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CLEAN TRANSMITTAL/DELIVERABLE RECEIPT

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TO: Mr. Herb Padro
Contracting Officer, Code 0213
Naval Facilities Engineering Command
Southwest Division
1220 Pacific Highway
San Diego, California 92132-5190

DATE: 7 November 1991
CTO#: 0145
LOCATION: MCAS El Toro
TASK/WORK ELEMENT:

FROM: John Dolegowski
John Dolegowski/Project Manager

M. W. Rogan for
Edward J. Rogan/Resource Center Manager

DESCRIPTION: PN-0145-06, Meeting with Regulatory Agencies

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

CATEGORY: Preliminary Draft Draft Preliminary Final Final

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Copies To:	T. Young - Code 1841 w/attach	File - PMO w/attach
	A. Piszkin - Code 1812.AP w/attach	File - CTO Notebook/PMO w/attach
	D. Wilson - Code 0213.DW w/attach	File - Pas w/attach
	A. Vela - JEG/Pas w/attach	File - CTO Notebook/Pas w/attach
	E. Rogan - CH2M HILL w/attach	File - CH2M HILL w/attach

See List of Attendees for Additional Distribution

Delivered To: Contracting Officer RPM/EIC

TITLE: MEETING WITH REGULATORY AGENCIES

Name: _____

AUTHOR: JOHN DOLEGOWSKI/CH2M HILL

DATE: 11/08-91

CATEGORY: 11.5

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CONFIRMATION OF:	CONFERENCE TELECOM OTHER X	DATE HELD 11 and 12 Sept. 1991 DATE ISSUED 08 November 1991 RECORDED BY J.Dolegowski/CH2M HILL PLACE MCAS El Toro
SUBJECT	Meeting with Regulatory Agencies Marine Corps Air Station El Toro Orange County, California	
PARTICIPANTS: (* DENOTES PART-TIME ATTENDANCE) <p style="text-align: center;">See List of Attendees on Page 16</p>		
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	<p>Representatives of Marine Corps Air Station (MCAS) El Toro; NAVFACENGCOCOM - Southwest Division (SOUTHWESTDIV); Orange County Water District (OCWD); CH2M HILL; and the regulatory agencies, U.S. Environmental Protection Agency (EPA), California Department of Toxic Substances Control (DTSC), and California Regional Water Quality Control Board (RWQCB), met at MCAS El Toro at 0900 on 11 September 1991, and 0830 on 12 September 1991. These meeting minutes (prepared by CH2M HILL and reviewed by the Navy) provide a summary of the major points of discussion. Significant decisions reached during the meeting, and a list of action items are included. A list of attendees is also attached.</p> <p>The topics of discussion of the two-day meeting are:</p> <p><i>11 September 1991</i></p> <ul style="list-style-type: none"> o Update on progress since last agency meeting held on 18 July 1991 o Orange County Water District Desalter Project o Proposed work plan modifications to reduce disposal costs o Remaining issues pertaining to Remedial Investigation (RI)-derived waste disposal <p><i>12 September 1991</i></p> <ul style="list-style-type: none"> o Remaining issues pertaining to RI-derived waste disposal (continued) o Requested Remedial Investigation/Feasibility Study (RI/FS) and RCRA Facility Assessment (RFA) schedule modifications 	

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The topic of discussion "Lining of Agua Chion Wash" was eliminated from the schedule because the City of Irvine was unable to attend the meeting.

SUMMARY OF DECISIONS REACHED

Proposed Work Plan Modifications to Reduce Disposal Costs

- o The proposal to reduce the number and to shorten the duration of aquifer tests is tentatively accepted with the following conditions:
 - The reduction of the number of aquifer tests to half the number of new wells will be effected by distributing the aquifer tests across the whole site; aquifer testing of wells installed in contaminated areas will not be eliminated purposely
 - 48-hour aquifer tests will be extended by 6-hour increments if the data indicate the need
 - Four-hour aquifer test will also be extended by 2-hour increments if the data indicate the need
- o The proposal to use 3-inch outside diameter (OD) wells instead of 4-inch OD wells is tentatively accepted with the following conditions:
 - The 3-inch wells must pass the performance standard by which a 10-ft spindle can be lowered into and raised from the wells
 - The 3-inch wells will not be installed beyond a maximum depth

Remaining Issues Pertaining to RI-Derived Waste Disposal

- o All *hazardous* soil/drilling mud waste will be contained in drums or roll-off bins. Wastes are classified as hazardous if they exceed the appropriate federal and state regulatory threshold standards. Regardless of the ultimate disposition of the wastes, while on-Station, they must be stored in the Waste Staging Area because of the secondary containment provided by the facility.
- o All *intermediate* or *designated* soil/drilling mud waste will be stockpiled over an existing landfill in bermed and singly-lined cells that are covered. Leachate collection is not necessary, and the venting system can be either active or passive. Wastes are classified as designated if the TCLP extracts exceed drinking water standards (i.e., state Maximum Contaminant Levels [MCLs]). The wastes must be treated at a later date. The exact treatment standards will be developed over time.
- o All *nonhazardous* soil/drilling mud waste can be disposed as clean soil and do not require special management practices. Wastes are classified as nonhazardous if the TCLP extracts do not exceed drinking water standards, or the volatile organic compound (VOC) concentrations are below detection levels.
- o All clear water, both groundwater and rainwater, will be treated by granulated activated carbon (GAC) before being discharged to the drainage channels or the golf course irrigation system.
- o The GAC treatment unit will consist of a minimum of three beds configured in series.

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- o Holding of the final treated effluent is not necessary. However, samples of both the final effluent, and treated effluent between the GAC beds will be collected and analyzed.
- o All the proposed changes to the analytical protocol were accepted with the following exceptions:
 - When extraction testing is required, the toxicity characteristic leaching procedure (TCLP) will be performed instead of the waste extraction test (WET) only for Resource Conservation and Recovery Act (RCRA) metals; non-RCRA metals will still undergo the WET
 - EPA will provide feedback on the proposed changes to pesticides and herbicides analyses

Requirements of the Waste Storage Area

- o The Waste Staging Area is not required to adhere to the less-than-90-day storage rule because Comprehensive Environmental Response Compensation and Liability Act (CERCLA) requirements supersede RCRA requirements
- o The Waste Staging Area will require an impermeable coating, and will need to contain a 25-year, 24-hour rainfall event plus 10 percent of the total liquid volume in storage

SUMMARY OF ACTION ITEMS

- o DTSC will call CH2M HILL on 13 September with a reply on the need for an impermeable surface for the concrete secondary containment structure used for waste storage. [CH2M HILL received from the DTSC on 13 September a facsimile of the pertinent sections of the revised Title 22.]
- o RWQCB will present the tentative waste management decisions (i.e., disposal of soil cuttings and dewatered drilling mud; disposal of treated water to the drainage channels) reached during the meeting to the appropriate agency superiors for approval
- o EPA will provide feedback on the proposed changes to pesticides and herbicides analyses
- o CH2M HILL will initiate a call to RWQCB on Monday, 23 September, to discuss discharge requirements to be specified in possible request to amend the National Pollutant Discharge Elimination System (NPDES) permit.
- o CH2M HILL will provide the agencies a formal request for proposed changes to the number and duration of aquifer tests; use of multiple-port (MP) monitoring wells; and use of 3-inch diameter monitoring wells.
- o CH2M HILL will provide the agencies the proposed sampling protocol (i.e., sampling locations, sampling frequency, parameters to be monitored) for water treated by the GAC unit.



