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Updating Remedy Decisions at Select Superfund Sites Summary Report FY 2002 and FY 2003

Executive Summary (FY02–FY03)

Since FY96, *Updating Remedy Decisions* has been characterized as one of EPA's most successful Superfund reforms. In FY02 and FY03, EPA updated more than 100 remedies, reducing estimated future cleanup costs by almost $150 million. Other key successes and findings include the following:

- Most remedy updates completed during FY02 and FY03 were the result of additional technical information gathered as part of the remedy design process. A small number of remedy updates were the result of non-technical changes in the applicable or relevant and appropriate requirements (ARARs), land use, or required cleanup levels. Another small number of remedy updates were the result of State input or community preference which focused on either technical or non-technical modifications to the remedy.
- EPA tracked all remedy updates during FY02 and FY03, most of which were reform-related. In FY02, the total estimated cost savings for remedy updates were in excess of $57 million, 92 percent of which was based on scientific and technological advancements. For remedy updates completed in FY03, the total estimated cost savings were in excess of $87 million, all of which was based on scientific and technological advancements. There were 14 remedy updates in FY02 that resulted in cost increases totaling an estimated $175.6 million, and there were 14 remedy updates in FY03 that resulted in cost increases totaling an estimated $81.1 million. The majority of the cost increase totals were attributable to the remedy updates for a small number of sites.
- Estimated cost savings for 102 individual remedy updates during FY02 and FY03 ranged from a negligible amount to over $32 million, with most remedy updates generating savings under $10 million. Of the 28 remedy updates that resulted in estimated cost increases, of over $250 million, there was a median cost increase of $2 million.
- Remedy updates generally occurred in the remedial design phase of the cleanup process and were more likely to be documented with Explanations of Significant Differences (ESDs) than Record of Decision (ROD) Amendments. Over the two-year period, there were 74 ESDs and 28 ROD Amendments representing remedy updates with both cost savings and increases.
- Most remedy updates during FY02 and FY03 were initiated by parties outside of EPA *(e.g.*, potentially responsible parties (PRPs), States, communities, Federal facilities). Over the two-year period, parties outside of EPA initiated 48 updates and EPA initiated 40 updates (these numbers do not include 14 updates initiated by more than one party).
- Over the two-year period, the most commonly addressed medium was ground water (59 updates) followed by soil (43 updates). Eight other media types were addressed by remedy updates during FY02 and FY03.

Cumulative Summary (FY96–FY03)

Since its inception, *Updating Remedy Decisions* has continued to significantly impact Superfund sites across the country. From FY96–FY01, there were 418 remedy updates reducing future cleanup costs by more than $1.7 billion while at the same time increasing estimated future cleanup costs by $228.8 million. By including the FY02 and FY03 data, the cumulative totals for FY96–FY03 are 520 remedy updates reducing future cleanup costs by more than $1.8 billion, while at the same time increasing estimated future cleanup costs by $486.2 million.

Over the initial eight years of implementing the remedy update reform, EPA has shown overwhelming success regarding large savings of money, time, and resources. The data gathered in FY02 and FY03, however, shows less estimated cost savings and more estimated cost increases than in previous years. Specifically, this is the first two year summary of the reform where estimated cost increases have exceeded estimated cost savings. EPA believes that this is due to reform maturation. Most Regions have already reviewed the remedies in their available pool of sites, so the likelihood of finding new large savings is not as great as it was in the past. Conversely, there have been an increasing number of sites that initially selected a lower cost remedy, but because that remedy was found to not work as designed, EPA needed to select another remedy, which was more expensive than the original remedy. The data from FY02 and FY03 confirms that initially large estimated cost savings have been replaced with smaller estimated cost savings and initially fewer estimated cost increases have been replaced with more numerous, large estimated cost increases.

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Appendix A: Summary of Updated Remedy Decisions for FY02 and FY03

Appendix A.1: Summary of Updated Remedy Decisions Without Cost Increases for FY02 and FY03

Appendix A.2: Summary of Updated Remedy Decisions With Cost Increases for FY02 and FY03

1.0 Introduction

Updating Remedy Decisions, announced in the third round of Superfund Reforms in October 1995, is one of a broad range of administrative reforms undertaken to improve the efficiency, speed, and fairness of the Superfund program. Specifically, the Reform encourages the Regions to revisit selected remedy decisions at sites where significant new scientific information, technological advancements, or other considerations will protect human health and the environment while enhancing overall remedy cost effectiveness.

This report contains an evaluation of remedy updates completed during FY02 and FY03. Information regarding the progress of the reform, during the previous six years, is available in four multi-year summary reports.

- For remedy updates completed in FY96 and FY97, see the document, "*Updating Remedy Decisions at Select Superfund Sites, Summary Report, FY 1996 and FY 1997*," July 1998, OSWER Directive 540-R-98-017 on EPA's website at: **http://www.epa.gov/superfund/programs/reforms/docs/urd96-97.pdf**. The Summary Report for FY96 and FY97 contains the background information of the Reform, a description of the Reform, the process for implementing the Reform, and Regional implementation plans from each of the ten EPA Regions.
- For remedy updates completed in FY98 and FY99, see the document "*Updating Remedy Decisions at Select Superfund Sites, Summary Report, FY 1998 and FY 1999,*" March 2001, OSWER Directive 540-R-01-00 on EPA's web site at: http://www.epa.gov/**superfund/programs/reforms/docs/urd98-99.pdf**.
- To find a cumulative four-year summary of this reform as well as trends during fiscal years 1996 through 1999, see the document, *"Updating Remedy Decisions at Select Superfund Sites Cumulative Summary Report FY 1996 Through FY 1999,"* March 2001, OSWER Directive 9355.0-77 on EPA's web site at: **http://www.epa.gov/superfund/programs/reforms/docs/urd96-99.pdf**.
- Finally, for remedy updates completed in FY00 and FY01, see the document, "*Updating Remedy Decisions at Select Superfund Sites, Summary Report, FY 2000 and FY 2001*," February 2003, OSWER Directive 9355.0-94 on EPA's web site at:

  http://www.epa.gov/superfund/programs/reforms/docs/rem_report.pdf.

This report:

- Provides a summary of Superfund sites where remedies have been updated during FY02 and FY03;
- Highlights estimated future cost reductions (cost savings) or cost increases expected to result from updated remedies; and
- Presents stakeholders with information on the role of remedy updates in improving Superfund implementation.

Originally, EPA encouraged remedy updates to incorporate new technical information into existing site cleanups. Today, EPA continues to promote remedy updates that incorporate the latest science and technology into selecting and implementing Superfund remedial decisions. As a whole, these reforms were selected to make Superfund faster, fairer, and more efficient. In particular, the remedy update reform has achieved each of these goals.

It is important to emphasize that this initiative does not signal any variations in the Agency's current policies regarding site cleanup, including policies regarding remedy selection, treatment of principal threats, preference of permanent remedies, establishment of cleanup levels, or the degree to which remedies must protect human health and the environment. EPA remains committed to the protection of public health, welfare, and the environment.

2.0 FY02 and FY03 Results

EPA completed approximately 102 remedy updates in FY02 and FY03, saving over $146 million in estimated site cleanup costs, while at the same time creating increases in estimated site cleanup costs of about $257.4 million.

Updates during FY02 resulted in a total estimated cost savings of over $185.0 million, most of which resulted from updates of the kind identified in the Reform Guidance. Updates during FY03 resulted in a total estimated cost savings of over $84.0 million, all of which resulted from updates of the kind identified in the Reform Guidance.

(See the Reform Guidance, "Superfund Reforms: Updating Remedy Decisions," OSWER Directive 9200.2-22, dated September 27, 1996, at EPA's website: **http://www.epa.gov/superfund/programs/reforms/remedy/index.htm**.)

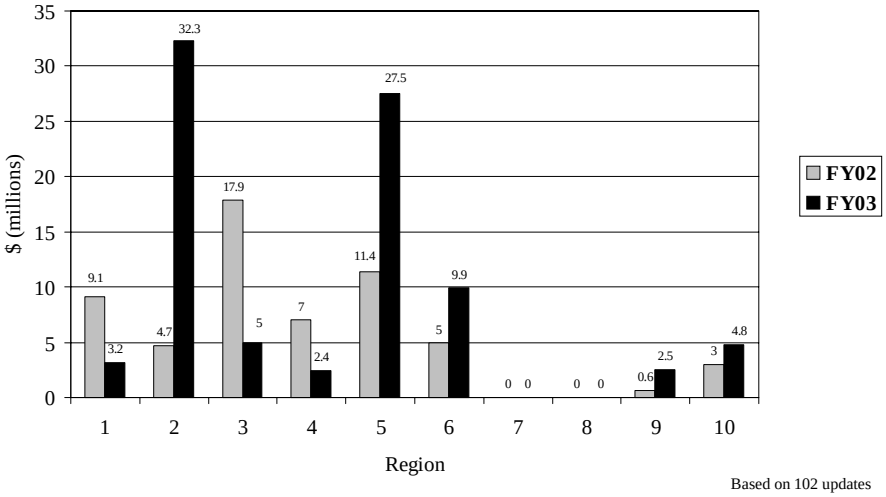
The estimated cost savings per update ranged from a negligible amount to $32.0 million, with the majority of EPA Regions reporting savings in each year reviewed. *Exhibit 2.1* shows the amount of estimated savings by fiscal year. (Note: *Exhibit 2.1* may not include all remedy updates from FY02 and FY03 because of limitations on EPA Regional accessibility to remedy update information.)

Most of the remedy updates generated savings of less than $10.0 million per update, as shown in *Exhibit 2.2*. (Note: Cost estimates for several remedy updates are either unavailable to EPA or incomplete at the time of this writing. These are labeled NA/TBD (Not available/To be determined) in Appendices A, A.1 and A.2.)

EPA Regions also reported on updated remedies that generated cost increases during FY02 and FY03. The FY02 cost increases for 14 remedy updates totaled $176.3 million. The FY03 cost increases for 14 remedy updates totaled $81.1 million. Of these remedy updates generating estimated cost increases during FY02 and FY03, most were less than $5.0 million per update. This trend may reflect the maturation of the reform because many remedies with lower cost increases were updated before this two-year period. The remedy update cost increase for FY02 and FY03 occur in 8 EPA Regions and only 2 of those EPA Region had more than 4 increases over the two-year period.

Recent advances in the area of soil and ground water science and remediation made these types of decisions good candidates for remedy updates. *Exhibit 2.3* shows that during FY02 and FY03, updates of ground water remedies were the most common (59 updates),

Exhibit 2.1: Estimated Remedy Update Savings by Region in FY02 and FY03



Based on 102 updates

Exhibit 2.2: Estimated Savings Per Remedy Update in FY02 and FY03

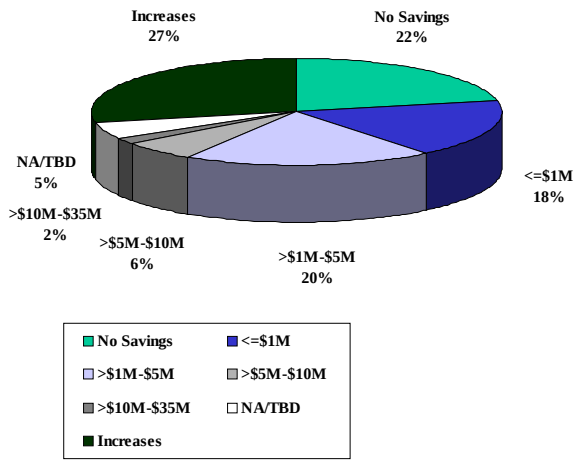


Exhibit 2.3: Remedy Updates by Medium for FY02 and FY03

Medium	FY02	FY03	Total
Ground Water	24	35	59
Soil	16	27	43
Sediment	5	6	11
Waste	4	3	7
Surface Water	0	3	3
Air	1	2	3
Debris	1	1	2
Sludge	0	2	2
Wetlands	0	1	1
Other	1	0	1

followed by soil remedies (43 updates). The remaining updates pertained to eight other media, as depicted in *Exhibit 2.3*. These media are consistent with media typically found at contaminated Superfund sites.

More detailed information regarding remedy updates can also be found in Appendices A, A.1 and A.2. Specific remedy updates are listed by Region and site, and include the following information:

- Type and date of remedy update;
- Update initiator;
- Media involved;
- State and community involvement;
- Estimated resource demands;
- Estimated cost savings or cost increases; and
- Summary of remedy change and factual basis.

Exhibit 2.4 depicts the number and kind of remedy updates that were completed in FY02 and FY03. It shows that not all remedy updates generated cost savings or cost increases. In some cases, the remedy updates generated neither cost savings nor cost increases; in other cases, the numbers are yet to be determined or were unavailable at the time of this report. The data do not differ significantly from FY02 to FY03, but they confirmed that the summary totals in this report are conservative values for estimated cost

Exhibit 2.4: Number and Type of Remedy Updates for FY02 Through FY03

	FY02	FY03	Total
Total # of Remedy Updates	42	60	102
# Updates With Estimated Savings	21	25	46
# Updates With Estimated Increases	14	14	28
# Updates With No Savings	5	13	18
# Updates NA or TBD	2	8	10

3.0 Remedy Update Process

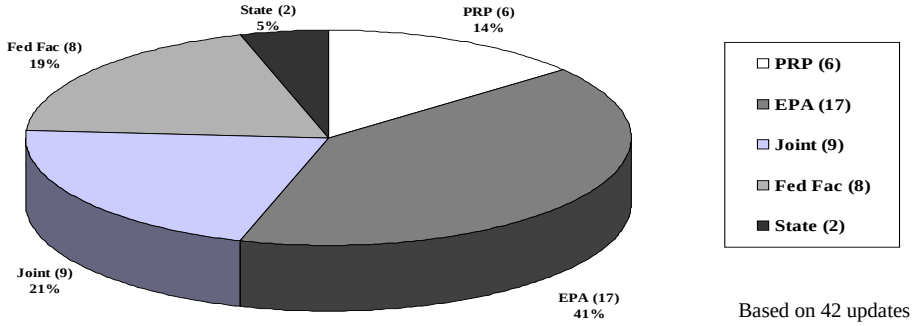
After a remedy decision has been completed at a site (*i.e.*, a ROD is signed), new information may be received or generated that could affect how the remedy selected in the ROD should be implemented. This information may be supplied by a PRP, a Federal agency conducting the cleanup, the support agency (*e.g.*, another Federal agency or State/Tribe), or the public or other interested parties. Data for FY02 and FY03 indicate that 48 remedy updates were initiated by parties outside of EPA (*e.g.*, PRPs, States, Federal facilities) compared to 40 updates initiated by EPA (see *Exhibit 2.5*). In addition, 14 remedy updates have joint initiators because information arrived simultaneously from several different parties. *Exhibit 2.5* shows that the relative percentage of remedy update initiators were not significantly different from FY02 to FY03.

Although the types of new information that could affect remedy decision-making vary widely, the Reform Guidance recommends that EPA pay particular attention to information which shows that:

- Updating the remedy may result in a more cost-effective cleanup;
- Physical limitations imposed by the site or the contaminants may warrant changes in the cleanup goals; or
- Site conditions may warrant reducing the scope of the site monitoring after cleanup.

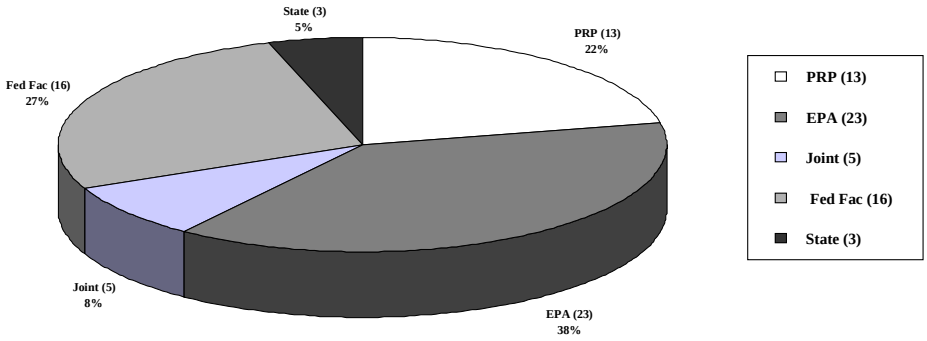
As outlined in the Reform Guidance, the basic process that Regions should use to consider proposed remedy updates consists of three steps: identification and prioritization, technical review, and implementation.

