

6.0 APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS AND PERFORMANCE STANDARDS

6.1 Overview

Under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), remedial actions designed to cleanup or abate contaminants in the groundwater, in surface waters, or in soils, must be designed, constructed, and operated to comply with all federal and more stringent state Applicable or Relevant and Appropriate Requirements (ARARs). ARARs include federal requirements under any federal environmental laws and state requirements under state environmental or facility-siting laws which are more stringent than federal requirements, and that have been identified by the State of California in a timely manner.

Applicable requirements are those cleanup standards, standards of control, and other substantive environmental protection requirements, criteria, or limitations promulgated under federal environmental or state environmental or facility-siting laws that specifically address a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance at a CERCLA site. Relevant and appropriate requirements include those that, while not "applicable" to a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance at a CERCLA site, nevertheless address problems or situations sufficiently similar to those encountered at the CERCLA site to indicate their use is well-suited to the particular site. If a given requirement is both relevant and appropriate to a particular site, it constitutes a valid legal requirement for that site. A requirement must either be applicable or both relevant and appropriate to be an ARAR. If no ARAR addresses a particular situation, or if an ARAR is insufficient to protect human health or the environment, then non-promulgated standards, criteria, guidance, and to be considered (TBC) advisories are identified as additional performance standards in the Record of Decision (ROD).

In general, on-site actions need comply only with the substantive aspects of these requirements, not with corresponding administrative requirements (such as, but not limited to, permits, recordkeeping, and reporting).

All laws and statutes identified as ARARs for a particular site or action must be considered and applied during the design, construction, and operation of any remedial action at the particular site. ARARs are identified on a site-specific basis from data and information concerning that site. Data and information concerning the objectives of site remediation, specific actions that are being considered as remedies at that site, the hazardous substances located upon the site, the physical and geological characteristics of the site, and the potential human and ecological receptors at or near the site must be analyzed and considered in order to properly identify ARARs at a particular site. All federal and more stringent state requirements which address or impact any of these conditions must be included as site ARARs.

There are three categories of ARARs. Some ARARs establish numerical values or methodologies which, when applied to site-specific conditions, result in the establishment of numerical values. Development of these ARARs (often referred to as chemical-specific ARARs) involve the identification of contaminants at a site which pose a threat to human health or the environment and must be remediated. Chemical-specific ARARs determine acceptable concentrations of specific hazardous substances, pollutants, and contaminants in the environment and establish the levels to which the ground or surface water at the affected site must be cleaned or restored in order to protect human health and the environment. Chemical-specific ARARs also establish the levels at which certain actions must be taken while transporting, treating, or storing hazardous wastes recovered during remediation.

Other ARARs (referred to as location-specific ARARs) are designed to protect the unique characteristics of the site or other areas potentially affected by site activities during the design, construction, or operation of remedial activities. Location-specific ARARs place restrictions on the concentration of hazardous substances or the conduct of activities solely because the site occurs in, or may affect, a special location. Some examples include the

protection of wetlands and vernal pools; protection of endangered or threatened species and their habitats; and the protection of fish and game from unauthorized taking.

Still other ARARs (referred to as action-specific ARARs) are technologically or activity-based requirements or limitations on the particular remedial actions at the site. Some examples include prohibitions or restrictions against the discharge of chemicals or contaminants to the air, water, or soil and the proper transfer, treatment, or storage of chemicals and contaminants.

6.2 ARARs Identification, Development, and Evaluation

Methodology

As lead agency, the Department of the Air Force has performed each of the following actions consistent with CERCLA and the National Contingency Plan (NCP):

- Identified federal ARARs for each remedial action alternative addressed in the Feasibility Study (FS), taking into account site-specific information for the NEWIOU;
- Reviewed potential state ARARs identified by the state in order to determine whether each potential ARAR identified satisfied CERCLA and NCP criteria that must be met in order to constitute state ARARs;
- Evaluated and compared federal ARARs and their state counterparts in order to determine which state ARARs are more stringent or are in addition to the federal ARARs; and
- Reached a conclusion as to which federal and state ARARs were the most stringent and/or "controlling" ARARs for each alternative.

Solicitation, Identification, and Evaluation of State ARARs

The Department of the Air Force followed the procedures of the process set forth in 40 CFR Section 300.515 and the Federal Facilities Agreement (FFA) for remedial actions in seeking state assistance in identification of state ARARs.

The CERCLA, NCP, and FFA requirements for remedial actions provide that the lead federal agency request that the state identify chemical- and location-specific state ARARs upon completion of site characterization, and again request identification of all categories of state ARARs (chemical-, location-, and action-specific) upon completion of identification of remedial alternatives for detailed analysis. The lead agency requested chemical- and location-specific ARARs from the state agencies on 30 August 1995. Following submission of the Detailed Analysis of Alternatives (DAA), the lead agency requested identification of ARARs to include action-specific ARARs from the state agencies. The state responses included comments from:

- California Integrated Waste Management Board;
- Department of Toxic Substances Control Board;
- State Water Resources Control Board;
- California Regional Water Resources Control Board;
- Bay Area Air Quality Management District; and
- California Department of Fish and Game.

During the review and analysis of ARARs identified by the State, including the Regional Water Board, and following considerable discussion with the representatives from the various state agencies, many of the requirements identified by the state as potential ARARs were determined to be valid ARARs by the lead agency. Upon completion of the FS, some issues between the lead agency and the state concerning final groundwater cleanup levels had not yet

been resolved on the scope and/or applicability of several groundwater ARARs. These potential ARARs will impact the duration of cleanup activity.

6.3 Interim Record of Decision Concept

Pursuant to Section 121(d)(1) of CERCLA, remedial actions must attain a degree of cleanup which assures protection of human health and the environment. However, to expedite remedial action, it was agreed between the Air Force and the regulatory agencies that the use of an Interim Record of Decision (IROD) would be a prudent course of action. The IROD will allow the implementation of remedial actions and associated reductions of contamination during the period in which the establishment of final cleanup levels will be determined. The data obtained from the interim remedial actions will play an integral part in establishing the factual basis for establishing final cleanup levels. An evaluation of the interim actions will be made as part of the CERCLA “five year review.” Data obtained will be reviewed to determine the effectiveness of the actions and changes in the actions will be made, if necessary. The additional information obtained from these interim remedial actions should expedite the development of a final ROD by providing documentation supportive of final cleanup levels that are protective, realistic, and achievable.

6.4 Determination of ARARs for the Interim Action

Methodology

The list of ARARs identified in the North, East, and West Industrial Operable Unit (NEWIOU) FS was used as a starting point for identifying groundwater ARARs. From that list, those requirements applicable or relevant and appropriate to groundwater remediation were identified for inclusion in the IROD, while those which had no relevancy to the interim groundwater remediation were excluded from consideration. Specifically excluded were statutory and regulatory provisions which:

1. Were applicable or relevant and appropriate only to soils remediation sites;
2. Were applicable or relevant and appropriate only to action alternatives not utilized in groundwater remediation actions;
3. Addressed location-specific conditions not present at groundwater remediation sites; and
4. Established final cleanup standards.

