter "IN" (more information needed) status code.

BACKGROUND**Definition of Environmental Indicators (for the RCRA Corrective Action)**

Environmental Indicators (EI) are measures being used by the RCRA Corrective Action program to go beyond programmatic activity measures (e.g., reports received and approved, etc.) to track changes in the quality of the environment. The two EI developed to-date indicate the quality of the environment in relation to current human exposures to contamination and the migration of contaminated groundwater. An EI for non-human (ecological) receptors is intended to be developed in the future.

Definition of "Current Human Exposures Under Control" EI

A positive "Current Human Exposures Under Control" EI determination ("YE" status code) indicates that there are no "unacceptable" human exposures to "contamination" (i.e., contaminants in concentrations in excess of appropriate risk-based levels) that can be reasonably expected under current land- and groundwater-use conditions (for all "contamination" subject to RCRA corrective action at or from the identified facility (i.e., site-wide)).

Relationship of EI to Final Remedies

While Final remedies remain the long-term objective of the RCRA Corrective Action program the EI are near-term objectives which are currently being used as Program measures for the Government Performance and Results Act of 1993, GPRA). The "Current Human Exposures Under Control" EI are for reasonably expected human exposures under current land- and groundwater-use conditions ONLY, and do not consider potential future land- or groundwater-use conditions or ecological receptors. The RCRA Corrective Action program's overall mission to protect human health and the environment requires that Final remedies address these issues (i.e., potential future human exposure scenarios, future land and groundwater uses, and ecological receptors).

Duration / Applicability of EI Determinations

EI Determinations status codes should remain in RCRIS national database ONLY as long as they remain true (i.e., RCRIS status codes must be changed when the regulatory authorities become aware of contrary information).

Examples of Unacceptable Reference and Rationale**DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION**

Interim Final 2/5/99

RCRA Corrective Action**Environmental Indicator (EI) RCRIS code (CA750)****Migration of Contaminated Groundwater Under Control**

Facility Name: _____
 Facility Address: _____
 Facility EPA ID #: _____

1. Has all available relevant/significant information on known and reasonably suspected releases to the groundwater media, subject to RCRA Corrective Action (e.g., from Solid Waste Management Units (SWMU), Regulated Units (RU), and Areas of Concern (AOC)), been considered in this EI determination?

If yes - check here and continue with #2 below.

If no - re-evaluate existing data, or

if data are not available, skip to #8 and enter "IN" (more information needed) status code.

BACKGROUND**Definition of Environmental Indicators (for the RCRA Corrective Action)**

Environmental Indicators (EI) are measures being used by the RCRA Corrective Action program to go beyond programmatic activity measures (e.g., reports received and approved, etc.) to track changes in the quality of the environment. The two EI developed to-date indicate the quality of the environment in relation to current human exposures to contamination and the migration of contaminated groundwater. An EI for non-human (ecological) receptors is intended to be developed in the future.

Definition of "Migration of Contaminated Groundwater Under Control" EI

A positive "Migration of Contaminated Groundwater Under Control" EI determination ("YE" status code) indicates that the migration of "contaminated" groundwater has stabilized, and that monitoring will be conducted to confirm that contaminated groundwater remains within the original "area of contaminated groundwater" (for all groundwater "contamination" subject to RCRA corrective action at or from the identified facility (i.e., site-wide)).

Relationship of EI to Final Remedies

While Final remedies remain the long-term objective of the RCRA Corrective Action program the EI are near-term objectives which are currently being used as Program measures for the Government Performance and Results Act of 1993, GPRA). The "Migration of Contaminated Groundwater Under Control" EI pertains ONLY to the physical migration (i.e., further spread) of contaminated ground water and contaminants within groundwater (e.g., non-aqueous phase liquids or NAPLs). Achieving this EI does not substitute for achieving other stabilization or final remedy requirements and expectations associated with sources of contamination and the need to restore, wherever practicable, contaminated groundwater to be suitable for its designated current and future uses.

Duration / Applicability of EI Determinations

EI Determinations status codes should remain in RCRIS national database ONLY as long as they remain true (i.e., RCRIS status codes must be changed when the regulatory authorities become aware of contrary information).

Examples of Unacceptable Reference and Rationale

**Migration of Contaminated Groundwater Under Control
Environmental Indicator (EI) RCRIS code (CA750)
Page 2**

2. Is groundwater known or reasonably suspected to be "contaminated"¹ above appropriately protective "levels" (i.e., applicable promulgated standards, as well as other appropriate standards, guidelines, guidance, or criteria) from releases subject to RCRA Corrective Action, anywhere at, or from, the facility?

