



Innovative Technology

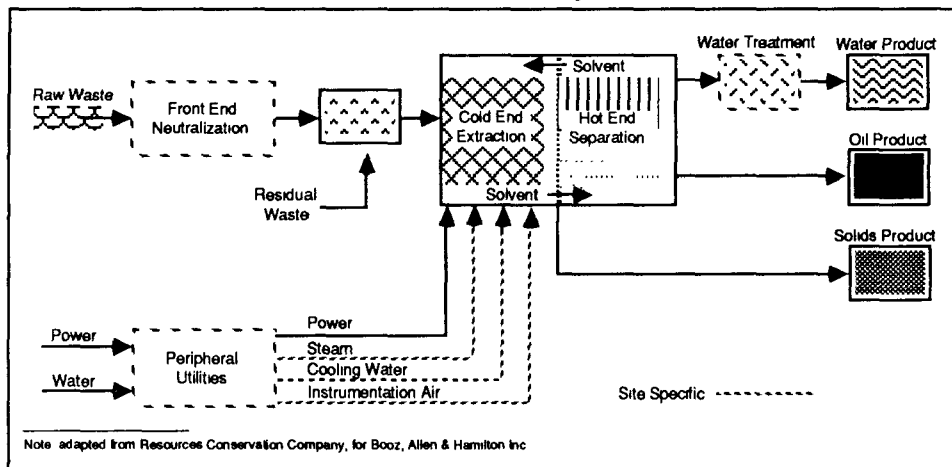
BEST™ Solvent Extraction Process

TECHNOLOGY DESCRIPTION

Solvent extraction is potentially effective in treating oily sludges and soils by separating the media into three fractions: oil, water, and solids. As the fractions separate, certain contaminants are concentrated into specific phases. For example, PCBs concentrate in the oil fraction, while metals, unless organically bound, accumulate in the solids fraction. Individual phases can then

and water in the feed simultaneously solvate with the cold TEA creating a homogeneous mixture. As the solvent breaks the oil-water-solid bonds, the solids are released from the emulsion. These solids are subsequently removed by centrifuging, which ensures submicron particles are removed. The solids are passed to a second mixing tank where they are washed with additional solvent and centrifuged a second time. The wet solids (about 50% solids by weight) are sent

Figure 1: Schematic Diagram of a Typical BEST™ Treatment Facility



Note: adapted from Resources Conservation Company, for Booz, Allen & Hamilton Inc

be treated more efficiently. Solvent extraction is capable of processing the oily wastes shown in Table 1. Table 2 lists the effectiveness of solvent extraction on general contaminant groups.

One type of solvent extraction, BEST™ treatment, is a mobile solvent extraction system developed by Resources Conservation Company (RCC). This system uses one or more secondary or tertiary amines [usually triethylamine (TEA)] to separate toxic wastes and oils from sludges or soils. The BEST™ technology is based on the fact that TEA is miscible in water at temperatures below 65°F.

A typical process diagram for the BEST™ process is shown in Figure 1. This process begins by mixing and agitating the cold solvent and sludge or soil in a mixing tank. Oil

to a dryer where the solvent is vaporized and collected for recycling. Dry solids containing heavy metals may require further treatment before disposal.

The liquids from the first centrifuge, containing the oil and water extracted from the feed, are heated in a series of heat exchangers. As the temperature of the liquids increase, the water separates from the oil-solvent. The oil-solvent fraction is decanted and sent to a stripping column where the solvent is recycled and the oil is discharged for recycling or disposal. The water phase is passed to a second stripping column where residual solvent is recovered for recycling; the water is typically discharged to a local wastewater treatment plant.

An advantage of RCC's facility is the modular capability, allowing on-site treat-

Table 1
Specific Wastes Capable of Treatment Using Solvent Extraction

RCRA Listed Hazardous Wastes
• Creosote-Saturated Sludge
• Dissolved Air Flotation (DAF) Float
• Slop Oil Emulsion Solids
• Heat Exchanger Bundles Cleaning Sludge
• API Separator Sludge
• Tank Bottoms (Leaded)
Non-Listed Hazardous Wastes
• Primary Oil/Solids/Water Separation Sludges
• Secondary Oil/Solids/Water Separation Sludges
• Bio-Sludges
• Cooling Tower Sludges
• HF Alkylation Sludges
• Waste FCC Catalyst
• Spent Catalyst
• Stretford Unit Solution
• Tank Bottoms
• Treated Clays