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- o CH2M HILL will send to the agencies the Technical Memorandum on the data management alternatives evaluation plan (dated 21 July 1991).
- o CH2M HILL will send to EPA and S. Tindall a copy of the RCRA Facility Assessment (RFA) report (dated 03 July 1991) which includes the sources of aerial photographs reviewed, and contains a list of the photographs.
- o CH2M HILL will provide the DTSC with an estimate of the document review due dates for the purpose of manpower allocation.
- o CH2M HILL will bring the mylars of site maps to the next regulatory agency meeting on 2 October 1991.
- o SOUTHWESTDIV will provide the agencies formal documentation of contracting problems encountered which form the basis for the modification request to the RI/FS schedule.
- o SOUTHWESTDIV will provide the EPA the current status of the Navy budget.
- o SOUTHWESTDIV will provide a revised schedule for the RI/FS which separates out the schedule for Operable Unit (OU)-1 from the schedules of the other OUs.
- o SOUTHWESTDIV will provide the agencies official notification of the change of Remedial Project Managers (RPMs).
- o SOUTHWESTDIV will provide the agencies the supplementary memorandum (dated 26 July 1991) detailing a site visit of the OCWD wells.
- o SOUTHWESTDIV will provide a phone number dedicated to the project.
- o SOUTHWESTDIV will provide the agencies a copy of the meeting agenda one week prior to the meeting date.
- o MCAS El Toro will explore the possibility of obtaining aerial photographs taken by the old F-4 Squadron which may be pertinent to the RI/FS.
- o MCAS El Toro's legal department will meet with OCWD's legal department to frame the initial agreement for the Irvine Desalter Project. The agreement will be submitted to the agencies for review.

GENERAL/ADMINISTRATIVE

LCDR Larry Serafini/MCAS El Toro started the meeting at 0910. He announced that an environmental staff member will be hired and dedicated to MCAS Tustin.

John Hamill/EPA stated that a copy of the meeting agenda must be submitted to the agencies one week prior to the meeting as stipulated in the Federal Facilities Agreement (FFA). He indicated he had a difficult time reaching either Andy Piszkin/SOUTHWESTDIV, or Larry Nuzum/SOUTHWESTDIV, to obtain a schedule for the meeting. Manny Alonzo/DTSC indicated he had similar difficulties. LCDR Serafini

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suggested SOUTHWESTDIV provide a phone number dedicated to the project. He further indicated that the agencies should contact Chrisa Mitchell/MCAS El Toro so that she can track down either A. Piszkin or L. Nuzum, if necessary.

J. Hamill also stated that SOUTHWESTDIV needs to notify the agencies, in writing, of the change in RPMs. He cited the FFA which stipulates such written notification must be given within five days of the change.

Gary Stewart/RWQCB informed the attendees the RWQCB will be moving to a new location. The new address (as of 16 September) for the RWQCB is 2010 Iowa Street, Suite 100, Riverside, CA 92507.

LCDR Serafini inquired whether the meeting notes were acceptable. The agencies indicated that the meeting notes were good. J. Hamill again cited the FFA, and indicated that the meeting notes should be provided to the agencies within 21 days of the date the meeting was held.

M. Alonzo informed that the attendees the state of California is undergoing financial hardships. He requested that CH2M HILL provide DTSC with estimates of document review due dates for planning purpose. The schedule is increasingly critical for manpower allocation because of the increased workloads placed upon staff members.

L. Nuzum provided a brief introduction and kicked off the scheduled agenda items at 0930 hours.

UPDATE ON PROGRESS SINCE LAST AGENCY MEETING

John Dolegowski/CH2M HILL discussed the progress since the last agency meeting, held on 18 July 1991. A handout summarizing the work completed by task was provided. Comments that were provided during the meeting on the various tasks are provided below.

Task A - Review Aerial Photographs, Site Surveys, and Topographic maps

Sebastian Tindall/SAIC inquired about the number of aerial photographs reviewed. J. Dolegowski replied that over 300 photographs were reviewed. S. Tindall indicated that by reviewing the universe of available photographs, individual sites can be stratified. This would lead to greater sampling efficiency, and ultimately more cost effective sampling. Lcdr Serafini suggested that the old F-4 Squadron aerial photographs may be additional sources which have not been reviewed. J. Hamill stated that EPA has requested over 100 aerial photographs, with interpretations, through EPA-EMSL in Las Vegas. He suggested that the Navy can request the same directly from EMSL. L. Nuzum stated that he was experienced in such interpretations, and had personally reviewed the available photographs for the RFA. S. Tindall indicated the need to document the aerial photographs review process. He reiterated that stratification of the sites allows one to focus the sampling on suspected areas of contamination. CH2M HILL will send S. Tindall a copy of the RFA report which includes the sources reviewed, and contains a list of the photographs. S. Tindall inquired whether any site boundaries have changed as a result of reviewing the photographs. J. Dolegowski

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replied that site boundaries have changed for some sites, but no additional information was obtained for the majority of sites.

Task B - Existing Data Analysis

J. Hamill inquired whether the technical memorandum to document the condition of the OCWD monitoring wells (MP wells) has been prepared. L. Nuzum replied that the Navy is still reviewing the memorandum prepared by CH2M HILL (dated 21 July 1991). LCDR Serafini indicated that the Navy has not decided whether to purchase the wells; the Navy may consider purchasing only some of the wells. He also indicated the decision to purchase may be tied to the Desalter Project. L. Nuzum indicated the memorandum may be released once the decision is made. J. Dolegowski stated that the wells did not suffer from any structural problems; packer replacement was necessary for some of the wells. Roy Herndon/OCWD stated the packers in question were replaced by West Bay, the manufacturer, as a result of degradation of the packer materials due to high temperatures. L. Nuzum stated that a supplementary memorandum (dated 26 July 1991) detailing a site visit of the OCWD wells is available for review, and the Navy will send the agencies copies of the memorandum.

Task C - Site Mapping

J. Dolegowski indicated he will bring the mylars to the next regulatory agency meeting on 2 October 1991 for review.

Task D - Waste Management Plan

Ken Williams/RWQCB stated that he had not yet provided written comments on the Draft Waste Management Plan based on the assumption that the document was still undergoing revisions. Discussion of the remaining issues pertaining to the disposal of RI-derived wastes was held later in the meeting, and is provided below.

Task E - Preliminary Data Management Activities

S. Tindall stated that there may be potential problems if the data management plan is not in place before starting field work. He indicated EPA has not seen the Data Management Alternatives Evaluation Technical Memorandum prepared by CH2M HILL (dated 21 July 1991) evaluating the different data management packages, and EPA would want to know the direction being taken in the selection of a data management package. Both S. Tindall and J. Hamill indicated their concern the lack of a data management plan may delay the progress of the RI/FS.

L. Nuzum stated the Navy is in the process of selecting one data management package for all SOUTHWESTDIV projects. He indicated the likely candidate is ITEMS, and that at one time, the use of other software packages was considered because the El Toro RI/FS was slated to start much earlier than the other SOUTHWESTDIV bases. L. Nuzum informed the agencies that Chris Kyberg of Barstow, the Navy's expert on data management systems, had already given a presentation on the pros and cons of ITEMS. LCDR Serafini indicated the decision will be reached before contract negotiations, and definitely before 30 September, the end of the fiscal year.

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J. Dolegowski stated that ITEMS could be used for MCAS El Toro if the Navy requests it, and that the only problem with ITEMS is during manual entry of historic data. He replied to EPA's concerns by stating the selection of a data management package will not delay the project. Any data collected before the final selection of a software package can be managed initially using existing CH2M HILL software.

M. Alonzo suggested minimum requirements be set for compatibility of the different software packages. R. Herndon indicated OCWD uses ORACLE. LCDR Serafini indicated the MCAS El Toro wants to be able to access the relevant data bases for review only. J. Dolegowski stated the original intent was to make flat files available to the agencies; he encouraged the agencies not to try and perform data analysis but to request hard-copy results of the analyses from the Navy.