If yes - continue after identifying key contaminants, citing appropriate "levels," and referencing supporting documentation.

If no - skip to #8 and enter "YE" status code, after citing appropriate "levels," and referencing supporting documentation to demonstrate that groundwater is not "contaminated."

If unknown - skip to #8 and enter "IN" status code.

Rationale and Reference(s): RCRA Facility Investigation Report

Footnotes:

¹"Contamination" and "contaminated" describes media containing contaminants (in any form, NAPL and/or dissolved, vapors, or solids, that are subject to RCRA) in concentrations in excess of appropriate "levels" (appropriate for the protection of the groundwater resource and its beneficial uses).

Examples of Unacceptable Reference and Rationale

**Migration of Contaminated Groundwater Under Control
Environmental Indicator (EI) RCRIS code (CA750)**

Page 3

3. Has the **m**igration of contaminated groundwater **s**tabilized (such that contaminated groundwater is expected to remain within "existing area of contaminated groundwater"² as defined by the monitoring locations designated at the time of this determination)?
- _____ If yes - continue, after presenting or referencing the physical evidence (e.g., groundwater sampling/measurement/migration barrier data) and rationale why contaminated groundwater is expected to remain within the (horizontal or vertical) dimensions of the "existing area of groundwater contamination"².
 - _____ If no (contaminated groundwater is observed or expected to migrate beyond the designated locations defining the "existing area of groundwater contamination"²) - skip to #8 and enter "NO" status code, after providing an explanation.
 - _____ If unknown - skip to #8 and enter "IN" status code.

Rationale and Reference(s): _____

² "existing area of contaminated groundwater" is an area (with horizontal and vertical dimensions) that has been verifiably demonstrated to contain all relevant groundwater contamination for this determination, and is defined by designated (monitoring) locations proximate to the outer perimeter of "contamination" that can and will be sampled/tested in the future to physically verify that all "contaminated" groundwater remains within this area, and that the further migration of "contaminated" groundwater is not occurring. Reasonable allowances in the proximity of the monitoring locations are permissible to incorporate formal remedy decisions (i.e., including public participation) allowing a limited area for natural attenuation.

Examples of Unacceptable Reference and Rationale

**Migration of Contaminated Groundwater Under Control
Environmental Indicator (EI) RCRIS code (CA750)
Page 4**

- 4. Does "contaminated" groundwater discharge into surface water bodies?
 - _____ If yes - continue after identifying potentially affected surface water bodies.
 - _____ If no - skip to #7 (and enter a "YE" status code in #8, if #7 = yes) after providing an explanation and/or referencing documentation supporting that groundwater "contamination" does not enter surface water bodies.
 - _____ If unknown - skip to #8 and enter "IN" status code.

Rationale and Reference(s): _____

Examples of Unacceptable Reference and Rationale

**Migration of Contaminated Groundwater Under Control
Environmental Indicator (EI) RCRIS code (CA750)**

Page 5

5. Is the discharge of "contaminated" groundwater into surface water likely to be "insignificant" (i.e., the maximum concentration³ of each contaminant discharging into surface water is less than 10 times their appropriate groundwater "level," and there are no other conditions (e.g., the nature, and number, of discharging contaminants, or environmental setting), which significantly increase the potential for unacceptable impacts to surface water, sediments, or eco-systems at these concentrations)?

_____ If yes - skip to #7 (and enter "YE" status code in #8 if #7 = yes), after documenting: 1) the maximum known or reasonably suspected concentration³ of key contaminants discharged above their groundwater "level," the value of the appropriate "level(s)," and if there is evidence that the concentrations are increasing; and 2) provide a statement of professional judgement/explanation (or reference documentation) supporting that the discharge of groundwater contaminants into the surface water is not anticipated to have unacceptable impacts to the receiving surface water, sediments, or eco-system.

_____ If no - (the discharge of "contaminated" groundwater into surface water is potentially significant) - continue after documenting: 1) the maximum known or reasonably suspected concentration³ of each contaminant discharged above its groundwater "level," the value of the appropriate "level(s)," and if there is evidence that the concentrations are increasing; and 2) for any contaminants discharging into surface water in concentrations³ greater than 100 times their appropriate groundwater "levels," the estimated total amount (mass in kg/yr) of each of these contaminants that are being discharged (loaded) into the surface water body (at the time of the determination), and identify if there is evidence that the amount of discharging contaminants is increasing.

