MEMORANDUM

Date: June 20, 1988

To: Tom Greengard
Program Manager, Environmental Restoration
Rocky Flats Plant, RCRA/CERCLA

From: Mark Selman MES

Subject: Regulatory requirements pertaining to remedial actions for the 881 Hillside; Comparison between RCRA and CERCLA

At your request, we have analyzed the regulatory requirements associated with the implementation of remedial actions for the 881 Hillside, based on two scenarios; implementation of remedial actions under CERCLA, and corrective actions pursuant to RCRA. You have asked us specifically to confirm the applicability of Federal, State, and Local permit exemption for CERCLA actions at Rocky Flats conducted entirely onsite.

SUMMARY OF CERCLA GENERAL REQUIREMENTS

The requirements for all aspects of remedial actions performed under CERCLA, including those taken by federal agencies other than EPA, are found in the Superfund Amendments and Reauthorization Act of 1986 (SARA) and the revised NCP (Title 40 CFR, Subpart J, Part 300)

Our interpretation of SARA and the NCP is that all remedial actions under CERCLA [including Federal, State, or local agency leads, unilateral compliance orders under Section 106 of CERCLA (enforcement actions), and other party cleanups], must be evaluated according to specific criteria for selection outlined in SARA 121(d) and the NCP. The final remedial action selected will comply with applicable or relevant and appropriate federal, state, or local statutes (ARARS) and must be effective, easily implemented, and cost-effective. (40 CFR 300.71)

ADMIN RECORD

"REVIEWED FOR CLASSIFICATION
By R B Hoffman
Date 7-9-90

"REVIEWED FOR CLASSIFICATION
By
Date 6/11/90

A-OU01-000105

Regarding the issue of permits for onsite actions under CERCLA, it is important to identify under what jurisdictional authority CERCLA cleanup actions at Rocky Flats Plant are being performed, as this will determine the status of the permit exemption for onsite actions. Our interpretation of SARA and the NCP concludes that fund-financed, or enforcement-lead remedial actions are not required to obtain federal, state or local permits for actions that are conducted entirely onsite, provided that the actions are performed using the criteria outlined in the SARA 121(d) and the NCP. The most important of these criteria is the requirement that the remedial action attain applicable, or relevant and appropriate federal, state, or local statutes (40 CFR 300.68 and SARA 121(d)). If, however, the actions are being performed as "Other Party Responses", that is, actions undertaken solely by responsible or interested parties, then all applicable, or relevant and appropriate Federal, State, and local requirements must be met, including permit requirements (40 CFR 300.71(4)).

SUMMARY OF RCRA/HSWA GENERAL REQUIREMENTS

Specific regulations on corrective actions under RCRA for releases from solid waste management units have not been promulgated to date. However, detailed corrective action regulations are being developed to mirror the CERCLA process for ensuring protection of human health and the environment.

The lack of specific corrective action regulations under RCRA has led to a case-by-case review by lead agencies of corrective action plans developed by RCRA permittees. Generally, RCRA corrective actions are patterned after CERCLA remedial actions to ensure that remedial actions attain applicable, or relevant and appropriate requirements of other statutes. Where ground-water contamination has resulted from a Solid Waste Management Unit as defined in Subpart F, RCRA corrective action monitoring is being initiated. Ground-water protection standards identified under 40 CFR 264.94 are then applied as goals for cleanup.

It is our understanding, through personal communication with EPA and the Colorado Department of Health, that corrective actions initiated under RCRA involving the treatment, storage, or disposal of RCRA hazardous waste, require a RCRA operating permit under the purview of the agency with primacy for the Hazardous Waste Program.

REVIEW OF PROPOSED REMEDIAL ACTION FOR 881 HILLSIDE

The recommended alternative for remedial action at the 881 Hillside was selected according to the procedures for Feasibility Studies outlined by the NCP and CERCLA. The alternative involves the construction of a french drain to intercept all contaminated ground water from the 881 Hillside Area. The downstream face of the drain will be lined with a synthetic membrane with low permeability, which will effectively cut off all flow. Water collected from the drain plus a source well at SWMU 119.1 will be treated in a new treatment plant. In addition, the Building 881 footing drain will be collected in a sump, combined with drain and well flow and be treated in the treatment plant. Effluent from the treatment plant will be conveyed downgradient of the french drain and reinjected into the Valley Fill Alluvium of the Woman Creek drainage.