Table 2
Effectiveness of Solvent Extraction on General Contaminant Groups for Soil and Sludge

Treatability Groups	Effectiveness	
	Soil	Sludge
Organics	Halogenated volatiles	●
	Halogenated semi-volatiles	●
	Non-halogenated volatiles	●
	Non-halogenated semi-volatiles	●
	PCBs	●
	Pesticides	●
	Dioxins/Furans	●
	Organic cyanides	●
Inorganics	Organic corrosives	●
	Volatile metals	○
	Non-volatile metals	○
	Asbestos	○
	Radioactive materials	○
	Inorganic corrosives	○
Reactive	Inorganic cyanides	○
	Oxidizers	X
	Reducers	X

Demonstrated Effectiveness ● No Expected Effectiveness ○
Potential Effectiveness ◐ Potentially Detrimental X

ment. Other advantages of the BEST™ technology include the production of dry solids, the recovery and reuse of oil, and waste volume reduction. BEST™ does not, however, reduce contaminant toxicity. Furthermore, implementation can require complex engineering considerations.

SITE CHARACTERISTICS AFFECTING TREATMENT FEASIBILITY

The BEST™ process is not limited by organics or oil concentrations. Performance, however, can be influenced by the presence of detergents and emulsifiers, low pH materials, and reactivity of the sludge with the solvent. Other factors that affect feasibility and actions to minimize these affects are listed in Table 3. Treatability tests should be conducted to determine the effectiveness of the treatment on specific site conditions.

Table 3
Site-Specific Characteristics and Impacts on BEST™

Characteristics Impacting Process Feasibility	Reasons for Potential Impact	Actions to Minimize Impacts
Presence of elevated levels of volatiles	Volatiles may combine with process solvent	Use an additional separation step
Particle diameter greater than 0.25 inches	Equipment used in process not capable of handling large particles	Screen waste to remove large particles or crush in a hammermill
pH less than 10	TEA (used in extraction process) is weak base and will not exist in solvent form at pH less than 10	Raise pH of waste with caustic soda
Presence of high amounts of emulsifiers	Adversely affect oil/water phase separation	Increase quantity of solvent
Compounds that undergo strong reactions under highly alkaline conditions	Strong reactions may occur during treatment because of caustic addition	Raise pH of waste with TEA instead of caustic soda
Types of waste	Some materials are not suitable for chemical extraction (e.g., highly volatile organics and wastes containing mostly toxic metals)	Conduct pre- and/or post-treatment

TECHNOLOGY CONSIDERATIONS

TEA is flammable in the presence of oxygen, therefore, the treatment system must be sealed from the atmosphere and operated under a nitrogen blanket. Also, TEA is known to be toxic to aquatic life and, depending on the disposal method, may need to be removed from the solids. Prior to treatment it is necessary to raise the pH to greater than 10, creating an environment where TEA is stable. This may be accomplished by adding either sodium hydroxide or TEA. (Sodium hydroxide is more cost-effective, however, TEA is less reactive.) It may also be necessary to add water or solvent to the feed to create a slurry capable of being pumped.

Additionally, pre-treatment may require screening of the feed to ensure that particles are all less than 0.25 inches. Because the equipment is incapable of handling large diameter particles, feed may be passed through a 2-inch screen and subsequently crushed in a 0.2-inch hammermill.

Further treatment of by-products may be necessary before disposal. Specifically, wastewater treatment may include carbon adsorption or biological treatment to remove residual organics. Chemical precipitation also may be required to remove soluble metal contaminants. Free water from sludge ponds may either be treated with the sludge or may be treated separately. In addition, waste oil may either be recycled or reused as fuel. If neither option is viable, the oil should be tested to determine appropriate treatment, storage, or disposal actions. Last, leachate tests should be conducted on residual solids to determine if stabilization is necessary before disposal. Other post-treatment alternatives for solids may include thermal stripping, wet air oxidation, in-situ vitrification, soil washing, and/or glycolate dehalogenation.

RCC quotes the cost of treatability studies to be \$4,500 for 1 kg of non-PCB contaminated wastes and \$5,500 for 1 kg of waste containing PCBs. These costs include three extractions and do not include organic analyses. Treatment costs range from \$90/ton for a large facility treating 200 tons/day to \$280/ton for a small facility treating 30 tons/day. More information about RCC can be found in Table 4.

