

JACOBS ENGINEERING GROUP INC.

M60050.001176

CLEAN TRANSMITTAL/DELIVERABLE RECEIPT

M60050.001176
MCAS EL TORO
SSIC # 5090.3

CONTRACT N68711-89-D-9296

Doc. Control Number: CLE-C01-01F145-I2-0095

TO: Southwest Division
Ms. Gena McClain, Code 0232
Head, Environmental ACO I Branch
Naval Facilities Engineering Command
Contracts Department, Building 131
1220 Pacific Highway
San Diego, California 92132-5187

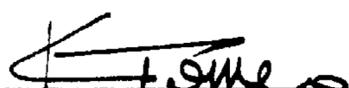
DATE: 13 March 1995

CTO#: 145

LOCATION: MCAS El Toro

TASK/WORK ELEMENT: _____


John Dolegowski/Project Manager


Ken Tomeo/Resource Center Manager

DESCRIPTION: Project Note No. PN-0145-153, Contract Task Order (CTO) No. 145, Meeting with RWQCB to Discuss Groundwater Disposal Alternatives of Treated Groundwater, Meeting Date: 19 January 1995

TYPE: Contract Deliverable CTO Deliverable Request for Change/Project Note

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(e.g., Draft, Draft Final, Final, etc.)

REVISION #: _____

ADMIN RECORD Yes No Category Confidential _____
(PjM to identify)

NEGOTIATED DELIVERY DATE: _____ ACTUAL DELIVERY DATE: _____

Number of Copies Submitted to Navy: _____

Copies To:	<u>J. Rogers - Code 18C1 w/attach</u>	<u>M. Huddleston - CH2M HILL w/o attach</u>
	<u>A. Piszkin - Code 1831.AP w/attach</u>	<u>Mike Bitner - CH2M HILL/ABQ w/attach</u>
	<u>J. Joyce - Code 1832.JJ w/attach</u>	<u>File - PMO w/attach</u>
	<u>V. Parpiani - MCAS El Toro w/attach</u>	<u>File - CH2M HILL w/attach</u>
	<u>K. Tomeo - CH2M HILL w/attach</u>	

Delivered To: Contracting Officer _____ RPM/EIC _____

Name: _____

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16 MAR 95 07:13

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PROJECT NOTE NO.		PROJECT NO.	
PN-0145-153 CLE-C01-01F145-I2-0095		01-F145-H6	
CONFIRMATION OF:	CONFERENCE X TELECOM OTHER	DATE HELD	19 January 1995
		DATE ISSUED	08 March 1995
		RECORDED BY	John Dolegowski/CH2M HILL
		PLACE	RWQCB, Riverside, California
SUBJECT	Contract Task Order (CTO) No. 0145 Meeting with RWQCB to Discuss Groundwater Disposal Alternatives of Treated Groundwater Marine Corps Air Station (MCAS) El Toro RI/FS		
PARTICIPANTS: (* DENOTES PART-TIME ATTENDANCE)			
Gary Stewart/RWQCB Larry Vitale/RWQCB Rex Callaway/Code 09C.RC Andy Piszkin/Code 1831.AP		John Dolegowski/CH2M HILL-SCO Rick Marc-Aurele/CH2M HILL-SCO Cindy Dahl/CH2M HILL-CVO	
ACTION REQ'D. BY	ITEM		
	<p>A meeting was held on 19 January 1995 at the office of the Regional Water Quality Control Board, Santa Ana Region (RWQCB), also referred to as the Regional Board, in Riverside, California, from 1330 to approximately 1530 hours to discuss regulatory and institutional issues regarding potential disposal alternatives of treated groundwater from the vicinity of the Marine Corps Air Station (MCAS) El Toro. The disposal alternatives are being considered for the Operable Unit (OU)-1 Interim Action Feasibility Study (IAFS).</p> <p>Andy Piszkin/Southwest Division, Naval Facilities Engineering Command (SWDIV) opened the meeting by discussing the new alternatives being considered for the OU-1 IAFS: (1) MCAS El Toro groundwater extraction/treatment, and (2) the Irvine Desalter Project with an independent MCAS El Toro shallow aquifer extraction/treatment. Treated groundwater discharge options need to be evaluated for both new alternatives. A list of the alternatives considered in the Draft OU-1 IAFS, and the alternatives currently being considered was distributed (attached). Due to the large volume of groundwater that would be extracted, and the elevated Total Dissolved Solids (TDS) and nitrate concentrations occurring in the groundwater in the vicinity of MCAS El Toro, reinjection is the primary option being considered for treated groundwater.</p> <p>Due to the evaluation of the new alternatives, the Applicable or Relevant and Appropriate Requirements (ARARs) for the new discharge options need to be evaluated. Rex Callaway/SWDIV stated that an ARARs letter will go out to the agencies in approximately 1 month. The goal of this meeting was to get general guidance on ARARs and to discuss limitations and constraints of the various discharge options.</p>		