The ground water collected from the footing drain and french drain will be treated by series filtration for solids removal and UV/Peroxide for treatment of organic contamination. Following treatment, the water will be directed to an effluent tank before reinjection. If contaminants continue to be present in ground water after several years of treatment, soil flushing with treated effluent may be implemented to facilitate contaminant removal.

REGULATIONS GOVERNING CERCLA REMEDIAL ACTIONS AT THE 881 HILLSIDE

An analysis of ARARs was performed as part of the Feasibility Study for the 881 Hillside. This analysis essentially identified the Federal, State, and local regulations that are either

directly applicable, or are relevant and appropriate to the recommended remedial action. The analysis included a discussion of the potential chemical specific, action specific, and location specific ARARs for the remedial action. The screening process and documentation for the final analysis is contained in Appendix 2, Volume II of the document entitled, Feasibility Study Report for High Priority Sites (881 Hillside Area), U.S.D.O.E., March 1, 1988. A summary of this analysis for the selected remedial action is presented in the Table 1. The table is presented in four parts showing the applicable or relevant and appropriate requirements for the selected remedial action for each of four major environmental statutes, The Resource Conservation and Recovery Act, The Clean Water Act, The Safe Drinking Water Act, and the Occupational Safety and Health Act.

REGULATIONS GOVERNING RCRA CORRECTIVE ACTIONS AT THE 881 HILLSIDE

The regulations governing RCRA corrective actions are identical to those identified for CERCLA actions, with the added burden of having to apply and obtain permits, as well as comply with the administrative aspects of those permits. These permits would include a RCRA operating permit for treatment and storage of hazardous waste, an NPDES permit pursuant to the Clean Water Act for a point source discharge, and an Underground Injection Permit pursuant to the Safe Drinking Water Act. Emissions of toxic vapors may also be regulated by Colorado Department of Health, Air Pollution Control Division.

The fact that the facility would become an active RCRA facility would also require the preparation of closure and post-closure care plans (if hazardous waste remains in place after closure) for those facilities. A corrective action monitoring program would have to be implemented to observe the progress of corrective actions taken to treat contaminated ground water.

It may be possible to amend the plant's existing NPDES permit to handle the discharge of treated groundwater from the 881 Hillside. This would provide the benefit of possibly exempting the 881 Hillside treatment plant from a RCRA treatment permit, based on the wastewater treatment plant exemption [40 CFR 264.1 (g)(6), and 6 CCR 1007-3 Part 264.1 (g)(6)]

STATUS OF RCRA CORRECTIVE ACTION PROGRAM

Roy F. Weston employees were recently provided with the highlights of a recent EPA seminar entitled "Control Technologies Suitable for Application to Hazardous and Solid Wastes Under the Corrective Action Program" given in Philadelphia, Pennsylvania on June 7-8, 1988. The seminar provided insight on what to expect from the upcoming "Corrective Action Rule". Highlights of this seminar were

1. EPA is planning on increasing RCRA and CERCLA overlap

2. EPA is drafting a "Corrective Action Rule", wherein it is being proposed that many elements of the Superfund RI/FS process be incorporated into the RCRA Corrective Action Process. The status of this rule is that it is currently under internal agency review and is expected to be published as proposed rules within one to two months. Examples of the overlap between the two processes are:

   - ARARs

   - Work Plan Requirements (Project Management Plan, Data Collection Quality Assurance Plan, Data Management Plan, Health and Safety Plan, Community Relations Plan)

   - Public participation - Increased emphasis on public participation in corrective action process

   - Remedial Alternative Evaluation Criteria - Criteria for evaluation of remedial alternatives will be the same for both RCRA and CERCLA

     - o Public Health considerations
     - o Institutional constraints
     - o Cost factors
     - o Environmental Issues
     - o Engineering Aspects
       - performance
       - reliability
       - implementability
       - safety

3. The Environmental Priorities Initiative (EPI) being developed by EPA will attempt to identify within RCRA and EPA Region, those sites which present the greatest hazard to human health and the environment. EPA Region III is currently preparing their initiative which will be used to focus RCRA inspection and investigation activities.