Exhibit 2.5: Remedy Update Initiator in FY02



Based on 42 updates

Remedy Update Initiator in FY03



Based on 60 updates

- **Identification and Prioritization** involves assessing the update request to determine the type of change (*e.g.*, remedial method, cleanup standards, cleanup area), the resources required to fully evaluate it, and any potential increase or decrease in protectiveness or cost. To ensure that the Region's rationale for prioritizing update reviews is clear and equitable, Regions are encouraged to carefully track all requests for remedy updates. Review and consideration of potential remedy updates should not result in any delays in the completion of work products or other remediation activities required by the existing ROD and enforcement instruments (*e.g.*, unilateral administrative orders (UAOs) or consent decrees (CDs)).
- **Technical Review** evaluates the site-specific information supporting both the current remedy and the update request to determine whether or not the remedy update was warranted. This information is typically collected by the site's lead entity (*e.g.*, the Federal Agency, Federal facility, PRP, State, or Tribe).
- **Implementation** involves preparing and filing the necessary documentation (a note or memorandum to the Administrative Record file, an ESD, or a ROD Amendment) to support the update, consulting with the State and community, and physically conducting the updates at the site.

3.1 Determination of Remedy Update Type

In order to categorize the update, remedy update teams consider the following factors:

- **Scope** - Does the update alter the scope of the remedy (*e.g.*, the physical area of the response, remediation goals to be achieved, or type and volume of wastes to be addressed)?
- **Performance** - Would the update alter the performance (*e.g.*, treatment levels to be attained, methodology used to achieve cleanup goals, and new technology not considered in the original ROD) and, therefore, raise concerns about the protectiveness or long-term effectiveness of the remedy?
- **Cost** - Does the update alter remedial costs and are the changes in costs of such a nature that they could not have been anticipated based on: (1) the estimates in the ROD; and (2) the recognized uncertainties associated with the selected remedial alternative?

Based on this evaluation, and depending on the extent or scope of the modification being considered, the lead agency must determine the type of update involved (*e.g.*, nonsignificant or minor, significant, or fundamental change to the scope, performance, or cost of the original remedy). An aggregation of nonsignificant or significant changes could result in a fundamental change overall. Post-ROD updates fit into one of these categories:

- **A nonsignificant or minor change** usually arises during design or construction when modifications are made to the functional specifications of the remedy to optimize performance and minimize cost. Such changes may affect the type or cost of materials, equipment, facilities, services, and supplies used to implement the remedy. Minor changes might include a slight increase in the volume of treated soil, a change in disposal location, or a modification in ground water monitoring specifications.
- **A significant change** generally involves incremental change to a component of a remedy that does not fundamentally alter the overall remedial approach. A

significant change might involve an increase of over 50 percent in the volume of soil to be remediated, a change in reasonably anticipated land use following the remedy, or a change in an ARAR that has impacts on cleanup levels and other parameters.

- **A fundamental change** involves an appreciable change or changes in the scope, performance, and/or cost of a remedy or may involve a number of significant changes that together have the effect of a fundamental change. Fundamental changes result in a reconsideration of the waste management approach (*e.g.*, change in the primary remedy for the wastes, residual risk, cleanup technology) selected in the original ROD and must include a formal public comment period. A fundamental change might involve selecting a different primary treatment technology because of community preference, discovery of additional contaminants, or the determination that less treatment than originally expected is needed.

For more information on remedy update type, see *"A Guide to Proposing Superfund Proposed Plans, Records of Decision, and Other Remedy Selection Decision Documents,"* OSWER Directive No. 9200.1-23P (July 1999). Enforcement decision documents may also need to be modified, depending on the type of remedy update and the language in the order or consent decree, if there is an order or consent decree.

The type of change will determine which of the following documents EPA uses to update the remedy: a memorandum or note to the Administrative Record for a nonsignificant or minor change; an ESD for a significant change; or a ROD Amendment for a fundamental change. As shown in *Exhibit 2.6*, there were 74 ESDs and 28 ROD Amendments completed during FY02 and FY03.

In general, more remedy updates occur during remedy design and represent a significant but not fundamental change to the remedy. Consequently, more remedy updates correspond to at least one of the following situations: the scope of the remedy has changed (*e.g.*, volume increase or decrease); the performance of the remedy can be modified or optimized (*e.g.*, change in disposal or discharge point); or there is a more cost effective way to implement the remedy.

Exhibit 2.6: ESD vs. ROD Amendments in FY02 and FY03

	FY02	FY03	Total
ESDs	30 (41%)	44 (59%)	74
ROD Amendments	11 (39%)	17 (61%)	28

In some situations, additional contamination is identified or the original remedy does not meet the required cleanup levels specified in the ROD. In those cases, the determination for an updated remedy may result in estimated cost increases.

3.2 State/Tribal and Community Roles

State/Tribal Roles

States play an important role in the modification of remedy decisions. Section 300.515 of the NCP and the Model CERCLA RD/RA Consent Decree (which forms the basis for most consent decrees) provide an opportunity for States to review and comment on specified steps in the remedy selection. Agreements between EPA and States, including contracts, may require modification following an update to a remedy. Furthermore, the Model Consent Decree states that EPA will provide the State with a reasonable opportunity to review and comment on any proposed modifications. Additional information regarding the role of States and supporting agencies in the remedy modification process can be found in *"A Guide to Preparing Superfund Proposed Plans, Records of Decision and Other Remedy Selection Decision Documents,"* OSWER Directive 9200.1-23P (July 1999).

Native American Tribes are afforded substantially the same treatment as States with respect to certain provisions of CERCLA (see CERCLA Section 126; NCP Section 300.505). A Federally-recognized tribal government, with responsibilities including governmental functions such as environmental protection and jurisdiction over a Superfund site, can be treated essentially the same as a State. (see NCP Section 300.515).

Community Roles

Several remedy updates in FY02 and FY03 involved significant State participation and/or community involvement. Although the initiation of a formal public comment period is required only in the case of a fundamental update (*i.e.*, ROD Amendment), most remedy updates, regardless of their significance, have a substantial community involvement component (see NCP Section 300.435(c)(2)(i) and (ii)). For example, documents pertaining to the site, including any information on remedy updates, are placed in the Administrative Record or at the site repository located near the site (*e.g.*, local library). Other activities, including a public availability session, public meetings, issuance of fact sheets about the site, and the release of an amended proposed plan, may allow the surrounding community and other interested parties an opportunity to learn more about the site and present their opinions on remedial activities. Refer to the individual site summaries in Appendices A.1 and A.2 for specific activities related to State participation and community involvement that were part of the remedy update process for each update completed during FY02 and FY03.

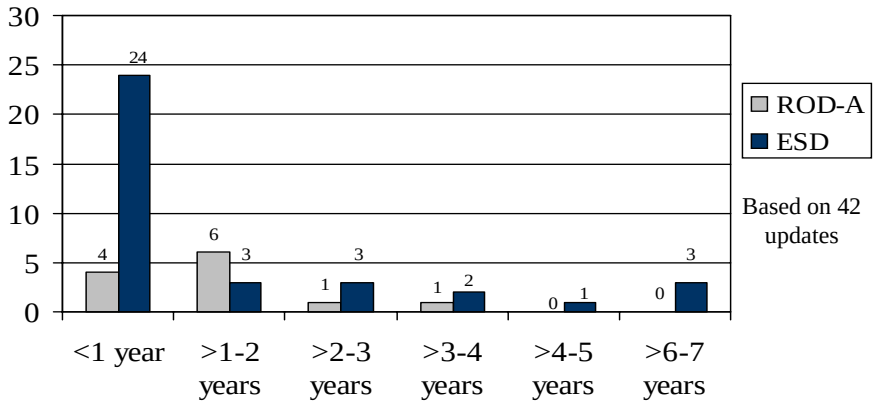
3.3 Remedy Review Duration

Reviewing site-specific material and completing the ESD or ROD Amendment took less than a year for a majority of the remedy updates completed during FY02 and FY03 (see *Exhibit 2.7*). Of note, there is a slight increase in the number of remedy updates with extended review periods. An examination of sites with longer review periods suggests that the review durations were influenced by:

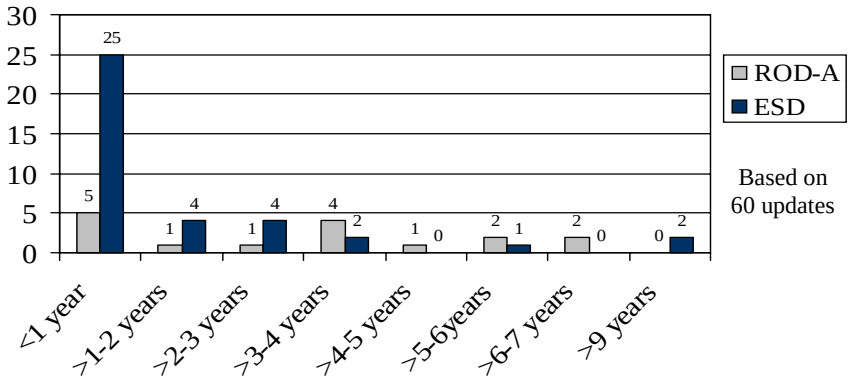
- A lengthy, but important public involvement phase;
- An extensive verification/pilot test period following the discovery of new performance, technical, or toxicological data;
- The discovery of unexpected contamination late in the remedy design phase; or
- A redefinition of land use.

Section 4.2 provides specific examples of remedy changes whose reviews lasted more than one year.

Exhibit 2.7: Approximate Review Time for Remedy Updates in FY02



Approximate Review Time for Remedy Updates in FY03



4.0 Lessons Learned

During the last two years of reform implementation, EPA has continued to gain insight into ways of successfully updating site remedies. The following sections detail information collected regarding reform benefits, site examples, and comments from stakeholders.

4.1 Benefits

This Reform has been very successful in bringing past decisions in line with current science and technology. By doing so, these updates improve the cost effectiveness of site remediation while ensuring reliable short- and long-term protection of human health and the environment. The quantifiable results of this Reform have been previously announced in EPA's testimony before Congress, described in private industry evaluations of Superfund reforms, and included in a report by the U.S. General Accounting Office. Of additional note is EPA's overwhelmingly positive record of responding to remedy update requests made by outside parties.

4.2 Site Examples

In many cases, remedies were updated as a result of a decrease or increase in contaminant volume or an inability to achieve desired results in a test of the ROD-selected treatment or contaminant technology during the remedial design phase of the cleanup. Although all updates described in Appendix A represent site-specific situations, it is possible to use some as examples of typical remedy update situations that occurred during FY02 and FY03.

Updates Based on New Technology

Some updates were the result of new technology that was not considered at the time of the original remedy. At **Hunterstown Road in Pennsylvania**, the potentially responsible party (PRP) replaced the original remedy of air stripping using a catalytic off-gas treatment system with an updated remedy consisting of air stripping using a vapor phase carbon adsorption system. This design improvement resulted because the vapor phase carbon adsorption system was determined to be more cost effective than the catalytic off-gas treatment system. Estimated savings of $1.4 million resulted from the remedy update.

The PRP at the **Saegertown Industries Area in Pennsylvania** demonstrated that molasses-based carbon could enhance biodegradation of volatile organic compounds (VOCs) in ground water to promote natural attenuation. The original remedy included the extraction and treatment of ground water and air sparging/vacuum extraction. The updated remedy will also involve ongoing operation and monitoring as well as institutional controls, at an estimated cost savings of $7.2 million.

Updates Based on New Performance Data

New performance data can also provide the needed basis for updating remedies. For instance, at **Roebling Steel in New Jersey**, the changes documented in the ROD Amendment were based on new information received subsequent to the issuance of the ROD. EPA determined that the test used to identify contamination "hot spots" was not a good indicator. Instead, the analytical results from ground water, surface water, and sediment investigations were found to be more relevant. The remedy update removed the treatment component of the original remedy, with resultant estimated savings of $32 million.

Coordinating the Update

Some remedy updates involve coordination among EPA, other Federal agencies, and State and local government agencies. For example, at the **Portsmouth Naval Shipyard in Maine**, the original remedy entailed installation of a landfill cover, institutional controls, shoreline erosion controls, and monitoring. Following the Navy's re-evaluation of the feasibility of consolidating waste at the site, a remedy update was initiated to evaluate the soil/waste, consolidate it with another landfill, and construct wetlands. Representatives from the Navy, EPA, state, and community met regularly about the remedy update that resulted in $5.8 million in estimated cost increases.

State Input in the Update

States can be either the lead or support agency for a remedy update. The remedy update was State-lead at **Evor Phillips Leasing in New Jersey**. This change occurred after the state declared an immediate environmental concern because it was thought that ground water leaving the Evor site could impact downgradient sites. The ESD changed the method of discharge from on-site reinjection of treated ground water to discharge to the county utilities authority and resulted in estimated savings of $1 million.

Community Preference

Community preference can have a significant impact in addressing site contamination. For example, there was very high community involvement at **New Bedford Harbor in Massachusetts**. Initially, a confined disposal facility was scheduled to be built. EPA gained additional site information and refined its approach for addressing the upper and lower harbor areas. The remedy update entails sending dredged sediments to an off-suite landfill, with estimated savings of $8 million.

Cost Increases

While the Reform Guidance is aimed at controlling all site costs, there are remedy updates that result in cost

increases. At the **Coleman Evans Wood Preserving Company in Florida**, the original remedy involved excavating and treating 45,000 cubic yards of contaminated soil with high temperature thermodesorption. During implementation of the removal action, additional contaminated soil was identified so the remedy was changed to include the excavation and thermal treatment of 135,000 cubic yards of soil. As a result, the estimated cost increases were $43 million.

Similarly, at the **Bunker Hill Mining and Metallurgical Complex in Idaho**, a remedy update became necessary when data revealed that the original remedy was inadequate in meeting treatment levels and the existing treatment plant could not consistently meet the current water quality standards. Following treatability studies, a remedy update was initiated to provide source control; collect, store, and treat Acid Mine Drainage; dispose of sludge; and monitor untreated mine water. An estimated cost increase of $53 million resulted.

Timeframe for Completing Remedy Updates

The time needed to complete an update varies with each site. In some instances, exploring other remedies takes years of review and completion. At the **Marshall Landfill in Colorado**, the review for the remedy update took nearly a decade. Originally, the remedy consisted of a ground water pump and treatment system. Following a determination that the original ARARs were not protective, a remedy update was initiated to address new ground water standards for VOCs and state surface water quality standards. There were no resultant estimated savings or costs.

In contrast, a review for the remedy update at **Continental Steel in Indiana** took approximately one month to complete. The original remedy involved the removal of lead-contaminated soil. The results of supplemental sampling, during the design phase, lead to an enhanced remedy that incorporated more stringent remedial action goals and a Maximum Contaminant Level for arsenic in ground water in order to be protective under a recreation use scenario. There were no resultant estimated savings or costs.

5.0 Conclusion

EPA and outside parties continued to consider *Updating Remedy Decisions* a successful Reform in both FY02 and FY03. The number of remedies updated by each Region during FY02 and FY03 clearly shows that all ten EPA Regions are implementing this Reform, with half of the Regions reporting estimated cost savings above $10 million for the two fiscal years combined. All ten EPA Regions continue to evaluate requests to review old Fund-lead remedies, as well as consider updates to more recent remedies that may not be up-to-date with current science or technology. Regions also continue to encourage outside parties to submit remedy update requests to EPA when new technical information exists to support them. Typically, EPA and outside parties share the benefits of both cost and time savings as a consequence of implementing the updated remedy.

Interested parties should review the existing Reform Guidance (OSWER Directive 9200.2-22) for basic information concerning the Reform. Additional guidance on remedy updates is included in the updated Record of Decision Guidance (see *"A Guide to Preparing Superfund Proposed Plans, Records of Decision, and Other Remedy Selection Decision Documents,"* OSWER Directive 9200.1-23P, July 1999). Specific questions on implementation of the Reform may be directed to Matt Charsky of the Office of the Office of Superfund Remediation and Technology Innovation by telephone at (703) 603-8777, e-mail at **charsky.matthew@epa.gov**, or FAX at (703) 603-9133. Each Region also has a remedy update contact who can be reached by contacting the Superfund Program office in any of EPA's ten Regional offices.

