



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

December 27, 2001

OFFICE OF  
INSPECTOR GENERAL

**MEMORANDUM**

**SUBJECT:** Evaluation of Superfund Environmental Indicators  
(Report No. 2002 -P-3)

**FROM:** Frances E. Tafer, Audit Team Leader           /s/ Frances E. Tafer  
Headquarters Audit Division

**THRU:** Michael Wall                   /s/ Frances E. Tafer /for/  
Acting Divisional Inspector General  
Headquarters Audit Division

**TO:** Marianne Lamont Horinko  
Assistant Administrator for  
Solid Waste and Emergency Response

This memorandum report summarizes our evaluation of the two draft Superfund Environmental Indicators (EIs) provided to us on July 12, 2001. EIs are specific measures of program performance used to assess progress toward cleaning up a hazardous waste site. This review is the initial component of the Office of Inspector General's (OIG) program evaluation of Superfund mega-sites. A program evaluation is an assessment to determine how well a program is working. Part of a program evaluation can be to examine whether a program has achieved its objectives, which are expressed as measurable performance standards. The draft EIs, human exposure under control and contaminated groundwater migration under control, are measures of interim progress of Superfund program goals for all Superfund sites, including mega-sites. Mega-sites have been defined<sup>1</sup> as Superfund sites that are estimated to cost \$50 million or more to clean up. This evaluation of EIs was not an audit performed in accordance with government audit standards. Rather, this evaluation was a consultative and cooperative effort with your staff members who are developing the EIs.

Our overall program evaluation of mega-sites is being designed to answer the question:

*Are there opportunities for improving responses to current and potential future mega-site risks to human health and the environment?*

We are considering other areas for evaluation to try to answer this overall question. They are: future state responsibilities (financial), hardrock mining, and natural resource damages. We will soon consult with your staff on these and other areas.

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<sup>1</sup> Probst, Katherine N., and Konisky, David M., Superfund's Future: What Will It Cost?, Page 8, Resources for the Future, Washington, DC, 2001

We issued our draft report on October 24, 2001. The Assistant Administrator for the Office of Solid Waste and Emergency Response (OSWER) replied to the draft report on December 11, 2001, and the reply is included as Attachment 3. This final report includes the results of the OIG's comparison between the RCRA EIs and draft Superfund EIs, and actions the OIG recommends. This report represents the opinion of the OIG and the findings contained in the report do not necessarily represent the final EPA position. Final determinations on matters in this report will be made by EPA managers in accordance with established audit resolution procedures. Accordingly, the findings described in the report are not binding upon EPA in any enforcement proceeding brought by EPA or the Department of Justice.

## **Results in Brief**

Overall, the draft Superfund EIs were suitable because they measure a state of the environment, instead of marking the completion of an administrative step in the Superfund cleanup process. However, we identified some policy and technical issues that need to be resolved should the Superfund program maintain the EIs as drafted. We consulted with your staff from the Office of Emergency and Remedial Response (Superfund) and the Office of Solid Waste (Resource Conservation and Recovery Act - RCRA) and they agreed that these are valid issues which should be addressed if the EIs are implemented as drafted. We also made several recommendations for improving or clarifying the Superfund EIs.

## **Background**

At the request of RCRA officials, the OIG previously conducted a comprehensive audit of the RCRA corrective action environmental indicators ("RCRA Corrective Action Focuses on Interim Priorities—Better Integration with Final Goals Needed," #2000-P-0028, September 29, 2000). During this audit, we considered the overall implementation of the Government Performance and Results Act (GPRA) for the RCRA corrective action program. The examination of the overall implementation included: the GPRA goal of restoration of sites, the EIs, the obstacles to successful achievement of the EIs, source documentation, information system data accuracy for the EIs, resources allocated to achieve the EIs, and management oversight. We found that the RCRA corrective action EIs are good interim measures of progress because they measure the state of the environment. We also found that the overall GPRA goal of restoring sites to uses appropriate for surrounding communities, which applies to both the RCRA corrective action and Superfund programs, had not been defined by either program. Therefore, we recommended that EPA define restoration by developing final EIs. Further, we recommended that EPA develop ecological EIs, which would measure the health of the environment in addition to groundwater. We used this audit as a basis to review and compare the draft Superfund EIs, since they are modeled after the RCRA corrective action program EIs.