The list of ARARs for NEWIOU groundwater remedial actions is provided in Tables 6-1 through 6-5. The ARARs identified in Tables 6-1 through 6-4 are state ARARs and are grouped by the state regulatory agency exercising regulatory authority over the particular ARAR. Table 6-5 includes federal ARARs identified by the lead agency.

6.5 ARARs Evaluation and Discussion

Action-Specific ARARs

These ARARs place restrictions on remedial activities which may negatively impact the surrounding environment. The potential NEWIOU groundwater remedial alternatives were analyzed to identify potential impacts to the environment. Considered were:

Hazardous Waste Treatment, Storage, and Disposal – These requirements are technology- or activity-based requirements which place limitations on actions taken with respect to the hazardous waste. Regulations promulgated under the applicable provisions of the state authorized federal Resource Conservation and Recovery Act (RCRA) and more stringent provisions of the California Hazardous Waste Control Law (HWCL) are either applicable or relevant and appropriate to RCRA-permitted storage facilities and proper characterization of hazardous waste, and storage and disposal of such waste. If any hazardous wastes are identified which will be transported off-site, they will be disposed of and handled under applicable provisions of the state authorized federal RCRA program. Actions which might generate these

wastes include well installation (i.e., disposal of soils generated during construction) or active treatment processes.

Many of the HWCL provisions are either applicable or relevant and appropriate because they describe requirements for the safe handling of regulated materials and precautions for preventing further contamination. These requirements are identified in Table 6-1.

Effects of Actions on Water Resources – Several California statutes and regulations which protect the waters of the State have been identified and incorporated as ARARs. These ARARs establish the remedial objectives and requirements for contaminants of concern (COCs) present at NEWIOU groundwater remediation sites.

The Porter-Cologne Water Quality Control Act (PCWQCA) is one of the statutory bases for regulation of discharges of waste to land that could impair either surface water or groundwater quality in California. It establishes the authority of the State and Regional Water Quality Control Boards to protect the quality of surface water and groundwater. Regulations promulgated pursuant to the PCWQCA that have been determined to be either applicable or relevant and appropriate are identified in Table 6-4. A further discussion of water remediation requirements is included in the chemical-specific ARARs section below.

Effects of Groundwater Extraction – Portions of Union Creek adjoining sites SD001 and SD033 are considered to be both a floodplain and a wetland. Drainage ditches and a few low lying areas at or near sites FT004, LF006, LF007, and SD031 are also considered wetlands. Potential impacts resulting from removal of groundwater and the resultant lowering of the groundwater table were considered. However, it has been determined that any change in groundwater levels will not impact vernal pools or wetlands. The increased flow rates in Union Creek due to the surface discharge of treated water was also considered and determined to not significantly impact Union Creek.

Effects of Actions on Air Resources – State legislation divided the state into local air pollution control districts and allowed each district to enforce the requirements of the state Clean

Air Act within its jurisdictional boundaries. Travis AFB is located in the Bay Area Air Quality Management District (BAAQMD). The applicable air regulations incorporated into the IROD as ARARs are identified in Table 6-3. In addition, most of these rules in the State Implementation Plan (SIP) are adopted pursuant to the federal Clean Air Act, and these rules are federal ARARs. That table contains the requirements, a brief description of the substantive requirements and the applicability to either the site, remedial action, or technology used to clean up the site.

Technological Requirements for Remedial Equipment – The remediation of groundwater at sites where Alternative 3 is the selected remedy will incorporate the use of a combination (“tool kit”) of five different technologies. These technologies include air stripping, ultraviolet oxidation, catalytic oxidation, activated carbon adsorption, and ion exchange, and will comprise the remediation “tools.” One or more of these “tools” will be used at each site, depending upon the particular facts of the site. The unique requirements triggered by each technology and its associated equipment have been identified and are included as ARARs in Tables 6-1 through 6-5.

Location-Specific ARARs

These ARARs place restrictions on remedial activities which may be conducted on-site because of the presence of unique site features. The location of the NEWIOU groundwater sites and surrounding areas were analyzed for unique site features to identify ARARs. The unique site features considered were:

Habitats of Rare, Threatened, Endangered, and Special Status Species – Vernal pools which contain an endangered species, including the Vernal Pool Tadpole Shrimp and the Vernal Pool Fairy Shrimp have been identified at or near Site LF007. Other endangered species, including the Black-Shouldered Kite, Boggs Lake Dodder, Burrowing Owl, Coopers Hawk, California Gull, Golden Eagle, Loggerhead Shrike, Northern Harrier, Red Fox, Tri-colored Blackbird, Contra Costa Goldfields, Northwestern Pond Turtle, and San Francisco Forktail

Damselfly have been observed at some time at Travis AFB and have the potential to be at remedial sites.

Several federal ARARs were identified by impact to site ecology. The Endangered Species Act and implementing regulations set forth in Table 6-5 apply to those remedial actions at NEWIOU sites where impact to endangered wildlife could occur. The groundwater cleanup activities are not expected to impact any endangered species; however, associated cleanup activities (e.g., construction of pipelines for groundwater extraction) could affect these resources should they be present. To ensure that regulatory requirements are followed and impacts are avoided or mitigated, all sites will be surveyed for the presence of these resources immediately prior to the commencement of remedial activities at the site.

Several state ARARs protective of site ecology have also been identified. The California Fish and Game Code (CFGC) and regulations promulgated under this Code protect rare, endangered, or threatened species or habitats, and require alternative actions at sites where impacts have the potential to occur. In addition to these state counterparts to the Endangered Species Act, the CFGC also establishes several requirements to protect site wildlife by prohibiting or restricting the unauthorized taking of other wildlife. The CFGC also regulates to protect aquatic life living in the waters of the state. All remedial activities that have the potential to cause a discharge to any stream, lake, or other body of water must comply with the requirements of the CFGC. CFGC ARARs are found in Table 6-3. United States Environmental Protection Agency (U.S. EPA) does not concur that all CFGC requirements are more stringent than federal requirements.

Historically or Culturally Significant Properties – Some buildings on Travis AFB have recently been identified as Cold War Era buildings and historically significant. However, none of these buildings are affected by NEWIOU remedial activities.

Wilderness Areas, Wild and Scenic Rivers, and Coastal Zones – No wilderness areas, wild and scenic rivers, or coastal zones exist within the boundaries of Travis AFB.

Therefore, requirements related to these areas are not applicable or relevant to NEWIOU sites and actions.

Earthquake Faults – Although the Vaca-Winters and the Vaca-Kirby faults are located in the Travis AFB area, NEWIOU sites are not located on these faults.