Acknowledgments

This report was made possible by the dedicated efforts of numerous EPA Superfund staff. Regional remedial project managers (RPMs) responsible for considering and implementing remedy updates at Superfund sites are to be commended for making these changes to select the best technologies available at Superfund sites nationwide.

This report was prepared for EPA under contract #68-W-01-58.

Appendix A:

Summary of Remedy Update Decisions for FY02 and FY03

Note: The information and data presented in Appendix A have been supplied to EPA headquarters by Regional offices. The data is subject to occasional updates as new information is received, thus the data in Appendix A data should be used for informational purposes only.

SUMMARY OF UPDATED REMEDY DECISIONS FOR FY02

Region	# With No Sav.	# of TBD	# With Est. Sav.	# With Est. Incr.	Estimated Savings	Estimated Increases	Change Initiator						Type of Change	
							PRP	EPA	State	Fed. Fac.	Public	Joint	ESD	ROD-A
1	1	0	2	1	$9.1M	$0.4M	0	3	0	0	0	1	3	1
2	2	1	4	2	$4.7M	$5.5M	0	4	1	3	0	1	9	0
3	0	0	4	2	$17.9M	$0.5M	4	1	0	0	0	1	4	2
4	0	0	2	1	$7.0M	$7.0M	1	0	0	2	0	0	1	2
5	1	1	4	1	$11.4M	$7.7M	1	4	1	1	0	0	4	3
6	0	0	1	0	$5.0M	$0	0	0	0	0	0	1	1	0
7	0	0	0	0	$0	$0	0	0	0	0	0	0	0	0
8	0	0	0	0	$0	$0	0	0	0	0	0	0	0	0
9	0	0	2	2	$0.6M	$21.4M	0	2	0	0	0	2	3	1
10	1	0	2	5	$3.0M	$133.8M	0	3	0	2	0	3	6	2
TOTAL	**5**	**2**	**21**	**14**	**$58.7M**	**$176.3M**	**6**	**17**	**2**	**8**	**0**	**9**	**31**	**11**

5 2 21 14
42 sites

6 PRP 17 EPA 8 FED FAC
9 JOINT 2 STATE
42 sites

31ESD
11 ROD-A
42 sites

Appendix A

SUMMARY OF UPDATED REMEDY DECISIONS FOR FY03

Region	# With No Sav.	# of TBD	# With Est. Sav.	# With Est. Incr.	Estimated Savings	Estimated Increases	Change Initiator						Type of Change	
							PRP	EPA	State	Fed. Fac.	Public	Joint	ESD	ROD-A
1	3	0	2	2	$3.2M	$5.8M	1	4	0	1	0	1	7	0
2	1	4	2	4	$32.3M	$2.2M	0	4	0	6	0	1	9	2
3	1	0	5	0	$5.0M	$0	3	3	0	0	0	0	3	3
4	1	2	2	3	$2.4M	$50.5M	3	1	0	4	0	0	9	3
5	2	0	9	1	$27.5M	$0.5M	3	5	1	3	0	0	8	4
6	0	0	1	1	$9.9M	$1.7M	1	1	0	0	0	0	0	2
7	0	0	1	0	$0	$0	1	0	0	0	0	0	1	0
8	2	0	0	0	$0	$0	0	1	1	0	0	0	1	1
9	0	1	1	0	$2.5M	$0	0	2	0	0	0	0	0	2
10	3	0	3	3	$4.8M	$20.4M	1	2	1	2	0	3	8	1
Total	**13**	**7**	**26**	**14**	**$87.6M**	**$81.1M**	**13**	**23**	**3**	**16**	**0**	**5**	**43**	**17**

13 7 26 14
60 sites

13 PRP 23 EPA 3 JOINT
16 FED FAC 5 STATE
60 sites

43 ESD
17 ROD-A
60 sites

Appendix A

Appendix A.1:

Summary of Remedy Update Information for FY02 and FY03 for Sites Without Cost Increases

Note: The information and data presented in Appendix A.1 represent only a portion of the information available in the decision document. If more information is needed, please refer to the site's ESD, ROD-Amendment, memo-to-file, or letter.

Summary of Remedy Update Information for FY02 and FY03 for Sites Without Cost Increases

Region Site Name, State	Date of Original ROD Date of Change (ESD/ROD-A)	Date Review Commenced Date Review Completed	Change Initiator	Media	State/Community Involvement	Est'd Resource Demands - Fed/Contr. Est'd Cost Increase
Region 1 - FY 02						
Region 1 New Bedford Harbor, MA	9/25/98 9/27/01 ESD 8/16/02 ESD	2/02 8/02	EPA	Sediments	Very high community involvement.	Fed = 1000 hrs. Contr. = 40 hrs. Est'd Savings = $8M
	Type of Change: From - Build confined disposal facility; To - Send dredged sediments to an off-site landfill.					
	Factual Basis: EPA gained additional site information and refined its approach for the upper and lower harbor area.					
Region 1 Ottati & Goss/Kingston Steel Drum, OU4, NH	1/11/87 9/28/99 ESD 2/7/02 ESD	9/01 1/02	EPA	Soil	State concurrence, public comment period	Fed = 120 hrs. Contr. = $5K Est'd Savings = $1.1M
	Type of Change: From - Destruction of PCBs using incineration; To - Change in off-site disposal of PCB and VOC residue collected through thermal desorption.					
	Factual Basis: The change resulted from a determination that it would be more cost effective to landfill than incinerate.					

Summary of Remedy Update Information for FY02 and FY03 for Sites Without Cost Increases

Region Site Name, State	Date of Original ROD Date of Change (ESD/ROD-A)	Date Review Commenced Date Review Completed	Change Initiator	Media	State/Community Involvement	Est'd Resource Demands - Fed/Contr. Est'd Cost Increase
Region 1 Sylvester, NH	7/29/82 1983 Supp ROD 9/23/02 ESD	6/02 9/02	EPA	Groundwater	State concurred, local notification	Fed = 160 hrs. Contr. = None Est'd Savings = None
	Type of Change: From - Groundwater interception and recirculation system, extract and treat groundwater; To - Adjustment to alternate concentration limits (ACLs) for groundwater contaminants at the site, DCA and TCA.					
	Factual Basis: Measurable, protective limits for DCA and TCA were established					
Region 1 - FY 03						
Region 1 Baird & McGuire, OU1, MA	9/20/86 8/21/03 ESD	6/03 8/03	EPA	Groundwater, Soil	State concurred, local notification	Fed = 120 hrs. Contr. = None Est'd Savings = None
	Type of Change: Groundwater: From - Extract and treat groundwater, alternate water supply; To - Increase drinking water capacity. Soil: From - Incineration; To - Excavate silt, peat, sand, and gravel.					
	Factual Basis: The groundwater remedy was updated due to the discovery of a discharge of LNAPL and the need to supplement the local drinking water supply.					

Summary of Remedy Update Information for FY02 and FY03 for Sites Without Cost Increases

Region Site Name, State	Date of Original ROD Date of Change (ESD/ROD-A)	Date Review Commenced Date Review Completed	Change Initiator	Media	State/Community Involvement	Est'd Resource Demands - Fed/Contr. Est'd Cost Increase
Region 1 Baird & McGuire, OU4, MA	9/27/90 8/21/03 ESD	6/03 8/03	EPA	Groundwater	State concurred, local notification	Fed = 320 hrs. Contr. = None Est'd Savings = None
	Type of Change: From - Alternate water supply through reopening of Donna Road Wellfield; To - No further action.					
	Factual Basis: The water treatment plant was no longer necessary. An expansion of the public water supply, under OU1, was constructed instead.					
Region 1 Kearsarge Metallurgical Corp., NH	9/28/90 9/29/03 ESD	10/99 6/03	EPA	Groundwater, Soil	State wrote first draft of ESD, signed concurrence letter prior to EPA issuance of ESD. Community was briefed, legal notice and Admin Record prepared.	Fed = 120 hrs. NHDES= 40 hrs. Contr. = 198 hrs., $19,468 Est'd Savings = $2.7M*
	Type of Change: Groundwater: From - Pump and treat, cleanup goal based on ARARs or risk- based calculations; To - Extraction trench and revised cleanup goal for 1,1, DCA. Soil: From - Soil removal of shallow suits; To - Soil removal of deeper soils, offsite disposal.					
	Factual Basis: New information was gathered through the completion of several actions. * The estimated capital cost to implement the ESD was $1.1M. The ESD provides for additional source reduction below the groundwater table.					

Summary of Remedy Update Information for FY02 and FY03 for Sites Without Cost Increases

Region Site Name, State	Date of Original ROD Date of Change (ESD/ROD-A)	Date Review Commenced Date Review Completed	Change Initiator	Media	State/Community Involvement	Est'd Resource Demands - Fed/Contr. Est'd Cost Increase
Region 1 Silresim Chemical Corp., MA	9/19/91 9/30/03 ESD	6/03 9/03	EPA	Groundwater, Soil	State provided comments, ESD had public notice.	Fed = 40 hrs. Contr. = 100 hrs. Est'd Savings = None
	Type of Change: Soil: From - In-situ soil vapor extraction (SVE), residual oils will be excavated, stabilized and capped onsite. Groundwater: From - extract and treat, metal removal , air stripping, vapor treatment and discharge to city sewage system; To - revised risk-based cleanup goals based on change in groundwater clarification and inability to meet ROD cleanup levels.					
	Factual Basis: The remedy was updated based on results of SVE, results of SVE pilot test and re-evaluation of ROD cleanup goals.					
Region 1 Tinkham Garage Site, NH	9/30/86 3/31/03 ESD	1997 3/03	PRP	Groundwater	State signed a concurrence letter. Community fact sheet, legal notice and Admin Record prepared.	Fed = 80 hrs. Contr. = None Est'd Savings = $0.5M (3 year period)
	Type of Change: From - Groundwater pump and treat; To - Monitored Natural Attenuation (MNA).					
	Factual Basis: The remedy was updated based on ongoing data.					

Summary of Remedy Update Information for FY02 and FY03 for Sites Without Cost Increases

Region Site Name, State	Date of Original ROD Date of Change (ESD/ROD-A)	Date Review Commenced Date Review Completed	Change Initiator	Media	State/Community Involvement	Est'd Resource Demands - Fed/Contr. Est'd Cost Increase
Region 2 - FY 02						
Region 2 Evor Phillips Leasing, NJ	9/29/92 5/22/02 ESD	9/99 5/02	State	Groundwater	No public comments.	Fed = 150 hrs. Contr. = None Est'd Savings = $1.0M
	Type of Change: From - The 1992 ROD called for the extraction of contaminated groundwater underlying the site with on-site treatment and recharge; To -The ESD changed the method of discharge from reinjection to discharge to the Middlesex County Utilities Authority (MCUA).					
	Factual Basis: This change was initiated because in 1993, the NJDEP declared an Immediate Environmental Concern and it was thought that groundwater leaving the Evor site could be impacting downgradient sites. The discharge to the MCUA is an acceptable and economical alternative to reinjection.					
Region 2 Little Valley, NY	9/30/06 4/4/02 ESD	10/00 4/02	EPA	Groundwater	Full State involvement; community expressed no opinion.	Fed = 300 hrs. Contr. = None Est'd Savings = $1.0M*
	Type of Change: From - The ROD called for the installation of air stripper treatment units to protect the public from volatile organic contamination which was detected in private water supply wells; To - The selected remedy also called for an evaluation within five years of implementation of the remedy to determine whether a permanent alternate water supply system would be required. EPA determined that is more appropriate to evaluate whether a permanent alternative water supply will be necessary during the selection of a final remedy for the site, which is intended to address the source areas and groundwater.					

Summary of Remedy Update Information for FY02 and FY03 for Sites Without Cost Increases

Region Site Name, State	Date of Original ROD Date of Change (ESD/ROD-A)	Date Review Commenced Date Review Completed	Change Initiator	Media	State/Community Involvement	Est'd Resource Demands - Fed/Contr. Est'd Cost Increase
	Factual Basis: This determination was based upon the fact that the source area and groundwater investigation is ongoing and must be completed before the water supply can be fully evaluated. Air stripper treatment units were installed on 90 private wells in 1997. * The original cost to install the air stripper/activated carbon treatment units and five years of operation and maintenance and annual private well sampling and analysis was approximately $1.6 million (consisting of the actual purchase and installation costs and the actual purchase and installation costs and the actual operation, maintenance, and monitoring costs for 4 years, and the estimated annual costs for the fifth year.) The estimated cost related to using two activated carbon treatment units in series and five years of operation and maintenance and annual private well sampling and analysis is $621,000.					
Region 2 Rowe Industries Groundwater Contamination, NY	9/30/02 12/20/01 ESD	5/01 12/01	EPA	Groundwater	Full State involvement. Remedy modified by ESD because of public's concerns.	Fed = 500 hrs. Contr. = None Est'd Savings = None
	Type of Change: From - The ROD called for the extraction and treatment of contaminated groundwater and discharge of the treated groundwater to Ligonee Creek/Inner Sag Harbor Cove; To - Instead, all treated groundwater will be discharged into a recharge basin that will be constructed on a Town of Southampton-owned property located adjacent to Sag Harbor Industries..					
	Factual Basis: In response to public concern regarding a freshwater discharge into saltwater environment, EPA decided not to discharge any treated groundwater to Ligonee Creek and Sag Harbor Cove.					
Region 2 Sealand Restoration Inc., NY	9/29/95 10/19/01 ESD	6/01 10/01	EPA	Groundwater	Full State involvement; community expressed no opinion.	Fed = 100 hrs. Contr. = None Est'd Savings =$1.1M

Summary of Remedy Update Information for FY02 and FY03 for Sites Without Cost Increases

Region Site Name, State	Date of Original ROD Date of Change (ESD/ROD-A)	Date Review Commenced Date Review Completed	Change Initiator	Media	State/Community Involvement	Est'd Resource Demands - Fed/Contr. Est'd Cost Increase
	Type of Change: From - The ROD for groundwater called for the extraction and onsite treatment of the high levels of acetone and the performance of a study to determine if natural attenuation[1] could reduce the VOC plume to groundwater standards within a reasonable time frame. The remedy also included the construction of a groundwater extraction and treatment system if it was determined that natural attenuation had little potential to reduce the VOC concentrations to groundwater standards; To - In-place treatment combined with natural attenuation.					
	Factual Basis: Data collected during pre-Remedial Design sampling groundwater investigations revealed the presence of several localized areas of groundwater contamination characterized by high levels of acetone and a VOC plume downgradient of these areas.					

[1]Natural attenuation is the use of natural processes, such as degradation, dispersion, and dilution, to reduce contaminant concentrations to levels that are protective of human health and the environment.

Summary of Remedy Update Information for FY02 and FY03 for Sites Without Cost Increases

Region Site Name, State	Date of Original ROD Date of Change (ESD/ROD-A)	Date Review Commenced Date Review Completed	Change Initiator	Media	State/Community Involvement	Est'd Resource Demands - Fed/Contr. Est'd Cost Increase
Region 2 Volney Municipal Landfill, NY	7/31/87 9/29/89 PDD 8/97 ESD 10/19/01 ESD	9/01 10/01	EPA, PRPs	Groundwater	Full State involvement; community expressed no opinion.	Fed = 400 hrs. Contr. = None Est'd Savings = None
	Type of Change: From- The 1987 ROD, as modified by the 1989 Post-Decision Document (PDD) and 1997 ESD, called for groundwater extraction and treatment, on an as needed-basis, to address the intermittent groundwater contamination located downgradient from the landfill. The ROD also called for long-term monitoring and a supplemental investigation to evaluate the potential for the migration of contaminants in the groundwater and to the surface water and sediments of the adjacent Bell Creek and wetlands surrounding the site; To - Extraction and treatment, in combination with natural attenuation, would adequately address the site-related groundwater contamination and a supplemental groundwater remedy does not need to be implemented.					
	Factual Basis: Based upon the results of that investigation, it was determined that intermittent groundwater extraction and treatment in combination with natural attenuation would adequately address the site-related groundwater contamination.					
Region 2 - FY 03						
Region 2 D'Imperio Property, NJ	3/27/85 7/3/03 ROD-A	4/98 7/03	EPA, PRPs	Soil	Full State and community involvement.	Fed = 250 hrs. Contr. = None Est'd Savings = $0.3M
	Type of Change: From - The ROD called for excavation of contaminated soils, the construction of a RCRA cap after the excavation of soils, and the installation of a groundwater treatment system. It was determined after the excavation phase to proceed with the groundwater treatment system because the data at the time revealed that the groundwater plume had migrating even further downstream than expected. Following the completion of the groundwater treatment system in 1997, a soil study was initiated; To - From the results of that study, EPA decided to delineate the remaining soils by ordering the responsible parties to initiate a soil investigation. An evaluation report was prepared which compared several other alternatives to the final component (RCRA cap) of the selected remedy.					
	Factual Basis: A soil study was initiated to determine the quality and quantity of the remaining contaminated soils.					

