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MCAS EL TORO
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TO: Ms. Robin Green
Contracting Officer, Code 0232
Southwest Division
Naval Facilities Engineering Command
Contracts Department, Room 131
1220 Pacific Highway
San Diego, California 92132-5187

DATE: 24 Feb 1995
CTO#: 145
LOCATION: MCAS El Toro
TASK/WORK ELEMENT:

John Dolegowski/Project Manager

Ken Tomeo/Resource Center Manager

DESCRIPTION: Project Note No. PN-0145-164, Contract Task Order (CTO) No. 145, Conference Call to Discuss Groundwater Modeling Scenarios for OU-1 IAFS Alternatives

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J. Joyce - Code 1832.JJ w/attach	File - PMO w/attach
V. Parpiani - MCAS El Toro w/attach	File - CH2M HILL w/attach
K. Tomeo - CH2M HILL w/attach	

Delivered To: Contracting Officer ____ RPM/EIC ____

Name: _____

TITLE: CONFERENCE CALL TO DISCUSS GROUND-WATER MODELING SCENARIOS FOR OU-1 IAFS ALTERNATIVES

AUTHOR: JOHN LOVENBURG/CH2M HILL

DATE: 02/23/95
CATEGORY: 11.5

FORMS\TRANSMIT.XLS

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PN-0145-164 CLE-C01-01F145-I2-0098	01-F145-H6

CONFIRMATION OF:	CONFERENCE		DATE HELD	09 February 1995
	TELECOM	X	DATE ISSUED	23 February 1995
	OTHER		RECORDED BY	J. Lovenburg/CH2M HILL
			PLACE	Santa Ana, California

SUBJECT

Contract Task Order (CTO) No. 0145
Conference Call to Discuss Groundwater Modeling Scenarios for OU-1
IAFS Alternatives
MCAS El Toro Remedial Investigation/Feasibility Study

PARTICIPANTS: (* DENOTES PART-TIME ATTENDANCE)

Andy Piszkin/Code 1831.AP
John Dolegowski/CH2M HILL-SCO
Davi Richards/CH2M HILL-CVO
Rick Marc-Aurele/CH2M HILL-SCO
Kimo Look/CH2M HILL-SCO
Natasha Raykhman/CH2M HILL/SCO
Julia Wagner/CH2M HILL/SCO
Boumediene Hadj-Kaddour/CH2M HILL/SCO
John Lovenburg/CH2M HILL/SCO
Yueh Chuang/CH2M HILL/SDO

ACTION REQ'D. BY	ITEM
	A conference call was held at 0930 on 09 February 1995 to discuss the groundwater modeling scenarios for the Marine Corps Air Station (MCAS) El Toro Operable Unit (OU)-1 Interim Action Feasibility Study (IAFS). All members were present at the CH2M HILL, Santa Ana office except Andy Piszkin/Code 1831.AP, Davi Richards/CH2M HILL, and Yueh Chuang/CH2M HILL, who were included via conference call. The meeting statement of purpose and agenda were distributed ahead of time and are attached to the end of this record. Discussion topics included recharge of treated groundwater to surface water drainages, remedial action objectives, and groundwater modeling simulations.

RECHARGE OF TREATED GROUNDWATER TO SURFACE WATER DRAINAGES

Julia Wagner/CH2M HILL discussed recharge along the unlined portions of the washes northeast of the Station. Because of existing contamination at Site 2 (Magazine Road Landfill) and Site 3 (Original Landfill), recharge along the Borrego Canyon and Agua Chinon Washes is not being considered.

J. Wagner described her field observations on the Marshburn Channel and Bee Canyon Wash. She indicated that the unlined portion of the Bee Canyon Wash contained standing water from agricultural runoff and did not look good for recharge. She indicated that the Marshburn Channel did not extend very far upstream of the Station.

A discussion of the advantages, disadvantages, and feasibility of recharging groundwater via the washes on-Station or downgradient followed.

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Action Items:

1. Kimo Look and Rick Marc-Aurele/CH2M HILL will revise and update the discharge option screening memorandum to clearly distinguish between "surface discharge" and "recharge via the dry washes."

2. J. Wagner will prepare a technical memorandum that will be appended to the Feasibility Study (FS) evaluating groundwater recharge via the washes. The memorandum will cover infiltration rates based on soils reports, field observations, regulatory water quality requirements, soil contamination along the washes, and the quality of the extracted groundwater to be recharged. This task will include reaches of the washes upgradient of the Station, on-Station, and downgradient of the Station

3. The group agreed not to incorporate groundwater recharge via the washes into the groundwater model.

REMEDIAL ACTION OBJECTIVES

The remedial action objectives (RAOs) for the OU-1 interim action were reviewed and revised to address differences in the assumptions used to model the Desalter alternatives and the Department of the Navy (DON) Single-Purpose System.