Table 4
BEST™ Vendor Information

Company	Contact	Address
Resources Conservation Co.	Paul McGough	3006 Northup Way Bellevue, WA 98004 (206) 828-2400
Note: BEST™ was developed and patented by Resources Conservation Co.		

TECHNOLOGY STATUS

The first full-scale BEST™ unit was used at the CERCLA General Refining Site in Garden City, Georgia. Further information is summarized in Table 5. Solvent extraction is the selected remedial action for the Pinette's Salvage site and the F. O'Connor site, both located in Maine; the actual process has not yet been determined.

The BEST™ process has been selected for evaluation under the SITE Program. Formal demonstration and testing is being postponed until the developer has obtained funding for a demonstration at an appropriate site.

OFFICE OF RESEARCH AND DEVELOPMENT CONTACTS

For more information regarding the BEST™ technology, contact Edward Bates, U.S. EPA, Risk Reduction Engineering Laboratory, Cincinnati, Ohio 45268, (513) 569-7774 or FTS 684-7774.

Table 5
BEST™ Status at CERCLA Sites

SELECTED:		
Region 4 - General Refining, GA (Removal Action) FY86-FY87	PCBs, lead in Sludge	3,700 tons

United States
Environmental Protection
Agency

Office of
Solid Waste and
Emergency Response

Publication 9200.5-2161

May 1991



Superfund Records of Decision Update

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Intermittent Bulletin
Volume 6 Number 2

This issue of the *ROD Update* summarizes the latest information and guidance in three areas: (1) ROD Ground Water Language; (2) The Twenty-Second Remedy Delegation Report and Consultation Requirements; and (3) Administrative Records.

Record Of Decision (ROD) Ground Water Language

OSWER issued Directive 9283.1-03, *Suggested ROD Language for Various Ground Water Remediation Options*, on October 10, 1990. This Directive provides suggested language for Records of Decision addressing ground water and supplemental guidance relative to ground water remediation actions.

BACKGROUND

In 1988, OSWER conducted a study of the efficacy of ground water treatment systems in achieving specified cleanup levels at 19 sites where ground water extraction was being implemented for containment and/or reduction of ground water contaminants. Based on the findings and recommendations of the study, OSWER issued Directive No. 9355.4-03, October 18, 1989, *Considerations in Ground Water Remediation at Superfund Sites*, which recommended consideration of three approaches to planning and implementing ground water remediation:

- Initiation of early or interim response measures designed to prevent further migration of contaminants during the remedial investigation or until sufficient information about system response has been obtained to allow final remedy selection
- Provision for changes in the remedy during implementation in the Record of Decision, either by specifying a contingency remedy or by selecting an interim remedy and remediation level

- Collection of additional or supplemental information with which to better assess contaminant mobility and system effectiveness, such as data related to vertical changes in hydraulic conductivity, contaminant partitioning between soil and ground water, and the presence of nonaqueous phase liquids.

RECOMMENDED LANGUAGE

Records of Decision should reflect the amount of relative uncertainty believed to be associated with achieving selected remediation levels in ground water at a particular site, and should be written to reflect the purpose of a selected remedy:

- As final actions, intended to restore ground water quality
- As final actions, with a provision for establishing contingency levels
- As interim actions, (e.g., intended to bring about plume containment or generate additional performance data), prior to issuance of a ROD.

Final Action

A Final Action Ground Water ROD without contingency measure(s) is characterized by low uncertainty and addresses restoration actions. A Final Action ROD for ground water restoration without a contingency is appropriate when there is little uncertainty that the remedy will achieve the remediation levels specified in the ROD throughout the area of attainment. A statement including remediation level, intended use, the basis for future evaluation of the level during remediation, a description of the selected remedy and specific modifications to the

remedy warranted by performance data during the remediation period, and planned monitoring following completion of the final action remediation should appear in the *Selected Remedy* section of the ROD. The suggested type of statement and language for Final Action RODs is provided on page 2.

Final Action With Contingency Measures/Levels

Contingency Measures/Levels are characterized by high to moderate uncertainty and a potential ARARs waiver and also may include potential containment goal(s). During implementation and monitoring of an active ground water remediation system, information and data may develop that indicate it is technically impracticable to restore the aquifer or to achieve remediation levels throughout the attainment area. If this scenario is likely to emerge, future changes in the ROD may be anticipated by providing for contingency measures.