Chemical-Specific ARARs

Discharges of Treated Effluent – Surface water at Travis AFB includes Union Creek, a minor tributary to the Suisun Marsh. Sites FT005, SS016, SS029, SS030, SD033, SD034, SD036, and SD037 are located adjacent to Union Creek. However, design, construction, and operation of remedial actions will not have an impact upon surface water. One of the options at all sites for which groundwater treatment has been selected is the discharge of treated groundwater to Union Creek. Provisions of 40 CFR Part 122 regulate discharge to surface waters. National Pollutant Discharge Elimination System (NPDES) requirements establish standards for discharges to surface waters of the United States. The substantive requirements of federal or more stringent state ARARs for discharge to surface waters have been evaluated and are included as ARARs. (See Tables 6-6, 6-7, and 6-8.)

State Water Resources Control Board Resolution 68-16 has been identified by the state as an ARAR for the protection of both surface waters and groundwaters of the state. All parties agree that Resolution 68-16 is an ARAR with respect to active discharges to surface water. However, the United States Air Force and U.S. EPA do not agree with the state on the full applicability of all the substantive requirements of this resolution and its impacts on the remedial action activities. This disagreement will not impact the implementation of the interim groundwater remedial actions at NEWIOU sites.

Reinjection of treated water into the groundwater is not contemplated as part of the remedial action.

Discharge of Effluent to Land – Irrigation is the designated beneficial use of treated groundwater at Travis AFB. The use of reclaimed and treated groundwater for irrigation activities shall meet the substantive standards set forth by the Regional Water Quality Control Board order which establishes the general discharge requirements for treated groundwater. These substantive standards ensure that reclaimed water is segregated from potable water sources and does not migrate or escape from the area of irrigation. Standards for irrigation discharges are set forth in Table 6-8.

Aquifer Remediation Objectives – For purposes of the IROD, State Water Resources Control Board (SWRCB) Resolution 92-49, Section III.G is not an ARAR since final aquifer cleanup levels are not being established in this IROD. The scope and applicability of SWRCB Resolution 92-49 will be addressed in the final NEWIOU ROD.

Table 6-1
Federal ARARs* - Groundwater Remediation (IROD)
Waste Transfer, Treatment, and Storage and Disposal Requirements

* (California Statutes and Regulations Comprising Federal Authorized RCRA Program)

Source	Requirement, Standard, or Criterion	Type	Description	Remarks	Sites and Alternatives	
Title 22 CCR Chap 12, Art 1	66262.11	Applicable	Requires a facility to make a determination as to whether waste is hazardous.	Applicable to wastes excavated or resulting from treatment processes.	004, 005, 007C, 016, 029, 030, 031, 032, 033, 034, 036, 037	3
Title 22 CCR Chap 14, Art 6	66264.94	Applicable	Establishes general groundwater monitoring requirements and concentration limits.	Relevant and appropriate at groundwater site for development of a comprehensive monitoring program for the site.	004, 005, 007C, 016, 029, 030, 031, 032, 033, 034, 036, 037	3
	66264.96(c)	Applicable	Establishes monitoring requirements upon removal of all waste and contaminated material from a management unit. Requires monitoring showing all levels in compliance with water quality standards for three consecutive years.			
	66264.97	Applicable	Establishes groundwater monitoring requirements during the closure and post-closure periods.			
Title 22 CCR Chap 14, Art 9 (Standards for Owners and Operators of Hazardous Waste Transfer, Treatment, Storage, and Disposal Facilities - Use and Management of Containers)	66264.171	Relevant and Appropriate	Sets standards for containers holding hazardous waste for chemicals recovered from sediments, surface soils, or groundwater.	Sections in this article are relevant and appropriate to sites or actions where waste containers are used.	004, 005, 007C, 016, 029, 030, 031, 032, 033, 034, 036, 037	3
	66264.172	Relevant and Appropriate	Requires use of containers that are compatible with the recovered material for the storage of that material.	Containers will be used to transfer and store wastes generated by construction activities or the operation of remedial actions.		
	66264.173	Relevant and Appropriate	Requires containers used to transport material to be closed during transport and that waste be handled to minimize damage to containers.	Examples include spent carbon from treatment plants, drill cuttings from well installation, free product removed from a plume, etc.		
	66264.174	Relevant and Appropriate	Establishes requirements for inspecting containers weekly.			
	66264.175	Relevant and Appropriate	Establishes requirement to ensure adequate secondary containment for stored waste.			
	66264.176	Relevant and Appropriate	Requires isolating waste from sources of ignition if waste is ignitable.			

Table 6-1
Federal ARARs* - Groundwater Remediation (IROD)
Waste Transfer, Treatment, and Storage and Disposal Requirements
(continued)

Source	Requirement, Standard, or Criterion	Type	Description	Remarks	Sites and Alternatives	
Title 22 CCR Chap 14, Art 9 (cont'd)	66264.177	Relevant and Appropriate	Requires segregation of waste from incompatible waste.	Section 66264.178 is relevant and appropriate when sites are closed and any wastes or residue, as described above, are on-site at closure.		
	66264.178	Relevant and Appropriate	Establishes the requirement to remove all hazardous waste and waste residue at closure.			
Title 22 CCR Chap 14, Art 10 Standards for Owners and Operators of Hazardous Waste Transfer, Treatment, Storage, and Disposal Facilities - Use and Management of Tank Systems	66264.192	Relevant and Appropriate	Establishes design/installation requirements for new tank systems and components.	Sections in this article are relevant and appropriate to alternatives which incorporate the use of tanks or tank systems as part of the remedial equipment. Tanks will be used at treatment plants to store contaminated water prior to treatment. Tanks will also be used for temporary storage of free product, if necessary. Alternatives which utilize tanks or tank systems include UV oxidation, air stripping, activated carbon adsorption, catalytic oxidation, and ion exchange technologies. Section 66264.197, paragraphs (a), (c)(3), and (c)(4) are not relevant and appropriate with respect to cost estimates and financial responsibility requirements. Section 66264.198 is relevant and appropriate to sites with ignitable wastes (i.e., free product) or reactive waste. Remedies utilizing reactive oxidizers, such as ultraviolet oxidation or catalytic oxidation, would trigger this requirement.	004, 005, 007C, 016, 029, 030, 031, 032, 033, 034, 036, 037	3
	66264.193	Relevant and Appropriate	Delineates requirements for tank systems including containment and detection of releases.			
	66264.194	Relevant and Appropriate	Delineates requirements for tank systems including general operating requirements.			
	66264.195	Relevant and Appropriate	Delineates requirements for tank systems including inspections.			
	66264.196	Relevant and Appropriate	Delineates requirements for tank systems including response to leaks or spills.			
	66264.197	Relevant and Appropriate	Delineates requirements for tank systems including closure and post-closure care.			
	66264.198	Relevant and Appropriate	Delineates requirements for tank systems including special care requirements for reactive wastes.			
66264.199	Relevant and Appropriate	Delineates requirements for tank systems including special requirements for incompatible wastes.				