In the IAFS submitted to the agencies 01 September 1995, the three RAOs presented were:

1. Minimize further migration of groundwater containing volatile organic compounds (VOCs) that have emanated from sites at MCAS El Toro.

2. Reduce concentrations of VOCs in the groundwater in the area of concern (AOC) to federal or state maximum contaminant levels (MCLs), whichever are more stringent, nonzero maximum contaminant level goals (MCLGs), or risk-based criteria (RBCs) for compounds that have no promulgated MCLs.

3. Prevent human exposure to groundwater containing levels of VOCs above MCLs, nonzero MCLGs, or RBCs.

The consensus was that the following language be proposed:

1. Contain VOC-contaminated groundwater in the source areas in the southwest portion of MCAS El Toro to control migration pending further action by OU-2; for trichloroethylene (TCE) the source area in question is in the vicinity of Site 24, and for benzene, in the vicinity of Sites 13, 14, and 15.

2. In the AOC in the shallow groundwater downgradient of the shallow containment area and in the Principal Aquifer, reduce concentrations of VOCs to federal or state MCLs, whichever are more stringent, nonzero MCLGs, or RBCs for compounds that have no promulgated MCLs.

3. Minimize migration of VOCs in the Principal Aquifer.

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4. Prevent domestic use of groundwater containing VOCs above MCLs/MCLGs/ RBCs.

The RAOs proposed now provide three improvements:

1. They clarify the objectives for shallow groundwater: containment of the source area(s) and reduction of concentrations to MCLs downgradient of the source area(s).

2. They are more specifically related to the geographic area addressed by this IAFS, rather than sites at MCAS El Toro.

3. They provide the more specific and relevant prohibition of preventing "domestic use" rather than preventing "human exposure."

GROUNDWATER MODELING SIMULATIONS FOR FS ALTERNATIVES 2 AND 5

The group agreed that four new groundwater model simulations will be modeled. Because of poor shallow groundwater quality, the group decided that reinjection is the only shallow groundwater discharge option that will be modeled. Shallow groundwater wells will be pumped year-round for all simulations. For the Navy stand-alone alternatives, both seasonal and year-round pumping will be considered in the Principal Aquifer. The four model simulations are listed below. Three are variations of Alternative 2 and the fourth represents Alternative 5.

Alternative 2. MCAS El Toro Extraction/Treatment

a) Extraction and reinjection in both the shallow groundwater (upgradient reinjection), and the Principal Aquifer (upgradient reinjection).

b) Extraction and reinjection in both the shallow groundwater (upgradient reinjection), and the Principal Aquifer (downgradient reinjection).

c) Extraction and reinjection in the shallow groundwater, and extraction and distribution of water from the Principal Aquifer. Distribution of water includes all discharge options not related to groundwater recharge. CH2M HILL was directed by the Navy to include this alternative. This alternative will be further evaluated in the memorandum on groundwater modeling scenarios (see action item Number 2).

d) Extraction and reinjection in the shallow groundwater, and seasonal extraction from the Principal Aquifer with distribution during the summer (during high demand).

Alternative 5. Desalter/Navy Shallow Stand-Alone System: Extraction and reinjection in the shallow groundwater; no wells are proposed in the Principal Aquifer. It is assumed that Desalter wells and existing irrigation wells at the toe of the plume will provide containment and remediation of the Principal Aquifer under this alternative.

Alternatives 2a (and 2b) and 2c represent the boundaries of a range of possible reinjection scenarios for the Principal aquifer. Alternatives 2a (and 2b) (reinjection of all pumped Principal Aquifer water) would provide the most efficient cleanup, whereas Alternative 2c

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(no reinjection of pumped Principal Aquifer groundwater) may be the least costly. Alternative 2d represents a combination of both approaches.

Groundwater Model Assumptions

The group discussed model simulation assumptions for the Navy stand-alone alternatives.

- Shallow groundwater wells will be pumped year-round for all simulations. For the Navy stand-alone alternatives, both seasonal and year-round pumping will be considered in the Principal Aquifer for the extraction wells.

- A. Piszkin stated that the pumping rates planned for the Desalter should not change. (Alternative 5)

- A. Piszkin stated that the use of the Desalter wells for the Navy stand-alone system (Alternative 2) should not be a goal; the goal should be to design the most effective and cost-effective remedial system. If the Desalter wells are good for some portion of the Navy system, then they can be addressed during remedial design.