An ARARs waiver may/will be invoked, accompanied by an Explanation of Significant Difference (ESD), if it is determined on the basis of criteria stated in the ROD that MCLs/MCLGs or other ARARs cannot be achieved within all portions of the area of attainment or where it is anticipated that it may be technically impracticable to reach these and other levels targeted in the ROD.

It may be necessary to do a ROD amendment instead of an ESD if the contingency that is implemented differs fundamentally from that described in the ROD. In some cases, RODs that predate

this guidance may require amendment when contingency measures are technically appropriate because restoration of the aquifer has been shown to be impracticable.

Contingency measures should be explained in sufficient detail in the *Selected Remedy and Comparative Analysis of Alternatives* sections of the ROD, allowing the public appropriate opportunity to review and comment on the contingency as well as the selected remedy. More specifically, remediation levels, the selected remedy, specified modifications to the selected remedy, and contingency measures and criteria under which the contingency measures would be implemented should be spelled out in the *Selected Remedy* section of the ROD.

Supporting Language should be placed in the *Comparative Analysis of Alternatives* section of the ROD. The *Statutory Determinations* section of the ROD should establish that both the selected remedy and the contingency measures fulfill CERCLA Section 121 requirements. An ARARs waiver must be justified under the Compliance with ARARs determination. The suggested type of statement and language for Final Action with Contingency Measures/Levels is provided on page 3.

Interim Actions

The Interim Action is characterized by moderate to substantial uncertainty or early action containment measures. The interim action may be utilized 1) to prevent further plume migration and begin cleanup during RI/FS and post-RI/FS activities; and 2) to obtain information about the response of the aquifer to remediation measures in order to define final cleanup goals practicable for the site.

The purpose of the interim action should be discussed in the *Scope and Role of the Operable Unit* section of the ROD. The purpose of the interim action may be to begin restoration while additional information is collected to better assess the practicability of aquifer restoration before the determination of final cleanup levels. Preliminary cleanup levels may be identified for an interim action, but it should be emphasized in the *Scope and Role of the Operable Unit* section of the ROD that while the purpose of the action is to work toward the goal of restoration, it does not constitute a final action for the ground water. The purpose of an early interim action may be used to restrict plume migration until an RI/FS for a final remedial action is completed. Information collected

during implementation also will be used to evaluate aquifer response to remediation. Interim action RODs should not specify final cleanup levels because such levels are generally beyond the limited scope of the action.

All interim action RODs should specify in the *Selected Remedy* section, to the extent possible, the objectives for the interim remedial action, scope of monitoring, and evaluation of the efficacy of the interim remedy (the period of operation that will occur before a final decision is made regarding the practicability of aquifer restoration). At the end of this time, a final action ROD should be prepared that specifies the final remediation levels, and time frame for the contaminated ground water at the site.

The Interim Action should be supported by language in the *Comparative Analysis of Alternatives* section of the ROD. The language should indicate that these actions may not achieve final cleanup levels for

the ground water at the site, although they are effective in the short-term in preventing further degradation and initiating reduction in toxicity, mobility, or volume. MCLs/MCLGs or state cleanup standards will not be ARARs for an interim action because they are beyond the scope of the interim action. The nine-criteria evaluation should focus on those criteria most pertinent to short-term effectiveness and reduction of toxicity, mobility or volume, consistent with the scope and purpose of the interim action. Additionally, language in the *Statutory Determinations* section of the ROD should discuss the ways in which the interim action satisfies the CERCLA section 121 requirements within the scope of the action (i.e., protectiveness of the remedy). The suggested type of statement and language for Interim Action is provided on page 3.

Questions concerning ROD ground water language should be directed to Jennifer Sutter (703/308-8363 or FTS 398-8363) in the Hazardous Site Control Division.

Final Action (Low Uncertainty, Restoration Actions)

The following type of statement should appear in the *Selected Remedy* section of the ROD, with the blanks filled in appropriately:

The goal of this remedial action is to restore ground water to its beneficial use, which is, at this site, (specify whether this is a potential or actual drinking water source, or used for nondomestic purposes). Based on information obtained during the remedial investigation and on a careful analysis of all remedial alternatives, EPA <(optional) and the State/Commonwealth of _____> believe that the selected remedy will achieve this goal. It may become apparent, during implementation or operation of the ground water extraction system and its modifications, that contaminant levels have ceased to decline and are remaining constant at levels higher than the remediation goal over some portion of the contaminated plume. In such a case, the system performance standards and/or the remedy may be reevaluated.