Table 6-1
Federal ARARs* - Groundwater Remediation (IROD)
Waste Transfer, Treatment, and Storage and Disposal Requirements
(continued)

Source	Requirement, Standard, or Criterion	Type	Description	Remarks	Sites and Alternatives	
Title 22 CCR Chap 14, Art 13 Incinerators	66264.341	Applicable	Requires analysis of the waste feed sufficient to provide all information required by section 66270.62(b) or 66270.19.	Applicable to all sites where catalytic oxidation may be used to treat vapor phase contaminants. The permitting requirements of sections 66264.343, 66264.344, and 66264.345 are not ARARs. Only substantive requirements of section 66264.344, subsection (a) are ARARs.	004, 005, 007C, 016, 029, 030, 031, 032, 033, 034, 036, 037	3
	66264.342	Applicable	Requires Principal Organic Hazardous Constituents (POHCs) in the waste feed be treated to the extent required by the performance standard of section 66264.343.			
	66264.343	Applicable	Establishes maintenance, construction, and design requirements to ensure proper operation.			
	66264.344	Applicable	Establishes types of waste which can be burned and operating conditions for those wastes.			
	66264.345	Applicable	Requires incinerators be operated in accordance with operating requirements.			
	66264.347	Applicable	Establishes monitoring during hazardous waste incineration.			
	66264.351	Applicable	Establishes closure requirements for the incinerator site and residual wastes.			
Title 22 CCR Chap 14, Art 16	66264.601	Applicable	Specifies performance standards for miscellaneous units that transfer, treat, store or dispose of hazardous waste.	Applicable at Travis AFB sites where air strippers are used as part of the remedial action. Section 66264.602 requirements related to response and reporting procedures are procedural and do not apply.	004, 005, 007C, 016, 029, 030, 031, 032, 033, 034, 036, 037	3
	66264.602	Applicable	Establishes analysis, inspection, response, reporting, monitoring, and corrective action standards for miscellaneous units.			
	66264.603	Applicable	Establishes maintenance standards for miscellaneous units.			

Table 6-1
Federal ARARs* - Groundwater Remediation (IROD)
Waste Transfer, Treatment, and Storage and Disposal Requirements
(continued)

Source	Requirement, Standard, or Criterion	Type	Description	Remarks	Sites and Alternatives
Title 22 CCR Chap 14, Art 27 (Air Emission Standards for Process Vents)	66264.1032	Relevant and Appropriate	Establishes emission limits when process vents are used.	Relevant and appropriate to alternatives where closed vent systems are used. At NEWIOU groundwater sites, this would include remediation systems which have vents in the system to include air strippers, UV oxidation and catalytic oxidation equipment, and carbon treatment vessels.	004, 005, 007C, 016, 029, 030, 031, 032, 033, 034, 036, 037
	66264.1033	Relevant and Appropriate	Establishes standards for closed vent systems and control devices.		
	66264.1034	Relevant and Appropriate	Establishes test methods and procedures for closed vent systems.		
	66264.1035	Relevant and Appropriate	Establishes recordkeeping requirements for closed vent systems and parameters for design analysis and performance.		
Title 22 CCR Chap 14, Art 28 (Air Emission Standards for Equipment Leaks)	66264.1054	Relevant and Appropriate	Establishes that pressure relief devices in gas/vapor service shall be operated with no detectable emissions.	Relevant and appropriate for actions where gas/vapor extraction systems are used. Actions include air stripping, activated carbon adsorption, and catalytic oxidation equipment.	004, 005, 007C, 016, 029, 030, 031, 032, 033, 034, 036, 037
	66264.1063	Relevant and Appropriate	Establishes leak detection monitoring requirements.		
	66264.1064	Relevant and Appropriate	Establishes recordkeeping requirements for gas/vapor extraction systems.		
Title 22 CCR Chap 18, Art 1 (Land Disposal Restrictions - General)	66268.3	Applicable	Establishes land disposal restrictions, including a prohibition of using dilution as a substitute for treatment.	Applicable to hazardous wastes generated from site construction activities. Places restrictions on site disposal activities in unauthorized areas. Section 66268.7, paragraphs (a)(1), (b)(1), (2), and (3), and (c)(2) are substantive requirements. The remainder of the section is procedural and not ARARs.	004, 005, 007C, 016, 029, 030, 031, 032, 033, 034, 036, 037
	66268.7	Applicable	Establishes land disposal restrictions, including requirements for waste analysis and recordkeeping.		
	66268.9	Applicable	Establishes land disposal restrictions including special rules for wastes that exhibit a characteristic.		

Table 6-1
Federal ARARs* - Groundwater Remediation (IROD)
Waste Transfer, Treatment, and Storage and Disposal Requirements
(continued)

Source	Requirement, Standard, or Criterion	Type	Description	Remarks	Sites and Alternatives	
Title 22 CCR Chap 18, Art 2	All Sections	Applicable	Establishes treatment technology for disposal of waste to land for RCRA and non-RCRA wastes identified in Section 66268.106.	Applicable to sites where material or secondary waste from construction activities (includes excavation for well installation, pipeline installation, and foundations for treatment facilities), or excavation material is classified as hazardous or state regulated waste. Wastes identified will be managed in accordance with these standards using the characterization process.	004, 005, 007C, 016, 029, 030, 031, 032, 033, 034, 036, 037	3
Title 22 CCR, Chap 18 Art 3 (Prohibitions on Land Disposal)	66268.30	Applicable	Establishes waste-specific LDRs.	Applicable to groundwater remediation sites where media excavated for equipment installation is classified hazardous waste and disposed of or treated on-site. Requires identification of waste through the proper characterization process.	004, 005, 007C, 016, 029, 030, 031, 032, 033, 034, 037	3
	66268.31	Applicable	Establishes LDRs for wastes containing dioxin.			
	66268.32	Applicable	Establishes LDRs for certain hazardous wastes.			
	66268.33	Applicable	Establishes LDRs - First Third Wastes.			
	66268.34	Applicable	Establishes LDRs - Second Third Wastes.			
	66268.35	Applicable	Establishes LDRs - Third Third Wastes.			
	66268.36	Applicable	Prohibits land disposal of newly listed wastes.			
	66268.37	Applicable	Prohibits land disposal of ignitable and corrosive characteristic wastes whose treatment standards were vacated.			
66268.38	Applicable	Identifies waste specific prohibitions on newly identified organic toxicity characteristic wastes and newly listed coke by-product and chlorotoluene wastes.				