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Reinjection Precedent

Gary Stewart/RWQCB mentioned that there was a State Board decision approximately 15 years ago that addressed similar issues. He indicated that that decision held that proposed dischargers were not required to remedy naturally occurring TDS levels. He thought the case was called the Gem Ranchkamp decision. Cindy Dahl/CH2M HILL said that CH2M HILL had been unable to find references under that name. G. Stewart suggested we speak to the Regional Board Attorney, Ted Cobb, to obtain information on this topic. G. Stewart was not aware of any formal RWQCB policy on reinjection of groundwater.

Existing Groundwater Quality

A. Piszkin stated that the groundwater quality data and the analysis completed during the MCAS El Toro RI/FS indicate that the elevated TDS and nitrate concentrations in groundwater in the MCAS El Toro vicinity are not the result of MCAS El Toro activities. The Orange County Water District (OCWD) has also stated in the past that the elevated concentrations of inorganic constituents in groundwater (including TDS, nitrate, and selenium) in the MCAS El Toro vicinity are part of a regional problem in the eastern portion of the Irvine Subbasin. G. Stewart stated that it would take little information to prove that the TDS and nitrate concentrations in groundwater at MCAS El Toro are the same as the surrounding areas.

The appropriate term to describe the observed TDS and nitrate concentrations was discussed. Natural background may be the accurate term for the TDS, but the nitrates were most likely caused by agricultural activities. "Upgradient" is not necessarily accurate, since higher quality groundwater flows from the upgradient tributary canyons along the eastern side of the Station, and "ambient" doesn't have a temporal connotation. The group decided to use the terms "background" or "in-situ" concentrations and define our specific meaning for the document.

Extraction/Reinjection Locations

The El Toro Project Team asked for guidance on where extracted, volatile organic compound (VOC)-stripped groundwater could be reinjected. G. Stewart replied as general guidance that we can put the groundwater back from the same general area and aquifer from which it is extracted. MCAS El Toro would be responsible for the removal of the pollutants for which the Station is responsible prior to reinjection. Rex Callaway summarized the RWQCB's position on water quality limitations to reinjection as "holding the line; don't allow existing groundwater quality to be significantly worsened as a result of the groundwater reinjection." G. Stewart agreed with that statement.

G. Stewart briefly reviewed the presence of three groundwater subbasins within the Irvine Groundwater Subbasin, each of which has separate Basin Water Quality Objectives. This information is provided in the *Water Quality Control Plan, Santa Ana River Basin (RWQCB, 1994)*. This document is commonly referred to as the Basin Plan. G. Stewart said that it would be acceptable for water extracted from one of the lower TDS subbasins to be treated (to remove VOCs) and reinjected either into the same subbasin, or into the shallow zone of the adjacent subbasin, where TDS is essentially the same or higher. The reinjection of cleaner water into a higher TDS zone would have the effect of improving the shallow groundwater quality. When asked

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whether there would be a concern about increasing the migration rate of the higher TDS groundwater due to reinjection, G. Stewart replied that the shallow, higher TDS groundwater is naturally migrating toward the deeper, lower TDS groundwater anyway. Conversely, it would not be acceptable to extract shallow, significantly higher TDS groundwater and reinject it into the deeper, lower TDS subbasin. This would be considered degradation of the existing groundwater quality.