Task I - Field Equipment/Facilities

S. Tindall inquired whether there were any road blocks towards the completion of Tasks G (Easements/Permits), H (Subcontracting/Coordination of Analytical Services), and I (Field Equipment/Facilities Design). J. Dolegowski stated that easement/permit approval process will not delay the construction of necessary facilities. He also indicated that the critical action item is the approval of final facilities design. He then provided a description of the current design, and reiterated the need for agency concurrence on the assumptions made on the requirements of the Waste Staging Area. J. Hamill indicated the RCRA secondary containment requirements stipulated for permitted storage facilities are not necessary. John Broderick/DTSC stated that the less-than-90-day rule does not apply for storage facilities at CERCLA sites. S. Tindall stated that the RCRA requirements are superseded by CERCLA requirements; the requirements are "administrative" and not "substantive." J. Broderick voiced his disagreement on the containment requirements. He stated the requirements stipulate the need to contain precipitation from a 24-hour, 25-year storm event, plus the greater of 10 percent of the aggregate volume of all tanks or 100 percent of the capacity of the largest tank, whichever is greater. J. Dolegowski indicated the lack of agency consensus on the containment requirements will delay the project. K. Williams suggested that the current design be implemented with the provision that additional storage capacity, if necessary, be provided using Baker tanks. S. Tindall reiterated that EPA considers the requirements to be administrative only. However, J. Hamill indicated that EPA will defer to DTSC regulations. M. Alonzo stated that he will call CH2M HILL by Friday, 13 September, with DTSC requirements on secondary containment, and whether the concrete pad will need to be sealed with an impermeable coating.

M. Alonzo sent a facsimile of pertinent sections of the newly revised Title 22 to CH2M HILL on 13 September.

Task K - Community Relations

A. Piszkin indicated comments to the fact sheet have been included and the fact sheet revised. J. Hamill indicated that the EPA community relations specialist may not be able to attend the scheduled meeting on 7 October 1991 because the meeting date coincides with the beginning of the new fiscal year. LCDR Serafini stated that the Navy would offer to pay for travel expenses for the EPA representative.

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ORANGE COUNTY WATER DISTRICT DESALTER PROJECT

Background. The Navy is considering the possibility of participating the funding of the Irvine Desalter Project. The project is seen by MCAS El Toro as an opportunity to initiate cleanup of OU-1, the TCE plume, before the scheduled Record of Decision (ROD) date. Hydrogeologic information collected during the RI can help OCWD to design the well field. The Navy is seeking support from the agencies before OCWD and the Navy enter into negotiations.

Bill Mills/OCWD and R. Herndon gave a joint presentation of the Irvine Desalter Project. B. Mills informed the attendees that OCWD does not report to Orange County, and is a special water district managed by a 10-member board. The OCWD provides 70-80 percent of the water supply for two million customers. It is responsible for the cleanup of basin contamination, mostly nitrates, and currently has a \$50-70 million capital expenditures program to implement the necessary cleanups. The major features of the Irvine Desalter Project are summarized below.

- o The benefits of having the Irvine Desalter include: 1) having a local water supply, 2) increasing the percentage of groundwater provided as water supply, 3) providing drought protection, and 4) improving the water quality of the basin.
- o OU-1, the TCE plume, is within the capture zone of any OCWD well field design; wells are proposed near MCAS El Toro's southwest boundaries to intercept any off-Station migration of contaminants.
- o The project was first proposed in 1975 to remove salts and nitrates from the basin.
- o Six to nine source wells were proposed.
- o The well field design would incorporate Well ET-1 which is currently operational.
- o Installation of 25,000 ft of pipeline is required.
- o The 6.5 million gallon per day (MGD) treatment plant would occupy 1.5 acres of land.
- o Both reverse osmosis (RO) and electrodialysis (ED) have been considered as treatment technologies; RO would provide 70 percent recovery and ED would provide 90 percent recovery.
- o Water delivered to customers would consist of a mixture of treated water and "clean" water; the treatment goal is to achieve water with no more than 420 parts-per-million (ppm) total dissolved solids (TDS).
- o Capital costs for the project are estimated to be \$25 million, with \$16 million for the treatment of TDS and nitrates, and \$9 million for the treatment of TCE.
- o Operating and Maintenance (O&M) costs for the project are estimated to be \$2.37 million per year, with \$1.83 million per year for the treatment of TDS and nitrates, and \$0.54 million for the treatment of TCE.
- o The projected life span of the treatment plant is 20 years.
- o OCWD has already obtained a \$19 million loan from the state at 3.5 percent interest rate.
- o A 24-month period is envisioned from the start of design until the start of plant operations; the earliest OCWD can start pumping would be in October 1992.

J. Hamill inquired whether the state of California has a policy against the use of treated effluent as potable water. M. Alonzo stated that DTSC does not recommend the use of treated effluent as drinking water. LCDR Serafini stated that two sites in San

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Bernardino and one in San Gabriel are currently treating contaminated groundwater for potable use. B. Mills reiterated that VOCs will be removed from the groundwater and the treated effluent will be mixed with fresh water prior to delivery to users.

For the coordination of the MCAS El Toro RI/FS and the Irvine Desalter Project, R. Herndon made the following suggestions:

- o Install two multiple-port wells on the northwest boundaries of the Station
- o Prioritize the investigation towards the installation and sampling of deep wells
- o Identify on-Station "hot spots" to facilitate remediation of local areas of contamination

J. Dolegowski inquired about the depth of well screening; estimated drawdown beneath MCAS El Toro as calculated by OCWD's model; and the assumed rate of recharge for the Station. R. Herndon replied that the wells are screened between 200 and 500 ft; the estimated drawdown beneath the Station is 50 ft; and recharge is from the northeast and the recharge rate is expected to balance the pumpage rate of 16 million gal/day. Ron Ress/MCAS El Toro, counsel for the Station, stated that flood control detention facilities to the northeast of the Station will be put into place as agreed with the Orange County Flood Control Department (OCFCD).

R. Ress stated the community is unhappy about the length of time (seven years) necessary before cleanup can be initiated. He indicated the Desalter Project provides the opportunity for starting cleanup at an earlier date, and would be compatible with any future remediation scheme for OU-1, as well as being a popular community relations act. J. Hamill indicated that EPA is happy to hear that the potential exists for rapid removal action. M. Alonzo stated that the MCAS El Toro RI/FS is on a much faster schedule than other projects that are not negotiated under FFA's. K. Williams expressed his doubts that any of the agencies would object to the Navy participating in the Desalter project. J. Hamill indicated that the project, however, must follow the procedures for a removal action. LCDR Serafini stated that the Navy would like to begin negotiations with OCWD on sharing costs for the project. He indicated the Navy needs the consent of the agencies, in writing. J. Hamill stated that a mechanism is needed in order for the Desalter Project to proceed, but also to conform to the RI/FS process. B. Mills suggested that the Navy and OCWD proceed with the project and assess liability at a subsequent date. S. Tindall stated that EPA needs to review the National Contingency Plan (NCP) and look for an example site where such an approach has been taken. B. Mills indicated that the Beckman site in Central Valley is such a site. K. Williams stated rhetorically that how can a third party be pumping off-Station contaminated groundwater and not become a Potentially Responsible Party (PRP). He suggested that the Navy take sole responsibility. LCDR Serafini stated that the Navy is not in the business of accepting all potential liability. S. Tindall reminded the attendees that OCWD did not receive any liability when it operated ET-1. LCDR Serafini ended the topic of discussion by suggesting the Navy and OCWD legal personnel frame an agreement on the Desalter Project for agency approval.