- The group agreed that the existing irrigation wells (e.g. ET-1 and IRWD-78) are considered a pre-existing condition for the Navy stand-alone alternatives.

- A. Piszkin stated that he would like to have a simulation that includes ET-1 pumping only 6 months per year, as that represents current conditions.

- A. Piszkin said the alternatives should provide for long-term pumping, capture, and discharge. John Dolegowski/CH2M HILL indicated there may be less water demand in the future as agricultural land is converted to residential use. A. Piszkin indicated that the Navy will need to negotiate an agreement with the owners of existing agricultural wells to ensure that sufficient pumping rates are maintained in the future to accomplish capture of the plume.

- Because of the uncertainties associated with future irrigation demand, D. Richards said that the facilities for reinjection of all groundwater (other than that already being extracted by the existing baseline irrigation wells) should be considered even though it is likely to have much higher capital costs than, for instance, discharge to the Irvine Ranch Water District (IRWD) reclaimed water line or The Irvine Company (TIC) irrigation lines. This approach would maintain the capability for reinjection of all pumped groundwater if the demand for irrigation or reclaimed water decreased. The Navy would have more control over reinjection than over these other discharge options.

- The group discussed the potential impact of the location of shallow groundwater reinjection wells upgradient of the source area and decided that the shallow injection wells could be relocated to optimize capture and flushing without affecting the performance of source remediation planned by Comprehensive Long-term Environmental Action Navy (CLEAN) II. This issue will be discussed with Pat Brooks/CLEAN II.

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VOC Concentrations Used for Groundwater Containment/Cleanup

In the draft OU-1 IAFS modeling, the 50 ug/L TCE isoconcentration contour was used as the basis for the capture zone in the Shallow Groundwater for Alternative 4 (Desalter with Navy shallow groundwater extraction), because the goal was to contain the highest concentrations of VOC-contaminated groundwater originating at the source area.

In contrast the modeling completed for Contract Task Order (CTO) 217 for the Navy Single Purpose System utilized the 5 ug/L TCE contour. (The reasoning for the CTO 217 evaluation was that if the Desalter did not proceed, the Navy would not implement OU-1 before the Phase 2 RI. Instead, it would integrate the OU-1 and OU-2 remedial actions rather than divide them, cleaning up the source area rather than containing it at the 50 ug/L TCE contour). This difference prompted the discussion and conclusions listed below.

- For Alternative 2 (MCAS El Toro Extraction/Treatment), the shallow extraction/containment wells for the source area will contain the 50 ug/L TCE isocontour. In addition, shallow groundwater extraction wells downgradient of the source area will capture the plume of TCE above 5 ug/L. A greater volume of shallow groundwater will have to be pumped than from Alternative 4, but the total volume of pumped groundwater will be less.

- For Alternative 4 (Desalter, Shallow groundwater extraction, discharge to Desalter) and Alternative 5 (Desalter with MCAS El Toro shallow groundwater extraction/ treatment/discharge), the shallow extraction wells will capture the 50 ug/L TCE contour. In these alternatives, the Desalter extraction wells and existing irrigation wells are assumed to fully capture the VOC-contaminated groundwater further downgradient as the shallow groundwater migrates to the Principal Aquifer.

- EPA MCLs, not background, will be used as the basis of capture zones and cleanup levels. D. Richards said that the Navy's position is that the cleanup goal is the MCL. Furthermore, the Navy believes that this is legally the applicable or relevant and appropriate requirement (ARAR). A. Piszkin stated that Rex Callaway/ Code 90C.RC hopes to push for final VOC ARARs for the OU-1 IAFS.

Relationship of Modeling and Discharge Options

- Yueh Chuang/CH2M HILL emphasized that we could not dissociate groundwater modeling scenarios and discharge options.

- J. Dolegowski stated that some preliminary costing may be needed to assess the best combinations of injection and other discharge options.

- The Project Team agreed to proceed with the range of reinjection options (Alternatives 2a and 2c) while looking at preliminary costs for the treated groundwater discharge options.