Basin Water Quality Objectives

The application of the Basin Water Quality Objectives to the groundwater extraction and reinjection was discussed. G. Stewart stated that MCAS El Toro "needs to remove the contaminants that the Station is responsible for, but not the rest." Further discussion revealed that the Basin Water Quality Objectives are intended to apply to the aquifer zone used by production wells (i.e. the Principal Aquifer). The Water Quality Objectives (WQOs) were calculated by averaging the water quality of groundwater produced by production wells located in each 1-mile square grid throughout the basin. The WQO concentrations represent average water quality within the basin or subbasin defined. The RWQCB staff recognizes that there is variation in water quality within the subbasins and that the subbasin boundaries do not necessarily represent hydrogeologic boundaries. The WQOs are intended to preserve the current, average water quality. Most of the groundwater data used to calculate the WQOs came from OCWD and the Irvine Company. The RWQCB selected the basin and subbasin boundary lines with the adoption of the Basin Plan.

G. Stewart recommended that we contact Bob Nicklen, who works part-time at the Regional Board office. B. Nicklen was a key player in drafting the Basin Plan. He would be able to help us access the data reports, etc. that were used to develop the Basin Water Quality Objectives for the subbasins we are addressing.

John Dolegowski/CH2M HILL asked if the RWQCB would allow the Navy to inject treated groundwater that was slightly higher in TDS than the in-situ groundwater at that location. For example, if there is a difference of 50 mg/L TDS between the extraction and reinjection areas, would that be acceptable? G. Stewart said that with the quality of groundwater being addressed (with regards to TDS), 50 mg/L is not significant. G. Stewart asked that the Project Team use good judgment in preparing plans, then discuss specifics with the Board. It was agreed to have the Project Team meet with the Regional Board Remedial Project Manager (RPM) when they have prepared detailed alternatives for extraction and reinjection.

Reinjection Water Quality.

The El Toro project team requested guidance on the water quality requirements for reinjected groundwater. While VOC removal will not add chemicals and will improve water quality, the TDS will be slightly increased if air stripping is used. G. Stewart stated that in designing a treatment system, the Project Team needs to be sure to evaluate the potential for TDS concentration increases. In order to preserve current TDS concentration from extraction to reinjection, imported water could be used to dilute the treated groundwater. Alternatively, other VOC removal technologies may be considered, such as pressurized liquid phase activated carbon treatment.

G. Stewart stated that the VOC removal requirement is based on Best Available Control Technology (BACT), which is generally considered to be air stripping and/or granular

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activated carbon. "Nondetectable concentrations" are not considered to be an enforceable standard by the Regional Board, since detection limits depend on analytical techniques and laboratories and may change over time. G. Stewart gave the El Toro project team a copy of a General Permit issued by the RWQCB for groundwater cleanups. It was prepared for Underground Storage Tank (UST) cleanups, and releases from service stations. The General Permit lists cleanup goals for groundwater. However, for consistency across the Region, G. Stewart commented that we should use the numeric standards in the General Permit as treatment goals for the reinjected groundwater. The trichloroethylene (TCE) cleanup goal listed in the General Permit is 5 parts per billion (ppb). The General Permit expires in October 1996, at which time G. Stewart expects the standard to be tightened.

A. Piszkin mentioned that at Norton Air Force Base (AFB), the requirement for reinjection water quality was set at 2.5 ug/L TCE average, with a maximum concentration not to exceed 5.0 ug/L TCE (the Environmental Protection Agency [EPA] Maximum Contaminant Level [MCL]).¹ G. Stewart thinks that the El Toro ROD probably should use the same language as is in the Norton ROD. However, he noted that, TCE was the only major constituent of concern in the Norton plume, whereas other constituents (such as benzene) may be found in the El Toro plume, and may need to be addressed.

Other Disposal Options.

