

RESPONSE TO REVIEW COMMENTS

- Document Title:**
1. 30% Design Report
 2. Draft Remedial Action Work Plan
 3. Draft Construction Quality Control Plan
 4. Draft Contingency Plan

Reviewer: John Broderick, SARWQCB (Letter dated July 9, 2003)

Comment No./ Document	Section/ Page No.	Comment	Response
		No Comments.	

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- Document Title:**
1. 30% Design Report
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Reviewer: Nicole Moutoux, U.S. EPA Region X (Letter dated July 14, 2003)

Comment No./ Document	Section/ Page No.	Comment	Response
1/1 General	General	<p>The Reverse Osmosis (RO) reject water from the Shallow Groundwater Unit (SGU) will likely be a characteristic hazardous waste with trichloroethylene (TCE) concentrations greater than 0.5 milligrams per liter (mg/L). The current design includes mixing the SGU RO reject water with RO reject water from the ET wells, which is much less contaminated. This may constitute treatment by dilution if the SGU RO reject water is a characteristic hazardous waste. Treatment by dilution is not allowed per 40 Code of Regulations (CFR) 268.3.</p> <p>In addition, if the SGU RO reject water is a characteristic hazardous waste, disposing of it in public sewer system also poses problems. It is not clear that the Orange County Sanitation District's (the sanitation district) National Pollution Discharge Elimination System (NPDES) permit would allow the sanitation district to accept the waste stream. The current sanitation district discharge limit for total toxic organics, of which TCE is a component, is 0.58 mg/L. At the Orange County Stringfellow Acid Waste Pits site, the sanitation district enforces the 0.58 mg/L discharge limit on total toxic organics for treated groundwater discharged to the sewer, and the responsible parties treat the groundwater using granular activated carbon to remove toxic organic compounds. The pretreatment standard under the NPDES regulations would also forbid dilution of the SGU RO reject water in order to meet the pretreatment standard (see 40CFR403.6[d]).</p> <p>The five CERCLA balancing criteria are: long term effectiveness and permanence; reduction of toxicity, mobility, or volume through treatment; short-term effectiveness; implementability; and cost - see 40CFR.300.430(f)(1)(i)(B). Disposing of the SGU RO reject water in the public sewer, which is treatment through dilution, is not permanent and does not reduce toxicity, mobility or volume.</p>	<p>The 30% design was based on the assumption that the RO would reject up to 80% of the TCE. Piloting completed to date indicates that RO rejection is substantially lower than the assumed 80%. (10% for ET and 22% @ SGU.)</p> <p>To date the pilot data has indicated TCE levels of 0.4 mg/L or less on the waste stream. Therefore, the waste stream is not a characteristic hazardous according to DTSC.</p> <p>IRWD is currently looking at treating SGU water using only air stripping with no RO treatment. This would result in the injection and/or disposal of treated water with TCE values of 0.005 mg/L or less.</p>

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		<p>Even though the Water District believes that the TCE disposed to the sanitation district would be destroyed in the sanitation district's treatment works, no evidence has been presented indicating that it would be. While the amount of TCE that would enter the sanitation district system from the El Toro groundwater treatment plant is probably not large (less than 500 pounds per year), it is unclear why disposal of this amount of TCE to the environment would be acceptable under the Clean Water Act (CWA) or to the sanitation district.</p> <p>This is a substantial issue that should be resolved prior to submitting the 60 percent design.</p>	
2/1 General	General	<p>The ET-2 extraction well will be installed to a depth of 850 feet below the ground surface. It appears that the well, and presumably extraction well ET-1 could serve as a conduit for vertical migration of contaminated water through their gravel packs. In the 60 percent design submittal, please discuss the depth that contaminated groundwater has penetrated at the locations of ET-1 and ET-2 and whether the wells could serve as vertical conduits in the event that deeper groundwater has not been impacted by contaminants present in shallow groundwater. If the wells could serve as vertical conduits for contaminant migration, please revise the report to specify that vertical gradient studies will be conducted to evaluate if significant quantities of contaminated groundwater would migrate vertically in the wells.</p>	<p>Well ET-2 will be designed with a concrete seal to prevent any migration between the upper to lower zones. The seal will extend from ground surface through the shallow zone and the confining layer to the top of the lower (principal) aquifer.</p> <p>During pilot hole drilling the bottom of the principal aquifer (if found) will be identified. The well will only be cased in the principal aquifer. Lower portions of the pilot hole will be sealed to prevent any zone migration.</p>
3/1 General	General	<p>As part of the installation of the new groundwater treatment system, environmental data will be collected. Since this project is subject to CERCLA, the data will need to be collected following procedures provided in a project specific Sampling and Analysis Plan (SAP) with an accompanying Quality Assurance Project Plan (QAPP) outlining the steps to be taken to assure that the collected data is of sufficient quality. These plans should be submitted with the 60 percent design package. Specifically, the SAP/QAPP should address volatilization of volatile organic compounds (VOC) sampled using an air lift pump.</p>	<p>The SAP and QAPP will be provided with the 90% submittal. We will address the issue of volatilization of VOC sampled using an air lift pump.</p>
3/1 Specific	Table 2-3 Page 2-4	<p>Table 2-3, Action -Specific ARARs for Remedial Action at Sites 24 and 18, Page 2-4: As the groundwater treatment system will discharge treatment residuals to the sewer, please add the CWA NPDES pretreatment standards for discharge to Publicly-Owned Treatment Works (POTWs) to the list of action-specific ARARs.</p>	<p>Requested item will be added to 60% design.</p> <p>IRWD is currently working with OCSD and SOCWA to discharge the brine directly to the ocean outfall bypassing the POTW. We will confirm with either OCSD or SOCWA that the brine will meet discharge standards.</p>