Table 6-1
Federal ARARs* - Groundwater Remediation (IROD)
Waste Transfer, Treatment, and Storage and Disposal Requirements
(continued)

Source	Requirement, Standard, or Criterion	Type	Description	Remarks	Sites and Alternatives
Title 22 CCR Chap 18, Art 4	All Sections	Applicable	Identifies treatment standards for halogenated organic compounds regulated by Section 66268.32.	Applicable to sites where excavated material is classified as hazardous waste. Identified waste will be managed in accordance with these standards. Applicable at groundwater sites where contaminated soils are excavated in order to install remediation equipment.	004, 005, 007C, 016, 029, 030, 031, 032, 033, 034, 036, 037
Title 22 CCR Chap 18, Art 5	All Sections	Applicable	Establishes prohibitions on storage of hazardous wastes restricted under Article 3 of this chapter or RCRA Section 3004 (42 USC 6924).		
Title 22 CCR Chap 18, Art 10	66268.100	Applicable	Establishes land disposal prohibitions for non-RCRA hazardous wastes.		
Title 22 CCR Chap 18, Art 11	All Sections	Applicable	Establishes disposal restrictions, prohibitions, and treatment standards for certain identified hazardous wastes.		
Title 22 CCR Chap 43 (Management of Extremely Hazardous Wastes)	67430.3	Applicable	Establishes requirements for the removal of spilled or improperly deposited extremely hazardous wastes.	Applicable to NEWIOU groundwater sites where unintentional spills may occur.	004, 005, 007C, 016, 029, 030, 031, 032, 033, 034, 036, 037

Table 6-2
State ARARs - Groundwater Remediation (IROD)
Air Remediation Requirements

Source	Requirement, Standard, or Criterion	Type	Description	Remarks	Sites and Alternatives
Regulation 2, Rule 1 (Bay Area Air Quality Management District Regulations)	308	Applicable	Establishes that fugitive emissions from equipment or facilities must comply with all applicable requirements.	Applicable to actions where air strippers or other systems using pressurized components (UV oxidation, carbon adsorption, catalytic oxidation, and ion exchange) could result in fugitive VOC emissions.	004, 005, 007C, 016, 029, 030, 031, 032, 033, 034, 036, 037
	316	Applicable	Establishes maximum levels for toxic air contaminants, which, if exceeded, require a risk screening analysis.	Applicable to actions which have the potential to emit toxic air contaminants (e.g., TCE). Substantive provisions are applicable to actions including air stripping, UV oxidation, carbon adsorption, catalytic oxidation, and ion exchange.	
	501	Applicable	Establishes that continuous emission monitors meet certain requirements.	Applicable to all sites or actions where air stripping, UV oxidation, carbon adsorption, catalytic oxidation, and ion exchange technologies are used in the remedial action.	
Regulation 2, Rule 2	112	Applicable	Establishes exemptions for emissions of secondary pollutants from abatement control equipment which complies with BACT or BARCT requirements.	Applicable to actions where BARCT or BACT abatement devices are used (i.e., carbon adsorption is used together with catalytic oxidation or UV oxidation or ion exchange) but where secondary emissions from the abatement equipment still exist.	004, 005, 007C, 016, 029, 030, 031, 032, 033, 034, 036, 037
	301	Applicable	Establishes BACT requirement for new sources which emit in excess of 10 lbs per day of precursor organic compounds, non-precursor organic compounds, NO _x , SO _x , PM ₁₀ or CO ₂ .	Applicable to all actions with potential to discharge to air. Not applicable for permitting requirements or authority to construct but applicable for determining the applicability of BACT to a new source. Remedial alternatives using air strippers must ensure BACT is used (i.e., air stripping, catalytic oxidation with carbon adsorption) to control emissions in excess of levels specified in the rule.	

Table 6-2
State ARARs - Groundwater Remediation (IROD)
Air Remediation Requirements
(continued)

Source	Requirement, Standard, or Criterion	Type	Description	Remarks	Sites and Alternatives	
Regulation 6	301	Applicable	Establishes limitations on visible emissions and opacity.	Applicable to sites where excavation or construction activities have the potential to release particulate matter into the air (i.e., dirt and dust), or at sites where portable soldering, brazing, welding equipment is used. Also applicable at sites where portable combustion engines of < 25 liters of displacement are used.	004, 005, 007C, 016, 029, 030, 031, 032, 033, 034, 036, 037	3
	302	Applicable	Establishes limitations on opacity.			
	303	Applicable	Establishes limitations on emission rates, concentration, visible emissions, and opacity.			
	501	Applicable	Establishes requirements for sampling facilities and instruments.	Applicable to all actions subject to Regulation 6.		

Table 6-3
State ARARs - Groundwater Remediation (IROD)
Fish and Game Requirements

Source	Requirement, Standard, or Criterion	Type	Description	Remarks	Sites and Alternatives
California Fish and Game Code	1908	Applicable	Prohibits the import, taking or possession of rare or endangered native plants.	Applicable to active groundwater remediation sites where rare or endangered native plants exist. Requires site surveys prior to action to determine presence of endangered/threatened plants at the site and consideration of potential impact at sites where impact to endangered or threatened species may occur. Will be considered at all groundwater sites where active remediation occurs.	004, 005, 007C, 016, 029, 030, 031, 032, 033, 034, 036, 037
	2080	Applicable	Prohibits the import, taking or sale of threatened or endangered native plants.		
	2091	Relevant and Appropriate	Requires state agencies to use alternative actions where impact to threatened or endangered species or habitat is found.		
	2092	Relevant and Appropriate	Requires state agencies to adopt reasonable alternative actions where project would result in the extinction of a species.		
	3005	Applicable	Prohibits taking of birds or animals with net, pound, cage, trap, set line, wire, or poison.	Applicable at all groundwater remediation sites where birds, animals, or other wildlife identified by the applicable statutory provision exist.	
	3511	Applicable	Prohibits taking of birds identified as “fully protected.”		
	3513	Applicable	Prohibits taking or possession of mammals identified as “fully protected.”		
	5050	Applicable	Prohibits taking or possession of reptiles and amphibians identified as “fully protected.”		
	5515	Applicable	Prohibits taking or possession of fish identified as “fully protected.”		
	5650	Applicable	Prohibits deposit or placement of specified materials and substances into places where it can pass into the waters of the state.	Applicable to all groundwater remediation actions or sites where substances have a pathway to state waters.	

Table 6-3
State ARARs - Groundwater Remediation (IROD)
Fish and Game Requirements
(continued)