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PROPOSED WORK PLAN MODIFICATIONS TO REDUCE DISPOSAL COSTS

Number and Duration of Aquifer Tests

K. Williams indicated that 48-hour aquifer tests instead of 72-hour aquifer tests are sufficient provided that the tests are extended by 6-hour increments as dictated by the shape of the drawdown curve. R. Herndon stated that it is sufficient during the Phase I investigation to conduct aquifer tests for half the number of new wells (60 wells). M. Alonzo suggested that the shorter duration aquifer tests should be stopped or extended based on initial data analysis in the field. J. Dolegowski indicated that it is better to set a predetermined minimum time period. K. Williams suggested that the shorter duration aquifer tests be conducted for 4 hours as originally proposed, but that they should be extended as needed, by 2-hour increments.

Use of Multiple-Port Monitoring Wells

M. Alonzo stated that the DTSC has not officially approved the use of MP wells. J. Broderick reiterated DTSC's apparent position on MP wells. LCDR Serafini inquired what DTSC's position would be if the MP wells are installed during the Phase I investigation. M. Alonzo replied that he will first need to verify with his superiors whether the MP wells can be used. He indicated that if the DTSC's position remains the same, the agency will state that it does not approve the use of MP wells. J. Hamill quoted the FFA and indicated changes to the work plan require written notice to be submitted for agency approval. S. Tindall read from the work plan and indicated MP wells were not explicitly discussed as alternatives to cluster wells. K. Williams indicated that MP wells and cluster wells should be universally interchangeable. He reminded the attendees that the agencies had already approved the use of MP wells installed by OCWD (or was there just an implicit understanding since no one objected to the OCWD wells?). J. Dolegowski suggested that data obtained from the MP wells already installed by OCWD should be accepted, but that cluster wells be installed in areas requiring monitoring in individual permeable zones near contaminant source areas. K. Williams stated that the DTSC should arrive at a universal policy on the MP wells. LCDR Serafini indicated that Navy lawyers have expressed reservations on the MP wells, and any negative comments concerning the wells would force the Navy to retract from purchasing the OCWD wells and to install new MP wells. He inquired whether a waiver can be issued for MCAS El Toro. M. Alonzo stated that he will need an official request for the change. He suggested that an example of MP well use at a National Priority List (NPL) site would go a long way towards convincing the usually conservative DTSC to accept MP wells.

Use of 3-Inch Diameter Monitoring Wells

K. Williams indicated that 3-inch outside diameter wells are acceptable provided they meet specified performance standards, namely a 10-ft spindle, or dummy, can be lowered and raised in the wells. He also indicated that the 3-inch OD wells should not be installed beyond a maximum depth to be specified (e.g., 150 ft). J. Hamill stated again that the request for change must be submitted for approval.

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REMAINING ISSUES PERTAINING TO RI-DERIVED WASTE DISPOSAL

On-Station Soil/Drilling Mud Disposal

Background. Disposal of nonhazardous, but contaminated, soil cuttings/dewatered drilling mud ("intermediate" wastes) at a designated area on-Station was proposed in the Draft Waste Management Plan. The implicit assumption is that a large volume of waste can then be managed on-Station instead of being disposed off-Station in landfills. The RWQCB indicated the levels for on-Station disposal should be based on "cleanup levels." The general consensus was that the disposal levels should be some factor greater than applicable drinking water standards, but less than Class III landfill waste acceptance criteria (and TCLP or STLC standards). The argument is based on the assumption that the on-Station designated area will not be designed to meet requirements of Class III landfills. However, CH2M HILL ascertained the Class III landfill waste acceptance criteria were, in general, drinking water standards or lower. If such low levels were adopted for on-Station disposal, an undetermined, and possibly large, volume of intermediate wastes may require disposal in Class I landfills. The logical conclusion is to present alternatives so that the intermediate wastes can be managed on-Station.

Yueh Chuang/CH2M HILL stated that on-Station disposal of soil/drilling mud at a designated area is no longer a practical option. K. Williams suggested that the intermediate wastes can be stockpiled for future treatment. He indicated that stockpiling over the existing landfills would be acceptable. R. Herndon stated that from OCWD's drilling experience in the area, most of the soil cuttings contained less than detectable levels of VOCs. Mike Arends/CH2M HILL indicated that more than 90 percent of the soil/drilling mud generated at San Fernando was nondetect even though the groundwater contained 20,000 to 30,000 ppb VOCs. M. Alonzo suggested that the soil/mud can be treated by bioremediation, and that McLaren-Hart has available a permitted transportable treatment unit (TTU). He stated that such treatment would require coordination with the South Coast Air Quality Management District (SCAQMD). He further indicated that bioremediation would not be effective in treating wastes containing JP-4 and high levels of metals. LCDR Serafini indicated that the Navy would prefer to keep all wastes on-Station, if possible. J. Hamill indicated that the soil cuttings can be returned to the borings. M. Alonzo stated that land-banned wastes must be treated before they can be disposed off-Station. K. Williams suggested that the wastes be stockpiled over an existing landfill in bermed and lined cells that are covered (sometimes referred to as "burritos"); the liner and cover can consist of 40-mil high-density polyethylene (HDPE) material. He further suggested that the waste can then be treated by bioremediation at a later date. M. Alonzo stated that the venting system can be either active, such as a vapor extraction system, or passive; in either case, coordination with the SCAQMD may be required. A. Piszkin inquired whether all soil/drilling mud can be stockpiled on-Station as long as they are segregated into three categories: hazardous, intermediate and uncontaminated. K. Williams voiced his objections to the stockpiling of hazardous soils on-Station. J. Dolegowski indicated that a firm decision is required from the agencies on the management of intermediate wastes on-Station. Y. Chuang stated that contaminant concentrations must be specified for such on-Station stockpiling. K. Williams agreed to provide the answers by 16 September.

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Before the end of the meeting on 12 September, the agencies reached tentative decisions on the management of soil/drilling mud generated from the RI. The decisions will be final upon approval by RWQCB headquarters. The following is a summary of the decisions.

- o All *hazardous* soil/drilling mud waste will be contained in drums or roll-off bins. Wastes are classified as hazardous if they exceed the appropriate regulatory threshold standards (i.e., TTLC, STLC, TCLP standards). The wastes will be stored until they are disposed off-Station or treated on-Station at a later date. Regardless of the ultimate disposition of the wastes, while on-Station, they must be stored in the Waste Staging Area because of the secondary containment provided by the facility.
- o All *intermediate* or *designated* soil/drilling mud waste will be stockpiled over an existing landfill in bermed and singly-lined cells that are covered or in "burritos." Leachate collection is not necessary, and the venting system can be either active or passive. If VOC emissions is greater than the allowable limit (50 ppm?), a SCAQMD permit will be required. Wastes are classified as designated if their TCLP extracts exceed drinking water standards (i.e., state MCLs) but are below the hazardous threshold standards. The wastes must be treated at a later date, possibly only to levels that are 10 to 20 times the drinking water standards. The exact treatment standards will be developed over time, possibly from data compiled by plotting total contaminant concentration versus TCLP leachate concentration.
- o All *nonhazardous* soil/drilling mud waste can be disposed as clean soil and do not require special management practices. Wastes are classified as nonhazardous if the TCLP extracts do not exceed drinking water standards, or the VOC concentrations are below detection levels.