Summary of Remedy Update Information for FY02 and FY03 for Sites Without Cost Increases

Region Site Name, State	Date of Original ROD Date of Change (ESD/ROD-A)	Date Review Commenced Date Review Completed	Change Initiator	Media	State/Community Involvement	Est'd Resource Demands - Fed/Contr. Est'd Cost Increase
Region 2 Griffiss Air Force Base, Bldg. 214, NY	9/30/99 9/26/03 ESD	6/03 9/03	Air Force	Groundwater	Full State involvement. Community expressed no major interest.	Fed = Limited Contr. = None Est'd Savings = No Change
	Type of Change: From - Evaluate groundwater further; To - Groundwater ARARs have been met and no further action for groundwater.					
	Factual Basis: Recent groundwater data.					
Region 2 Griffiss Air Force Base, Bldg. 219, NY	9/30/99 9/26/03 ESD	6/03 9/03	Air Force	Groundwater	Full State involvement. Community expressed no major interest.	Fed = Limited Contr. = None Est'd Savings = No Change
	Type of Change: From - Evaluate groundwater further; To - Groundwater ARARs have been met and no further action for groundwater.					
	Factual Basis: Recent groundwater data.					

Summary of Remedy Update Information for FY02 and FY03 for Sites Without Cost Increases

Region Site Name, State	Date of Original ROD Date of Change (ESD/ROD-A)	Date Review Commenced Date Review Completed	Change Initiator	Media	State/Community Involvement	Est'd Resource Demands - Fed/Contr. Est'd Cost Increase
Region 2 Griffiss Air Force Base, Bldg. 222, NY	9/27/01 9/26/03 ESD	6/03 9/03	Air Force	Groundwater	Full State involvement. Community expressed no major interest.	Fed = Limited Contr. = None Est'd Savings = No Change
	Type of Change: From - Original ROD was for soils only and required the GW to be further evaluated under the On-Base, GW-AOC Operable Unit. This On-Base, GW-AOC ROD will include not only the Bldg. 222 area, but all GW areas on base. However, this ROD will not be issued for 1-2 years. Recent GW data pertaining to Bldg. 222 indicates that ARARs for GW have been met.; To - an ESD was performed on the Bldg. 222 soils only ROD to include GW. The ESD indicates that GW ARARs have been met and No Further Action for GW is required.					
	Factual Basis: Recent GW data pertaining to Bldg. 222 indicates that ARARs for GW have been met and No Further action for GW required for Bldg. 222.					
Region 2 Griffiss Air Force Base, Bldg. 255, NY	9/27/01 9/26/03 ESD	6/03 9/03	Air Force	Groundwater	Full State involvement. Community expressed no major interest.	Fed = Limited Contr. = None Est'd Savings = No Change
	Type of Change: From - Original ROD was for soils only and required the GW to be further evaluated under the On-Base, GW-AOC Operable Unit. This On-Base, GW-AOC ROD will include not only the Bldg. 255 area, but all GW areas on base. However, this ROD will not be issued for 1-2 years. Recent GW data pertaining to Bldg. 255 indicates that ARARs for GW have been met.; To - an ESD was performed on the Bldg. 255 soils only ROD to include GW. The ESD indicates that GW ARARs have been met and No Further Action for GW is required.					
	Factual Basis: Recent GW data pertaining to Bldg. 255 indicates that ARARs for GW have been met. Therefore, an ESD was performed on the Bldg. 255 soils only ROD to include GW.					

Summary of Remedy Update Information for FY02 and FY03 for Sites Without Cost Increases

Region Site Name, State	Date of Original ROD Date of Change (ESD/ROD-A)	Date Review Commenced Date Review Completed	Change Initiator	Media	State/Community Involvement	Est'd Resource Demands - Fed/Contr. Est'd Cost Increase
Region 2 Higgins Disposal, NJ	9/30/97 12/9/02 ESD	6/99 12/02	EPA, PRPs	Groundwater	Full State and community involvement	Fed = 120 hrs. Contr. = None Est'd Savings = $1.6M
	Type of Change: From - The ROD called for the installation of extraction wells, construction of a one and a half mile pipeline for pumping groundwater contaminated with volatile organics (plus some semi-volatile organics) to the treatment and disposal via surface discharge. The selected remedy also called for the extension of the water supply line to 13 residents including the Higgins property on Laurel Avenue. The water supply line extension was completed in 1998; To - Extract groundwater, on-site treatment, and reinjection of treated water into the aquifer system.					
	Factual Basis: The remedy update resulted from new data collected during the pre-design investigation and a focused feasibility study.					
Region 2 Roebling Steel, NJ	9/26/91 9/30/03 ROD-A	8/97 9/03	EPA	Soil	Full State and community involvement	Fed = Unknown Contr. = Unknown Est'd Savings = $32.0M
	Type of Change: From - The ROD for the Slag Area called for treating hot spots through stabilization (defined by TCLP testing), covering the 34-acre Slag Area with a soil cap and vegetation, installing a stormwater management system and shoreline protection, and using institutional controls; To - The ROD amendment removes only the treatment component.					
	Factual Basis: EPA determined that the TCLP test used as a basis for defining hot spots, was not a good indicator of the leaching behavior in the Slag Area. Instead, the analytical results from the hot spot delineation, groundwater, surface water and sediment investigations would be more relevant.					

Summary of Remedy Update Information for FY02 and FY03 for Sites Without Cost Increases

Region Site Name, State	Date of Original ROD Date of Change (ESD/ROD-A)	Date Review Commenced Date Review Completed	Change Initiator	Media	State/Community Involvement	Est'd Resource Demands - Fed/Contr. Est'd Cost Increase
Region 2 Stanton Cleaners Area Groundwater Contamination Site, NY	3/31/99 9/25/03 ESD	9/02 9/03	EPA	Groundwater	State and the community concurred.	Fed = None Contr. = None Est'd Savings = None
	Type of Change: From - Extract and treat groundwater, long-term monitoring and groundwater use restrictions; To - No further response for off-site sources of groundwater.					
	Factual Basis: The results of Investigation Summary Report generated the remedy update					
Region 3 - FY 02						
Region 3 Abex Corp., VA	9/29/92 8/15/94 ROD-A 10/15/95 ESD 8/27/02 ESD	4/00 8/02	PRP	Soil	State and City of Portsmouth and Portsmouth Regional Housing Authority involvement.	Fed = 75 hrs. Contr. = None Est'd Savings = $2.0M
	Type of Change: From - Residential cleanup standards for the Washington Park Housing Complex soils and debris; To - Commercial/Industrial cleanup standards for the Washington Park Housing Complex soils and debris.					
	Factual Basis: The Washington Park Housing Complex was demolished and the residents were relocated permanently. The City of Portsmouth and the Portsmouth Redevelopment and Housing Authority requested that residential cleanup standards be changed to commercial/industrial standards to facilitate the site's development.					

Summary of Remedy Update Information for FY02 and FY03 for Sites Without Cost Increases

Region Site Name, State	Date of Original ROD Date of Change (ESD/ROD-A)	Date Review Commenced Date Review Completed	Change Initiator	Media	State/Community Involvement	Est'd Resource Demands - Fed/Contr. Est'd Cost Increase
Region 3 Palmerton Zinc Pile, PA	6/29/88 8/27/02 ESD	1995 8/02	PRP	Soil	State concurrence	Fed = 75 hrs. Contr. = None Est'd Savings = $7.5M
	Type of Change: From - A Cinder Bank cap of soils and clay or soil/bentonite mixture; To - A Cinder Bank cap consisting of Ecoloam.					
	Factual Basis: The original ROD required a more sophisticated cap to extinguish fires within the Cinder Bank. Subsequent Air Quality studies revealed that fires were not causing a significant impact on Air Quality so the Ecoloam cap was deemed sufficient to maintain Cinder Bank stabilization. Burning portions will be monitored to determine need for further controls.					
Region 3 Saegertown Industries Area, PA	1/29/93 9/30/02 ROD-A	1998 9/02	PRP	Groundwater	State concurrence and public meeting.	Fed = 150 hrs. Contr. = None Est'd Savings = $7.2M
	Type of Change: From - Extraction and treatment of groundwater and air sparging/vacuum extraction; To - Enhanced bio-remediation of VOCs in GW using a molasses-based carbon source and monitoring; on going operation and monitoring of domestic well treatment system; and institutional controls (safety and health management planning and groundwater use restrictions).					
	Factual Basis: The PRP demonstrated that the molasses-based carbon source could enhance biodegradation of VOCs in groundwater to promote natural attenuation. Some well treatment and groundwater use restrictions are still required.					
Region 3 Whitomoyer Laboratories OU3, PA	12/31/90 4/16/02 ROD-A	2/01 2/02	PRP	Soil	State approval and public meeting prior to ROD-A.	Fed = 150 hrs. Contr. = None Est'd Savings = $1.2M
	Type of Change: From - Excavation of contaminated, unsaturated soils; To - Use of an asphalt cover to stabilize and maintain contaminated, unsaturated soils. New roadway will be inspected regularly to ensure the integrity of the cover. Deed restrictions will be used where contaminated soils remain.					

Summary of Remedy Update Information for FY02 and FY03 for Sites Without Cost Increases

Region Site Name, State	Date of Original ROD Date of Change (ESD/ROD-A)	Date Review Commenced Date Review Completed	Change Initiator	Media	State/Community Involvement	Est'd Resource Demands - Fed/Contr. Est'd Cost Increase
	Factual Basis: Excavation of the contaminated soils would have required the closing of an access roadway to local residents and the possibility of contact with utility (electric, gas and water) lines. An asphalt cover, continuously maintained with concurrent deed restrictions, is the preferred alternative.					

Summary of Remedy Update Information for FY02 and FY03 for Sites Without Cost Increases

Region Site Name, State	Date of Original ROD Date of Change (ESD/ROD-A)	Date Review Commenced Date Review Completed	Change Initiator	Media	State/Community Involvement	Est'd Resource Demands - Fed/Contr. Est'd Cost Increase
Region 3 - FY 03						
Region 3 Berks Sand Pit, PA	9/24/88 2/2/94 ESD 9/14/01 ESD 1/6/03 ESD	2/01 2/02	EPA	Groundwater, Air	State involvement.	Fed = 75 hrs. Contr. = None Est'd Savings = $8.0K
	Type of Change: From - Air stripping using a vapor phase granulated activated carbon unit (VPGAC); To - Air stripping without VPGAC.					
	Factual Basis: Contamination levels have decreased to the extent that the VPGAC is not considered to be necessary for the continued successful operation of the remedy. EPA's calculated weight of contaminants and the modeled risks from the emission levels are below Federal and State levels.					
Region 3 Brown's Battery Breaking Site, OU2, PA	7/2/92 7/30/03 ROD-A	6/96 6/03	PRP	Groundwater	State and Tilden Township, PA involvement.	Fed = 150 hrs. Contr. = None Est'd Savings = $2.4M
	Type of Change: From - Install a vertical limestone barrier in the alluvial aquifer; Pump and treat onsite the contaminated groundwater from the bedrock aquifer. Allow for infiltration of clean water to the alluvial zone to increase groundwater velocity; To - Injection of in-situ treatment agents directly into the alluvial and bedrock units. Eliminate vertical limestone barrier and pump and treat of contaminated groundwater. Eliminate need for infiltration of clean water to the alluvial zone increase groundwater velocity.					
	Factual Basis: This remedy update was initiated due to the results of monitoring in predesign investigation, results of hydraulic testing, and bench-scale testing.					

Summary of Remedy Update Information for FY02 and FY03 for Sites Without Cost Increases

Region Site Name, State	Date of Original ROD Date of Change (ESD/ROD-A)	Date Review Commenced Date Review Completed	Change Initiator	Media	State/Community Involvement	Est'd Resource Demands - Fed/Contr. Est'd Cost Increase
Region 3 Brown's Battery Breaking Site OU2, PA	7/2/92 9/25/03 ESD	2002 2003	EPA	Soil	State and Tilden Township, PA involvement.	Fed = 75 hrs. Contr. = None Est'd Savings = None
	Type of Change: From - Excavation of all soil exceeding 100mg/kg of lead; To - During the removal action, EPA determined that excavation of the soil in the vicinity of a railroad track could determine rail right-of-way. Instead of further excavation, the ESD calls for: 1) Add a 2 foot soil cover on the contaminated portion of the railroad embankment; 2) Implement institutional controls (site use restrictions); and 3) Extend site use restrictions to the rail embankment.					
	Factual Basis: Confirmation sampling and a successful pilot-test resulted in the remedy update.					
Region 3 Delaware Sand & Gravel, DE	4/22/88 9/30/92 ROD-A 7/8/03 ROD-A	2003 2003	EPA	Building Materials, Soil	State and New Castle, DE involvement.	Fed = 75 hrs. Contr. = None Est'd Savings = $500
	Type of Change: From - Deed restrictions on use of the drum area and any future use of the drinking water wells at the site; To - EPA wants to change "Deed Restrictions" to "Institutional Controls" as a replacement in the ROD Amendment. Change is of terminology only. Same restricted areas apply.					
	Factual Basis: The original ROD omitted a requirement to establish institutional controls at the disposal area.					
Region 3 Hunterstown Road, PA	8/2/93 8/25/98 ESD 3/22/01 ESD 8/11/03 ESD	12/17/02 8/5/03	PRP	Groundwater, Air	State involvement.	Fed = 75 hrs. Contr. = None Est'd Savings = $1.4M
	Type of Change: From - Air stripping utilizing a catalytic off-gas treatment system; To - Air stripping utilizing a vapor phase carbon adsorption system for treating off gases.					
	Factual Basis: The design phase improvement resulted because the vapor phase carbon absorption system is less costly than the catalytic off-gas treatment system.					

Summary of Remedy Update Information for FY02 and FY03 for Sites Without Cost Increases

Region Site Name, State	Date of Original ROD Date of Change (ESD/ROD-A)	Date Review Commenced Date Review Completed	Change Initiator	Media	State/Community Involvement	Est'd Resource Demands - Fed/Contr. Est'd Cost Increase
Region 3 Welsh Road Landfill OU1, PA	6/30/90 7/2/03 ROD-A	6/99 10/02	PRP	Soil, Groundwater	State and Honeybrook, PA involvement.	Fed = 75 hrs. Contr. = None Est'd Savings = $1.2M
	Type of Change: From - Multi-media Cap; razor or barbed wire on perimeter fencing; To - Install Evaporation/Transpiration Cap; long- term groundwater monitoring; surface water management controls; demolition of structures and debris removal; remove razor of barbed wire fencing.					
	Factual Basis: Change during Remedial Design negotiations.					
Region 4 - FY 02						
Region 4 Rochester Property, SC	9/28/99 1/29/02 ROD-A	5/00 1/02	DOE	Groundwater, Soil	State concurred on Proposed Plan. Public comment period.	Fed = 40 hrs. Contr. = None Est'd Savings = $1.4M
	Type of Change: From - In-situ groundwater treatment and on-site biotreatment of contaminated soils; To - Monitored natural attenuation of groundwater and off-site disposal of contaminated soils.					
	Factual Basis: After the contaminated soils were excavated and placed in the biotreatment area, ground water monitoring indicated that natural attenuation was occurring. During biotreatment operation and maintenance, it was determined that treatment costs were going to be significantly higher than planned. Off-site disposal was found to be more cost effective.					