In the Senate Appropriations Committee Report on EPA's budget for fiscal year 2000, the Committee said it expected EPA to include Superfund program EIs "as in the RCRA corrective action program" in the fiscal year 2001 budget. Superfund officials have interpreted the Committee's suggestion to mean that the Superfund EIs should be similar or analogous to those developed by the RCRA corrective action program. Accordingly, Superfund officials drafted the following two EIs, which are patterned after those previously established for RCRA: (1) human

exposure under control, and (2) contaminated groundwater migration under control. Superfund officials developed documentation to be used in evaluating the EIs, which included a summary sheet to capture the overall results, and individual worksheets to document the evaluation of each EI. They also adopted RCRA's guidance for the EIs. We understand that OSWER management asked the Superfund and RCRA programs to work together to ensure consistency of the EIs within the programs.

The Superfund official responsible for the development of the draft Superfund EIs informed us that the Superfund program conducted an initial data gathering exercise to gather some baseline data regarding the draft EIs. Officials compared these data with the results for 47 Superfund National Priorities List (NPL) sites that also contained RCRA facilities where the RCRA EIs had been evaluated as of June 4, 2001. The initial comparison showed that the EI determinations were different at 37 (79%) of the 47 sites. For example, the determination for the Superfund EIs showed that human health exposures were under control, while the determination for the RCRA EIs showed human health exposures were not under control. Superfund and RCRA officials told us that they have since worked together to resolve the differences for all 37 sites. However, the reasons for the initial differences may still be unknown.

## **EI Objectives**

Our specific program evaluation objective regarding Superfund EIs is:

*Will efforts to achieve the new Government Performance and Results Act (GPRA) environmental indicators for Superfund affect mega-site cleanups?*

Specific questions we also considered during our evaluation were:

- Will cleanup at mega-sites be delayed and thus cause risk to human health and the environment because the "less costly" or smaller sites will be done first?
- Will the types of remedies be affected, i.e. will short-term approaches be implemented and are they consistent with final remedies?
- Will there be a different strategy for achieving EIs at mega-sites?
- Would completing the EIs at mega-sites be consistent with the Comprehensive Environmental Response, Compensation and Liability Act and the Superfund Amendments and Reauthorization Act for permanent and treatment remedies?
- Are there other pathways (vapor intrusion) that should be considered?
- Since EIs are measurements at a specific point in time, how will the EIs be kept current?

We did not, however, answer any of these questions during our evaluation because the EIs are still in development, and it is too early to conduct the analysis needed to answer these objectives. Rather, we posed these questions for Superfund officials to consider as they continue to develop the Superfund EIs. Accordingly, a Superfund official provided his perspective on the first two bulleted questions above. He believed that developing these indicators of interim progress allows credit for eliminating exposures at sites without having to wait until construction completion occurs. He also believed that EIs may actually benefit mega-site cleanup since accomplishing EIs will encourage risk reduction at mega-sites and will generally be a smaller effort than to complete

cleanup of mega-sites. Further, he contended that since the National Contingency Plan (Superfund guidance) encourages the use of interim operable units at large sites, these interim actions are also required to be consistent with final remedies.

## **Scope and Methodology**

During our preliminary research on Superfund mega-sites, Superfund officials asked us to assist them in their efforts to develop and implement the two new EIs for the Superfund program. Specifically, a Superfund official asked us to review the documentation for the draft EIs and provide comments regarding training and guidance. In response to this request, we conducted an evaluation of the two EIs. We provided our assistance through an independent review to further enhance the timely and effective development and implementation of the indicators.

Specifically, we reviewed the draft EI documentation that Superfund officials provided to us on July 12, 2001. We compared the draft Superfund EI documentation to the 1999 guidance used by the RCRA corrective action program to support their EIs. We performed this comparison because the Superfund draft EIs were based on the RCRA EIs, and we wanted to understand what the differences were and how the differences might affect the implementation. We then consulted with officials from both the Superfund and RCRA programs to gain an understanding of the differences in wording and meaning between the two sets of documentation. We discussed how the indicators may affect the management of cleanups at mega-sites. We also evaluated the application, meaning, and overall impact of the draft EIs on the Superfund program. We discussed the initial data gathering exercise that Superfund officials conducted to gather some baseline data regarding the draft EIs. We did not conduct testing to determine whether the draft EI forms would achieve the desired results because Superfund officials asked us to perform only specific steps at this time. We were unable to provide comments on specific guidance and training since they have not been developed. We also did not evaluate the accuracy or completeness of the EI data in any information systems, or the controls over the information systems. Finally, we did not evaluate the resources needed to accomplish the EIs, or obstacles to achieving the EIs.