Source	Requirement, Standard, or Criterion	Type	Description	Remarks	Sites and Alternatives	
California Fish and Game Policies	Management and Utilization of Fish and Wildlife on Federal Lands	Performance Standard	Establishes management policies and defines methodologies used in protecting all fish, wildlife, and threatened and endangered species.	Although these policies are not promulgated regulations and therefore, cannot be legally defined as ARARs, these policies do contain substantive provisions which will be relied upon in the decision process, consistent with applicable federal laws and statutes. Will be followed at all groundwater sites where active remediation occurs.	004, 005, 007C, 016, 029, 030, 031, 032, 033, 034, 036, 037	3
	Wetlands Resource Policy	Performance Standard	Establishes management policies and defines methodologies to assure no net loss of wetland habitat value or acreage.	The Wetlands Resource Policy will be followed at sites where wetland habitat occurs.	007, 033	3
Title 14 CCR	40.00	Applicable	Prohibits the taking of possession of native reptiles and amphibians.	Applicable to all site and action alternatives where identified mammals, fish, reptiles or amphibians, or plants exist. Will be considered at all groundwater sites where active remediation occurs. Requires site surveys prior to action to determine presence of endangered/threatened plants at the site. Species found at Travis AFB which are covered by these sections include the Black-Shouldered Kite, Boggs Lake Dodder, Burrowing Owl, Coopers Hawk, California Gull, Golden Eagle, Loggerhead Shrike, Northern Harrier, Red Fox, Tri-colored Blackbird, Vernal Pool Fairy Shrimp, Contra Costa Goldfields, Northwestern Pond Turtle, San Francisco Forktail Damselfly, Vernal Pool Tadpole Shrimp.	004, 005, 007C, 016, 029, 030, 031, 032, 033, 034, 036, 037	3
	40.10	Applicable	Prohibits the taking of possession of native reptiles and amphibians.			
	460	Applicable	Prohibits the taking of certain fur bearing mammals at any time.			
	640	Applicable	Establishes requirement for fish and wildlife planning to optimize fish and wildlife resources.			
	670.2	Applicable	Establishes species, subspecies, and varieties of native California plants as endangered, threatened, or rare.			
	670.5	Applicable	Establishes species, subspecies, and varieties of native California plants as endangered, threatened, or rare.			

Table 6-4
State ARARs - Groundwater Remediation (IROD)
Water Board Requirements

Source	Requirement, Standard, or Criterion	Type	Description	Remarks	Sites and Alternatives
Federal Water Pollution Control Act Section 402, Porter Cologne Water Act; California Water Code, Division 7, Sections 13000, 13140, 13240, Water Quality Control Plan for the San Francisco Bay Basin	SWRCB Resolution 68-16	Applicable	Establishes policy that whenever the existing quality of water is better than the quality established in policies as of the date on which such policies become effective, such existing high quality will be maintained until it has been demonstrated that any change will be consistent with maximum benefit to the people of the State, won't unreasonably affect present and anticipated beneficial use of such water and will not result in water quality less than prescribed in the policies. Discharges or proposed discharges to existing high quality waters will be required to meet waste discharge requirements which will result in the best practicable treatment or control of the discharge necessary to assure that a pollution or nuisance will not occur and the highest water quality consistent with maximum benefit to the people of the State will be maintained.	<p>Applicable to sites where groundwater IROD actions will cause active discharges to surface water (i.e., Union Creek). The lead agency, U.S. EPA, and water board agree to disagree as to the applicability of this section with respect to passive discharge and plume migration. Throughout the IROD, plumes at these sites will be monitored and evaluated to ensure migration is not present.</p> <p>San Francisco Bay Region Order Number 94-087 establishes requirements for discharge or reuse of extracted and treated groundwater which was contaminated by VOCs.</p> <p>Contaminants in treated groundwater shall not exceed the more stringent of the substantive standards set forth in Order 94-087, MCLs, or such levels necessary to preclude degradation of the receiving water quality. The numeric effluent limitations for discharges to treated water that comply with Resolution 68-16 are specified in Table 6-6. The discharge must also comply with paragraphs A.1, A.2, and A.3 (prohibitions) of General Waste Discharge Order 94-087.</p>	004, 005, 007C, 016, 029, 030, 031, 032, 033, 034, 036, 037 3

Table 6-4

Table 6-4
State ARARs - Groundwater Remediation (IROD)
Water Board Requirements
(continued)

Source	Requirement, Standard, or Criterion	Type	Description	Remarks	Sites and Alternatives
Regional Water Quality Control Board	S.F. Bay Basin Water Quality Control Plan, Chapter 2, Beneficial Uses	Applicable	Establishes beneficial uses of surface waters of the state.	Applicable to define beneficial uses of surface waters where treated effluent may be discharged. Beneficial uses of Union Creek and downstream receiving waters include navigation, contact and non-contact recreation, fish spawning, warm fresh-water habitat, and wildlife habitat.	004, 005, 007C, 016, 029, 030, 031, 032, 033, 034, 036, 037
	S.F. Bay Basin Water Quality Control Plan, Chapter 3 (Water Quality Objectives)	Applicable	Establishes discharge to surface water requirements, including receiving water quality objectives and receiving water limits.	Applicable where effluent is discharged to surface water. Surface waters shall not contain concentrations of constituents in amounts that affect any beneficial use or the objectives for selected toxic pollutants identified in Tables 3-3 and 3-4. Incorporates requirements of General Order 94-087, paragraph C (receiving water limitations for discharges to surface water - see Table 6-7) and paragraph F.5 (prohibitions on radiological, biological, and chemical warfare agent waste).	
U.S. Office of Solid Waste	RCRA Ground Water Monitoring, Draft Technical Guidance, Nov. 1992 (EPA /530-R-93-001	Performance Standard	Sets forth requirements for the development of a groundwater monitoring program.	Applies to the development of a comprehensive monitoring program for the site (also reference Table 6-1, 22 CCR Section 66264.94, 66264.96, and 66264.97).	004, 005, 007C, 016, 029, 030, 031, 032, 033, 034, 036, 037

**Table 6-5
Federal ARARs - Groundwater Remediation (IROD)
Requirements under the US Code and Related Regulations**

Source	Requirement, Standard, or Criterion	Type	Description	Remarks	Sites and Alternatives	
Title 16 USC (Endangered Species Act)	1531(c)	Applicable	Requires action to conserve endangered species and critical habitats upon which endangered species depend. Includes consultation with the Department of Interior to gather substantive information necessary to ensure compliance with this requirement.	Activities at all remedial sites must be performed in such a manner as to identify the presence of and protect endangered or threatened plants and animals at the site. Species present at Travis AFB include the Black-Shouldered Kite, Boggs Lake Dodder, Burrowing Owl, Coopers Hawk, California Gull, Golden Eagle, Loggerhead Shrike, Northern Harrier, Red Fox, Tri-colored Blackbird, Vernal Pool Fairy Shrimp, Contra Costa Goldfields, Northwestern Pond Turtle, San Francisco Forktail Damselfly, Vernal Pool Tadpole Shrimp.	004, 005, 007C, 016, 029, 030, 031, 032, 033, 034, 036, 037	3
	1536(a)	Applicable				
	Title 50 CFR	Part 402				
Title 16 USC (Fish and Wildlife Coordination Act)	662	Applicable	Regulates site actions affecting fish or wildlife in lakes, stream, or other water bodies by requiring coordination between lead agency and the U.S. Fish and Wildlife Service, Department of the Interior, and applicable state agencies.	Applicable to active groundwater remediation actions and effluent discharges at sites which are located at or near, or which may impact, Union Creek and pond.	004, 005, 016, 029, 030, 033, 036, 037	3
Title 16 USC (Migratory Bird Treaty Act)	703	Applicable	Prohibits unlawful taking, possession, and sale of almost all species of native birds in the United States.	Species at Travis AFB include Black-Shouldered Kite, Burrowing Owl, Coopers Hawk, California Gull, Golden Eagle, Loggerhead Shrike, Northern Harrier, Tri-colored Blackbird, Contra Costa Goldfields.	004, 005, 007C, 016, 029, 030, 031, 032, 033, 034, 036, 037	3