Summary of Remedy Update Information for FY02 and FY03 for Sites Without Cost Increases

Region Site Name, State	Date of Original ROD Date of Change (ESD/ROD-A)	Date Review Commenced Date Review Completed	Change Initiator	Media	State/Community Involvement	Est'd Resource Demands - Fed/Contr. Est'd Cost Increase
Region 4 Savannah River Site/CMP Pits, OU24, SC	9/28/99 1/29/02 ROD-A	5/00 1/02	DOE	Groundwater, Soil	State concurred on Proposed Plan. Public comment period conducted.	Fed = 40 hrs. Contr. = 10hrs. Est'd Savings = $5.6M
	Type of Change: (1) From - Soil excavation with off-site disposal; To - Limited soil excavation/off-site disposal and evaluation of on-site treatment options. (2) From - Treatment of vadose zone soils with soil vapor extraction (SVE) and an asphalt cover; To - Soil vapor extraction without the asphalt cover. (3) From - Groundwater hot spot treatment with air sparging and SVE; To - Defer treatment to final groundwater remedy.					
	Factual Basis: (1) The discovery of Silvex (F-025) in contaminated soils limited off-site disposal options. (2) New data indicated the presence of DNAPL that requires further characterization. (3) the water table dropped below a low permeability clay zone that renders air sparging ineffective.					
Region 4 - FY03						
Region 4 Aberdeen Pesticide Dumps, NC	10/7/93 9/30/03 ROD-A	1/01 9/03	PRP	Groundwater	State concurred. Public notice in local paper, 30- day public comment period and public meeting.	Fed = 200 hrs. Contr. = None Est'd Savings = $2.0M
	Type of Change: From - Pump and treat; To - Monitored Natural Attenuation.					
	Factual Basis: A noted reduction in groundwater concentrations, over five year period, and results of groundwater modeling initiated this remedy update.					

Summary of Remedy Update Information for FY02 and FY03 for Sites Without Cost Increases

Region Site Name, State	Date of Original ROD Date of Change (ESD/ROD-A)	Date Review Commenced Date Review Completed	Change Initiator	Media	State/Community Involvement	Est'd Resource Demands - Fed/Contr. Est'd Cost Increase
Region 4 Koppers Company, Inc. (Charleston Plant), SC	4/29/98 4/24/03 ESD	1/02 4/03	PRP	Groundwater, Sediments	State concurred. Fact sheet mailed and public notice in local paper.	Fed = 100 hrs. Contr. = None Est'd Savings =$0.4M
	Type of Change: From - Pump and treat of NAPL and capping of sediments To - In situ solidification/stabilization of NAPL containing soils and monitored natural siltation covering of contaminated sediments.					
	Factual Basis: Additional site data collected during the development of the Remedial Design.					
Region 4 Leonard Chemical Company, Inc., SC	8/20/01 2/13/03 ESD	1/02 2/03	PRP	Groundwater	State concurred. Public notice in local paper.	Fed = 80 hrs. Contr. = None Est'd Savings = None
	Type of Change: From - Groundwater cleanup level developed by risk calculations. To - Cleanup level based on results from site specific leaching test data.					
	Factual Basis: The remedy update was initiated due to site-specific soil leaching test data.					

Summary of Remedy Update Information for FY02 and FY03 for Sites Without Cost Increases

Region Site Name, State	Date of Original ROD Date of Change (ESD/ROD-A)	Date Review Commenced Date Review Completed	Change Initiator	Media	State/Community Involvement	Est'd Resource Demands - Fed/Contr. Est'd Cost Increase
Region 4 Savannah River Site (CRSB, OU60), SC	9/28/99 10/23/02 ROD-A	4/02 10/02	DOE	Soil	State concurred. Public notice in local paper, 30- day public comment period and public meeting.	Fed = 80 hrs. Contr. = 40 hrs. Est'd Savings = Unknown
	Type of Change: From - In situ soil stabilization To - Soil capping.					
	Factual Basis: Radioactive decay of contaminants in soil was determined to occur at a faster rate.					
Region 4 Savannah River Site (LRSB, OU65), SC	9/28/99 10/23/02 ROD-A	4/02 10/02	DOE	Soil	State concurred. Public notice in local paper, 30- day public comment period and public meeting.	Fed = 80 hrs. Contr. = 40 hrs. Est'd Savings = Unknown
	Type of Change: From - In situ soil stabilization; To - Soil capping.					
	Factual Basis: Radioactive decay of contaminants in soil was determined to occur at a faster rate.					

Summary of Remedy Update Information for FY02 and FY03 for Sites Without Cost Increases

Region Site Name, State	Date of Original ROD Date of Change (ESD/ROD-A)	Date Review Commenced Date Review Completed	Change Initiator	Media	State/Community Involvement	Est'd Resource Demands - Fed/Contr. Est'd Cost Increase
Region 5 - FY 02						
Region 5 Byron Salvage Yard, IL	9/24/98 9/20/02 ESD	2002 9/02	EPA	Soil	State concurred with ESD	Fed = 100 hrs. Contr. = Unknown Est'd Savings =Unknown
	Type of Change: From -Five areas of the site designated for capping in the 1998 ROD. Based on pre-design sampling; To - Excavate and remove metal contaminated soil from north disposal area of the Dirks Farm Property (DFP). Therefore capping and long-term maintenance of the cap is not required for the former DFP north disposal area.					
	Factual Basis: There is no need to cap metal-contaminated soils on the salvage yard portion of the site. Based on the pre-design sampling, the PRPs, with USEPA concurrence, also found it more cost effective and equally protective.					
Region 5 Feed Materials Production Center (USDOE), OH	1/31/96 11/29/01 ESD	12/00 11/01	DOE	Groundwater	State concurred. Citizen involvement.	Fed = 100 hrs. Contr. = Unknown Est'd Savings = $3.5M
	Type of Change: To - The ESD signed on 11/29/01 was a change in the final remedial level for uranium in the aquifer from 20 micrograms per liter to 30 micrograms per liter.					
	Factual Basis: This remedy update resulted because the proposed Maximum Contaminant Level (MCL) under the Safe Drinking Water Act went final on 12/7/00 and the MCL went from 20 to 30. This change resulted in no significant increased risk and will reduce the groundwater cleanup time by approximately 5 years, saving $3.5 million.					

Summary of Remedy Update Information for FY02 and FY03 for Sites Without Cost Increases

Region Site Name, State	Date of Original ROD Date of Change (ESD/ROD-A)	Date Review Commenced Date Review Completed	Change Initiator	Media	State/Community Involvement	Est'd Resource Demands - Fed/Contr. Est'd Cost Increase
Region 5 Industrial Excess Landfill, OH	7/17/89 3/1/00 ROD-A 9/27/02 ROD-A	3/00 9/02	EPA	Soil, Groundwater	State concurred	Fed = 200 hrs. Contr. = Unknown Est'd Savings = $6.5M
	Type of change: From - The March 2000 ROD Amendment was initiated as a result of new groundwater data obtained during the remedial design. New RD groundwater data revealed that the contamination was no longer outside the boundaries of the landfill. The March 2000 ROD Amendment ceased operation of the pump & treat system, added monitored natural attenuation and simplified the engineering cap. In June 2000, a local community group received a redevelopment grant from EPA and therefore, redevelopment initiatives for the site began to increase. The PRPs petitioned EPA to change the conventional engineering cap and enhanced vegetative cover to further encourage site redevelopment ; To - Augment existing vegetation cover natural attenuation (NA) for groundwater monitor. Groundwater and landfill gas, deed restrictions on site use, maintain alternate water supply.					
	Factual Basis: Results of groundwater surveys and limited radiation testing of groundwater.					
Region 5 Michigan Disposal Service, MI	9/30/91 9/25/02 ROD-A	2002 9/02	EPA	Groundwater	State concurred	Fed = 200 hrs. Contr. = Unknown Est'd Savings = $1.2M
	Type of Change: From - Pump and treat groundwater and discharge; To publicly-owned wastewater treatment facility.					
	Factual Basis: Pre-design studies to update the vertical and horizontal extent of the contaminated groundwater showed that the quality of groundwater discharging from the site was no longer causing and environmental risk to Davis Creek. The groundwater study provided data to support the MDEQ's Mixing Zone Determination (MZD) evaluation and approval. The information collected in the pre-design studies, in conjunction with supplemental groundwater quality and stream flow data analysis, provided data to support changes in the cleanup action for groundwater at the site.					

Summary of Remedy Update Information for FY02 and FY03 for Sites Without Cost Increases

Region Site Name, State	Date of Original ROD Date of Change (ESD/ROD-A)	Date Review Commenced Date Review Completed	Change Initiator	Media	State/Community Involvement	Est'd Resource Demands - Fed/Contr. Est'd Cost Increase
Region 5 Onalaska Municipal Landfill, IL	8/14/90 11/13/01 ESD	9/00 11/00	State	Groundwater, Landfill waste	State and community involvement.	Fed = 100 hrs. Contr. = Unknown Est'd Savings = $0.2M
	Type of Change: From - Groundwater extract and treat and bioremediation system (with air stripping); To - The ESD allows for the temporary shut down of the pump and treat system to study monitored natural attenuation as a long-term remedy for the site.					
	Factual Change: Groundwater data collection in 2000 indicated that only iron and select metals were still above the state standards.					
Region 5 Thermo-Chem, Inc., MI	9/30/91 9/17/02 ESD	1995/1996 9/02	EPA	Groundwater	State concurred	Fed = 100 hrs. Contr. = Unknown Est'd Savings = None
	Type of Change: From - In the 1991 ROD, OU1 focused on contaminated soil, sludge and groundwater at the site up to the Black Creek. OU2 addressed contamination in Black Creek, i.e., surface water sediment, plants, living organisms and groundwater of Black Creek; To - U.S. EPA combined OU1 and OU2 with an ESD based on the following findings: the Groundwater Extraction and treatment System (GWETS) in the ROD stops the flow of contaminated groundwater to the Black Creek flood plain and the groundwater contaminant levels beneath the flood plain will continue to decline due to natural dilution and dispersion of contaminants; naturally occurring biological and/or chemical processes.					
	Factual Basis: The groundwater cleanup standards in the ROD were based on Type B standards pursuant to Michigan Environmental Response Act, PA 307 of 1982, as amended (Michigan Act 307). In 1994, Michigan Act 307 became Part 201, Act 451. Part 201 was amended in 1995 which lead to a change in the groundwater cleanup standards for many compounds.					

Summary of Remedy Update Information for FY02 and FY03 for Sites Without Cost Increases

Region Site Name, State	Date of Original ROD Date of Change (ESD/ROD-A)	Date Review Commenced Date Review Completed	Change Initiator	Media	State/Community Involvement	Est'd Resource Demands - Fed/Contr. Est'd Cost Increase
Region 5 - FY 03						
Region 5 Buckeye Reclamation, OH	1991 8/15/03 ESD	9/02 11/03	EPA	Groundwater, Surface water	State involvement	Fed = 100 hrs. Contr. = Unknown Est'd Savings = $8.5M
	Type of Change: From - The ROD provided for the installation of a leachate and groundwater collection system to intercept acid mine drainage (AMD), leachate and surface water from the landfill areas and channel it to the treatment system; To - The ESD stated that no additional groundwater/leachate collection/treatment mechanisms are required.					
	Factual Basis: The settling defendants completed four quarterly monitoring events for surface water and leachate flow and quality, to determine the need for additional or modified groundwater/leachate collection mechanisms and/or groundwater/leachate treatment. The results of this study indicated that no treatment of these streams is currently required.					
Region 5 Continental Steel, IN	9/30/98 9/26/03 ROD-A	3/03 4/03	State	Soil, Groundwater, Sediments	State involvement	Fed = 200 hrs. Contr. = Unknown Est'd Savings = None
	Type of Change: From -Remove lead contaminated soil; To - The ROD Amendment will: 1) Incorporated remedial action goals initially developed and presented in the baseline human health risk assessment, 2) Incorporate a more stringent remedial action goal for PCBs in the creeks, 3) An MCL for arsenic as a groundwater cleanup goal, 4) Formalize reorganization of the project management strategy from former geographic approach (OUs) to a task-based approach based on similar activities, and 5) More stringent remedial action goals for OU5 (Main Plant) that will be protective under a recreational use scenario.					
	Factual Basis: Additional sampling results during design resulted in the remedy update.					

Summary of Remedy Update Information for FY02 and FY03 for Sites Without Cost Increases

Region Site Name, State	Date of Original ROD Date of Change (ESD/ROD-A)	Date Review Commenced Date Review Completed	Change Initiator	Media	State/Community Involvement	Est'd Resource Demands - Fed/Contr. Est'd Cost Increase
Region 5 Feed Materials Production Center (USDOE),OU1, OH	3/1/95 11/7/02 ESD	11/01 11/02	DOE	Waste	State concurred. Citizen involvement.	Fed = 100 hrs. Contr. = Unknown Est'd Savings = $2.0M
	Type of Change: From - Off-site treatment and truck shipment for disposal; To - The ESD signed in 2002 integrated the processing of various waste streams on-site through the Operable Unit 1 infrastructure of thermally drying the waste and shipping the materials off-site via rail to Envirocare of Utah.					
	Factual Basis: The processing of the materials through the existing treatment, shipping and disposal infrastructure as opposed to off-site treatment and truck shipment for disposal, will save $2 million.					
Region 5 Feed Materials Production Center (USDOE),OU4, OH	12/7/94 9/24/03 ROD-A	8/02 9/03	DOE	Waste	State concurred. Citizen involvement	Fed = 200 hrs. Contr. = Unknown Est'd Savings = $13.0M
	Type of Change: From - Cement stabilization; To - The ROD-A was a result of off-site disposal facilities (Nevada Test Site) changing its waste acceptance criteria to not require treatment for TCLP; and Envirocare being able to receive untreated Silo 3 waste material in its disposal cell. This resulted in the need for only minimal treatment, as opposed to cement stabilization to meet TCLP. Further this minimal treatment resulted in the ability to ship the waste to Envirocare.					
	Factual Basis: A change in acceptance criteria by the disposal facility resulted in the remedy update.					

Summary of Remedy Update Information for FY02 and FY03 for Sites Without Cost Increases

Region Site Name, State	Date of Original ROD Date of Change (ESD/ROD-A)	Date Review Commenced Date Review Completed	Change Initiator	Media	State/Community Involvement	Est'd Resource Demands - Fed/Contr. Est'd Cost Increase
Region 5 H.O.D. Landfill, IL	9/28/98 8/28/03 ESD	8/02 8/03	EPA	Soil	State concurred	Fed = 100 hrs. Contr. = Unknown Est'd Savings = $20,000/10 year period
	Type of Change: From - Contaminant through leachate and gas extractions, waste cap improvements and ground water- monitored natural attenuation; To - ESD only changed the fencing and access requirements. ESD allowed for removal of fence from 120 acre property (that includes 51-acre landfill) and replacement around the operation and maintenance facility (flare and building, leachate tank and pump out area). ESD also required that flust-mounted methane/leachate collection vaults to be secured (locked). Monitored natural attenuation.					
	Factual Basis: Post-construction risk assessment quantified specific risks associated with recreational reuse as acceptable.					
Region 5 Joliet Army Ammunition Plant, IL	11/4/98 6/25/03 ESD	6/02 4/03	Army	Groundwater	State concurred	Fed = 100 hrs. Contr. = Unknown Est'd Savings = None
	Type of Change: From - The selected remedy for groundwater at site MI Limited Action, which included natural attenuation, establishment of a Groundwater Management Zone (GMZ), deed restrictions, and monitoring. The ROD specified the GMZ to encompass the known extent and suspected migration of contaminated groundwater. The GMZ boundaries serve as the point of compliance for meeting the Remedial Goals (RGs) established in the ROD for contaminants in groundwater; To - The ESD addresses contaminated groundwater at Site M1, the Southern Ash Pile.					
	Factual Basis: Sulfate was found after the ROD was signed, at concentrations exceeding the RG at the GMZ boundary. The ESD expanded the GMZ boundaries to include 49 additional acres in order to prevent potential groundwater withdrawals.					