## **Summary of Details**

In the Senate Appropriations Committee Report on EPA's FY 2000 budget, the Committee expressed concern with EPA's management of the Superfund program. One of the areas where they expressed concern was with Superfund's performance measures as required by GPRA. It was the Committee's position that all of Superfund's performance measures were process-oriented and that there were no Superfund measures that directly address reduction of risk to human health and the environment. The Committee indicated that it expected EPA to include Superfund program EIs "as in the RCRA corrective action program" in the 2001 budget. To address the Committee's concern, the Superfund program developed the two draft EIs which we reviewed. We believe the draft Superfund EIs were suitable because they measure a state of the environment, instead of marking the completion of an administrative step in the Superfund cleanup process.

To complete our analysis of the draft Superfund EIs, we compared the Superfund and RCRA documentation designed to support the EIs. We found several policy and technical differences between the EI documentation for Superfund and that for RCRA. We understand that there are inherent distinctions between the Superfund and RCRA programs, such as who implements the programs, and the fact that one generally deals with abandoned waste while the

other regulates operating facilities. Even so, we believe these policy and technical differences need to be resolved by the Superfund and RCRA programs before implementation of the draft Superfund EIs to ensure similar results.

We are recommending changes to resolve these policy and technical differences, changes to the Superfund EI documentation, and the development of supplemental EI guidance which is more applicable to Superfund. We have attached two tables in which we provide details on all of our recommendations for improving or clarifying the environmental indicators. Attachment 1 shows items to be resolved between the Superfund and RCRA programs and Attachment 2 shows items to be resolved within the Superfund program. The tables also provide a structure for tracking the resolution of each item.

The recommendations for resolution of issues *between* the Superfund and RCRA programs are listed below. We recommend that the Assistant Administrator for OSWER:

- Resolve policy differences regarding: (1) the importance of the vapor intrusion pathway; (2) how receptors are documented; and (3) how groundwater to surface water releases are evaluated. (See item 1 on Attachment 1.)
- Resolve why the conclusions were different for EI accomplishment at sites where both Superfund and RCRA EIs were measured. If it is determined to be a systemic problem, establish controls to prevent the differences from recurring. (See item 2 on Attachment 1.)
- Resolve the differences in some language that may indicate a different result in the EI determinations. (See item 3 on Attachment 1)
- Direct OERR officials to partner with OSW and state officials to develop an ecological EI and a final EI. (See items 4 and 5 on Attachment 1.)

We also made the following recommendations for resolution of issues *within* the Superfund program. We recommend that the Assistant Administrator for OSWER:

- Revise Superfund EI documentation to clearly show the steps the program managers took to arrive at an EI decision. (See item 1 on Attachment 2.)
- Revise the EI documentation to include a brief rationale or refer specifically to other supporting documentation to support how a determination of accomplishment for each EI is measured. (See item 2 on Attachment 2.)
- Make the final EI documentation publicly available on the Internet. (See item 3 on Attachment 2.)
- Direct Superfund officials to develop guidance for the EIs to include, among other things: (1) when the EIs should be re-evaluated and define what “current” EIs mean for Superfund; (2) a clarification of how adding the EIs will or will not affect the cleanup strategy for mega-sites; and (3) how it is reasoned that the migration of contaminated groundwater can be “under control” when natural attenuation is the selected remedy. (See items 4 and 6 on Attachment 2.)

- ❑ Direct Superfund officials to modify step 2 of the Superfund EI worksheet for groundwater to include language that is more consistent with CERCLA--that focuses on a “release” rather than “anywhere at or from the facility.” (See item 5 on Attachment 2.)

In addition, since mega-sites will require extensive effort and resources, we suggest that Superfund officials consider adopting a supplemental measure of interim progress specifically for mega-sites. For example, a supplemental measurement of operable units where each of the EI are accomplished could be a way of showing progress toward meeting the mega-sites’ site-wide EI.

When we met with Superfund and RCRA officials, they acknowledged these recommendations and generally agreed with them. Superfund officials also asked the OIG to evaluate other documentation that could be used to satisfy the recommendation regarding the rationale. The OIG plans to meet with Superfund staff to discuss our evaluation of the additional documentation soon. Superfund officials also added that they have already begun working to develop both an ecological EI and a final EI.