4. Interim Measures - Implementation of interim measures will be available for a RCRA site and will be of the same nature (i.e. fencing, temporary cover/cap, etc.) and purpose as removal actions under CERCLA (mitigation of immediate risks to human health or the environment).

5. It was emphasized that a RCRA Research, Development and Design permit (RD&D) is required for any bench/pilot/field scale treatability or demonstration program where RCRA hazardous wastes is involved, unless the facility is already permitted for treatment of hazardous waste under RCRA.

The following documents and handouts were provided at the seminar:

- Session Agenda/List of Attendees
- Corrective Actions: Technologies and Applications, Speaker slide copies and supporting information, CERI - 88-25, April, 1988
- Technical Transfer Document: A Compendium of Technologies Used in the Treatment of Hazardous Wastes, EPA/625/8-87/014, September, 1987
- Compendium of ORD and OSWER Documents, Relevant to RCRA Corrective Action, EPA/530-SW-88-010, May, 1988
- USEPA-HWERL Symposium Brochure (May 9-11, 1988), "Superfund Innovative Technology Evaluation (SITE) Program".

CONCLUSION

The regulatory requirements imposed on CERCLA remedial action and RCRA corrective action for the 881 Hillside are essentially the same based on the requirement under CERCLA that remedial actions attain all applicable or relevant and appropriate standards or criteria. Because RCRA is the definitive hazardous waste management statute, most of its requirements are either applicable or relevant and appropriate to clean up actions at the 881 Hillside area.

RCRA corrective actions appear to have a distinct disadvantage over fund-financed CERCLA remedial actions in that RCRA permits are required for facilities that treat hazardous waste regardless of the time that hazardous wastes were managed at the site. This may be a moot comparison if it is found that CERCLA remedial actions at the 881 Hillside area are determined to be "Other Party Cleanups".

Although RCRA and CERCLA cleanups currently appear to be congruent, there are important differences that need to be highlighted. These differences relate to cleanup standards, public health evaluations, natural resources damages, recourse against third parties, cost recovery, judicial review, citizen suits, publicity, and timing or schedules for actions. As these issues are beyond the scope of this memorandum, we have attached an article published in the Environment Reporter that explains these differences clearly. Note that these differences are likely to diminish, if not disappear as a result of the proposed rules on RCRA Corrective Actions due to be published in August, 1988.

REFERENCES

"Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S.C. Sec. 9601-9675, as Amended by the Superfund Amendments and Reauthorization Act of 1986", Environmental Law Reporter, Vol. 12/86, pp.44001- 44081.

Hayes, David J.,"EPA'S RCRA, SUPERFUND PROGRAMS ARE GROWING APART NOT TOGETHER", Environment Reporter, 0013-0211/87/30+.50, pp. 1504-1506

Tanaskie, Mark, Personal communication, RCRA/CERCLA Superfund Hotline, June 16, 1988

USDOE, Feasibility Study Report for High Priority Sites, (881 Hillside Area), Volumes I and II, USDOE, Rocky Flats Plant March 1, 1988

USEPA, Draft CERCLA Compliance With Other Laws Manual, Volume I, Overview and RCRA Requirements, Office of Emergency and Remedial Response, Policy and Analysis Staff, Office of Solid Waste and Emergency Response, Washington, D.C., June 1987

USEPA, Title 40 CFR, Parts 264, 300, Protection of Environment, Office of the Federal Register, National Archives and Records Administration, July 1, 1987