The selected remedy will include ground water extraction for an estimated period of _____ years, during which the system's performance will be carefully monitored on a regular basis and adjusted as warranted by the performance data collected during operation. Modifications may include any or all of the following:

- *Discontinuing pumping at individual wells where cleanup goals have been attained*
- *Alternating pumping at wells to eliminate stagnation points*
- *Pulse pumping to allow aquifer equilibration and to allow adsorbed contaminants to partition into ground water*
- *Installing additional extraction wells to facilitate or accelerate cleanup of the contaminant plume*

To ensure that cleanup levels are maintained, the aquifer will be monitored at those wells where pumping has ceased on an occurrence of every _____ years following discontinuation of ground water extraction.

This language should be modified to reflect alternative uses and remediation goals (such as in a Class III aquifer).

Final Action With Contingency Measures/Goals

The following type of statement should appear in the Selected Remedy section of the ROD with the blanks filled in appropriately:

The goal of this remedial action is to restore the ground water to its beneficial use, which is, at this site, (specify whether this is a drinking water aquifer or used for nondomestic purposes). Based on information obtained during the remedial investigation, and the analysis of all remedial alternatives, EPA <(optional) and the State/Commonwealth of _____> believe that the selected remedy may be able to achieve this goal. Ground water contamination may be especially persistent in the immediate vicinity of the contaminants' source, where concentrations are relatively high. The ability to achieve cleanup levels at all points throughout the area of attainment, or plume, cannot be determined until the extraction system has been implemented, modified as necessary, and plume response monitored over time. If the selected remedy cannot meet the specified remediation levels at any or all of the monitoring points during implementation, the contingency measures and objectives described in this section may replace the selected remedy and remediation levels for these portions of the plume. Such contingency measures will at a minimum prevent combination of containment technologies < typically, ground water extraction and treatment > and institutional controls. These measures are considered to protect human health and the environment, and are technically practicable under the corresponding circumstances.

The selected remedy will include ground water extraction for an estimated period of _____ years, during which time the system's performance will be carefully monitored on a regular basis and adjusted as warranted by the performance data collected during operation. Modifications may include any or all of the following:

- *Discontinuing pumping at individual wells where cleanup goals have been attained*
- *Alternating pumping at wells to eliminate stagnation points*
- *Pulse pumping to allow aquifer equilibration and encourage adsorbed contaminants to partition into ground water*
- *Installing additional extraction wells to facilitate or accelerate cleanup of the contaminant plume*

To ensure that cleanup levels are maintained, the aquifer will be monitored at those wells where pumping has ceased on an occurrence of every _____ years following discontinuation of ground water extraction.

The following suggested language describes the recommended contingency measures and is also presented in the Selected Remedy section of the ROD:

If it is determined, on the basis of the preceding criteria and the system performance data, that certain portions of the aquifer cannot be restored to their beneficial use, all of the following measures involving long-term management may occur, for an indefinite period of time, as a modification of the existing system:

- *Engineering controls such as physical barriers or long-term gradient control provided by low level pump-*

ing, will be implemented as containment measures;

- *Chemical-specific ARARs will be waived for the cleanup of those portions of the aquifer based on the technical impracticability of achieving further contaminant reduction*
- *Institutional control will be provided and maintained to restrict access to those portions of the aquifer that remain above remediation levels*
- *Monitoring of specified wells will continue*
- *Remedial technologies for ground water restoration will be reevaluated periodically*

The decision to invoke any or all of these measures may be made during a periodic review of the remedial action, which will occur at _____ year intervals < at least every five years, in accordance with CERCLA Section 121 (c) >.

When a contingency remedy is presented in the ROD (in the Remedy Selection section, the following Supporting Language to the contingency measures should be included in the Comparative Analysis of Alternatives section of the ROD:

- *That both the primary remedy and the contingency measures provide overall protection of human health and the environment, either by reducing contaminants to MCLs/MCLGs or other remediation levels, or through a combination of mass reduction, institutional and/or engineering controls*
- *That chemical-specific ARARs will either be attained or waived*

Interim Action

(Moderate to Substantial Uncertainty, or Early Action Containment Measures)

An interim action ROD should include the following type of language in the Selected Remedy section of the ROD:

This alternative calls for the design and implementation of an interim remedial action to protect human health and the environment. The goal(s) of this remedial action is (are) to (specify interim goals, e.g., halt the spread of a con-

taminant plume, remove contaminant mass, etc.) and to collect data on aquifer and contaminant response to remediation measures. The ultimate level of remediation to be attained will be determined in a final remedial action for this site. This remedial action will be monitored carefully to determine the feasibility of achieving this level with this method and to ensure that hydraulic control of the contaminated plume

is maintained. After the period of time necessary, in EPA's judgment, to arrive at a final decision for the site, a final ROD for ground water, which specifies the ultimate goal, remedy, and anticipated time-frame, will be prepared. Upon completion of the RI/FS, this interim system may be incorporated into the design of the site remedy specified in the final action ROD.