### **Agency Response and OIG Comments**

The Assistant Administrator for OSWER provided her response to the draft report on December 11, 2001. The Assistant Administrator agreed with the overall thrust of the OIG’s comments and believed that many of the recommendations were feasible. However, she also believed that some of the points in the report needed clarification. We clarified the report where appropriate.

The Assistant Administrator further responded that she believed that the OIG draft report, in general, views the Superfund EIs as identical to RCRA EIs. Based on the language in the Senate Appropriations Committee report, OSWER officials believed the Superfund program should not develop radically different EIs, but should develop measures similar or analogous to those developed by the RCRA corrective action program. Accordingly, the EIs were developed to best reflect the needs of EPA’s overall cleanup efforts while incorporating the specific requirements of the Superfund program. These indicators were very similar to RCRA’s EIs but not identical. The OIG agrees that these EIs are similar. Our review was not based on the premise that these EIs are identical. In fact, we sought to make a comparison to better understand the differences that exist between the two sets of EIs.

We previously recommended in our draft report that the Assistant Administrator consider using identical supporting documentation, if Superfund decides to use the same EIs as RCRA. In her response, the Assistant Administrator provided four options for potentially implementing this recommendation as follows: (1) both programs work to develop mutually acceptable documentation procedures and language; (2) Superfund completely adopts RCRA documentation, procedures and language; (3) RCRA completely adopts Superfund documentation, procedures and language; or (4) Superfund renames its indicators to highlight the fact that the supporting questions are analogous, but not identical. She also provided a feasibility analysis of each of the four options, but no decisions were made as to which option would be used. She also indicated that the resolution of this particular recommendation will impact the implementation of many of the other recommendations we made for RCRA and Superfund officials to resolve.

The OIG believes that it makes sense for the hazardous waste programs to have one set of common EIs because the public generally recognizes how EPA handles the cleanup of a hazardous waste site rather than how the RCRA corrective action program or the Superfund program handles the site. However, the Assistant Administrator responded that it would create a large burden to recollect and update data for the purpose of developing mutually acceptable documentation, procedures and language. Given the policy and technical differences that we recommended OSWER resolve, and the test data that showed differences in the EI determinations at some of the sites where both Superfund and RCRA corrective action EI determinations were made, we believe there may continue to be differences in the results for each of the program's EIs. Therefore, we would suggest that each program consult with the other so that the EIs determinations will be consistent for both programs at any one site. When consistent determinations are not possible, we suggest that the program managers document that the EIs' results are different, and explain the rationale for the difference. We also suggest that when both programs are evaluating EIs at a site, that both program managers sign the documentation supporting the EIs determination. Having both program managers sign the EIs determinations will provide a check and balance for the determinations and will provide greater credibility for the EIs.

In a December 19, 2001 meeting with Superfund and RCRA officials to discuss some of the points in the Assistant Administrator's response, the officials indicated that they were working toward an approach that will ensure that there is only one EI determination for a waste site. The officials also indicated that they had worked to resolve all of the 37 instances where different determinations for RCRA EIs and Superfund EIs were initially obtained. Based on the Assistant Administrator's response to this recommendation and the actions which the Superfund and RCRA officials indicated they have or will be taking, we have removed the first recommendation from our report.

Another of our recommendations was for the Superfund program officials to work with RCRA and state officials to develop a final *environmental* indicator. The Assistant Administrator believed that the Superfund program already has final indicators: construction completion and deletion of a site from the NPL. Even so, later in the Assistant Administrator's response, she indicated that RCRA officials have agreed to collaborate with Superfund officials on the development of a "final cleanup" EI. We agree that construction completion and deletion from the NPL are indicators of progress. However, they measure steps in the cleanup process rather than the state of human health and the environment. The OIG continues to believe that Superfund officials need to develop final *environmental* indicators. Some ideas for potential final environmental indicators might be: site is available for unlimited exposure and unrestricted use; site is ready for residential reuse; site is ready for industrial reuse; site has been redeveloped; water is drinkable; or water is fishable. The OIG believes it is to the Agency's advantage to take credit for the changes in the environment that have resulted from their cleanup efforts. During the December 2001 meeting, OSWER staff told us they are considering the development of additional such indicators.

RCRA officials commented that they believed that in most, if not all, cases, EI determinations by the two programs will yield similar results. This comment seems to be inconsistent with the results of the initial data gathering exercise discussed in the Background section of this report. These data initially showed that 79% of the sites having both Superfund

and RCRA EIs completed had differing EI determinations. Although these differences have since been resolved, the OIG believes it may be difficult to determine whether similar results will be obtained until it is clear why the initial differences occurred.