Disposal of Clear Water

Background. In the Draft Waste Management Plan and the Addendum to the Draft Waste Management Plan, the option of on-Station discharge to surface water via the drainage channels or washes was not recommended because of dry-weather flow restrictions specified in the NPDES permit. Furthermore, the RWQCB was concerned that discharges of clear water would still carry residual contamination in the drainage channels beyond the Station boundaries. However, discharge of clear water to the drainage channels would greatly reduce the disposal costs. Additionally, the project schedule has been pushed back such that the majority of the work will be done during the wet season. The first constraint no longer poses a problem. Additional requirements can be specified in the NPDES permit to monitor the quality of the discharge at the relevant NPDES discharge point(s).

K. Williams indicated that the RWQCB does not object to the discharging of clear water to the drainage channels. G. Stewart stated that TDS and nitrates may be concerns, but additional requirements can be specified to monitor the two parameters. He also mentioned that the Navy may be able to amend the NPDES permit as an administrative modification; however, if that is not possible, the formal amendment process can take up to six months. LCDR Serafini stated that the Navy would then forego the

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amendment process, and would discharge the water on-Station as irrigation water. Y. Chuang suggested the Navy pursue both options; CH2M HILL will contact the RWQCB on 23 September to determine the feasibility of timely amendments to the NPDES permit, and the possible additional monitoring requirements.

K. Williams suggested that clear water which requires treatment by GAC can be discharged to the drainage channels as well. He further suggested that both contaminated and clean groundwater undergo treatment by GAC. He indicated that monitoring the treated effluent provides a greater degree of confidence than representative sampling of Baker tanks. J. Dolegowski inquired about the required testing frequency. K. Williams replied that normal procedures are weekly samples for three months to establish baseline information, followed by monthly samples. He indicated a formal proposal should be submitted on the sampling frequency of the treated effluent.

Y. Chuang inquired about the disposition of rainwater collected in the Waste Staging Area. L. Nuzum stated that, current plans are to steam-clean the roll-off bins and Baker tanks before bringing them inside the Waste Staging Area. He indicated this would minimize contamination of the Waste Staging Area. K. Williams suggested that rainwater should also be treated before being discharged to the drainage channels. He stated that the number of water samples needed for waste disposal can be reduced if all clear water, both groundwater and rainwater, is treated through the same GAC system before discharge.

The agencies reached decisions on the management of clear water generated from the RI before the end of the meeting on 12 September. The following is a summary of the decisions.

- o All clear water, both groundwater and rainwater, will be treated by GAC before being discharged to the drainage channels.
- o The GAC treatment unit will consist of a minimum of three beds configured in series.
- o Holding of the final treated effluent is not necessary. However, samples of both the final effluent, and treated effluent between the GAC beds will be collected and analyzed. The sampling frequency and parameters to be monitored will be proposed in a memorandum and submitted to the agencies for approval.

Requirements of the Waste Storage Area

Background. Four unresolved issues concerning the Waste Storage Area include: 1) The necessity of a concrete pad (versus a lined gravel bed); 2) The necessity for an impermeable coating as per the "drip pad" requirements; 3) The necessity to contain a 25-year, 24-hour rainfall event; and 4) The necessity to contain 10 percent of the total liquid volume in storage. A request for extension of the less-than-90-day storage requirement was also sought.

The topic was covered under discussions on Task I, Field Equipment/Facilities Design of "Update on Progress Since Last Agency Meeting."



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Changes in Analytical Protocol for Waste Samples

Background. Comments on the proposed analytical protocol for waste samples received from the EPA and DTSC were favorable. However, after review of all available information on the sites, CH2M HILL decided that amendments to, and clarification of, the analytical protocol are necessary. A memorandum (~~Attachment B~~) providing the proposed changes was prepared and distributed at the meeting for agency review.

M. Alonzo stated that the TCLP is a more aggressive extraction test than the WET for organics; however, the WET is more aggressive for the metals. Y. Chuang inquired whether DTSC has adopted the TCLP. M. Alonzo replied that the TCLP was adopted only for the RCRA metals; the WET is still required for the non-RCRA metals. He also indicated that if background levels for metals (e.g., selenium, arsenic) in the soils can be established, testing for those metals may be excluded. S. Tindall expressed minor objections to the proposals to either eliminate or to reduce testing of the soils for ignitability, hexavalent chromium, organic lead, and pesticides/herbicides. He inquired about the prevalence of use of pesticides and herbicides on El Toro. LCDR Serafini indicated that herbicides are commonly applied throughout El Toro; however, he is not aware of similar practices for pesticides. Y. Chuang informed S. Tindall that he should review the memorandum in greater detail and provide feedback.

The agencies reached decisions on the proposed changes to analytical protocol for waste samples before the end of the meeting on 12 September.

RI/FS AND RFA SCHEDULE MODIFICATIONS

J. Hamill stated that EPA does not want to negotiate the schedule modifications during the meeting. He indicated that all the agency RPMs will meet together by the end of September or early in October to discuss the schedules. The following is a summary of EPA's position on issues which may affect the schedule negotiations. Comments are also presented.

General Philosophical Issues

- o J. Hamill: EPA had given conditional approval to the work plan in January 1991. The Navy was then aware of potential contracting problems which may delay the start of the field program.
- o J. Hamill: EPA has heard from the Navy that contracting problems exist. However, the Navy needs to provide full documentation of problems encountered in the contracting process, [... such as the Military Construction (MILCON) issues to appropriate funds to build necessary facilities.] Good cause or unavoidable delays would have to be shown.
- o J. Hamill: EPA wants to treat the schedule change as an *extension*, not an *amendment*. The latter process would invoke time-consuming procedures such as obtaining signatures from all involved parties, and opening to the public another review comment period. In order that a schedule extension is to be granted, the Navy must show good cause.

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- o J. Hamill: The schedule submitted during the last agency meeting on 18 July 1991 does not conform with Appendix A of the FFA. Since OU-1 is more important than OU-2, OU-3 and OU-4, the schedule for OU-1 should be separated from the schedules of the other OUs. Work on OU-1 should be conducted at a faster pace than the other OUs. A separate ROD is needed for OU-1, the off-Station groundwater contamination.

LCDR Serafini inquired whether the Navy should redirect available funds from OU-2 and OU-3 to OU-1. J. Hamill replied that EPA is getting conflicting reports from the Navy; Commander Tower had informed EPA that funding is not a problem, but the Navy RPMs for both Barstow and El Toro indicate otherwise. L. Nuzum stated that only \$34 million of the \$75 million requested will be available for Phase I investigations at the three SOUTHWESTDIV sites. J. Hamill indicated that EPA wants information on the status of the Navy budget. LCDR Serafini indicated that may be a difficult task. K. William suggested the next meeting be held at SOUTHWESTDIV where senior Navy personnel can be invited to attend.

- o J. Hamill: When negotiating the schedule, the Navy/CH2M HILL had agreed that by September 1991 enough information would be collected to determine removal actions that are needed.

LCDR Serafini inquired whether the Irvine Desalter Project constitutes a removal action. J. Hamill replied that the topic should be discussed in further detail at the next meeting. He indicated that three types of remedial actions exist; they are time-critical removal action, non-time-critical removal action and remedial action.

- o J. Hamill: EPA's goal is to ensure remediation occurs as soon as possible. Instead of assessing penalties for the schedule extension, EPA would rather see an improvement in the environment in return.

L. Nuzum indicated that the Navy would consider "fast-tracking" OU-1.

Other Issues

- o J. Hamill: SAIC had completed a statistical analysis of soil sampling proposed in the Sampling and Analysis Plan (SAP) for Phase I. The study concluded that the confidence interval of the proposed sampling is only 30-40 percent, if all the samples are randomly selected and sampling stratification is not invoked.