Summary of Remedy Update Information for FY02 and FY03 for Sites Without Cost Increases

Region Site Name, State	Date of Original ROD Date of Change (ESD/ROD-A)	Date Review Commenced Date Review Completed	Change Initiator	Media	State/Community Involvement	Est'd Resource Demands - Fed/Contr. Est'd Cost Increase
Region 5 Organic Chemical, MI	2/5/97 9/29/03 ESD	1998 2/01	EPA	Soil, Groundwater	Unknown	Fed = 100 hrs. Contr. = Unknown Est'd Savings = $0.3M
	Type of Change: From - The ROD estimated that approximately 6,000 cubic yards of soils would exceed the cleanup the cleanup levels and need to undergo solidification/stabilization prior to on-site disposal. The ROD also allowed for a small part of this volume of soils which needed to be removed from the site to meet the established cleanup levels was determined to be removed from the site to meet the established cleanup levels was determined to be approximately 2,500 cubic yards; To - This ESD also allows for a modification concerning the requirement for treatment of contaminated soils by solidification/stabilization prior to on-site disposal.					
	Factual Basis: Sampling and excavation of soils at the site revealed that a significant volume (1,000 cubic yards) of soils may either contain higher levels of contamination or contain enough waste material that solidification/stabilization would be difficult or impossible to implement. During design, the PRPs compared the costs of off-site disposal of all soils to the costs of solidification/stabilization and on-site disposal and identified significant savings for off-site disposal.					

Summary of Remedy Update Information for FY02 and FY03 for Sites Without Cost Increases

Region Site Name, State	Date of Original ROD Date of Change (ESD/ROD-A)	Date Review Commenced Date Review Completed	Change Initiator	Media	State/Community Involvement	Est'd Resource Demands - Fed/Contr. Est'd Cost Increase
Region 5 Sauget Area 2, ILL (Sauget & County Landfill, Site Q), OU2, IL	9/30/02 7/30/03 ESD	4/03 7/03	EPA	Groundwater	State concurred	Fed = 100 hrs. Contr. = Unknown Est'd Savings = $1.4M
	Type of Change: From - EPA issued its Interim ROD and a Unilateral Order with a selected interim remedy for OU2. The Interim ROD and order called for the installation of a 3,500 foot long, 140 foot deep "U"- shaped jet grout physical barrier between the down gradient boundary of site R and the Mississippi River. This limited -scope action is intended only address the release of contaminated groundwater into the Mississippi River in the vicinity of site R. A final response action to address fully any additional threats posed by conditions at the Site will be evaluated upon completion of the Area 2 Site RI/FS. The use of a slurry wall as a physical barrier was screened out in the original FS based on the uncertainty identified with the use of this technology (the ability to construct the wall to a depth of 140 feet below surface, to key the wall into the bedrock, and the use of the excavated soil as a backfill in the slurry trench); To - On April 24, 2003, PRP submitted to U.S. EPA a Technical Memorandum regarding the implementation of conventional soil-bentonite slurry wall instead of jet grout wall. The PRP demonstrated that the integrity of the finished product as jet grouting. The slurry wall is estimated to be between 15 to 20% less expensive then the jet grout wall.					
	Factual Basis: The remedy update was initiated following the release of a PRP technical memorandum.					
Region 5 Seymour Recycling Site, IN	9/30/87 12/24/02 ESD	1/02 12/02	PRP	Groundwater	State involvement	Fed = 200 hrs. Contr. = Unknown Est'd Savings = $1.5M
	Type of Change: From -The groundwater pump & treat system operated for 12 years, and was no longer the most efficient method to remediate the groundwater; To - As a result, it was shut down and the plume was allowed to naturally degrade and attenuate. The remedy change added sampling requirements, as well as a contingency to restart the groundwater treatment system if necessary.					
	Factual Basis: collection of data for 5 year review inspection.					

Summary of Remedy Update Information for FY02 and FY03 for Sites Without Cost Increases

Region Site Name, State	Date of Original ROD Date of Change (ESD/ROD-A)	Date Review Commenced Date Review Completed	Change Initiator	Media	State/Community Involvement	Est'd Resource Demands - Fed/Contr. Est'd Cost Increase
Region 5 Verona Well Field, MI	6/28/91 9/28/03 ESD	3/94 6/03	PRP	Soil, Groundwater	State and City of Battle Creek involvement.	Fed = 100 hrs. Contr. = Unknown Est'd Savings = $0.5M
	Type of Change: From - The blocking wells and two source area cleanups are being conducted by PRPs under Unilateral Administrative Orders; To - EPA and the PRPs are working on a Consent Decree to address all final issues. Because the State has made oversight of this site a priority, EPA is using State technical staff instead of contractors for technical support for oversight. The State oversight costs are being reimbursed under a separate agreement between the state and the PRPs if the consent Decree is approved. One of the source area pump-and-treat systems is continuing to operate using State funds, as the 10 year period for a long-term response action was completed.					
	Factual Basis: New groundwater cleanup standards became effective through Michigan's new Part 201 law. Also updated toxicity data and additional groundwater and soil sampling data demonstrated decreased VOC concentrations in the downgradient plume through natural attenuation processes. In addition, MDEQ determined that RCRA was applicable to the contaminated groundwater transport in the pipeline.					
Region 5 Wheeler Pit, WI	9/30/90 6/16/03 ESD	11/00 6/03	PRP	Groundwater	State concurred	Fed = 100 hrs. Contr. = Unknown Est'd Savings = $70K
	Type of Change: From - The groundwater remedy selected in the ROD was natural attenuation. Groundwater cleanup goals for all groundwater contaminants have been achieved, with the exception of manganese; To -The ESD determined that for number of reasons, manganese could be eliminated as a site contaminant of concern and thus, groundwater cleanup is now complete.					
	Factual Basis: Results of a five-year review indicated that a remedy update was needed.					

Summary of Remedy Update Information for FY02 and FY03 for Sites Without Cost Increases

Region Site Name, State	Date of Original ROD Date of Change (ESD/ROD-A)	Date Review Commenced Date Review Completed	Change Initiator	Media	State/Community Involvement	Est'd Resource Demands - Fed/Contr. Est'd Cost Increase
Region 6 - FY 02						
Region 6 Koppers Company Inc., Texarkana Plant, OU3, TX	9/23/88 3/4/92 ROD-A 8/20/02 ESD	7/02 8/20/02	PRP, City of Texarkana	Groundwater	Community Advisory Group (CAG) Representative contacted	Fed = Unknown Contr. = Unknown Est'd Savings = $5.0M
	Type of Change: From - Use of surfactant to mobilize DNAPLs surface treatment of collected groundwater/NAPL emulsion; To - Remove use of surfactant and surface treatment use subsurface groundwater separator, reinfiltration back into aquifer to enhance NAPL mobility.					
	Factual Basis: Additional data was collected during design.					
Region 6 - FY 03						
Region 6 Sheridan Disposal Services Site, OU1, TX	12/29/88 12/4/02 ROD-A	4/97 12/02	PRP	Sludges, Soil	State concurred with amended remedy on 9/19/02. No adverse public comments	Fed = Unknown Contr. = Unknown Est'd Savings = $9.9M
	Type of change: From - Biotreatment, solidification/stabilization and capping of waste; To - In-situ solidification/stabilization and capping of waste. With the exception of eliminating the biotreatment step, all portions of the 1998 ROD remedy are included in the amended remedy.					
	Factual Basis: The decision to eliminate the biotreatment of site waste is based on new information submitted by the responsible parties and included the following considerations: 1) the biotreatment portion of the remedial action was never initiated, 2) the original remedy included a stabilization and capping component, 3) bioremediation would not remove polychlorinated biphenyls, and 4) advances in remedial technologies provide an alternate remedy (without the use of bioremediation) that is of at least equal protection to human health and the environment. In addition, EPA Region 6 successfully implemented the use of solidification/stabilization at two similar Superfund sites.					

Summary of Remedy Update Information for FY02 and FY03 for Sites Without Cost Increases

Region Site Name, State	Date of Original ROD Date of Change (ESD/ROD-A)	Date Review Commenced Date Review Completed	Change Initiator	Media	State/Community Involvement	Est'd Resource Demands - Fed/Contr. Est'd Cost Increase
Region 7 - FY 03						
Region 7 Conservation Chemical Co., MO	9/30/87 1/28/03 ESD	1990 1/03	PRP	Groundwater	MDNR reviewed the ESD and provided concurrence	Fed = Unknown Contr. = Unknown Est'd Savings = Less than 1 percent
	Type of change: From - Groundwater source utilizing hydraulic contaminant and specific treatment unit treatment requirements for metals; To - Set plant effluent limits and eliminate sulfide system.					
	Factual Basis: The original remedy was operational for 12 years so some metal levels decreased substantially. Additionally, the results of a pilot program to investigate metal effluent concentrations resulted in the remedy update.					
Region 8 - FY03						
Region 8 Central City, Clear Creek, OU3, CO	9/30/91 6/5/03 ROD-A	1999 6/03	State	Surface water	Public and other government entities reviewed and commented on ROD-A.	Fed = None Contr. = None Est'd Savings = None
	Type of change: From - Passive treatment of Burleigh Tunnel and monitoring; To - No action with annual high-flow and low flow water monitoring. State responsible for monitoring as part of long-term O and M.					
	Factual Basis: The remedy update operation and data collection from pilot scale wetland system. Zinc concentrations were observed below Clear Creek aquatic stream standards.					

Summary of Remedy Update Information for FY02 and FY03 for Sites Without Cost Increases

Region Site Name, State	Date of Original ROD Date of Change (ESD/ROD-A)	Date Review Commenced Date Review Completed	Change Initiator	Media	State/Community Involvement	Est'd Resource Demands - Fed/Contr. Est'd Cost Increase
Region 8 Marshall Landfill, CO	1986 1992 ESD 9/03 ESD	1993 9/03	EPA	Groundwater; Surface water	State reviewed and concurred with ESD	Fed = None Contr. = None Est'd Savings = None
	Type of Change: From - Groundwater collect and treat; To - New groundwater standards for VOCs and to comply with updated state surface water quality standards. Pump and treat continues.					
	Factual Basis: The remedy update documents new or changed ARARs. The original ARARs were no longer protective.					
Region 9 - FY02						
Region 9 Jasco Chemical Corp., CA	9/30/92 9/13/02 ESD	1998 9/02	EPA, PRP	Groundwater, Soil	An ESD notice was published in the local newspaper. The State concurred with the remedy change.	Fed = Unknown Contr. = $10K Est'd Savings = $0.3M
	Type of Change: From - Groundwater extract and treat via liquid phase carbon adsorption treatment unit soil extract and treat by Enhanced Biological treatment and off-site disposal; To - Utilize on air stripper and vapor phase carbon adsorption treatment unit for groundwater ; soil biotreatment.					
	Factual Basis: The remedy update meets NPDES requirements for groundwater and addressed the infeasibility of original soil remedy.					

Summary of Remedy Update Information for FY02 and FY03 for Sites Without Cost Increases

Region Site Name, State	Date of Original ROD Date of Change (ESD/ROD-A)	Date Review Commenced Date Review Completed	Change Initiator	Media	State/Community Involvement	Est'd Resource Demands - Fed/Contr. Est'd Cost Increase
Region 9 Waste Disposal Inc., OU1 and OU2, CA	12/27/93 6/21/02 ROD-A	5/01 6/02	EPA	Groundwater, Soil, Waste, Air	State concurred. Public comments were addressed.	Fed = Unknown Contr. = Unknown Est'd Savings = $0.8M
	Type of Change: From - Excavation, reconsolidation and contaminant of waste using a RCRA equivalent capping system over the reservoir with soil gas control and monitor; - To - Contain, collect, and treat gases; collect and remove site liquids; and institutional controls.					
	Factual Basis: The remedy update was initiated due to new Feasibility Study information gathered after the ROD, expanded lateral extent and volume, nature and increased extent of soil gas, and presence of liquids inside the buried concrete-lined reservoir.					
Region 9 - FY03						
Region 9 Selma Treating Co., CA	9/24/88 10/26/93 ESD 9/30/03 ROD-A	1999 9/03	EPA	Soil	State prefers the amended remedy EPA addressed public comments.	Fed = $0.5M Contr. = 120 hours Est'd Savings = $2.5M
	Type of Change: From - Soil would be executed, fixed, and consolidated on-site under a RCRA cap; To - Soil excavation down to five feet; place in on-site impoundment, without fixation; covering with a RCRA cap; and backfill and cap excavated areas, and institutional controls.					
	Factual Basis: Additional soil contamination was found to be present through focused Feasibility Study.					

Summary of Remedy Update Information for FY02 and FY03 for Sites Without Cost Increases

Region Site Name, State	Date of Original ROD Date of Change (ESD/ROD-A)	Date Review Commenced Date Review Completed	Change Initiator	Media	State/Community Involvement	Est'd Resource Demands - Fed/Contr. Est'd Cost Increase
Region 9 Valley Wood Preserving, Inc., CA	9/27/91 9/29/03 ROD-A	4/00 9/03	EPA	Soil	State concurred with final cleanup standard for soil. Public comments included in Administrative Record file.	Fed = $0.3M Contr. = None Est'd Savings = $2.5M
	Type of Change: From - Excavate soil, fix with cement compound, backfill the fixated soil, and maintain mixture with an asphalt cap and institutional controls ; To - Excavate and off-site disposal and backfill excavated areas with clean soil; new cleanup level for arsenic in soil of 25mg/kg; eliminate soluble leachate soil cleanup numbers based on Designated Level Methodology (DLM); and new institutional control to prohibit residential use.					
	Factual Basis: The land use was changed from residential to commercial/industrial. Additionally, cleanup levels for arsenic were adjusted because of the results of the risk assessment.					
Region 10 - FY02						
Region 10 INEEL, OU Unit 8–08, Naval Reactors Facility-21A, ID	9/29/98 7/11/02 ESD	12/01 7/02	Federal Facility	Soil, Debris	State concurred	Fed = 150 hrs. Contr. = None Est'd Savings = $2.1M
	Type of Change: From - limited excavation, disposal, and contaminant of soil and debris; To - Present excavation will be secured and filled, and an engineered cover will be constructed over basin.					
	Factual Basis: New information during 2000 and 2001 excavations revealed more contamination than originally thought.					

Summary of Remedy Update Information for FY02 and FY03 for Sites Without Cost Increases

Region Site Name, State	Date of Original ROD Date of Change (ESD/ROD-A)	Date Review Commenced Date Review Completed	Change Initiator	Media	State/Community Involvement	Est'd Resource Demands - Fed/Contr. Est'd Cost Increase
Region 10 McCormick and Baxter (Portland Plant), OU3, OR	3/29/96 3/17/98 ROD-A 8/13/02 ESD	2000 8/02	State, EPA	Groundwater	State and tribe commented on ESD and their comments were addressed in the new design	Fed = 450 hrs. Contr. = $300K Est'd Savings = None
	Type of Change: From - NAPL extraction with a contingent impermeable barrier wall; To - Implementing the contingent barrier wall, as well as monitoring, continued NAPL recovery, reevaluation of surface water goals and evaluation of alternative cap designs.					
	Factual Basis: The NAPL was not being contained through the recovery system so the contingency was triggered.					
Region 10 Umatilla Chemical Depot. Oregon. Ammunition Demolition Area (ADA) Site19E/F.	4/10/94 7/30/02 ESD	8/01 5/02	Army, EPA	Soil	30 day comment period on the ESD. State concurred with the changes.	Fed = 80 hrs. Contr. = None Est'd Savings = $0.9M
	Type of Change: From - For one part of the OU, onsite treatment and disposal, with risk-based cleanup levels based on a troop training future land use scenario; To - For one part of the OU, offsite treatment and disposal, with risk-based cleanup levels based on a future residential land use scenario.					
	Factual Basis: This ESD addresses one of five sites within the OU. During the initial remedial actions in 1996 & 1997, more contamination was found than expected and the excavation and treatment of the area was not completed due to funding limitations. In the intervening years, the anticipated future use for the area has changed from troop training to residential because of the facility's BRAC status and new risk-based cleanup levels were developed. In addition, the on-base landfill has closed, making offsite treatment and disposal necessary. A combination of new cleanup levels and better delineation of the nature and extent of soil contamination through additional sampling in 2000, resulted in lower volume estimates to complete the remedial action than was projected in the ROD. Once offsite treatment and disposal costs were accounted for, this resulted in an overall savings of approximately $900K.					