### **Request for Response to the Final Report**

We have no objection to the further release of this report to the public. We would appreciate a response to this 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. We encourage you and your staff to complete tables 1 and 2 and include them in your response to us.

We appreciate the cooperation and assistance your staff provided to us during this review. Should you or your staff have any questions regarding this review, please give me a call at 202-260-2824 or Tina Lovingood at 202-260-5105.

### Attachments

cc:	Johnsie Webster, OSWER (5103)	Jim Rauch, OIG (2421)
	Robert Hall, OSWER (5303W)	Kwai Chan, OIG (2460)
	Larry Reed, OSWER (5201G)	Rick Linthurst, OIG (2460)
	Paul Nadeau, OSWER (5201G)	Elissa Karpf, OIG (2450)
	Henry Schuver, OSWER (5303W)	Pete Eagen, OIG (2421)
	Renee Wynn, OSWER (5106)	Pat Gilbride, OIG (2443)
	Melanie Hoff, OSWER (5203G)	Jamie Huber, OIG (2443)
	Dave Evans, OSWER (5204G)	Ed Densmore, OIG (2421)
	Eric Burman, OSWER (5103)	Carolyn Copper, OIG (2460)
	Tricia Buzzell, OSWER (5303W)	Bill Samuel, OIG (2460)
	David Cooper, OSWER (5204G)	Mike Wall, OIG (2443)
	Steve Caldwell, OSWER (5204G)	Jess Plonka, OIG (2443)
	Stephen Heare, OSWER (5303W)	



**OFFICE OF SOLID WASTE AND EMERGENCY RESPONSE (OSWER)  
ENVIRONMENTAL INDICATORS (EIs) TRACKING CHART**

Items to be resolved between Office of Emergency and Remedial Response (OERR) and Office of Solid Waste (OSW)

A	B	C	D	E	F	G
#	Recommendation	RCRA Resolution Proposal and Date  Y = Yes N = No	Superfund Resolution Proposal and Date  Y = Yes N = No	RCRA Contact(s) and Phone Number(s)	Superfund Contact(s) and Phone Number(s)	Status and Date <b>R</b> = Resolved <b>PR</b> = Pending and Projected Date for Resolution <b>N</b> = No Pending Resolution Proposed
1	We recommend that the Assistant Administrator for OSWER resolve the policy and technical differences on some issues, such as (1) the importance of the vapor intrusion pathway <sup>2</sup> , (2) how receptors are documented <sup>3</sup> , and (3) how a significant release is evaluated <sup>4</sup> . (If the EIs are called the same thing, they should mean and measure the same things.)					

<sup>2</sup> EPA’s policy has been for Superfund and RCRA cleanups to be consistent, yet each program appears to handle this pathway differently. This is a policy difference that needs to be addressed so that the EIs for both programs can mean the same thing.

<sup>3</sup> The Superfund EI worksheet does not include the “Summary Exposure Pathway Evaluation Table.” This table is very brief but adds a lot of background information for the decision. We understand that Superfund officials are concerned that by adding this table, it may lead the reader to hypothesize about exposures that do not exist. Superfund officials are especially sensitive, since they were criticized for including a child ingesting dirt as an exposure pathway in a previous risk assessment. Superfund and RCRA officials may need to work together to resolve this area. We suggest that the Superfund EI worksheet include this table.

<sup>4</sup> The Superfund groundwater EI question #5 is virtually identical to RCRA’s #6. Superfund eliminated the RCRA groundwater EI question #5. RCRA’s groundwater EI question #6 asks if the groundwater to surface water discharge can be shown to be “currently acceptable” (until such time as the final remedy will address it) or whether it should be a priority for interim actions at this time. A RCRA official explained that this screening-level step was necessary because final remedy-like evaluations of the impact of groundwater to surface water bodies are very complex and are unlikely to be completed within the time scale available for EI determinations. Superfund officials indicated that for Superfund, a “significant” exposure cannot be “acceptable.” This is a policy difference that needs to be addressed if the EIs for both programs are going to mean the same thing.