_____ If unknown - enter "IN" status code in #8.

Rationale and Reference(s):

³ As measured in groundwater prior to entry to the groundwater-surface water/sediment interaction (e.g., hyporheic) zone.

Examples of Unacceptable Reference and Rationale

**Migration of Contaminated Groundwater Under Control
Environmental Indicator (EI) RCRIS code (CA750)**

Page 6

- 6. Can the **discharge** of "contaminated" groundwater into surface water be shown to be "**currently acceptable**" (i.e., not cause impacts to surface water, sediments or eco-systems that should not be allowed to continue until a final remedy decision can be made and implemented⁴)?

_____ If yes - continue after either: 1) identifying the Final Remedy decision incorporating these conditions, or other site-specific criteria (developed for the protection of the site's surface water, sediments, and eco-systems), and referencing supporting documentation demonstrating that these criteria are not exceeded by the discharging groundwater; OR 2) providing or referencing an interim-assessment,⁵ appropriate to the potential for impact, that shows the discharge of groundwater contaminants into the surface water is (in the opinion of a trained specialists, including ecologist) adequately protective of receiving surface water, sediments, and eco-systems, until such time when a full assessment and final remedy decision can be made. Factors which should be considered in the interim-assessment (where appropriate to help identify the impact associated with discharging groundwater) include: surface water body size, flow, use/classification/habitats and contaminant loading limits, other sources of surface water/sediment contamination, surface water and sediment sample results and comparisons to available and appropriate surface water and sediment "levels," as well as any other factors, such as effects on ecological receptors (e.g., via bio-assays/benthic surveys or site-specific ecological Risk Assessments), that the overseeing regulatory agency would deem appropriate for making the EI determination.

_____ If no - (the discharge of "contaminated" groundwater can not be shown to be "**currently acceptable**") - skip to #8 and enter "NO" status code, after documenting the currently unacceptable impacts to the surface water body, sediments, and/or eco-systems.

_____ If unknown - skip to 8 and enter "IN" status code.

Rationale and Reference(s): _____

⁴ Note, because areas of inflowing groundwater can be critical habitats (e.g., nurseries or thermal refugia) for many species, appropriate specialist (e.g., ecologist) should be included in management decisions that could eliminate these areas by significantly altering or reversing groundwater flow pathways near surface water bodies.

⁵ The understanding of the impacts of contaminated groundwater discharges into surface water bodies is a rapidly developing field and reviewers are encouraged to look to the latest guidance for the appropriate methods and scale of demonstration to be reasonably certain that discharges are not causing currently unacceptable impacts to the surface waters, sediments or eco-systems.

Examples of Unacceptable Reference and Rationale

**Migration of Contaminated Groundwater Under Control
Environmental Indicator (EI) RCRIS code (CA750)
Page 8**

8. Check the appropriate RCRIS status codes for the Migration of Contaminated Groundwater Under Control EI (event code CA750), and obtain Supervisor (or appropriate Manager) signature and date on the EI determination below (attach appropriate supporting documentation as well as a map of the facility).

YE - Yes, "Migration of Contaminated Groundwater Under Control" has been verified. Based on a review of the information contained in this EI determination, it has been determined that the "Migration of Contaminated Groundwater" is "Under Control" at the _____ facility, EPA ID # _____, located at _____. Specifically, this determination indicates that the migration of "contaminated" groundwater is under control, and that monitoring will be conducted to confirm that contaminated groundwater remains within the "existing area of contaminated groundwater" This determination will be re-evaluated when the Agency becomes aware of significant changes at the facility.

NO - Unacceptable migration of contaminated groundwater is observed or expected.

IN - More information is needed to make a determination.

Completed by (signature)
(print)
(title)

Supervisor (signature)
(print)
(title)
(EPA Region or State)

Locations where References may be found:

subcell

Contact telephone and e-mail numbers

(name)
(phon
(e-ma

THIS PAGE INTENTIONALLY LEFT BLANK

Accuracy of Region 4 Positive EI Determinations
(Sampled Facilities Only)

EI Code	Facility ID Number	Accurate (Documentation Matches RCRIS)	Invalid Determination	Inaccurate Date in RCRIS	EI Not in RCRIS as of January 2000
CA750	FLD980799050	X R 9/30/98 D 9/30/98			
CA725	FLD980799050	X R 9/30/98 D 9/30/98			
CA750	GAD67560870			X R 9/30/99 D 10/4/99	
CA725	GAD67560870		X Not Signed		
CA750	GAD010103232			X R 9/22/97 D 7/16/97	
CA725	GAD010103232			X R 9/22/97 D 7/16/97	
CA750	GAD003326477				X
CA750	GAR000000901	X R 9/30/99 D 9/30/99			
CA725	GAD981224942			X R 4/11/95 D 4/11/96	
CA725	GAD041007063	X R 9/30/97 D 9/30/97			
CA725	GAD093380814				X