Summary of Remedy Update Information for FY02 and FY03 for Sites Without Cost Increases

Region Site Name, State	Date of Original ROD Date of Change (ESD/ROD-A)	Date Review Commenced Date Review Completed	Change Initiator	Media	State/Community Involvement	Est'd Resource Demands - Fed/Contr. Est'd Cost Increase
Region 10 - FY03						
Region 10 Adak Naval Air Station, AK OUA	4/13/00 9/17/03 ROD-A	2/03 8/03	Community of Adak for Fish Signs. EPA to move POL sites to Two Party Agreement.	Soil, Groundwater	30 day comment period on the proposed plan and a public meeting. Community input on fish consumption fact sheets. State concurred with the changes and provided input on fish consumption fact sheets.	Fed = 60 hrs. Contr. = None Est'd Savings = None Reduced oversight costs for EPA with POL sites under Two Party agreement.
	Type of Change: From - Subsistence fish advisory signs; cleanup of petroleum contaminated sites under both CERCLA and the State-Navy Two Party Agreement. To - Fish consumption advisory fact sheets directed at Adak residents; cleanup of petroleum contaminated sites under state cleanup program only.					
	Factual Basis: Change in format of fish advisory information provides more useful information to the people most likely to be affected by any remaining contamination; change in regulatory status of petroleum contaminated sites reduces government's administrative costs without affecting the protectiveness of the remedy.					
Region 10 Arctic Surplus, Alaska	9/28/95 6/17/03 ESD	1/03 6/03	PRP	Soil	The state concurred with the change. A fact sheet was distributed to the site mailing list and a notice was published in a local newspaper.	Fed = 125 hours Contr. = None Est'd Saving = $0.3M
	Type of Change: From - On-site treatment of lead and PCB contaminated soil, with a cap with a silt liner over the lesser contaminated soils and treated soils; To - Off-site disposal of highly contaminated soil, stabilization of all remaining contaminated soils, stabilized soils capped using a geosynthetic clay liner					
	Factual Basis: A more thorough site characterization study demonstrated that the many site removals were more effective than thought at the time of the ROD in removing the soils with the highest levels of contamination, greatly reducing the cost-effectiveness of on-site treatment. Also, new views on potential site re-use and recent engineering studies on alternative cover systems allowed the selection of a different cap design.					

Summary of Remedy Update Information for FY02 and FY03 for Sites Without Cost Increases

Region Site Name, State	Date of Original ROD Date of Change (ESD/ROD-A)	Date Review Commenced Date Review Completed	Change Initiator	Media	State/Community Involvement	Est'd Resource Demands - Fed/Contr. Est'd Cost Increase
Region 10 Hanford 100-NR-1 and 100-NR-2, WA	12/99 1/00 5/21/03 ESD	12/02 5/03	DOE, EPA	Soil	State concurred in the remedy change. 30 day public comment period, plus a 25 day extension. Proposed change also discussed with Hanford Advisory Board Committee.	Fed = 20 hrs. Contr. = None Est'd Savings = None
	Type of Change : From - Excavate all contaminated soil up to 80 feet below the surface; To - Excavate 15 feet of soil and add institutional controls at one waste site.					
	Factual Basis: Additional sampling post-ROD indicated that some soil contamination continues to the water table. The ROD specified balancing factors that may be used to limit excavation of soil to top 15 feet. These factors were applied here through the ESD.					
Region 10 Harbor Island Lockheed Shipyard, WA	11/27/96 2/02 ESD 3/31/03 ESD	1/03 3/03	EPA	Sediments	State participated in the review of the remedy change. Public notice of the ESD.	Fed = 120 hours Contr. = None Est'd Savings = None
	Type of Change: From: General description of sediments to be dredged or capped; To - Better definition of waste that needs to be remediated and long-term O&M and monitoring requirements and to select disposal option.					
	Factual Basis: Pre-remedial design studies resulted in remedy update.					

Summary of Remedy Update Information for FY02 and FY03 for Sites Without Cost Increases

Region Site Name, State	Date of Original ROD Date of Change (ESD/ROD-A)	Date Review Commenced Date Review Completed	Change Initiator	Media	State/Community Involvement	Est'd Resource Demands - Fed/Contr. Est'd Cost Increase
Region 10 Idaho National Engineering Lab (USDOE), ID OU 1-10 Test Area North	11/22/99 6/30/03 ESD	11/02 3/03	DOE	Soil	State supported the change in the remedy. A notice of the ESD was published in seven Idaho newspapers. A fact sheet was issued summarizing all the remedy changes being considered	Fed = 150 hrs. Contr. = None Est'd Savings: $4.4 M
	Type of Change: Many areas addressed. **TSF-09 and TSF-18 V-Tanks**: From - Established area of contamination; To - Additional sampling to determine the area of contamination. **WRRTF Burn pits and fuel leak areas**: From - Capping and/or soil removal; To - No action needed. **TSF-03 Burn Pit** From - Native soil cover; To - Contingent remedy of removal and disposal.					
	Factual Basis: Additional site characterization performed post-ROD resulted in cost-effective changes to the remedies.					
Region 10 Idaho National Engineering Lab (USDOE), ID WAG 4-13 CFA Comprehensive	7/14/00 3/26/03 ESD	7/02 3/03	DOE	Soil	State supported the change in the remedy. A notice of the ESD was published in seven Idaho newspapers.	Fed = 150 hrs. Contr. = None Est'd Savings: $0.1M
	Type of Change: From - Excavation and disposal of all soil in the CFA-04 mercury pond containing more than 0.5 mg/kg mercury (approximately 8,290 cubic yards); To - Excavation and disposal of all soil in the CFA-04 mercury pond containing more than 8.4 mg/kg mercury (approximately 10,597 cubic yards.) and elimination of the requirement to backfill the pond to grade.					
	Factual Basis: New information during remedial design sampling revealed larger area of contamination however new information on the toxicity and fate and transport information on the form of mercury found at this site allowed for the reconsideration of the human health and ecological receptor risk-based cleanup value.					

Appendix A.2:

Summary of Remedy Update Information for FY02 and FY03 for Sites With Cost Increases

Note: The information and data presented in Appendix A.2 represent only a portion of the information available in the decision document. If more information is needed, please refer to the site's ESD, ROD-Amendment, memo-to-file, or letter.

Summary of Remedy Update Information for FY02 and FY03 for Sites With Cost Increases

Region Site Name, State	Date of Original ROD Date of Change (ESD/ROD-A)	Date Review Commenced Date Review Completed	Change Initiator	Media	State/Community Involvement	Est'd Resource Demands - Fed/Contr. Est'd Cost Increase
Region 1 - FY 02						
Region 1 O'Connor Company, OU2, ME	9/27/89 9/26/02 ROD-A	2/01 8/02	EPA, State, PRP	Groundwater	State involved; limited community involvement	Fed = 800 hrs. Contr. = None Est'd Increase = $0.4M*
	Type of Change: From - Groundwater extract and treat system; To - Institutional controls (ICs) plus TI waiver for a limited portion of the site, active recovery of separate phase PCB oil, long-term monitoring and 5 year reviews.					
	Factual Basis: Reassessment, in accordance with EPA guidance, on PCBs and the technical practicability of restoring groundwater resulted in this remedy update. *Note: This is a PRP-lead site. No increase in oversight is anticipated.					
Region 1 - FY 03						
Region 1 Portsmouth Naval Shipyard, OU3, ME	8/29/01 9/17/03 ESD	3/03 9/03	Navy	Contaminated soil/waste, Wetlands	Navy, EPA, State, community (SAPL) meet regularly. ESD was provided to all stakeholders for comment.	Fed = 100 hrs. Contr. = None Est'd Increase = $5.8M
	Type of Change: From - Landfill cover, ICs, shoreline erosion controls and monitoring; To - Evaluate soil/waste, consolidate with another landfill, construct wetlands.					

Summary of Remedy Update Information for FY02 and FY03 for Sites With Cost Increases

Region Site Name, State	Date of Original ROD Date of Change (ESD/ROD-A)	Date Review Commenced Date Review Completed	Change Initiator	Media	State/Community Involvement	Est'd Resource Demands - Fed/Contr. Est'd Cost Increase
	Factual Basis: This change was initiated following re-evaluation of the feasibility of consolidating waste.					
Region 1 Sullivan's Ledge OU1, MA	6/29/89 9/29/03 ESD	3/03 9/30/03	EPA/PRP	Soil	State concurrence letter	Fed = 40 hrs. Contr. = None Est'd Increase = Slight increase
	Type of Change: From - Excavation, solidification, and disposal of contaminated soils. Construction of an impermeable cap with passive gas collection system; To - Installation of soil gas collection system; adding pertinent ARARs.					
	Factual Basis: Based on the discovery of methane in gas monitoring wells, after placement of cap, the remedy update was initiated. Extraction and venting is required by the ESD.					
Region 2 - FY 02						
Region 2 Imperial Oil Co. Inc./Champion Chemicals, NJ	9/26/90 9/30/97 ESD 7/10/02 ESD	2/99 7/02	EPA/State	Soil, Sediments	Full state involvement and state concurrence with ESD #2. EPA did not conduct a public meeting or provide comment period.	Fed = Unknown Contr. = Unknown Est'd Increase = $4.7M
	Type of Change: From - The ROD called for the excavation of approximately 3,700 cubic yards of contaminated soil from off-site area 1 and 2. Pre-designed sampling indicated that site related contamination was also present on four residential properties adjacent the Imperial facility. Therefore, ESD #1 was issued in order to provide for remediation of these residential properties; To - EPA issued ESD #2 in order to provide for the remediation of contaminated Brook sediment and contaminated soil on these two residential properties.					

Summary of Remedy Update Information for FY02 and FY03 for Sites With Cost Increases

Region Site Name, State	Date of Original ROD Date of Change (ESD/ROD-A)	Date Review Commenced Date Review Completed	Change Initiator	Media	State/Community Involvement	Est'd Resource Demands - Fed/Contr. Est'd Cost Increase
	Factual Basis: Further pre-design sampling indicated that Birch Swamp Brook sediment and soil on two residential properties, adjacent to the brook, also contained site related contaminants.					
Region 2 Naval Air Engineering Station, Areas A/B, NJ	7/7/97(A/B) 3/6/02 (A/B) 5/24/02 ESD	9/89 2/96 (A/B) 5/02 (A/B)	Navy	Groundwater	State oversight	Fed = Unknown Contr. = Unknown Est'd Increase = $20K-$50K per site
	Type of Change: From - Pump and treat facilities are located at Areas A/B, C & H to remove VOCs through air stripping & carbon adsorption units & reinjection of the treated water, will continue; To - Injection of Oxygen Release Compound (ORC) into groundwater at Areas A/B (Site 13), Area C (Sites 16 &17) and Area H (Site 32), as a secondary treatment technology to reduce higher levels of contamination and expedite achievement of overall cleanup goals.					
	Factual Basis: Expedite GW remediation in each area.					
Region 2 Naval Air Engineering Station, Areas C, H, NJ	2/4/91(C, H) 2/20/96 (C, H) 5/24/02 ESD	5/01 5/02	Navy	Groundwater	State oversight	Fed = Unknown Contr. = Unknown Est'd Increase = $20K-$50K per site
	Type of Change: From - Pump and treat facilities are located at Areas A/B, C & H to remove VOCs through air stripping & carbon adsorption units & reinjection of the treated water, will continue; To - Injection of Oxygen Release Compound (ORC) into groundwater at Areas A/B (Site 13), Area C (Sites 16 &17) and Area H (Site 32), as a secondary treatment technology to reduce higher levels of contamination and expedite achievement of overall cleanup goals.					
	Factual Basis: Expedite GW remediation in each area.					

Summary of Remedy Update Information for FY02 and FY03 for Sites With Cost Increases

Region Site Name, State	Date of Original ROD Date of Change (ESD/ROD-A)	Date Review Commenced Date Review Completed	Change Initiator	Media	State/Community Involvement	Est'd Resource Demands - Fed/Contr. Est'd Cost Increase
Region 2 - FY 03						
Region 2 Claremont Polychemical Corp., OU2, NY	9/28/90 4/14/03 ESD	9/01 4/03	EPA	Soil, Debris	Full state involvement; community expressed no opinion.	Fed = 80 hrs. Contr. = None Est'd Increase = $1.6M
	Type of Change: From - Excavate and treat soil by low heat, dispose of treated soil in excavated areas; To - Treat soils under former process building by SVE and maintain integrity of floor to prevent exposure to cadmium contaminated soil. Remove of industrial commercial demolition plus ICs and construction debris and decommissioning of five concrete-lined pits.					
	Factual Basis: Newly identified soil contaminated with VOCs and cadmium was discovered during implementation of the remedy selected in the 1990 ROD. EPA's evaluation indicated that vapors from VOCs in the soil beneath the former Process Building were highly likely to migrate from the shallow subsurface to indoor air and the potential cancer risks from direct exposure to these indoor air vapors were likely to significantly exceed EPA's levels of risk.					

Summary of Remedy Update Information for FY02 and FY03 for Sites With Cost Increases

Region Site Name, State	Date of Original ROD Date of Change (ESD/ROD-A)	Date Review Commenced Date Review Completed	Change Initiator	Media	State/Community Involvement	Est'd Resource Demands - Fed/Contr. Est'd Cost Increase
Region 2 Grand St. Mercury Site, NJ	9/30/97 4/17/03 ESD	5/02 4/03	EPA	Soil	State concurred on this remedy. The local community, meaning the people having their yards remedied, fully supported the change to the ROD. The remaining community were unaffected and expressed no opinion.	Fed = 80 hrs. Contr. = None Est'd Increase = $0.4M
	Type of Change: From - Removal of all site soils that had an average concentration of 23 ppm Hg; To - EPA decided that, due to the relatively small area of the yards, and in order to be conservatively protective, all soils at adjacent properties with levels at or above 23 ppm should be removed, even if the average concentrations of the yard's soil below 23ppm. The ESD also modified the ROD to call for soil removal at the adjacent property (the ROD only required soil sampling at those properties).					
	Factual Basis: When private properties (backyards of homes) adjacent to the Grand Street property were sampled, as required by the ROD, it was discovered that several had discrete hits above the 23 ppm cleanup goal, but average concentrations below that level.					
Region 2 Naval Air Engineering Station, OU21-Site 13, NJ	7/7/97 9/30/03 ESD	10/02 9/03	Navy	Groundwater	State oversight	Fed = Unknown Contr. = Unknown Est'd Increase = $21K
	Type of Change: ROD: From - Pump and treat to remove VOCs through air stripping and carbon adsorption units and reinjection of the treated water at the site, will continue; ESD: To - Installation of an air sparging system, a secondary treatment technology, will be implemented to reduce higher concentrations of groundwater contamination.					
	Factual Basis: Higher levels of groundwater contamination were discovered.					

Summary of Remedy Update Information for FY02 and FY03 for Sites With Cost Increases

Region Site Name, State	Date of Original ROD Date of Change (ESD/ROD-A)	Date Review Commenced Date Review Completed	Change Initiator	Media	State/Community Involvement	Est'd Resource Demands - Fed/Contr. Est'd Cost Increase
Region 2 Naval Air Engineering Station, OU26, Areas I/J, NJ	9/27/99 9/30/03 ESD	11/02 9/03	Navy	Groundwater	State oversight	Fed = Unknown Contr. = Unknown Est'd Increase = $200K
	Type of Change: ROD: From -Natural attenuation with long-term groundwater monitoring to address the groundwater contamination and downgradient of Area I/J and co-metabolism to treat the higher area of groundwater contamination; ESD: To - injection of nanoscale particles, a secondary treatment technology, will be implemented in lieu of co-metabolism, to reduce higher levels of contamination.					
	Factual Basis: More expansive groundwater contamination was discovered. Co-metabolism was determined not to be effective and has been abandoned.					
Region 3 - FY 02						
Region 3 Dublin TCE, PA	12/30/91 7/15/02 ESD	1/98 7/02	EPA	Groundwater	State	Fed =75 hrs. Contr. = None Est'd Increase = $0.5M
	Type of Change: From - All remedies in the original ROD; To - Extend the public water line to include additional residences.					
	Factual Basis: The pursuit of secure, safe drinking water for additional residences whose drinking water was either at risk or potentially at risk from contaminated groundwater, resulted in this remedy update.					