**Table 6-5
Federal ARARs - Groundwater Remediation (IROD)
Requirements under the US Code and Related Regulations
(continued)**

Source	Requirement, Standard, or Criterion	Type	Description	Remarks	Sites and Alternatives
Federal Clean Water Act, Section 404, Title 33 CFR Part 330, Appx A, Subpart B Army Corps of Engineers Nationwide Permit Programs (NWP)	Paragraph 12	Applicable	Establishes Nationwide Permit for discharges material for backfill or bedding of utility lines, including outfall and intake structures affecting the waters of the United States.	The substantive portions of these paragraphs are applicable to activities related to construction and installation of remedial equipment. The permitting requirements are not ARARs.	004, 005, 016, 029, 030, 033, 034, 036, 037
	Paragraph 13	Applicable	Establishes Nationwide Permit for bank stabilization activities necessary for erosion prevention.		
	Paragraph 27	Applicable	Establishes requirements for activities in waters of the United States associated with the restoration of altered and degraded non-tidal wetlands and creation of wetlands on private lands.		
Federal Clean Water Act, Section 404, Title 33 CFR Part 330, Appx A, Subpart C Army Corps of Engineers Nationwide Permit Conditions (NWP)	Paragraph 2	Applicable	Requires any structure or fill authorized be properly maintained, including maintenance to ensure public safety.	The substantive portions of these paragraphs are applicable to activities related to construction and installation of remedial equipment. The permitting and notification requirements are not ARARs.	004, 005, 006, 007, 015, 016, 029, 030, 031, 032, 033, 034, 035, 036, 037
	Paragraph 4	Applicable	Requires that no activity may substantially disrupt the movement of those species of aquatic life indigenous to the water body.		
	Paragraph 5	Applicable	Requires heavy equipment working in wetlands must be placed on mats or other measures be taken to minimize soil disturbance.		
	Paragraph 11	Applicable	No activity is authorized under any NWP if likely to jeopardize the continued existence of a threatened or endangered species or species proposed for such designation, as identified under the Federal Endangered Species Act, or which is likely to destroy or adversely modify the critical habitat of such species.		

Table 6-5
Federal ARARs - Groundwater Remediation (IROD)
Requirements under the US Code and Related Regulations
(continued)

Source	Requirement, Standard, or Criterion	Type	Description	Remarks	Sites and Alternatives
Title 40 CFR Part 122 (Federal Clean Water Act - EPA Administered Programs) The National Pollutant Discharge Elimination System	122.26	Applicable	Requirements to ensure stormwater discharges from remedial activities do not contribute to a violation of surface water quality standards.	Applicable at all sites where there will be discharge to the stormwater system and to discharges to Union Creek. These sections relate to effluent limitations and monitoring requirements to be applied during the development of a monitoring plan. Incorporates requirements of General Order 94-087, paragraph F.6 (100-year frequency flood). The SRWQCB is authorized to implement the NPDES program in the State of California. (See California Regional Water Quality Control Board, San Francisco Bay Region Order 94-087 for substantive discharge standards.) Only substantive portions of Part 122 are ARARs; reporting requirements are procedural. Incorporates substantive requirements of Order 94-087, Self Monitoring Requirements, paragraphs D through H.	004, 005, 007C, 016, 030, 031, 032, 033, 034, 036, 037
	122.41(d)	Applicable	Requires all reasonable steps be taken to minimize or prevent discharges which have a reasonable likelihood of causing adverse impacts on surface water quality.		
	122.41(e)	Applicable	Requires proper operation and maintenance of treatment and control systems/equipment.		
	122.41(j)(1)(3)&(4)	Applicable	Establishes requirements for monitoring and recordation of monitoring results.		
	122.41(1)(6)	Applicable	Establishes informational requirements for any noncompliance which may endanger health or the environment.		
	122.41(m)	Applicable	Establishes prohibitions, limitations, and restriction on treatment plant bypass.		
	122.41(n)	Applicable	Defines and establishes parameter for upset conditions in a treatment plant.		
	122.44(d)	Applicable	Requires that discharges to surface water must achieve federal and state water quality standards.		
	122.44(g)	Applicable	Identifies certain toxic pollutants as hazardous substances.		
	122.44(i)	Applicable	Establishes monitoring requirements to assure compliance with permit limitations and requirements to monitor.		
122.45(c)	Applicable	Establishes techniques and methodologies for monitoring effluent levels of metals.	3		

Table 6-5
Federal ARARs - Groundwater Remediation (IROD)
Requirements under the US Code and Related Regulations
(continued)

Source	Requirement, Standard, or Criterion	Type	Description	Remarks	Sites and Alternatives
Title 40 CFR Part 122 (Cont.)	122.45(d)	Applicable	Establishes format for reporting effluent limitation standards and prohibitions.	(Cont.)	004, 005, 007C, 016, 030, 031, 032, 033, 034, 036
	122.45(e)	Applicable	Establishes format and limit criteria for non-continuous discharge.		
	122.45(f)	Applicable	Establishes requirements and exceptions for pollutants expressed in terms of mass.		
	122.45(g)	Applicable	Establishes credits for pollutants in the dischargers intake water.		
	122.48(a)	Applicable	Establishes requirements for proper use, maintenance, and installation of monitoring equipment or methods.		
	122.48(b)	Applicable	Establishes requirements for monitoring including type, intervals, and frequency sufficient to yield data which are representative of the monitored activity including, when appropriate, continuous monitoring.		

**Table 6-5
Federal ARARs - Groundwater Remediation (IROD)
Requirements under the US Code and Related Regulations
(continued)**

Source	Requirement, Standard, or Criterion	Type	Description	Remarks	Sites and Alternatives
40 USC Section 300, et seq. (National Primary Drinking Water Standards) Title 40 CFR Part 141	141.11	Relevant and Appropriate	Establishes the federal allowable maximum contaminant levels (MCLs) for arsenic in community water systems and nitrates in non-community water systems.	Relevant and appropriate to sites where discharge of treated groundwater to potential sources of drinking water will occur. Establishes effluent treatment standards for certain constituents which are not addressed by the substantive requirements of California Regional Water Quality Control Board, SF Bay Region, Order Number 94-087.	004, 005, 007C, 016, 030, 031, 032, 033, 034, 036, 037
	141.12	Relevant and Appropriate	Establishes federal MCLs for trihalomethanes.		
	141.61	Relevant and Appropriate	Establishes MCLs for organic contaminants. Requires the best technology, treatment technique, or other means available for achieving compliance with MCLs.		
	141.62	Relevant and Appropriate	Establishes MCLs for inorganic contaminants. Requires the best technology, treatment technique, or other means available for achieving compliance with MCLs for identified contaminants, except fluoride.		