Accuracy of Region 4 Positive EI Determinations
(Sampled Facilities Only)

EI Code	Facility ID Number	Accurate (Documentation Matches RCRIS)	Invalid Determination	Inaccurate Date in RCRIS	EI Not in RCRIS as of January 2000
CA725	No ID on EI Documentation for Chemical Specialties - RFI date did match.			X R 4/24/96 D 8/24/96	
CA750	No ID on EI Documentation for Chemical Specialties - RFI date did match.			X R 4/24/96 D 8/24/96	
CA725	ALD031490501			X R 8/19/99 D 8/30/99	
CA750	ALD031490501			X R 8/19/99 D 8/30/99	
CA725	ALD079127635	X R 9/30/99 D 9/30/99			
CA750	ALD079127635	X R 9/30/99 D 9/30/99			
CA750	ALD004019048	X R 9/20/99 D 9/20/99			
CA725	NCD981476955			X R 9/24/98 D 10/1/98	
CA750	NCD981476955			X R 9/24/98 D 10/1/98	
CA750	SCD044442333		X Not Signed		

Accuracy of Region 4 Positive EI Determinations
(Sampled Facilities Only)

EI Code	Facility ID Number	Accurate (Documentation Matches RCRIS)	Invalid Determination	Inaccurate Date in RCRIS	EI Not in RCRIS as of January 2000
CA725	TND003337292		X Not Signed		
CA750	TND003337292		X Not Signed		
CA750	TND047025589		X - *		
CA750	TND047025589		X - *		
CA725	TND003095635	X R 9/11/96 D 9/11/96			
CA750	KYD062951801			X R 7/17/96 D 8/19/96	
CA725	KYD062951801			X R 7/17/96 D 8/19/96	
CA750 / NR	KYD980600043			X R 8/24/98 D 8/26/98	
CA725	KYD980600043			X R 8/24/98 D 8/26/98	
CA750	KYD006373922	X R 6/7/96 D 6/7/96			
CA750	MSD990866329	X R 7/2/97 D 7/2/97			

Accuracy of Region 4 Positive EI Determinations
(Sampled Facilities Only)

EI Code	Facility ID Number	Accurate (Documentation Matches RCRIS)	Invalid Determination	Inaccurate Date in RCRIS	EI Not in RCRIS as of January 2000
CA750 / NR	MSD065462517	X R 9/30/97 D 9/30/97			
CA725 / NC	MSD065462517	X R 9/30/97 D 9/30/97			
CA725	FLD004104105			X R 8/16/96 D 8/14/96	
CA725	FLD083200998	X R 8/24/96 D 8/24/96			
CA725	FLD061993606		X Not Signed or Dated		
CA725	FL6570024582	X R 9/16/96 D 9/16/96			
CA725	FLD004088258	X R 9/30/97 D 9/30/97			

R = RCRIS as of January 2000

D = EI document date

NR = No releases

NC = No control measures necessary

* The January 2000 database indicated that an EI was accomplished on 9/30/99, but the supporting EI document is still in draft form as of 10/12/99 and not signed on 9/30/99.

Accuracy of Region 5 Positive EI Determinations
(Sampled Sites Only)

EI Code	Facility ID Number	Accurate (Documentation Matches RCRIS)	Invalid Determination	Inaccurate Date in RCRIS	EI Not in RCRIS as of January 2000
CA750 / NR	OHD004461711		X Valid Code Not Selected		
CA725	OHD004461711	X R 5/13/99 D 5/13/99			
CA750	OHD042157644			X R 9/30/98 D 3/18/99	
CA725	OHD042157644			X R 9/30/98 D 3/18/99	
CA750	OHD981529688			X R 1/6/99 D 3/18/99	
CA725	OHD981529688			X R 1/6/99 D 3/18/99	
CA750	OHD004282158				X D 3/5/99
CA725	OHD004282158	X R 3/5/99 D 3/5/99			
CA750	OHD052859170				X D 3/5/99
CA725	OHD052859170	X R 3/5/99 D 3/5/99			
CA750	OHD068111327				X D 3/8/99

Accuracy of Region 5 Positive EI Determinations
(Sampled Sites Only)