TABLE 1

ACTION SPECIFIC ARARS UNDER RCRA
FOR SELECTED REMEDIAL ACTIONS AT THE 881 HILLSIDE

Action	Requirement	Prerequisite	Citation	ARAR	Comments
Treatment	BDAT standards for spent solvent wastes and dioxin-containing wastes are based on one of four technologies or combinations, for waste waters (1) steam stripping (2) biological treatment, or (3) carbon absorption [alone or in combination with (1) or (2)], and for all other wastes, incineration Any technology may be used, however if it will achieve the concentration levels specified	Effective November 8, 1988, disposal of contaminated soil or debris resulting from CERCLA response actions or RCRA corrective actions is subject to land disposal prohibitions and/or treatment standards established for spent solvent wastes, dioxin-containing wastes, and California List wastes Effective November 8, 1988 disposal of spent solvent and dioxin-containing wastes resulting from CERCLA response actions or RCRA corrective actions is subject to land disposal prohibitions and/or treatment standards	RCRA Sections 3004 (d)(3), (e)(3) 42 U S C 6924(d)(3),(e)(3)	Applicable	Reinjection of treated groundwater or movement of excavated soil onsite or transportation of soil offsite for disposal must be treated to attain levels achievable by best demonstrated available treatment technologies before being land-disposed
Closure with Waste in Place (Capping)	Eliminate free liquids by removal or solidification Stabilization of remaining waste and waste residues to support cover Installation of final cover to provide long-term minimization of infiltration Post-closure care and ground-water monitoring	Disposal of RCRA hazardous waste (listed or characteristic) at site after November 19, 1980, or movement of hazardous waste from one unit area of contamination or location into another unit or area of contamination Not applicable to material undisturbed since November 19 1980	40 CFR 264 228 (a)(2) 40 CFR 264 228 (a)(2) and 40 CFR 264 258(b) 40 CFR 264 310 40 CFR 264 310	RAA	Installation of final cover to provide long-term minimization of infiltration may be relevant and appropriate for contaminated soils Post-closure care and ground water monitoring is relevant and appropriate for hazardous waste left after closure

TABLE 1 (continued)

ACTION SPECIFIC ARARS UNDER RCRA
FOR SELECTED REMEDIAL ACTION AT THE 881 HILLSIDE

Action	Requirement	Prerequisite	Citation	ARAR	Comments
General Releases from SWMUs	The owner or operator of a facility seeking a permit for the treatment, storage or disposal of hazardous waste must institute corrective action as necessary to protect human health and the environment for all releases of hazardous waste or constituents from any solid waste management unit at the facility, regardless of the time at which waste was placed in such unit	Owners or operators of facilities that treat store or dispose of hazardous waste The owners or operators must satisfy the requirements for all wastes contained in solid waste management units at the facility regardless of the time at which waste was placed in such units	40 CFR 264 (Subpart F)		
	Owners or operators are required to conduct a monitoring and response program as follows				
	• Compliance monitoring program required whenever hazardous constituents from a regulated unit are detected at a compliance point	Following detection, contaminants in the ground water must be identified and a program established to ensure that ground-water contaminant concentrations do not exceed Ground Water Protection Standards (GWPS) established for the facility	40 CFR 264 99	B&A	Requirements would be applicable for current disposal of RCRA wastes They are relevant and appropriate for past disposal that has resulted in contamination of the ground water
	• Corrective action program must be instituted when ground water protection standards are exceeded		40 CFR 264 100	B&A	Corrective action monitoring is applicable for current disposal activities that have caused exceedance of the facility GWPS beyond the point of compliance They are relevant and appropriate for monitoring the effectiveness of remedial cleanup activities under CERCLA
	• Detection monitoring program must be instituted in all other cases		40 CFR 264 98	Not ARAR	Detection monitoring is not ARAR because contamination has already been detected in at the 881 Hillside site

TABLE 1 (continued)