J. Dolegowski inquired about the intent of the study considering the SAP has already been approved. J. Hamill stated the intent of the study was to determine if additional scoping can be done to reduce the number of samples needed. S. Tindall indicated that the Phase I investigation is more a Preliminary Assessment/Site Investigation (PA/SI), and Phase II would be when most of the information is actually collected. He suggested that sampling has to be stratified in order to increase the confidence interval. M. Alonzo questioned the validity of the study in the absence of groundwater data analysis. S. Tindall suggested SAIC and CH2M HILL discuss the results of the study in greater detail. J. Hamill reiterated the intent of the study was to determine the feasibility of reducing the

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number of samples, not to determine the confidence interval of the current sampling schemes.

- o J. Hamill inquired whether the RFA would provide information for the existing OUs. M. Arends replied that the RFA would only provide information for OU-4.

NEXT SCHEDULED MEETING

The next meeting with the agencies is tentatively scheduled for 2 October 1991. A topic of discussion for the next meeting is how the Irvine Desalter Project fits in with NCP's definition of removal action versus remedial action.

List of Attendees

Manny Alonzo	213/590/4904	DTSC, Region 4
Mike Arends	714/250-5500	CH2M HILL, Santa Ana
John Broderick	213/590-4856	DTSC, Region 4
Yueh Chuang	714/250-5500	CH2M HILL, Santa Ana
John Dolegowski	714/250-5500	CH2M HILL, Santa Ana
John Hamill	415/744-2391	EPA, San Francisco
Roy Herndon	714/378-3260	OCWD
Bill Mills	714/378-3260	OCWD
Chrisa Mitchell	714/726-6607	MCAS El Toro
Larry Nuzum	619/532-2640	SOUTHWESTDIV
Andy Piszkin	619/532-1239	SOUTHWESTDIV
Ron Ress	714/726-3805	MCAS El Toro
LCDR Larry Serafini	714/726-2821	MCAS El Toro
Gary Stewart	714/782-4130	RWQCB, Santa Ana Region
Sebastian Tindall	415/399-0140	SAIC, San Francisco
Ken Williams	714/782-4130	RWQCB, Santa Ana Region

AGENDA

**MARINE CORPS AIR STATION (MCAS) EL TORO RI/FS
PRELIMINARY PHASE I ACTIVITIES**

TECHNICAL UPDATE MEETING WITH REGULATORY AGENCIES

Wednesday, 11 Sept 1991
Thursday, 12 Sept 1991
Bldg. #368

0900

Wednesday, 11 Sept 1991

Morning

- 0900 Update on progress since last agency meeting (18 July 1991)
- 1000 Brief presentation of proposed schedule for MCAS El Toro RI/FS
- 1010 Proposed Work Plan modifications to reduce disposal costs
- a. Number and duration of aquifer tests
 - b. Use of multi-port wells
 - c. 3-Inch versus 4-inch diameter monitoring wells
- 1100 Remaining issues pertaining to RI-derived waste disposal
- a. On-station soil/drilling mud disposal
 - b. Disposal of clear water
 - c. Changes in analytical protocol for waste samples
 - d. Request for extension of the less-than-90-day storage requirement for the waste staging area

Afternoon

- 1315 Lining of Agua Chinon Wash - City of Irvine
- 1400 Orange County Water District (OCWD) Desalter Project - Roy Herndon
- 1500 Continuation of waste disposal issues

Thursday, 12 Sept 1991

- 0900 Requested RI/FS and RFA schedule modifications

**MCAS EL TORO RI/FS
PRELIMINARY PHASE I ACTIVITIES**

Progress from 17 July 91 through 11 Sept 91

TASK A. Review Aerial Photographs, Site Surveys, and Topographic Maps

- o Review of historical aerial photography of the base prior to development will be completed at the Fairchild Collection (Whittier College) to evaluate surface and subsurface geologic features
- o Sample locations have been plotted on the aerial photography base maps prepared for MCAS El Toro. Copies of these maps will be prepared for use by the Navy and CH2M HILL.

TASK B. Existing Data Analysis

- o A technical memorandum on the condition of the well heads and to access to the Orange County Water District (OCWD) monitoring wells.

TASK C. Site Mapping

- o Reproducible mylars of each site and of the entire MCAS El Toro base were prepared.

TASK D. Waste Management Plan

- o Proposed disposal levels for non-hazardous soil have been developed.
- o Analytical tests for waste samples have been revised to increase efficiency of testing.
- o Comments on the Draft Waste Management Plan have been received from EPA and DHS. Revision of the document will be completed upon receipt of RWQCB comments and resolution of remaining issues.

TASK E. Preliminary Data Management Activities

- o A presentation of ITEMS was given to CH2M HILL project personnel.
- o CH2M HILL sample tracking software has been evaluated for use at El Toro.

TASK F. Subcontractor Procurement

A. Procurement of Drilling Services

- o Evaluation of drilling bids and recommendation for the subcontractor was completed.
- o The contract will be awarded upon receipt of funding for Phase I of the MCAS El Toro RI/FS.

B. Procurement of Professional Services

- o Preparation of RFP has begun.

TASK G. Easements/Permits

- o The well permit package has been reviewed by NAVFACENCOM, Southwest Division.

TASK H. Subcontracting/Coordination of Analytical Services

- o Contract will be awarded to selected laboratories after Phase I has been funded.

TASK I. Field Equipment/Facilities Design

- o Preliminary design plans for the temporary facilities have been completed.
- o Meeting with MCAS El Toro representatives was held on 29 August 1991 to discuss review comments on the preliminary design plans.
- o Specifications for preliminary internal review will be done this week.

TASK J. GEOPHYSICAL SURVEYS

- o No additional work needed.

TASK K. COMMUNITY RELATIONS

- o A community relations coordination meeting was held with representatives from the Navy, MCAS El Toro, DHS, and CH2M HILL on Monday, August 5.
- o Comments on the draft fact sheet have been received and the fact sheet has been revised.

- o An inventory of documents at the Heritage Park Library information repository was made. Plans have been made for the MCAS El Toro information repository.
- o Community meetings have been planned for MCAS El Toro (morning of 7 Oct 91) and the surrounding communities (Woodbridge High School, evening of 7 Oct 91). The Navy will have a dry run on Thursday, 3 Oct 91.

11 Sept 91

MCAS EL TORO RI/FS PHASE I
PROPOSED WORK PLAN MODIFICATIONS
TO REDUCE DISPOSAL COSTS

1. Number and Duration of Aquifer Tests

Currently Specified in Work Plan:

- a. 4-hour aquifer test at all new monitoring wells (118 tests assuming that 2 multiple port wells are used)
- b. 72-hour aquifer test at two wells

Proposed:

- a. 4-hour aquifer tests at half of all new wells (59 tests total). Drawdown data will be collected at all wells during purging.
- b. 48-hours aquifer test at two wells; continue to 72-hours if field data indicates boundary effects, leakage, or delayed yield

2. Use of Multiple-port (MP) Monitoring Wells

- a. MP wells are used in place of well clusters
- b. Individual permeable zones can be monitored from a single casing.

PROS:

- o The use of a single borehole greatly reduces soil volumes.
- o MP wells do not have to be purged prior to sampling.
- o Cost of an MP well may be significantly less than a well cluster, depending on the number and depths of sampling intervals.

CONS:

- o Aquifer testing of permeable intervals is not possible.
- o Packer leakage may potentially occur, resulting in loss of data and greater maintenance than convention wells.

3. Use of 3-inch Diameter Monitoring Wells

PROS:

- o May allow for drilling of wells with a 10-inch OD dual-tube percussion rig instead of a 14-inch OD rig.
- o Well purge volume for 3-inch diameter well is approximately half that of a 4-inch diameter well.

CONS:

- o Aquifer tests may not be possible with 3-inch diameter wells.
- o Wells will have reduced capacity for extraction if needed for groundwater containment in the future.