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4/1	Table 2-22 Page 2-55	<p>Table 2-22, Comparison of IDP Concentrate to Title 22 Hazardous Waste Criteria, Page 2-55: This table indicates that there will be substantial quantities of vinyl chloride in the SGU RO reject water but no <i>cis</i>-1,2-dichloroethylene (<i>cis</i>-1,2-DCE). Table 2-16 indicates that there is no vinyl chloride in the SGU and very little <i>cis</i>-1,2-DCE, of which only 20 percent would be rejected by the RO system. It would be expected that vinyl chloride would pass through the RO membrane at a higher rate than <i>cis</i>-1,2-DCE. In addition, it would be odd, but not impossible, to have large quantities of vinyl chloride, but little <i>cis</i>-1,2-DCE as both are breakdown products of TCE. Please revise the report to indicate the source of the vinyl chloride in the SGU RO reject water. If vinyl chloride is present in groundwater at substantial concentrations, the calculations in Appendix C for the granular activated carbon (GAC) control of the air stripper air effluent must be revised, and an assessment of risk to human health posed by emissions of vinyl chloride from the air strippers would also need to be performed.</p>	<p>Table 2-22 was based on worst case scenario. Water quality data from pilot testing has found no vinyl chloride in SGU water.</p> <p>Small amounts of <i>cis</i>-1,2DCE were found.</p> <p>The table will be revised to include actual pilot test results.</p> <p>Appendix C will be revised accordingly.</p>
5/1	Table 2-22 Page 2-55	<p>Table 2-22, Comparison of IDP Concentrate to Title 22 Hazardous Waste Criteria, Page 2-55: As noted previously, neither the CWA nor RCRA would permit dilution to meet discharge standards. Please either delete the comparison of the mixed waste stream concentrations to the Orange County Sanitation District discharge limits from this table, or indicate why neither the CWA nor RCRA is applicable to this project. In addition, the sanitation district has mass loading restrictions as well as concentration limits that must be considered in design of the treatment systems.</p>	<p>We do not consider operating the IDP treatment plant as outlined in the ROD to be "dilution" since the RO reject waste is not characterized hazardous according to DTSC. We will revise the table as previously mentioned in response 1.</p> <p>We are currently working with OCSD and SOCWA on the mass loading restrictions for this project.</p>
5/1	Appendix C	<p>Appendix C: The suggested change-out differential pressures for the cartridge filters is 30 psi (per manufacturers catalogue in Appendix C). 30 psi is equivalent to around 66 feet of head, which is more than the minor head losses assumed in the pump sizing calculation for extraction well ET1 and 75 percent of the assumed minor head losses for extraction well 75. In the 60 percent design, please provide a more complete list of minor head loss components and assure that all pumps are adequate for the required load.</p>	<p>Cartridge filters are planned to be changed at 15-psi differential and not at 30 psi. At 30 psi the possibility of cartridge failure is too high. Additional lists of minor losses will be added to the 60% submittal.</p> <p>Well pumps ET-1 and ET-2 will be sized accordingly.</p>
6/1	Drawing D-1	<p>Drawing D-1, Miscellaneous Pipe Details: A note on this drawing indicates that trenches less than five feet in depth will not be required to be shored to allow access to the trench by site workers.</p>	<p>Suggested revision will be incorporated.</p>