Twenty-Second Remedy Delegation Report

The Twenty-Second Remedy Delegation Report memorandum was signed on December 27, 1990, by Don R. Clay, Assistant Administrator, OSWER. This memorandum delegated selection of remedy authority for all Superfund Records of Decision (RODs) scheduled for signature during FY 1991 that were listed in CERCLIS as of December 8, 1990, and targeted for completion. The memorandum also provided information concerning the types of sites that will require consultation, the anticipated level of consultation, and the role of the Headquarters Regional Coordinator (RC) in this process. The consultation process applies to Enforcement, Fund, State and Federal Facility lead RODs, ROD Amendments, and Explanations of Significant Differences (ESDs).

If a Region needs a ROD delegation for a site not included on CERCLIS as of December 8, 1990, a memorandum addressed to Don R. Clay, Assistant Administrator, Office of Solid Waste and Emergency Response, requesting delegation of additional RODs and briefing sheets for each site will be required. Early submittal of such a memorandum to headquarters is encouraged because the delegation process may take two to three weeks to complete. A final memorandum from the Assistant Administrator to the Regional Administrator completes the delegation process.

DELEGATION AUTHORIZATION

EPA Delegation of Authority 14-5 authorizes delegation of remedy selection decisions to the Regional Administrators (RAs). Procedures for delegation of remedy selection decisions to the RAs are outlined in OSWER Directive 9260.1-9, March 24, 1986. Remedy selection authority may be re-delegated to the Deputy Regional Administrator at the discretion of the Regional Administrator.

CONSULTATION

Formal consultations with Headquarters are generally required where the proposed remedial action may be costly; utilizes waivers; or involves real property acquisitions, national precedent-setting issues, ROD amendments as a result of PRP settlements, all ESDs, and containment-only remedies. Consultations will occur before the Proposed Plan, amended Proposed Plan, or ESD is issued.

Consultation for containment-only remedies is a new consultation criterion for FY 1991 and is based on a result of the study entitled "A Comparative Analyses of Remedies Selected in the Superfund Program During FY87, FY88, and FY89," OSWER Directive 9835.13, June 20, 1990. This report was drafted by OWPE and OERR in response to the request made from Senators Lautenberg and Durenberger. Specific procedures for consultation on containment-only remedies are given in Directive 9835.13-1a, October 2, 1990. Additional consultation criteria including State nonconcurrence issues, contingency remedies, and Natural Resource Trustee concerns also have been added to address ROD quality, timeliness, and enforcement concerns.

Regional consultation will be conducted at the Assistant Administrator, respective Office Director, Headquarters Division Director, or Branch Chief level, depending on the type of issue(s) involved and the degree of concern associated with the issue(s), on a case-by-case basis. The following guidelines identify the types of remedy issues which warrant consultation and the appropriate level of consultation:

Assistant Administrator:

- Exceeds \$60 million
- Involves (or potentially involves) a fund balancing waiver [SARA 121(d)(4)]

Office Director:

- Exceeds \$30 million
- Real property acquisition for a fund-financed response
- National precedent-setting issues
- Complex multisource ground water contamination
- ROD amendment resulting from PRP settlement/negotiations

Division Director:

- Containment-only remedies
- State nonconcurrence issues
- ROD reopener
- Contingency remedies (Note: Consultation is not needed for ground water contingency remedies that use standard ground water language guidance.)

Branch Chief:

- Explanation of Significant Difference
- Remedy does not satisfy Natural Resource Trustee concerns

The consultation process applies to Enforcement, Fund, State and Federal Facility lead RODs, ROD Amendments, and Explanations of Significant Differences (ESDs). OWPE has lead responsibility for the consultation and assistance for Federal Facility response actions.

In addition to the consultations identified above, Regions are encouraged to discuss unresolved issues relating to an ARAR waiver or potential waiver, risk assessment, and new policy issues with the appropriate Headquarters Branch Chief.