Date Prepared: November 6, 1990

DOCUMENT NAME	DRAFT TO IAG MEMBERS		COMMENTS DUE FROM IAG MEMBERS		MEETING WITH IAG MEMBERS		DRAFT FINAL TO IAG MEMBERS		COMMENTS DUE FROM IAG MEMBERS		FINAL TO IAG MEMBERS	
	PLANNED	ACTUAL	PLANNED	ACTUAL	PLANNED	ACTUAL	PLANNED	ACTUAL	PLANNED	ACTUAL	PLANNED	ACTUAL
Conceptual Design												
Site Charac. Plan (SCP)		2/16/90	5/1/90	5/18/90	5/21/90	5/21/90	5/31/90	6/14/90		7/10/90	7/2/90	8/10/90
QAPP for SCP		2/16/90	5/24/90	5/23/90			6/18/90	7/5/90		7/18/90	7/18/90	9/11/90
FSP/Groundwater	4/16/90	4/23/90	5/23/90	5/18/90	5/21/90		6/18/90	7/5/90		7/18/90	7/18/90	9/11/90
FSP/TCE Source	6/21/90	9/11/90	7/23/90	10/19/90	10/31/90		8/21/90					9/21/90
Potential Receptor Study		9/18/90					---	---	---	---	---	---
TCE Source Study		9/18/90					---	---	---	---	---	---
Devel. & Prelim. Screening of Alternatives Report	7/30/90											
RI/FS Work Plan	8/16/90	8/14/90	10/16/90	10/15/90	10/31/90		12/15/90					1/15/91
QAPP for RI/FS	9/12/90	9/11/90	11/12/90				1/12/91					2/12/91
FSP for RI/FS	9/12/90	9/11/90	11/12/90				1/12/91					2/12/91
GW Monitoring Plan	10/31/90						1/31/91					3/4/91
SCP Field Rpt	6/27/91											
OU No. 1 Tech Memo	6/30/91											
OUFS No. 1	9/30/91		10/31/91				11/31/91					1/1/92
OU No. 1 ROD	4/15/92		5/15/92				6/15/92					7/15/92
Risk Assessment	6/4/92						10/4/92					11/4/92
RI Report	6/4/92						10/4/92					11/4/92
FS & Proposed Plan	10/4/92						2/4/93					
Record of Decision	6/14/93						9/15/93					

F Indicates a forecast date

*Distributed to
1 - Sept 91 Agency M7*

MEMORANDUM

TO: Andy Piszkin/NAVFACENGCOM, Southwest Division
Larry Nuzum/NAVFACENGCOM, Southwest Division

FROM: Yueh Chuang/LAO
John Dolegowski/LAO

DATE: 10 September 1991

SUBJECT: Proposed Changes to Testing Requirements Specified in the MCAS El Toro Waste Management Plan

PROJECT: LAO31980.PA.30

This memorandum proposes changes to, and clarifications of, the analytical testing requirements for waste samples specified in the MCAS El Toro Draft Waste Management Plan (JEG, 24 July 1991). The attached Tables 4-1 to 4-4 are proposed as replacements to the Draft Waste Management Plan. This updated list of analytical tests provides more comprehensive analyses for some classes of compounds and reduces the number of tests where calculations of maximum leachable concentrations may be used in place of separate extractions and analyses. Available information on potential wastes and contaminants at each site was reviewed in order to focus testing requirements from each site. The required tests are specified in the new tables by test methods.

Testing Requirements for Disposal of Soil and Drilling Mud (Tables 4-1 and 4-3)

1. Total contaminant analysis is proposed initially instead of the toxicity characteristic leaching procedure (TCLP) or Waste Extraction Test (WET). The Draft Waste Management Plan specified testing for both EPA's TCLP list of hazardous contaminants, and California's Title 22 list of hazardous substances using the WET for comparison against the Soluble Threshold Limit Concentration (STLC) standards. The two extraction tests measure the leachable fraction of specific contaminants. The analyses may be duplicative because of the overlap between the TCLP and the Title 22 lists of contaminants.

California also requires the analysis of total contaminant concentrations for the Title 22 hazardous substances for comparison against the Total Threshold Limit Concentration (TTLC) standards. The analysis of total contaminant concentrations was not specifically identified in the Draft Waste Management Plan. If the TTLC, STLC, and TCLP analyses were performed concurrently, then each category of contaminants would have to be analyzed three times.

It is proposed that waste samples will be tested for total contaminant concentrations using analytical methods that include the TCLP list of hazardous contaminants and California's Title 22 list of hazardous substances. If the analytical results exceed 20 times the TCLP standards, or 10 times the STLC standards, only the TCLP (and not the WET) will be performed, and the extract will be analyzed for the contaminants which appear on either the TCLP, or the Title 22 lists. For contaminants listed under Title 22, the results

of the TCLP test will be converted by multiplying by two (2) for comparison against STLC standards, since the TCLP uses a 20:1 dilution for the extraction, whereas the WET uses a 10:1 dilution. The rationale for the proposals are discussed below.

In order for a waste to be considered hazardous by *Federal regulations*, the contaminant concentrations in the TCLP extract must exceed the TCLP standards. However, total contaminant concentrations may be compared against TCLP standards (51 FR No. 216; 7 November 1986, p. 40643). Since the TCLP uses a 20:1 dilution for the extraction, TCLP testing will be required to determine whether a waste sample actually exceeds the TCLP standards only if the total contaminant concentrations are greater than 20 times the TCLP standards.

In order to meet *California regulations*, waste samples must be first analyzed for its total contaminant concentrations, and compared against the TTLC standards. If any contaminant concentrations exceed the TTLC standards, that waste is considered hazardous. If the contaminant concentrations do not exceed TTLC standards but are greater than 10 times the STLC standards, the waste is required to undergo the WET procedure, with the results compared against the STLC standards. *When extraction testing is required, the TCLP is proposed instead of the WET.* The comparison of contaminant concentrations in TCLP extract against STLC standards is valid, and leads to a conservative assignment of a waste's hazardous character because the TCLP is a more controlled extraction procedure than the WET. More comprehensive laboratory quality assurance/quality control protocols have been developed for the TCLP than the WET. A zero headspace extractor for volatile organics is used for the TCLP, but not the WET. In general, the TCLP, which uses two buffered acetate solutions, is also a more aggressive extraction procedure than the WET, which uses citric acid as the extraction fluid. Therefore, the contaminant concentrations, especially the organic compound concentrations, analyzed by the TCLP may be greater than those from the WET.

2. Testing for volatile organics (EPA 8240), semivolatile organics (EPA 8270), PCBs/pesticides (EPA 8080), and herbicides (EPA 8150) has been expanded to include all compounds listed in the respective analytical methods. The Draft Waste Management Plan specified testing only for organic compounds which are on the TCLP and California Title 22 lists.
3. Ignitability testing has been removed. Testing for ignitability is required of wastes which are likely to exhibit the hazardous characteristic, such as drums of solvents. The soils are not expected to be saturated with such flammable materials.
4. Testing for reactivity, specifically total sulfide and total cyanide, has been added. Testing for the hazardous characteristic is specified at sites where wastes from unknown sources are disposed, or suspected waste disposal practices dictate the need.
5. Testing for total fuel hydrocarbons (TFH) is not required, and has been removed from the list of required analytical methods. Testing for both total petroleum hydrocarbons (TPH) and TFH is specified in the Draft Waste Management Plan. For the purposes of waste disposal at Class II and Class III landfills, only TPH testing is required. TFH testing is a California Underground Storage Tank (UST) requirement for leaking fuel tanks, not waste disposal.
6. Upon review of available data, hexavalent chromium analysis has been removed. Chromium analysis is only necessary for total chromium, but not hexavalent chromium. Only the disposal of plating wastes may present the need for hexavalent chromium analysis. Hexavalent species are expected to reduce to lower oxidation states in soil and water. However, the regulatory agencies will be notified to obtain further instructions if

total chromium levels exceed the threshold level for hexavalent chromium.