Other disposal options for treated groundwater (following VOC removal) were discussed. The Regional Board staff was asked what the requirements for surface water discharge would be if we were not able to reinject all of the treated groundwater. G. Stewart stated that the RWQCB requires that the Basin Plan surface water discharge limitations for TDS and nitrates be met. The standards for TDS (720 mg/L) and total inorganic nitrogen (5 mg/L) for discharge to the San Diego Creek above Jeffrey Road in Irvine would likely not be met by the extracted groundwater, therefore, VOC removal alone probably would not be sufficient treatment for surface water discharge.

G. Stewart stated that TDS is a concern for irrigation use. If the TDS concentration of extracted groundwater is equal to or better than the quality of the water supplied by Irvine Ranch Water District (IRWD) for irrigation, the Regional Board wouldn't object to that use. The Navy would need to negotiate with IRWD to determine if this is an option. G. Stewart advised us to be cautious not to transport the water too far from

¹ See Norton AFB, Central Base Area Operable Unit, Record of Decision (24 November 1995, p. 8-1).

See also George AFB Operable Unit 1 Record of Decision (March 1994, p. 2.26): "...The regional administrator issued a final dispute resolution decision which set the effluent level to be measured from the sampling point at 2.5 ug/L TCE on a median basis with a stated maximum discharge level of 5 ug/l. The decision further stated that the USAF will seek to treat the discharge to attain a level of 0.5 ug/L TCE as measured at the percolation ponds, although such efforts do not constitute an enforceable discharge standard."

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where it was pumped. Application of high TDS groundwater from one part of the basin onto land in an area of lower TDS groundwater may violate the intent of antidegradation.

We also briefly discussed discharge to the Santa Ana River Interceptor (SARI) brine line. The brine line is an industrial waste disposal line for discharge of high TDS water to the ocean. The RWQCB regulates the discharge from the brine line into the ocean, but does not regulate what goes into the pipeline. State policy (California Constitution, Article X, Section 2) prohibits waste and unreasonable use of waters of the state. Discharge of groundwater to the brine line could be interpreted as wasteful or unreasonable and likely would be prohibited.

The RWQCB has established reclaimed water quality limits for IRWD's water reclamation system. G. Stewart said that the RWQCB recommends TDS limits of 720 mg/L based on the Basin Plan. A. Piszkin stated that IRWD strives to maintain the quality of the reclaimed water below the Basin Plan TDS standard, since infiltration of a portion of the applied reclaimed irrigation water to the water table results in an increase in TDS of the underlying groundwater. G. Stewart stated that if you put a very low flow of 2000 mg/L TDS into the reclaim line, it would probably not significantly increase the TDS in the irrigation water due to dilution, but the water would cross the subbasin boundaries.

G. Stewart advised us to check the status of the Lower Santa Ana Basin with regards to assimilative capacity. Some of the basins have assimilative capacity for TDS, due to natural recharge by cleaner water. The Basin Plan specifies which basins and subbasins have assimilative capacity.

Miscellaneous Topics Discussed.

State Water Resources Control Board Resolution 92-49 (Cleanup Policy) applies to cleanup actions, and establishes a process for setting cleanup goals which in no case can be less than background concentrations. Chapter 15, Article 5 of CCR Title 23 has a similar concept of background. In this application, that concept would be interpreted to require the Navy to address VOC contamination, but not the TDS and nitrate concentrations present in the aquifer, even if they are above WQOs.

R. Callaway asked about regulation of agricultural activities (referring to the nitrates in groundwater). G. Stewart stated that in regulation of agriculture, there are two important provisions. First, that irrigation return flows are not classified as waste water because irrigation is considered a beneficial water use. Second, that fertilizers and pesticides, when applied at agronomic rates, are not wastes. Agriculture is not exempted per se from groundwater protection requirements, but they are not policed closely.

G. Stewart was asked to describe the relative responsibilities of OCWD and RWQCB. G. Stewart replied that based on his understanding OCWD is effectively the "Water Master" for the Basin. Water rights are not adjudicated in the Lower Santa Ana Basin, therefore, OCWD is not an official Water Master, but acts as such. OCWD can regulate water quantity issues. The RWQCB regulates water quality.

Attachment