A	B	C	D	E	F	G
#	Recommendation	RCRA Resolution Proposal and Date  Y = Yes N = No	Superfund Resolution Proposal and Date  Y = Yes N = No	RCRA Contact(s) and Phone Number(s)	Superfund Contact(s) and Phone Number(s)	Status and Date <b>R</b> = Resolved <b>PR</b> = Pending and Projected Date for Resolution <b>N</b> = No Pending Resolution Proposed
2	We recommend that the Assistant Administrator for OSWER resolve why the conclusions were different for EI accomplishment at sites where both Superfund and RCRA EIs were measured. If it is determined to be a systemic problem, establish controls to prevent the differences from reoccurring. (This may already be completed. Please provide us a summary of the sites and the resolution for each site.)					
3	We recommend that the Assistant Administrator for OSWER resolve the differences in some language that may indicate a different result in the EI determinations. (For example, Step 2 of Superfund EIs: Superfund EI added the phrase “risk-based” to the EI. What does this imply for RCRA EI? Superfund officials said that the wording “risk-based” was added because that is how Superfund staff evaluate sites. RCRA officials indicated that their criteria are broader than risk based and can apply where water resources are degraded by odor, taste, etc. Again, resolving these language differences in the EI documentation would be important if both programs adopt similar or analogous EIs.)					

A	B	C	D	E	F	G
#	Recommendation	RCRA Resolution Proposal and Date  Y = Yes N = No	Superfund Resolution Proposal and Date  Y = Yes N = No	RCRA Contact(s) and Phone Number(s)	Superfund Contact(s) and Phone Number(s)	Status and Date <b>R</b> = Resolved <b>PR</b> = Pending and Projected Date for Resolution <b>N</b> = No Pending Resolution Proposed
4	We recommend that the Assistant Administrator for OSWER direct OERR officials to partner with OSW and state officials to develop a final indicator. (If the emphasis in Superfund is placed on interim EIs (or interim remedies) and there is no final EI, it could appear that EPA is not selecting permanent or treatment remedies.)					
5	We recommend that the Assistant Administrator for OSWER direct OERR officials to partner with OSW and state officials to develop an ecological-indicator.					

**OFFICE OF SOLID WASTE AND EMERGENCY RESPONSE (OSWER)**

**ENVIRONMENTAL INDICATORS (EIs) TRACKING CHART**

Items to be resolved within the Office of Emergency and Remedial Response (OERR)

A	B	C	D	E
#	Recommendation	Superfund Resolution Proposal and Date Y = Yes N = No	Superfund Contact(s) and Phone Number(s)	Status and Date <b>R</b> = Resolved <b>PR</b> = Pending and Projected Date For Resolution <b>N</b> = No Pending Resolution Proposed
1	We recommend that the Assistant Administrator for OSWER specify in the guidance that the choice of steps on the Superfund EI worksheets (“YES,” “NO,” or “IN” (insufficient information)) be clearly identified, as the RCRA EIs are, so the decision for how an EI was accomplished can be easily followed.			
2	We recommend that the Assistant Administrator for OSWER include on the Superfund EI worksheet a brief rationale, or refer specifically (including page number if the document is large) to other supporting documentation, to show how an accomplishment determination was made on an EI.			
3	We recommend that the Assistant Administrator for OSWER make the EI summary sheet and accompanying worksheets publicly available on the Internet. (We acknowledge that OSWER intends to do this at some point in the future.)			

A	B	C	D	E
#	Recommendation	Superfund Resolution Proposal and Date Y = Yes N = No	Superfund Contact(s) and Phone Number(s)	Status and Date <b>R</b> = Resolved <b>PR</b> = Pending and Projected Date For Resolution <b>N</b> = No Pending Resolution Proposed
4	We recommend that the Assistant Administrator for OSWER direct OERR officials to develop guidance on the Superfund EIs to include, among other things: (1) when the EIs should be re-evaluated and define what “current” EIs mean for OERR, (2) a clarification of how adding the Superfund EIs will or will not affect the cleanup strategy for mega-sites (e.g., priority, ease of accomplishment, and allocation of resources among sites.) (Also, in the cover memo, we suggested a supplemental EI specifically for mega-sites.)			
5	We recommend that the Assistant Administrator for OSWER direct OERR officials to modify Step 2 of the Superfund EI worksheet for groundwater to include language that is more consistent with CERCLA - that focuses on a “release” rather than “anywhere at, or from, the facility.”			
6	We recommend that the Assistant Administrator for OSWER clarify in OERR EI guidance how it is reasoned that the migration of contaminated groundwater can be “under control” when natural attenuation is the selected remedy.			