Summary of Remedy Update Information for FY02 and FY03 for Sites With Cost Increases

Region Site Name, State	Date of Original ROD Date of Change (ESD/ROD-A)	Date Review Commenced Date Review Completed	Change Initiator	Media	State/Community Involvement	Est'd Resource Demands - Fed/Contr. Est'd Cost Increase
Region 3 U.S. Titanium Site, VA	11/21/89 9/26/90 ESD 2/3/95 ESD 9/25/02 ESD	3/00 9/02	PRP and Public	Soil	State and citizens of Nelson and Amherst Counties were involved.	Fed = 75 hrs. Contr. = None Est'd Increase = $25K
	Type of Change: From -All the remedies in the ROD and 2 prior ESDs. To - In addition, neutralize newly identified contaminated, acidic soils. Apply institutional controls to prevent further installation of drinking water wells. Use fencing and other barriers to prevent access of contaminated soils to nearby public trails.					
	Factual Basis: Additional measures were needed to make the initial ROD and subsequent ESDs protective. Fencing and natural barriers will allow the use of the nearby property for public recreation.					
Region 4 - FY 02						
Region 4 Battery Tech (Duracell-Lexington), NC	9/30/99 9/30/02 ESD	5/02 9/02	PRP	Soil, Sediments	State concurred on ESD. Notice in local paper.	Fed = 40 hrs. Contr. = None Est'd Increase = $7.0M
	Type of Change: From - In-situ soil treatment/solidification; To - soil excavation and treatment/solidification.					
	Factual Basis: During remedy design, additional field study determined that in-situ soil treatment/solidification was not feasible due to site condition.					

Summary of Remedy Update Information for FY02 and FY03 for Sites With Cost Increases

Region Site Name, State	Date of Original ROD Date of Change (ESD/ROD-A)	Date Review Commenced Date Review Completed	Change Initiator	Media	State/Community Involvement	Est'd Resource Demands - Fed/Contr. Est'd Cost Increase
Region 4 - FY03						
Region 4 Coleman Evans Wood Preserving Company, FL	9/25/86 8/14/03 ESD	5/03 8/03	EPA	Soil	State concurred on ESD Notice in local paper and community meeting.	Fed = 55 hrs. Contr. = 10 hrs. Est'd Increase = $43.0M
	Type of Change: From - Excavating and treating 45,000 cubic yards of contaminated soil by high temperature thermodesorption. To - Excavating and thermo treating 135,000 cubic yards.					
	Factual Basis: Additional contaminated soils needing cleanup were identified during the implementation of the Removal Action.					
Region 4 Savannah River Site (TNX, OU29), SC	11/9/94 6/18/03 ESD	2/03 6/03	DOE	Groundwater	State concurred on ESD. Public notice in local paper and community meeting May 2003.	Fed = 40 hrs. Contr. = 20 hrs. Est'd Increase = $1.0M
	Type of Change: From - Pump and treat; To - Soil vapor extraction with increased reporting requirements.					
	Factual Basis: Determination that SVE will reduce VOC mass quicker that traditional pump and treat.					

Summary of Remedy Update Information for FY02 and FY03 for Sites With Cost Increases

Region Site Name, State	Date of Original ROD Date of Change (ESD/ROD-A)	Date Review Commenced Date Review Completed	Change Initiator	Media	State/Community Involvement	Est'd Resource Demands - Fed/Contr. Est'd Cost Increase
Region 4 Savannah River Site (PRSB, OU66), SC	9/28/99 9/24/03 ESD	5/03 9/03	DOE	Sediments	State concurred, public notice in local paper, 30-day public comment period and public meeting.	Fed = 80 hrs. Contr. = 40 hrs. Est'd Increase = $6.5M
	Type of Change: From - The 1999" Plug-In" ROD established a presumptive remedy consisting of in situ stabilization with a low permeability soil cover system for high-risk radioactively contaminated waste units. These units have similarities in history of use, contaminants, and location. The 1999 ROD identified OU66 as a candidate for the Plu-In Remedy; To - OU66 was evaluated and in the 2003 ESD it was determined that the unit meets the plug-in criteria established in the 1999 ROD.					
	Factual Basis: Results of 2002 Technical Evaluation Report.					
Region 5 - FY 02						
Region 5 South Macomb Disposal Authority, LF 9 & 9A, MI	8/31/91 6/26/02 ROD-A	11/00 6/02	PRP	Groundwater	State Enforcement Lead	Fed = 200 hrs. Contr. = Unknown Est'd Increase = $7.7M
	Type of Change: From - Slurry wall, leachate collection system and groundwater purging and treatment; To - Remedy change implemented by the State agency without seeking EPA input/concurrence.					
	Factual Basis: Investigations indicate that the LF OU needed to be addressed. Removal Action Plan (State ROD Amendment) added landfill OU --cap improvements, gas venting/monitoring, O&M and changed groundwater action to eliminate the slurry wall, add leachate collection, and modify groundwater treatment.					

Summary of Remedy Update Information for FY02 and FY03 for Sites With Cost Increases

Region Site Name, State	Date of Original ROD Date of Change (ESD/ROD-A)	Date Review Commenced Date Review Completed	Change Initiator	Media	State/Community Involvement	Est'd Resource Demands - Fed/Contr. Est'd Cost Increase
Region 5 - FY 03						
Region 5 West KL Avenue Landfill, MI	9/28/90 2/27/03 ROD-A	1998 2/03	EPA	Groundwater	Community is actively involved in getting municipal water. State concurred on ROD-A	Fed = 200 hrs. Contr. = Unknown Est'd Increase = $0.5M
	Type of Change: From - Monitor old deed restrictions on the use of shallow aquifer as a drinking water source, groundwater extraction and treatment; To - The PRPs have petitioned EPA to allow natural attenuation of the groundwater and landfill contents, however additional studies were necessary to support a decision on natural attenuation. The change ensures that all groundwater users in the immediate vicinity of the plume remain protected while any additional studies are performed. While the users in question are not currently being exposed to unacceptable levels of contaminants in the groundwater, this action creates a buffer zone of restricted groundwater use around the KL Avenue Landfill plume. If the plume were to be migrating to the west this buffer zone would allow EPA the time necessary to evaluate and implement the appropriate actions without putting those groundwater users at risk.					
	Factual Basis: The groundwater plume had migrated approximately one mile downgradient, forcing many homes onto alternate water supplies.					

Summary of Remedy Update Information for FY02 and FY03 for Sites With Cost Increases

Region Site Name, State	Date of Original ROD Date of Change (ESD/ROD-A)	Date Review Commenced Date Review Completed	Change Initiator	Media	State/Community Involvement	Est'd Resource Demands - Fed/Contr. Est'd Cost Increase
Region 6 - FY 03						
Region 6 Mallard Bay Landing Bulk Plant, LA	3/12/03 7/10/03 ROD-A	2003 7/03	EPA	Sludges, Soil	State comments incorporated into amendment. No public comments.	Fed = 100 hrs. Contr. = $125K Est'd Increase: $1.7M
	Type of Change: From - Excavate/extract and treat aboveground tank sludges and hot spot guild wing stabilization with off-site disposal of treated material; To - Excavate/extract sludge wastes and off-site energy recovery/thermal destruction.					
	Factual Basis: During course of Remedial Design, it was determined that the original remedy would not comply with RCRA Universal Treatment Standards. The ROD Amendment ($1.8M) addressed alternative method for sludge disposal. During Removal Action implementation, additional field problems were encountered with the waste that required additional funding.					
Region 9 - FY 02						
Region 9 Phoenix-Goodyear Airport Area, OU1, AZ	9/26/89 5/93 ESD 9/19/02 ESD	6/02 9/02	EPA	Soil	State reviewed and commented on ESD. City and community concerns regarding dioxin emissions from thermox unit were addressed.	Fed = 100 hrs. Contr. = $125K Est'd Increase: $0.2M
	Type of Change: From - Soil vapor extraction system with thermox; To - Reestablishment of air emission central mechanism for soil, gas remedy to granular activated carbon.					
	Factual Basis: Results of soil gas samples resulted in this remedy.					

Summary of Remedy Update Information for FY02 and FY03 for Sites With Cost Increases

Region Site Name, State	Date of Original ROD Date of Change (ESD/ROD-A)	Date Review Commenced Date Review Completed	Change Initiator	Media	State/Community Involvement	Est'd Resource Demands - Fed/Contr. Est'd Cost Increase
Region 9 San Gabriel Valley, Area 1, El Monte OU, CA	6/23/99 8/22/02 ESD	2000/2001 8/02	EPA, PRP	Groundwater	State and Regional Water Quality Central Board support the change.	Fed = 100 hrs. Contr. = $125K Est'd Increase: $21.2M
	Type of Change: From - Air stripping and carbon adsorption of VOC-contaminated groundwater; To - Additional technologies decided in design.					
	Factual Basis: The discovery of additional contaminants, e.g., perchlorale, hexavalent chromium, and 1, 4-dioxane in selected shallow groundwater monitoring wells, initiated this remedy update.					
Region 10 - FY02						
Region 10 Bunker Hill Mining and Metallurgical Complex, OU2, ID Non-populated area	9/22/92 12/10/01 ROD-A	12/99 12/01	EPA	Acid Mine Drainage (AMD)	State concurred with the remedy change. Comment period on proposed plan was extended and a public meeting was held.	Fed. = 700 hrs. Contr. = $30,000 Est'd Increase = $53.0M
	Type of Change: From -treatment in existing treatment plant and new wetlands system, To - Source control; collect, store and treat AMD, dispose sludge on top of Central Impoundment Area; and monitor untreated mine water.					
	Factual Basis: Through treatability studies, the original remedy was found inadequate to meet treatment levels, and the existing treatment plant could not consistently meet current water quality standards.					

Summary of Remedy Update Information for FY02 and FY03 for Sites With Cost Increases

Region Site Name, State	Date of Original ROD Date of Change (ESD/ROD-A)	Date Review Commenced Date Review Completed	Change Initiator	Media	State/Community Involvement	Est'd Resource Demands - Fed/Contr. Est'd Cost Increase
Region 10 Commencement Bay - Near Shore/Tide Flats, WA Middle Waterway	9/30/89 2/24/02 ESD*	3/01 2/02	EPA	Sediments	A fact sheet was mailed to 1300 people and a public comment period was held. 80 comment letters were received. The state and the Puyallup Tribe were supportive of the amended remedy, except for one area at the head of the waterway.	Fed = 1,000 hrs. Contr. = $5K Est'd Increase = $4.8M
	Type of Change: From - Site use restrictions, source control, natural recovery, sediment remedial action (i.e., confinement and habitat restoration), and monitoring; To - More specific remedial actions consistent with the results of the post-ROD investigations of Middle Waterway. *Note: A second ESD for the Middle Waterway was signed on 3/20/03.					
	Factual Basis: Pre-remedial design studies at the Middle Waterway has better defined the area and volume exceeding the cleanup levels which lead to the identification of specific areas where natural recovery would be appropriate and specific areas to be dredged or capped. Estimated volume of material that needs to be dredged increased from approximately 57,000 cubic yards in the ROD to approximately 90,000 cubic yards.					

Summary of Remedy Update Information for FY02 and FY03 for Sites With Cost Increases

Region Site Name, State	Date of Original ROD Date of Change (ESD/ROD-A)	Date Review Commenced Date Review Completed	Change Initiator	Media	State/Community Involvement	Est'd Resource Demands - Fed/Contr. Est'd Cost Increase
Region 10 Fort Wainwright, OU3, AK	3/26/96 9/27/02 ESD	9/01 9/02	Federal Facility	Soil, Groundwater	State is a support agency and concurred in the remedy change. Notice of the ESD was published in a local newspaper.	Fed. = 380 hrs. Contr. = $15K Est'd Increase = $17.0M
	Type of Change: From - In-situ soil vapor extraction, air sparging and natural attenuation; To - Addressing larger extent of soil and groundwater contamination; added ex-situ soil treatment and on-base disposal					
	Factual Basis: The remedy update was initiated following implementation of post-ROD studies that indicated more total volume and lateral extent of contamination than previous documented.					
Region 10 Hanford 200 Area (USDOE), WA ERDF	1/20/95 1/31/02 ROD A	10/01 1/02	DOE,EPA	Hazardous waste, Mixed waste	30-day public comment period. State supported remedy changes.	Fed. = 20 hrs. Contr .= None Est'd Increase = $40.0M
	Type of Change: From - Four disposal cells at the Environmental Restoration Disposal Facility (ERDF) and waste staging at OU prior to treatment and disposal; To - Four additional disposal cells at ERDF and staging of remediation waste at ERDF prior to treatment.					
	Factual Basis: The remedy update was needed to support ongoing remediation by providing additional waste disposal capacity.					

Summary of Remedy Update Information for FY02 and FY03 for Sites With Cost Increases

Region Site Name, State	Date of Original ROD Date of Change (ESD/ROD-A)	Date Review Commenced Date Review Completed	Change Initiator	Media	State/Community Involvement	Est'd Resource Demands - Fed/Contr. Est'd Cost Increase
Region 10 Harbor Island Lockheed Shipyard WA	11/27/96 2/22/02 ESD	8/01 2/02	EPA	Sediments	State participated in the review of the remedy change. 30 day public comment period with 9 comment letters received.	Fed = 1,500 hrs. Contr. = $150K Est'd Increase = $19.0M
	Type of Change: From - General description of sediments to be dredged or capped; To - Better definition of the nature and extent of contaminated sediments that need to be remediated.					
	Factual Basis: Pre-remedial design studies resulted in remedy update.					
Region 10 - FY03						
Commencement Bay - Near Shore/Tide Flats, WA Middle Waterway	9/30/89 2/24/02 ESD 3/20/03 ESD	1/03 3/03	State	Sediments	State and Puyallup Tribe concurred with the change. ESD went out for public comment simultaneously with consent decree	Fed = 40 hrs. Contr. = $0 Est'd Increase = $1.6M
	Type of Change: From - Leave in place and monitor an area of subsurface sediment contamination at the head of the waterway; To - removal with offsite upland disposal for the area at the head of the waterway.					
	Factual Basis: State desired enhancement of the remedy in this section of the waterway and agreed to pay for the additional work.					

Summary of Remedy Update Information for FY02 and FY03 for Sites With Cost Increases

Region Site Name, State	Date of Original ROD Date of Change (ESD/ROD-A)	Date Review Commenced Date Review Completed	Change Initiator	Media	State/Community Involvement	Est'd Resource Demands - Fed/Contr. Est'd Cost Increase
Region 10 Hanford 100-HR-3, WA	1996 10/99 ROD-A 3/31/03 ESD	12/02 3/03	DOE, State	Groundwater	State concurred with the remedy change. Public notice of the ESD.	Fed = 80 hrs. Contr. = None Est'd Increase = $4.8M
	Type of Change: From - Cost and schedule based on conceptual design; To - Higher costs and longer construction period based on better site knowledge.					
	Factual Basis: Additional time and cost to implement the in situ treatment remedy based on actual costs and experience during installation of the remedy.					
Region 10 Harbor Island Todd Shipyard WA	11/27/96 12/99 ESD 3/31/03 ESD	10/00 3/03	EPA	Sediments	State participated in the review of the remedy change. Public notice of the ESD.	Fed = 1,700 hrs. Contractor = $0.2M Est'd Increase = $14.0M
	Type of Change: From - General description of sediments to be dredged or capped; To - Better definition of the nature and extent of contaminated sediments that need to be remediated and to select sediment disposal option					
	Factual Basis: Pre-remedial design studies resulted in remedy update.					

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