Table 6-6

NPDES Effluent Limitations for Treated Groundwater

Constituent	Instantaneous Maximum (ug/l)	30-Day Median¹ (ug/l)
Halogenated Volatile Organics		
Bromodichloromethane	100.0 ²	0.5
Carbon Tetrachloride	0.5 ²	0.5
Chlorobenzene	70.0 ²	0.5
Chloroform	100.0 ²	0.5
Chloromethane		0.5
Dibromochloromethane	100.0 ²	0.5
1,4-Dichlorobenzene	5.0 ²	0.5
1,2-Dichloroethane	0.5 ²	0.5
1,1-Dichloroethylene	6.0 ²	0.5
cis-1,2-Dichloroethylene	6.0 ²	0.5
trans-1,2-Dichloroethylene	10.0 ²	0.5
1,2-Dichloropropane	5.0 ²	0.5
Ethylene Dibromide	0.05 ²	0.5
Tetrachloroethylene (PCE)	5.0 ²	0.5
Trichloroethylene (TCE)	5.0 ²	0.5
Vinyl Chloride	0.5 ²	0.5
Total Halogenated Volatile Organics		1.0
Non-Halogenated Volatile Organics		
Benzene	1.0 ²	0.5
Ethylbenzene	29.0 ³	0.5
Toluene	42.0 ³	0.5
Xylenes	17.0 ³	0.5
TPH - Gasoline	50.0 ⁴	50.0 ⁴
Semi-Volatile Organics		
Aldrin	TBD ⁵	TBD ⁵
Alpha-BHC	TBD ⁵	TBD ⁵
Beta-BHC	TBD ⁵	TBD ⁵
Gamma-BHC (Lindane)	TBD ⁵	TBD ⁵
Bis(2-ethylhexyl)phthalate	TBD ⁵	TBD ⁵

Table 6-6
(Continued)

Constituent	Instantaneous Maximum (ug/l)	30-Day Median ¹ (ug/l)
Chlordane	TBD ⁵	TBD ⁵
4,4' DDT	TBD ⁵	TBD ⁵
4,4' DDD	TBD ⁵	TBD ⁵
Dieldrin	TBD ⁵	TBD ⁵
Dioxins	TBD ⁵	TBD ⁵
Endosulfan	TBD ⁵	TBD ⁵
Heptachlor epoxide	TBD ⁵	TBD ⁵
PCBs (Arochlors)	TBD ⁵	TBD ⁵
Total Polynuclear Aromatics (PAHs)	TBD ⁵	TBD ⁵
TPH - Diesel	100.0 ³	50.0 ⁴
Inorganics⁶		
Arsenic	190 ⁹	190 ⁹
Cadmium	1.1	1.1
Chromium VI	11.0 ⁷	11.0 ⁷
Total Chromium	11.0	11.0
Copper	12.0	12.0
Lead	3.2	3.2
Mercury	0.012 ⁸	0.012 ⁸
Nickel	160.0	160.0
Selenium	5.0	5.0
Silver	4.1	4.1
Zinc	110.0	110.0

¹ Best Available Technology for Volatile Organics.

² California Primary MCL.

³ Taste and odor threshold in water - USEPA.

⁴ Practical Quantitation Limit.

⁵ To Be Determined: The Air Force agrees to sample for these constituents prior to discharge of effluent. When one or more of these constituents are found, the parties will agree on instantaneous maximum and 30-day median effluent limitations. These constituents (even if not detected initially) will be included in the monitoring program.

⁶ Both instantaneous maximum and monthly median limitations are based on USEPA Freshwater Ambient Water Quality Criteria for Protection of Aquatic Life, expressed as total recoverable metal.

⁷ Compliance with the Chromium VI limitation may be met as Total Chromium.

⁸ Compliance is achieved by meeting the Reporting Limit using EPA Method 7470/7471. The effluent shall not contain more than 1 gram/day of mercury.

⁹ Discharge limitation of 10ug/l for arsenic still applies to SS016.

Table 6-7

Discharge Limitations

1. The discharge of waste shall not cause the following conditions to exist in the waters of the State at any place:
 - a) floating, suspended, or deposited macroscopic particulate matter or foam;
 - b) bottom deposits or aquatic growths;
 - c) alteration of temperature, turbidity, or apparent color beyond present natural background levels;
 - d) visible, floating, suspended, or deposited oil or other products of petroleum origin;
 - e) toxic or deleterious substances to be present in concentrations or quantities which will cause deleterious effects on aquatic biota, wildlife, or waterfowl, or which render any of these unfit for human consumption either at levels created in the receiving waters or as a result of biological concentration.

2. The discharge of waste shall not cause excursions of the following limits in waters of the State in any place within one foot of the water surface:
 - a) Dissolved oxygen;
For all tidal waters, upstream of Carquinez Bridge, 7.0 mg/l minimum; downstream of Carquinez Bridge, 5.0 mg/l minimum.

For nontidal waters, waters designated as cold water habitat, 7.0 mg/l minimum; waters designated as warm water habitat, 5.0 mg/l minimum.

The median dissolved oxygen concentration for any three consecutive months shall not be less than 80% of the dissolved oxygen content at saturation.
 - b) pH: The pH shall not be depressed below 6.5 nor raised above 8.5, nor caused to vary from normal ambient pH levels by more than 0.5 units.

3. The discharge shall not cause a violation of any applicable water quality standard for receiving waters adopted by the Board or the State Water Resources Control Board as required by the Federal Clean Water Act and regulations adopted thereunder.

Table 6-8

**Effluent Treatment Levels for Beneficial Reuse
Discharges to Land for Irrigation Purposes**

Water reclaimed for beneficial use shall meet the following limits:

Constituent	Instantaneous Maximum Limit (µg/L)
<i>Volatile Organic Compounds</i>	
Vinyl Chloride	0.5
Benzene	0.5
Dichloroethane	0.5
All Others, Per Constituent	5.0
<i>Semi-Volatile Organic Compounds</i>	
Per Constituent	5.0
<i>Total Petroleum Hydrocarbons</i>	
	50

The following limitations shall apply:

1. Water reclamation activities shall be limited to irrigation.
2. No reclaimed water shall be allowed to escape from the authorized use area by airborne, nor by surface flow except in minor amounts associated with good irrigation practice, nor from conveyance facilities.
3. Reclamation involving irrigation shall not occur when the ground is saturated.
4. The use of reclaimed water shall not impair the quality of waters of the State, nor shall it create a nuisance as defined by Section 13050(m) of the California Water Code.
5. Adequate measures shall be taken to minimize public contact with reclaimed water and to prevent the breeding of flies, mosquitoes, and other vectors of public health significance during the process of reuse.
6. Appropriate public warnings must be posted to advise the public that the water is not suitable for drinking. Signs must be posted in the area, and all reclaimed water valves and outlets labeled, as appropriate.
7. There shall be no cross-connection between the potable water supply and piping containing treated groundwater intended for reuse.

Source: California Regional Water Quality Control Board, San Francisco Bay Region, Order No. 94-087

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