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



OFFICE OF  
SOLID WASTE AND EMERGENCY  
RESPONSE

December 11, 2001

**MEMORANDUM**

**SUBJECT:** Response to Office of Inspector General (OIG) Draft Report, "Evaluation of Superfund Environmental Indicators"

**FROM:** Marianne Lamont Horinko /s/  
Assistant Administrator

**TO:** Frances E. Tafer, Audit Team Leader  
Headquarters Audit Division

We have reviewed the subject draft report and the recommendations contained therein. The purpose of this memorandum is to transmit our comments on the factual accuracy of the information reported and the feasibility of the recommendations.

In general, we agree with the overall thrust of the OIG's comments. Many of the recommendations are feasible. However, there are a couple of points in the draft that may need clarification. We would like to acknowledge the cooperation we experienced working with OIG staff during this program evaluation. Our discussions with the auditors on several occasions were very beneficial in clarifying and understanding the OIG's recommendations.

The OIG draft report, in general, views the Superfund environmental indicators (EIs) as identical to RCRA environmental indicators. However, Superfund did not adopt the RCRA EIs in their entirety due to differences in program implementation and program interpretation of Senate appropriation language. During the Senate Appropriations Committee hearing on EPA's budget for fiscal year 2000, congressional officials noted:

"All of Superfund's performance measures required by the Results Act are process-oriented; there are no measures that directly address reduction of risk to human health and the environment. The Committee expects that in the fiscal year 2001 budget, EPA will include environmental indicators as in the RCRA corrective action program." Source: Senate Report 106-61, Dept. Of Veterans

Affairs and Housing and Urban Development, And Independent Agencies  
Appropriations Bill, 2000.

We interpreted this language to say that new Superfund environmental indicators should be reflective of goals for OSWER's cleanup program as a whole. The Superfund program should not develop radically different indicators, but should develop measures similar or analogous to those developed by the RCRA corrective action program. Accordingly, the indicators were developed to best reflect the needs of EPA's overall cleanup efforts while incorporating the specific requirements of the Superfund program. These indicators are very similar to RCRA's environmental indicators, but not identical. While Superfund did not adopt RCRA's documentation/guidance word for word due the differences in the respective programs, the Superfund indicators are based on RCRA guidance and do adopt RCRA guidance language in many areas.

**Office of Emergency and Remedial Response (OERR) Specific Comments:**

- Page 2, Background section, paragraph 1, 3<sup>rd</sup> sentence: Superfund officials interpreted the Senate Appropriations Committee language to say that Superfund Environmental Indicators should be similar or analogous not necessarily the “same as those for the RCRA corrective action program.” Superfund developed its indicators based on this interpretation and did not intend to make the indicators identical to the RCRA program.
- Page 3, EI Objectives, last sentence: The Superfund program refers to the “interim EIs” as “environmental indicators of interim progress” because indicators themselves are not interim. Also, it is not the indicators that must be consistent with the final actions, as stated in the draft report, but the interim/early actions that must be consistent with the final remedy.
- Attachment 1, Item 1: Implementing this recommendation as written, where both programs would use identical documentation and guidance, overlooks the fact that the Superfund and RCRA programs are different in many aspects. While both programs deal with hazardous waste sites, the Superfund program is largely implemented by the Federal government using Federal guidance, while the RCRA program is primarily implemented by the States and is not required to follow Federal guidance. The resolution of this particular item impacts the implementation of many of the following recommendations.

Implementing this recommendation as written would mean selecting one of the following options: 1) Both programs work to develop mutually acceptable documentation procedures and language; 2) Superfund completely adopts RCRA documentation procedures and language; 3) RCRA completely adopts Superfund documentation procedures and language; or 4) Superfund renames its indicators to highlight the fact that

the supporting questions are analogous but not identical. A feasibility analysis of each option follows.

Option 1: The resources and energy required to implement this option would be great. Both programs have collected data using their respective data collection/guidance tools. A revised methodology would create a large burden to re-collect and update data. In addition, the process to come to agreement with Regional remedial project managers (RPMs), State implementing agencies, and responsible parties will take time. It took the RCRA program several years and much hard work to finalize their current approach. This option would require a considerable effort on the part of both RCRA and Superfund staff in Headquarters, the Regions, and the States.