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		<p>The California Code of Regulations, Title 8, Section §§1541.1. Requirements for Protective Systems, actually indicates that shoring is not required if, "Excavations are less than 5 feet in depth and examination of the ground by a competent person provides no indication of a potential cave-in." While this may be moot as the trenches as designed will be 6-feet deep, please revise the drawing to indicate that a competent person, preferably a registered civil engineer practicing geotechnical engineering, will approve any unshored trench greater than 4 feet deep prior to allowing site workers to enter the trench.</p>	
1/4	Contingency Plan	<p>Contingency Plan: Currently the construction of ET-2 is to take place during the summer months while school is not in session. Please revise the contingency plan to include additional steps that will be taken should the project be delayed and work have to be conducted while students are present in the schools.</p>	<p>ET-2 is no longer proposed at the school site. CP will be revised as needed.</p>
2/4	Contingency Plan	<p>Contingency Plan: Strong acids and bases will be present at the groundwater treatment plant during startup of the system. Please revise the contingency plan to include contingencies for dealing with releases of these chemicals.</p>	<p>Suggested addition will be incorporated into CP.</p>

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Reviewer: Rafat Abbasi, DTSC (Letter dated July 15, 2003)

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1/1	General	HR membrane is recommended for the system. However, the comparative analysis with ULP membrane (Appendix A, comparison using IRWD method) suggests that pump energy cost with ULP membrane can be lower for almost same recovery. Please explain.	Further explanation will be added to 60% design. The HR membrane is more robust, has better durability and provides added flexibility if the groundwater quality changes over time. HR membrane does not have to operate at higher pressures.
2/1	General	In order to run the Site 24 (ET Wells) system, the site 18 and potable systems should be on. If the site 18 system does not run 6 months a year (footnote Table 1-1), the concentrate composition may change. Please explain the impact of this scenario on concentrate disposal options being considered.	Concentrate water quality values will be revised to reflect results of the pilot testing. Impacts, if any, of operating ET on 6-month a year will be addressed in the 60% design. IRWD is currently looking at treating SGU water using only air stripping with no RO treatment. This would result in the injection and/or disposal of treated water with TCE values of 0.005 mg/L or less.
3/1	General	Generally, PVC is not compatible for the chlorinated solvent. Explain the rationale for using PVC for chlorinated groundwater plume. Also discuss the pressure rating on the PVC pipes.	Additional analysis and rationale will be provided in the 60% design.
4/1	General	The permeate streams will have low concentration of VOCs. Air stripper is selected for further treatment. Explain if the use of liquid phase carbon adsorption was considered with air stripper for cost effectiveness.	Liquid phase VOC removal was not considered at IDP. The air stripper will remove all VOCs as mentioned in ROD for the selected alternative. Additionally, the RO treated water needs to be run through an air stripper to stabilize the product water.
5/1	General	Appendix A has head loss calculations. Head loss calculations do not consider loss from bends and valves. As design progress, the revision of the head loss calculations may be warranted.	Suggested addition will be included in 60% design.
6/1		Sulfuric acid tank and delivery system is to be used with stainless steel (SS). However, the type of SS is not specified. SS 316 may be more appropriate.	Sulfuric acid system will use 316 and Alloy 20 materials. This will be added to the 60% design.



TETRA TECH, INC.

TRANSMITTAL

To: Base Closure Team (BCT)

Date: August 15, 2003

Attention: Distribution List

Job No. 0928.0070.00 (304)

Project Name: IRVINE DESALTER PROJECT

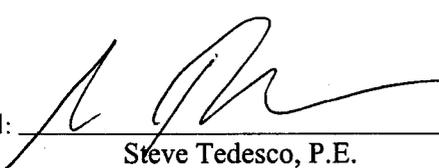
Enclosing: Per Your Request Via: Overnight Service Messenger Other
 For Your Review UPS U.S. Mail

Description:

Attached is our Response to Comments received on the 30% Design Report and Draft CERCLA Document. Draft responses were presented to BCT at the July 30, 2003 meeting. These responses were revised in accordance with the BCT comments.

Remarks:

Signed: _____


Steve Tedesco, P.E.

SDT/cg

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