ACTION SPECIFIC ARARS UNDER RCRA
FOR SELECTED REMEDIAL ACTIONS AT THE 881 HILLSIDE

Action	Requirement	Prerequisite	Citation	ARAR	Comments
Clean Closure (Removal)	General performance standard requires minimization of need for further maintenance and control, minimization or elimination of post-closure escape of hazardous waste, hazardous constituents, leachate, contaminated run-off, or hazardous waste decomposition products Disposal of decontamination of equipment, structures, and soils	RCRA hazardous waste (listed or characteristic) placed at site after November 19, 1980, or movement of hazardous waste from one unit, area of contamination, or location into another unit or area of contamination Not applicable to material undisturbed since November 19 1980	40 CFR 264 111	RAA	Applicable to soil excavated for offsite disposal Relevant and appropriate for soils excavated during installation of french drain Contaminated debris, personnel protective gear equipment, and structures must be handled as hazardous waste during construction of collection and treatment system
		May apply to surface impoundment, contaminated soil, including soil from dredging or soil disturbed in the course of drilling or excavation,and returned to land	40 CFR 264 111		
	Removal or decontamination of all waste residues contaminated containment system components (e g liners, dikes), contaminated subsoils, and structures and equipment contaminated with waste and leachate, and management of them as hazardous waste		40 CFR 264 228(a)(1) and 40 CFR 264 258		
	Meet health based levels at unit		40 CFR 244 111		
Excavation/ Consolidation	Area from which materials are excavated may require cleanup to levels established by closure requirements	Movement of hazardous waste(listed or characteristic) from one unit or area of contamination into another Consolidation within a unit or area of contamination does not trigger applicability	See Clean Closure	RAA	RCRA requirements for clean closure are not ARAR unless the contaminated soils removed during excavation are not returned to the same location
	Consolidation in storage piles/storage tanks will trigger storage requirements			RAA	RCRA requirements for storage in waste piles or tanks are relevant and appropriate for interim storage of excavated soil destined for consolidation or offsite disposal (Soils excavated for french drain)
	Placement on or in land outside unit boundary or area of contamination will trigger land disposal requirements and restrictions		40 CFR 268 (Subpart D)	RAA	Soil excavated during installation of french drains is subject to land disposal restrictions for solvent containing waste Requirements are are applicable for RCRA hazardous waste, RAA if not RCRA hazardous waste

TABLE 1 (continued)

ACTION SPECIFIC ARARS UNDER RCRA
FOR SELECTED REMEDIAL ACTION AT THE 881 HILLSIDE

Action	Requirement	Prerequisite	Citation	ARAR	Comments
Treatment or Storage in Tanks	Tanks must have sufficient shell strength (thickness), and, for closed tanks, pressure controls, to assure that they do not collapse or rupture	RCRA hazardous waste(listed or characteristic), held for temporary period before treatment, disposal, or storage elsewhere, (40 CFR 264 10) in a tank	40 CFR 264 190	R&A	Relevant and Appropriate for treatment and storage tanks used in treating contaminated groundwater
	Waste must not be incompatible with the tank material unless the tank is protected by a liner or by other means		40 CFR 264 191		
	Tanks must be provided with controls to prevent overfilling, and sufficient freeboard maintained in open tanks to prevent overtopping by wave action or precipitation		40 CFR 264 194		
	Inspect the following: overfilling control, control equipment, monitoring data, waste level (for uncovered tanks), tank condition, above-ground portions of tanks, (to assess their structural integrity) and the area surrounding the tank (to identify signs of leakage)		40 CFR 264 195		
	Repair any corrosion, crack, or leak		40 CFR 264 196		
	At closure, remove all hazardous waste and hazardous waste residues from tanks, discharge control equipment, and discharge confinement structures		40 CFR 264 197		
	Store ignitable and reactive waste so as to prevent the waste from igniting or reacting Ignitable or reactive wates in covered tanks must comply with buffer zone requirements in Flammable and Combustible Liquids Code, Tables 2-1 through 2-6 (National Fire Protection Association, 1976 or 1981)		40 CFR 264 198		

TABLE 1 (continued)

ACTION SPECIFIC ARARS UNDER RCRA
FOR SELECTED REMEDIAL ACTION AT THE 881 HILLSIDE

Action	Requirement	Prerequisite	Citation	ARAR	Comments
Off-Site Treatment Storage or Disposal	In the case of any removal or remedial action involving the transfer of any hazardous substance or pollutant or contaminant offsite, such hazardous substance or pollutant or contaminant shall only be transferred to a facility which is operating in compliance with section 3004 and 3005 of the Solid Waste Disposal Act (or where applicable, in compliance with the Toxic Substances Control Act or other applicable Federal law) and all applicable State requirements Such substance or pollutant or contaminant may be transferred to a land disposal facility only if the President determines that both of the following requirements are met • The unit to which the hazardous substance or pollutant or contaminant is transferred is not releasing any hazardous waste, or constituent thereof, into the groundwater or surface water or soil • All such releases from other units at the facility are being controlled by a corrective action program approved by the Administrator under subtitle C of the Solid Waste Disposal Act		SARA section 121 (d)(2)(C)	Applicable	Applicable to the offsite treatment, storage, or disposal of wastes generated during onsite remedial actions