Option 2: The Superfund program did not adopt RCRA's documentation/guidance word for word due to the differences in the programs implementation. RCRA's indicators are based on the need to obtain documentation from States, who typically are the RCRA program implementors. The Superfund program implementation and documentation are more centralized in the EPA Regional Offices. The Superfund program believes this situation provides a good opportunity to simplify some of the language of the decision logic so that it is more easily understood by the public, while adopting most of the RCRA language and adopting the central measure of the indicator. Implementing this option would miss this opportunity to create a simpler, more straight-forward indicator. Implementation would also require that new documentation and data be collected for all NPL sites. This burden would lie with Regional RPMs.

Option 3: Implementing this option would require that new documentation and data be collected for all RCRA Priority List sites. This burden lies with the State programs and responsible parties. EPA may have little control over the schedule of the data update.

Option 4: Rename the Superfund environmental indicators to distinguish them from RCRA indicators. This would create an artificial distinction between the two sets of indicators which are designed to capture the same end point, albeit by using questions with slightly different phrasing to reflect the differences in audience. However, this change would highlight the slight difference in terminology of the supporting language. This resolution would be far easier, but would leave the indicators analogous but not identical.

- Attachment 1, Item 2: The resolution of these issues will be impacted by the decision on Item 1.
- Attachment 1, Item 3: Resolution is feasible.



- Attachment 1, Item 4: The resolution of this issue will be impacted by the decision on Item 1.
- Attachment 1, Item 5: The Superfund program disagrees that it does not currently have a final indicator. NPL site construction completion and deletion of a site from the NPL are, based on our understanding, final indicators. These milestones are widely interpreted by the Agency and the public as final outcomes for the Superfund program. In fact, the Senate Appropriations Committee directed the Superfund program to develop these indicators of interim progress because they felt the program needed something in addition to the final outcome measures of construction complete and site deletion.

The following information is provided from “Close Out Procedures for National Priorities List Sites” (OSWER Directive 9320.09A-P, January 2000)

*Construction Completions:*

According to FR Volume 58, No. 29, March 2, 1993, “The CCL (construction completion list) is a compilation of sites presently or formerly on the NPL. Sites qualify for the CCL when:

- S Any necessary physical construction is complete, whether or not final cleanup levels or other requirements have been achieved;
- S EPA has determined that the response action should be limited to measures that do not involve construction; or
- S The site qualifies for deletion from the NPL.”

*Deletions:*

The NCP (40 CFR 300.425(e)) states that a site may be deleted from, or recategorized on, the NPL when no response/no further response is necessary. The EPA must consult with the State in making this determination. To delete a site from the NPL, EPA must determine, in consultation with the State, that one of the following criteria has been met:

- ▶ Responsible parties have implemented all appropriate response action required;
- ▶ All appropriate Fund-financed response under CERCLA has been implemented, and no further response action by responsible parties is appropriate; or

- ▶ The remedial investigation has shown that the release poses no significant threat to public health or the environment, and therefore, taking of remedial measures is not appropriate.

If monitoring to determine the need for a future response action is ongoing at a site, deletion is premature. In this situation, it is impossible to know whether a site satisfies the NCP's deletion standard - "no further response is appropriate." At sites with ground and surface water restoration remedies, cleanup goals must be attained before the site qualifies for deletion.

- Attachment 1, Item 6: The resources and time to develop an ecological indicator to meet both program needs may be prohibitive. However, we agree that this is important, and the Office of Solid Waste and the Office of Emergency and Remedial Response are meeting to discuss ecological indicators.
- Attachment 2: All items can be resolved.

#### **Office of Solid Waste Specific Comments:**

OSW worked closely with Superfund as they developed their EI process. It is our belief that in most, if not all cases, EI determinations by the two programs will yield similar results. OSW has discussed the RCRA EI worksheets with OERR. They have no issues with their approach, and see no reason why it cannot yield the same EI results when applied in the field. The two offices are collaborating on a national guidance relative to the vapor intrusion pathway. This guidance, which is scheduled for completion early next year, should provide a consistent approach. OSW has agreed to collaborate with OERR on development of a "final cleanup" EI.

Since putting the OSW EI guidance (developed in collaboration with all ten regions and a number of states) in place in FY 1998, regions and states have invested huge resources in evaluating facilities under the current RCRA process. Like Superfund, OSW is concerned about changing the process (and risk losing our focus) as we approach FY 2005. Nevertheless, where the OIG has pointed out apparent or real discrepancies, OSW and OERR will continue to work together to resolve them.

If you have any questions regarding this response, please contact Melanie Hoff at (703) 603-8808 or Johnsie Webster, OSWER Audit Liaison, at (202) 260-4475.