- The Project Team agreed that regardless of the optimal mix of reinjection and other treated groundwater discharge options, it is important that the groundwater pump and treat system have the capability for full reinjection, especially in light of the

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	seasonal nature of the other discharge options (agricultural irrigation, reclaimed water demand).
	o R. Marc-Aurele emphasized that this worse-case scenario will drive the costs of the project.
	o Natasha Raykhman/CH2M HILL emphasized that due to the limited number of alternatives (4) that can be modeled within the current schedule, we will develop and evaluate in detail only one alternative for each reinjection alternative.
	o J. Dolegowski expressed to A. Piszkin that if more than the four planned groundwater modeling scenarios are modeled, the schedule for the optimization of extraction and reinjection options may not be met.
	Action Items:
	1. J. Wagner will prepare a technical memorandum evaluating discharge to the washes.
	2. J. Lovenburg will prepare a memorandum summarizing the rationale underlying the selection of the groundwater modeling scenarios to be simulated.
	3. J. Lovenburg will prepare maps with preliminary extraction and injection well locations for each alternative.
	4. Groundwater modeling staff will conduct simulations of the four (4) alternatives discussed above.
	5. Y. Chuang will contact P. Brooks to discuss the potential impact of the location of shallow groundwater reinjection wells.
	6. K. Look will verify that IRWD can accept the deep groundwater pumped from the MCAS El Toro Extraction/Treatment system. Verify that IRWD would accept water for upgrade to potable use. Document long-term demand for reclaimed irrigation water.
	7. CH2M HILL will begin evaluating preliminary cost data for discharge options to focus the groundwater modeling scenarios.

MEMORANDUM CH2M HILL

TO: John Dolegowski/SCO
John Lovenburg/SCO
Natasha Raykhman/SCO
Boumediene Hadj-Kaddour/SCO
Julia Wagner/SCO
Rick Marc-Aurele/SCO
Kimo Look/SCO
Yueh Chuang/SDO
Andy Piszkin/SWDIV

COPIES: Hooshang Nezafati/SCO

FROM: Davi Richards/CVO

DATE: February 8, 1995

SUBJECT: Meeting to determine groundwater modeling scenarios for IAFS alternatives

PROJECT: SCE31981.FU.61

Attached is a statement of purpose and agenda for our 9:30 a.m. conference call tomorrow morning.

Participants in SCO will meet in the large conference room in the Navy CLEAN annex.

The phone number to dial for the conference call is 1-800-403-1032. The participants' access code is 939-839.

Please obtain and read before the meeting:

- The attached statement of purpose and agenda
- Kimo Look's memorandum of the screening of disposal options
- John Lovenburg's table titled "FS Alternatives 2 and 5"

I am asking Cecile Pickens/SCO to distribute these items to all of you before the meeting.

Call me in CVO at ext. 3498 if you have any questions.

Potential Groundwater Modeling Simulations for FS Alternatives 2 and 5								
Model Simulation Number	Alternative	Title	Extraction		Discharge Options			
			Shallow Groundwater	Principal Aquifer	Reinjection		Distribution	
					Shallow	Principal	Shallow	Principal
1	2a	Navy Stand-Alone	Navy	Navy	Yes	Yes	No	No
2	2b	Navy Stand-Alone	Navy	Navy	No	No	Yes	Yes
3	2c	Navy Stand-Alone	Navy	Navy	Yes	No	No	Yes
4	2c	Navy Stand-Alone	Navy	Navy	No	Yes	Yes	No
5	2c	Navy Stand-Alone	Navy	Navy	Yes	Partial	No	Partial
6	2c	Navy Stand-Alone	Navy	Navy	No	Partial	Yes	Partial
7	2c	Navy Stand-Alone	Navy	Navy	Partial	Yes	Partial	No
8	2c	Navy Stand-Alone	Navy	Navy	Partial	No	Partial	Yes
9	2c	Navy Stand-Alone	Navy	Navy	Partial	Partial	Partial	Partial
10	5a	Desalter/Navy On-Station	Navy	OCWD	Yes	No	No	Yes
11	5b	Desalter/Navy On-Station	Navy	OCWD	No	No	Yes	Yes
12	5c	Desalter/Navy On-Station	Navy	OCWD	Partial	No	Partial	Yes

Notes:

1. Distribution includes all discharge options not related to groundwater recharge.
2. "Partial" discharge means that reinjection and distribution are divided fractionally and/or temporally.

Examples:

Fractional: 50% injection, 50% distribution

Temporal: Reinjection during the winter and distribution during the summer.

Fractional and Temporal: Reinjection during the summer, 50% reinjection/50% distribution during the winter.

etc.

3. Additional options to consider:

a. Recharge to washes may be an additional discharge option.

b. Only one reinjection option (upgradient reinjection) has been considered above. Downgradient reinjection in the Principal Aquifer may be considered.

DRAFT