TABLE 1 (continued)

ACTION SPECIFIC ARARS UNDER OSHA
FOR SPECIFIC REMEDIAL ACTION AT THE 881 HILLSIDE

Action	Requirement	Prerequisite	Citation	ARAR	Comments
Hazardous Waste Operations	As mandated by SARA OSHA has promulgated regulations that require employers to develop and implement a written safety/health program designed to regulate employee safety and health during hazardous waste operations The safety and health program must include • Organizational structure- Establish and implement chain of command and specify the responsibilities of key personnel • Comprehensive Work Plan- Identify anticipated activities, define work tasks, establish personnel requirements, and provide for the implementation of medical surveillance and training programs as required by these regulations • Site-Specific Health and Safety Plans A site health and safety plan must be prepared for each phase of operation that addresses key personnel, hazard recognition, training assignments, personnel protective equipment to be used, medical surveillance, frequency and type of monitoring, including air and personal monitoring, site control measures, decontamination procedures, emergency contingency plans	Regulations apply to hazardous substance response operations under CERCLA, Corrective cleanup under RCRA, hazardous waste operations that have been designated for cleanup by state or local authorities, most operations involving the treatment, storage or disposal of hazardous wastes regulated under RCRA, and emergency response operations for releases or threats of releases of hazardous substances	29 CFR Part 1910 120		
	General Requirements of these regulations				
	• Site characterization and analysis- Identify site hazards to determine levels of personnel protection		29 CFR 1910 120(c)	Applicable	Site hazards have been characterized through the RI/FS process

TABLE 1 (continued)

ACTION SPECIFIC ARARS UNDER OSHA
FOR SPECIFIC REMEDIAL ACTION AT THE 881 HILLSIDE

Action	Requirement	Prerequisite	Citation	ARAR	Comments
Hazardous Waste Operations (continued)	• Site Control- Implement site control zones to minimize employee exposure to hazardous substances		29 CFR 1910 120(d)	Applicable	Site control zones will be defined in site specific health and safety plans
	• Training- Initial training and refresher training required before employee is permitted to engage in site activities		29 CFR 1910 120(e)	Applicable	Personnel engaged in remedial actions at the 881 hillside are required to meet minimum training requirements as specified in the OSHA standards
	• Medical Surveillance Employers must implement medical surveillance for employees potentially exposed to hazardous substances		29 CFR 1910 120(f)	Applicable	
	• Engineering Controls, work practices and personnel protective equipment One or all of these shall be used to minimize exposure of employees to hazardous substances and health hazards		29 CFR 1910 120(g)	Applicable	
	• Monitoring- Monitoring of exposures of employees to hazardous substances is required to determine the efficacy of protective equipment and engineering controls		29 CFR 1910 120(h)	Applicable	
	• Informational Programs Employees, contractors, and subcontractors shall be informed of the degree and nature of hazards associated with site activities		29 CFR 1910 120(i)	Applicable	All personnel involved in site activities will be required to read and comply with the site safety plan The safety plan will outline the anticipated physical and chemical hazards

TABLE 1 (continued)