The Headquarters Regional Coordinator should be involved early in the remedial process for issue resolution as an integral part of their role in assisting in the consultation process.

Administrative questions concerning delegations should be directed to Carol Jacobson (703/308-8369 or FTS 398-8369) in the Hazardous Site Control Division, or Lance Elson (703/308-5617 or FTS 398-5617) in the CERCLA Enforcement Division.

Administrative Record

Final Guidance on Administrative Records for Selecting CERCLA Response Actions, OSWER Directive # 9833.3A-1, was released on December 3, 1990. The guidance sets forth the policy and procedures governing the compilation and establishment of administrative records for selecting response actions under CERCLA as amended by SARA. The guidance is consistent with and expands on Subpart I of the National Oil and Hazardous Substances Pollution Contingency Plan, 55 FR 8859, of March 8, 1990.

The Directive includes detailed information concerning purpose and scope of the administrative record, procedures for establishing the administrative record, contents of the administrative record, involvement of other parties, a series of appendices that provide examples of various key documents, and the preamble to Subpart I and Subpart I of the NCP.

BACKGROUND

The administrative record established under Section 113(k) of CERCLA serves two primary purposes. First, the record contains those documents that form the basis for selecting a response action; and under Section 113(j), judicial review of any issue concerning the adequacy of any

response action is limited to the record. Second, Section 113(k) requires that the administrative record act as a vehicle for public participation in selecting a response action.

The administrative record is the body of documents that forms the basis for selecting a particular response at a site. Documents that are included are relevant documents that were relied on to select the response action, as well as relevant documents that were considered but ultimately rejected.

The following principles should be applied in establishing administrative records:

- The record should be compiled as documents relating to the selection of the response action are generated or received by the lead agency
- The record should include documents that form the basis for the decision, whether or not they support the response selection
- The record should be a contemporaneous explanation of the basis for the selection of a response action.

JUDICIAL REVIEW

Section 113(j)(1) of CERCLA provides that judicial review of any issues concerning the adequacy of any response action shall be limited to the administrative record. Judicial review based on an administrative record provides numerous benefits. Under Section 113(j) of CERCLA and general principles of administrative law, when the trial court reviews the response action selected, the court is limited to reviewing the documents in the administrative record. As a result, facts or arguments related to the response action that challenging parties present for the first time in court will not be considered. Record review saves time by limiting the scope of trials, thereby saving the lead agency's resources for cleanup rather than litigation.

In ruling on challenges to the response action decision, the court will apply the "arbitrary and capricious" standard of review set forth in Section 113 (j)(2) of CERCLA. Under this standard, a court does not substitute its judgment for that of

the decisionmaker. The reviewing court does not act as an independent decisionmaker, but rather acts as a reviewing body whose limited task is to check for arbitrary and capricious action. Thus, the court will overturn the response selection decision only if it can be shown on the administrative record that the decision was arbitrary and capricious or otherwise not in accordance with the law. The extent to which EPA benefits from having judicial review limited to the record depends on the quality and completeness of each record.

PUBLIC PARTICIPATION

Section 113(k)(2) of CERCLA requires that the public have the opportunity to participate in developing the administrative record for response selection. Section 117 also includes provisions for public participation in the remedial action selection process. Both sections reflect a statutory emphasis on public participation. Participation by interested persons will ensure that the lead agency has considered the concerns of the public, including PRPs, during the response selection process. In addition, for purposes of administrative and judicial review, the record will contain documents that reflect the participation of the public and the lead agency's consideration of the public's concern.

If the lead agency does not provide an opportunity for involvement of interested parties in the development of the administrative record, persons challenging a response action may argue that judicial review should not be limited to the record. The lead agency must, therefore, make the information considered or relied on in selecting a response action available to the public, provide an appropriate opportunity for public comment on this information, place comments and information received from the public in the record, and reflect in the record the lead agency's consideration of this information.

Questions concerning the Administrative Record should be directed to Gary Worthman (202/382-5646 or FTS 382-5646) in the Office of Waste Programs Enforcement.

For ideas, submissions, or questions concerning the *ROD Update*, please contact Carol Bass 202/475-9752. Members of the public may obtain copies by contacting the EPA Superfund Document Center (OS-240), 401 M. St., S.W., Washington, DC 20460. Please use fax number 202/245-4386 or E-mail Box 5248 OERR/PUBS or send a written request to ensure that your order is expedited.



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