EI Code	Facility ID Number	Accurate (Documentation Matches RCRIS)	Invalid Determination	Inaccurate Date in RCRIS	EI Not in RCRIS as of January 2000
CA725	OHD068111327			X R 3/5/99 D 3/8/99	
CA750	IND072040348	X R 5/12/99 D 5/12/99			
CA725	IND072040348	X R 5/11/99 D 5/11/99			
CA725	IND984894527	X R 11/12/99 D 11/12/99			
CA725	ILD006278170	X R 9/23/99 D 9/23/99			
CA750	ILD005178975	X R 9/30/99 D 9/30/99			

R = RCRIS as of January 2000

D = EI document date

NR = No releases

Accuracy of Region 6 Positive EI Determinations
(Sampled Sites Only)

EI Code	Facility ID Number	Accurate (Documentation Matches RCRIS)	Invalid Determination	Inaccurate Date in RCRIS	EI Not in RCRIS as of January 2000
CA750	TXD008113441			X R 7/28/98 D 11/8/99	
CA725	TXD008113441			X R 7/28/98 D 11/8/99	
CA750	TXD007333800			X R 9/13/96 D 11/9/99	
CA725	TXD007333800			X R 9/13/96 D 11/9/99	

R = RCRIS as of January 2000
D = EI document date

THIS PAGE INTENTIONALLY LEFT BLANK

Agency Response

September 28, 2000

MEMORANDUM

SUBJECT: OIG Draft Report, "RCRA Corrective Action Focuses on Interim Results - Improvements In Documentation and Future Focus on Final Cleanup Needed"

FROM: Timothy Fields, Jr. /s/
Assistant Administrator
for Solid Waste and Emergency Response

TO: John T. Walsh
Divisional Inspector General for Audit
Office of Inspector General

The Office of Solid Waste and Emergency Response (OSWER) has reviewed the subject Office of Inspector General (OIG) report and the recommendations contained therein. The purpose of this memorandum is to provide you with our feedback on the report. In general, we find that the report accurately reflects the RCRA Corrective Action Program's current strategy of focusing short-term implementation on two environmental indicators while still emphasizing the ultimate goal of achieving final cleanups. Furthermore, we agree with all of the report's recommendations, including those concerning documentation of environmental indicators and the need to develop a "final cleanup" indicator with an ecological component.

OSWER would like to convey our appreciation for the significant effort the OIG staff put into gathering information, developing findings and providing recommendations. Additionally, we sincerely appreciate the time the OIG staff spent with us discussing early drafts and the significant changes they incorporated based on our verbal suggestions. We have no additional comments on this draft report, and we look forward to receiving the final report.

If you have any questions regarding this response, please contact Robert Hall at (703) 308-8432.

cc: Anne Andrews
Robert Hall
Steve Heare
Tina Lovingood

THIS PAGE INTENTIONALLY LEFT BLANK

Report Distribution

Inspector General
 Deputy Assistant Inspector General for Internal Audits
 Headquarters Audit Liaison (Dick Hall)
 Headquarters Audit Liaison (Carol Jacobson)
 Divisional Inspector Generals for Audit (and sub-offices)
 Assistant Administrator for Solid Waste and Emergency Response
 Assistant Administrator for Enforcement and Compliance Assurance
 Comptroller
 Agency Follow-up Official
 Agency Follow-up Coordinator
 OECA Followup Coordinator (Greg Marion)
 OSWER Followup Coordinator (Johnsie Webster)
 Region 4 Audit Coordinator (Linda Barret)
 Region 5 Audit Coordinator (Howard Levin)
 Region 5 Audit Coordinator (Eric Levy)
 Region 6 Audit Coordinator (Diane Taheri)
 Associate Administrator for Congressional and Intergovernmental Relations
 Associate Administrator for Communications, Education, and Media Relations
 Associate Administrator for Regional Operations

Steve Heare, OSWER (5303W)
 Bob Hall, OSWER (5303W)
 Henry Schuver, OSWER (5303W)
 Linda Boornazian, OECA (2273A)
 Paul Connor, OECA (2273A)
 Neilima Senjalia, OECA (2273A)
 Peter Neves, OECA (2273A)
 Narindar Kumar, Region 4
 Jeffrey Pallas, Region 4
 Anna Torgrimson, Region 4
 Gerald Phillips, Region 5
 Hak Cho, Region 5
 Karl Bremer, Region 5
 George Hamper, Region 5
 Stephen Gilrein, Region 6
 Mark Potts, Region 6
 William (Bill) Gallagher, Region 6
 David Neleigh, Region 6
 Laurie King, Region 6
 Cathy Gilmore, Region 6