ACTION SPECIFIC ARARS UNDER OSHA
FOR SPECIFIC REMEDIAL ACTION AT THE 881 HILLSIDE

Action	Requirement	Prerequisite	Citation	ARAR	Comments
Hazardous Waste Operations (continued)	o Material Handling Hazardous substances, contaminated soils liquids or other residues shall be handled transported, and labeled according to subsection (j) of the OSHA standard		29 CFR 1910 120(j)	Applicable	D O T specification containers will be used to handle, store, or transport
	o Decontamination- Decontamination procedures outlined in subsection (k) of the standard must be complied with during onsite remedial action		29 CFR 1910 120(k)	Applicable	Decontamination procedures will be presented in the site health and safety plan
	o Emergency Response Contingency plans must be developed as part of site health and safety planning		29 CFR 1910 120(l)	Applicable	Contingency plans will developed for the site health and safety plan
	o Illumination/Sanitation Minimum illumination and sanitation facilities must be provided for employees involved in hazardous waste operations		29 CFR 1910 120(m)(n)	Applicable	
	o Site Excavation Site excavations must be shored or sloped to prevent collapse		29 CFR 1910 120/1926	Applicable	
	o Contractors and Subcontractors Employers must inform contractors or subcontractors of potential hazards associated with site activities		29 CFR 1910 120	Applicable	

TABLE 1 (continued)

ACTION SPECIFIC ARARS UNDER THE CLEAN WATER ACT
FOR SELECTED REMEDIAL ACTION AT THE 881 HILLSIDE

Action	Requirement	Prerequisite	Citation	ARAR	Comments
Direct discharge of treatment system effluent	Use of best available technology (BAT) economically achievable is required to control toxic and nonconventional pollutants Use of best conventional pollutant control technology (BCT) is required to control conventional pollutants Technology-based limitations may be determined on a case-by-case basis		40 CFR 122 44(a)	R&A	Treatment technologies and unit processes for treatment of contaminated alluvial groundwater are selected to control toxic, non-conventional and conventional pollutants
	Applicable Federally approved State water quality standards must be complied with These standards may be in addition to or more stringent than other Federal standards under the CWA		40 CFR 122 44 and State regulations approved under 40 CFR 131	Applicable/ To be considered	Chemical specific State standards have been identified as ARAR Basic standards for surface water and groundwater(narrative) requires water to be free of toxic pollutants Numeric criteria for conventional pollutants and metals are applicable Proposed numeric criteria for these toxic organics found at the 881 hillside are to be considered
	The discharge must conform to applicable water quality requirements when the discharge affects a state other than the certifying state		40 CFR 122 44(d)	R&A	
	The discharge must be consistent with the requirements of a Water Quality Management plan approved by EPA				
	Discharge limitations must be established for all toxic pollutants that are or may be discharged at levels greater than that which can be achieved by technology-based standards		40 CFR 122 44(e)	R&A	Certain contaminants may not be controlled to levels required by in-stream standards due to limitations of Best Available Technology (BAT)
	Develop and implement a BMP program and incorporate in the NPDES permit to prevent the release of toxic constituents to surface waters		40 CFR 125 100	R&A	

TABLE 1 (continued)

ACTION SPECIFIC ARARS UNDER THE CLEAN WATER ACT
FOR SELECTED REMEDIAL ACTION AT THE 881 HILLSIDE

Action	Requirement	Prerequisite	Citation	ARAR	Comments
Direct discharge of treatment system effluent (continued)	The BMP program must • Establish specific procedures for the control of toxic and hazardous pollutant spills • Include a prediction of direction, rate of flow, and total quantity of toxic pollutants where experience indicates a reasonable potential for equipment failure • Assure proper management of solid and hazardous waste in accordance with regulations promulgated under RCRA		40 CFR 125 104	Applicable	BMP applicable to onsite treatment facilities
	Discharge must be monitored to assure compliance Discharger will monitor • The mass of each pollutant • The volume of effluent • Frequency of discharge and other measurements as appropriate		40 CFR 122 44(i)	RAA	
	Approved test methods for waste constituents to be monitored must be followed Detailed requirements for analytical procedures and quality controls are provided			RAA	
	Sample preservation procedures, container materials and maximum allowable holding times are prescribed		40 CFR 136 1-136 4	RAA	

TABLE 1 (continued)

ACTION SPECIFIC ARARS UNDER THE CLEAN WATER ACT
FOR SELECTED REMEDIAL ACTION AT THE DB1 HILLSIDE

Action	Requirement	Prerequisite	Citation	ARAR	Comments
Direct discharge of treatment system effluent (continued)	Permit application information must be submitted including a description of activities, listing of environmental permits, etc	On-site discharges to surface waters are exempt from procedural NPDES permit requirements Off-site dischargers would be required to apply for and obtain an NPDES permit	40 CFR 122 21	R&A	
	Monitor and report results as required by permit (minimum of at least annually)		40 CFR 122 44(i)	R&A	
	Comply with additional permit conditions such as • Duty to mitigate any adverse effects of any discharge, and • Proper operation and maintenance of treatment systems		40 CFR 122 41(i)	R&A	

TABLE 1 (continued)

ACTION SPECIFIC ARARS UNDER SAFE DRINKING WATER ACT
FOR SELECTED REMEDIAL ACTION AT THE 881 HILLSIDE

Action	Requirement	Prerequisite	Citation	ARAR	Comments
Underground injection of Wastes and Treated Ground Water	UIC program prohibits • Injection activities that allow movement of contaminants into underground sources of drinking water and results in violations of MCLs or adversely affects health		40 CFR 144 12	Applicable/R&A	Requirements pertaining to the operation of Class IV wells are applicable to remedial actions for the 881 hillside because ground water will be treated before reinjection More stringent requirements for Class I wells (direct injection of untreated hazardous waste) are not applicable to the 881 hillside, however, some requirements for Class I wells may be relevant and appropriate
	• Construction of new Class IV wells, and operation and maintenance of existing wells		40 CFR 144 13		
	Wells used to inject contaminated ground water that has been treated and is being reinjected into the same formation from which it was drawn are not prohibited if activity is part of CERCLA or RCRA actions		40 CFR 144 14	Applicable	Applicable for injection of treated ground water by french drain or drilled well
	All hazardous waste injection wells must also comply with the RCRA requirements		40 CFR 144 16	Not applicable	
	The Director of the UIC program in a State may lessen the stringency of 40 CFR 144 23 construction, operation, and manifesting requirements for a well if injection does not occur into, through, or above a USDW or if the radius of endangering influence (see 40 CFR 146 06(c)) is less than or equal to the radius of the well		40 CFR 144 21		
	Owners and operators must • Submit inventory information to the Director of the UIC program for the State, including hydrogeologic data for wells, construction record, nature or composition of injected fluids, injection rate and pressure, and ground-water monitoring data		40 CFR 144 26 40 CFR 144 27		

TABLE 1 (continued)

ACTION SPECIFIC ARARS UNDER SAFE DRINKING WATER ACT
FOR SELECTED REMEDIAL ACTION AT THE 881 HILLSIDE

Action	Requirement	Prerequisite	Citation	ARAR	Comments
Underground injection of Wastes and Treated Ground Water (continued)	o Report non-compliance orally within 24 hours		40 CFR 144 28	RSA	
	o Prepare, maintain, and comply with plugging and abandonment plan				
	Monitor class I wells by				
	o frequent analysis of injection fluid				
	o continuous monitoring of injection pressure				
	o flow rate, and volume and,				
	o installation and monitoring of ground-water monitoring wells				
	Applications for Class I permits must		40 CFR 144 55		
	o Identify all injection wells within the area of review				
	o Take action as necessary to ensure that such wells are properly sealed, completed, or abandoned to prevent contamination of USDW				
	Criteria for determining whether an aquifer may be determined to be an excepted aquifer include current and future use, yield, and water quality characteristics		40 CFR 146 4		
	Case and cement all Class I wells to prevent movement of fluids into USDW, taking into consideration, well depth, injection pressure, hole size, composition of injected waste and other factors				

TABLE 1 (continued)

ACTION SPECIFIC ARARS UNDER SAFE DRINKING WATER ACT
FOR SELECTED REMEDIAL ACTION AT THE 881 HILLSIDE

Action	Requirement	Prerequisite	Citation	ARAR	Comments
Underground Injection of Wastes and Treated Ground Water (continued)	Conduct appropriate logs and other tests during construction and a descriptive report prepared and submitted to the UIC program director			RAA	
	Injection pressure may not exceed a maximum level designed to ensure that injection does not initiate new fractures or propagate existing ones and cause the movement of fluids into a USDW		40 CFR 146 13		
	Continuous monitoring of injection pressure, flow rate, and volume, and annual pressure, if required				
	Demonstration of mechanical integrity is required every 5 years				
	Ground-water monitoring may also be required				