7. Testing for fluoride has been removed. Fluoride compounds are not expected at MCAS El Toro.
8. Analysis for organic lead has been removed for samples from sites suspected to have been contaminated only with kerosene, JP-5 fuel, and other unleaded fuels. Testing for organic lead is required at sites where gasoline and/or leaded fuel are suspected to have been spilled or disposed.
9. Pesticides/herbicides analysis has been specified only at sites where wastes of unknown sources are disposed. Pesticides and herbicides are not expected to be present at the majority of sites.

Testing Requirements for Disposal of Water (Tables 4-2 and 4-4)

1. Total contaminant analysis is proposed for all volatile organics, semivolatile organics, PCBs/pesticides, herbicides, and California Title 22 metals (except chromium). The Draft Waste Management Plan specified the analysis of TCLP contaminants. As discussed above in Item 6 under testing requirements for disposal of soil cuttings/drilling mud, hexavalent chromium species are expected to reduce to lower oxidation states in water.
2. The TCLP extraction and zero headspace extraction (ZHE) will be performed only when waste water samples exceed 0.5 percent solids. The Draft Waste Management Plan specified use of the extraction procedures without the aforementioned condition. The WET will not be performed because the TCLP is a more controlled and more aggressive extraction procedure than the WET.
3. Reactivity, specifically total sulfide and total cyanide, analysis has been removed. Testing for reactivity is required of wastes which are likely to exhibit the hazardous characteristic. The waste water is not expected to be contaminated with either sulfide or cyanide at concentrations requiring such testing.
4. As with soil cuttings/drilling mud, testing for TFH has been removed. Only TPH testing is specified because TFH testing is not required for the disposal of water.

**Table 4-1
Required Analytical Tests for Disposal of Waste Soil and Drilling Mud
MCAS El Toro, California**

OU	Site No.	Reactivity		TPH	Total Contaminant Analysis ^(a)						
		Total Sulfide	Total Cyanide		Metals	Volatile Organics ^(b)	Semivolatile Organics	Dioxins	PCBs/ Pesticides	Herbicides	Organic Lead
1	18			X	X	X	X				X
2	2			X	X	X	X	X	X		
	3			X	X	X	X	X	X		
	5			X	X	X	X	X	X		X
	10/22			X	X	X	X		X		
	17	X	X	X	X	X	X		X	X	X
3	1	X		X	X	X	X	X			
	4			X	X	X	X				
	6			X	X	X	X				
	7			X	X	X	X		X		
	8			X	X	X	X		X		
	9			X	X	X	X				X
	11								X		
	12	X	X	X	X	X	X		X		
	13			X	X	X	X				
	14			X	X	X	X				

**Table 4-1
Required Analytical Tests for Disposal of Waste Soil and Drilling Mud
MCAS El Toro, California**

OU	Site No.	Reactivity		TPH	Total Contaminant Analysis ^(a)						
		Total Sulfide	Total Cyanide		Metals	Volatile Organics ^(b)	Semivolatile Organics	Dioxins	PCBs/ Pesticides	Herbicides	Organic Lead
3	15			X	X	X	X				
	16			X	X	X	X	X			X
	19			X	X	X	X				
	20			X	X	X	X				
	21		X	X	X	X	X		X	X	

^(a) Includes compounds identified in 40 CFR 261.24, Table 1 (TCLP-toxicity characteristic list), and 22 CCR 66699 (2) (b) and (c) (California Title 22 list). If the results of total contaminant analysis exceed 20 times the TCLP standards, or 10 times the STLC standards, the TCLP will be performed.

^(b) Includes compounds identified in 40 CFR 268.41, Table CCWE (land-banned list for EPA Hazardous Waste Nos. F001 - F005).

**Table 4-2
Required Analytical Tests for Disposal of Wastewater
MCAS EI Toro, California**

Sheet 1 of 2

OU	Site No.	Corrosivity (pH)	TPH	Total Contaminant Analysis ^(a)				
				Metals	Volatile Organics ^(b)	Semivolatile Organics	PCBs/ Pesticides	Herbicides
1	18	X	X	X	X	X		
2	2	X	X	X	X	X		
	3	X	X	X	X	X		
	5	X	X	X	X	X		
	10/22	X	X	X	X	X		
	17	X	X	X	X	X	X	X
3	1	X	X	X	X	X		
	4	X	X	X	X	X		
	6	X	X	X	X	X		
	7	X	X	X	X	X		
	8	X	X	X	X	X		
	9	X	X	X	X	X		
	11							
	12	X	X	X	X	X		
	13	X	X	X	X	X		
	14	X	X	X	X	X		

**Table 4-2
Required Analytical Tests for Disposal of Wastewater
MCAS El Toro, California**

Sheet 2 of 2

OU	Site No.	Corrosivity (pH)	TPH	Total Contaminant Analysis ^(a)				
				Metals	Volatile Organics ^(b)	Semivolatile Organics	PCBs/ Pesticides	Herbicides
3	15	X	X	X	X	X		
	16	X	X	X	X	X		
	19	X	X	X	X	X		
	20	X	X	X	X	X		
	21	X	X	X	X	X	X	X

^(a)Includes compounds identified in 40 CFR 261.24, Table 1 (TCLP-toxicity characteristic list), and 22 CCR 66699 (2) (b) and (c) (California Title 22 list).

^(b)Includes compounds identified in 40 CFR 268.41, Table CCWE (land-banned list for EPA Hazardous Waste Nos. F001-F005).

**Table 4-3
Required Analytical Test Methods
Waste Soil and Drilling Mud
MCAS El Toro, California**

Parameter	Test Method
Reactivity - Total Sulfide	EPA 9030
Reactivity - Total Cyanide	EPA 9010
Total Petroleum Hydrocarbon (TPH)	EPA 418.1 (modified)
Metals Digestion	EPA 3000 Series
Organic Extraction	
Metals	EPA 6010/7000 Series
Volatile Organics	EPA 8240
Semivolatile	EPA 8270
Dioxins	EPA 8280
PCBs/Pesticides	EPA 8080
Herbicides	EPA 8150
TCLP Extraction*	EPA 1311
TCLP Zero Headspace Extraction (ZHE)*	EPA 1311
*Extraction test will be performed and the extract analyzed only if the results of total contaminant analysis exceed 20 times the TCLP standards, or 10 times the STLC standards.	

**Table 4-4
Required Analytical Test Methods
Wastewater
MCAS El Toro, California**

Parameter	Test Method
Corrosivity (pH)	EPA 9040
Total Petroleum Hydrocarbon (TPH)	EPA 418.1 (modified)
Metals	EPA 6010/7000 Series
Volatile Organics	EPA 8240
Semivolatile Organics	EPA 8270
PCBs/Pesticides	EPA 8080
Herbicides	EPA 8150
TCLP Extraction*	EPA 1311
TCLP Zero Headspace Extraction (ZHE)*	EPA 1311
*Extraction tests will be performed if the solids content of the water sample exceeds 0.5 percent. Otherwise, the water can be analyzed directly.	

AGENDA

**MARINE CORPS AIR STATION (MCAS) EL TORO RI/FS
PRELIMINARY PHASE I ACTIVITIES**

TECHNICAL UPDATE MEETING WITH REGULATORY AGENCIES

Wednesday, 11 Sept 1991
Thursday, 12 Sept 1991
Bldg. #368

0900

Wednesday, 11 Sept 1991

Morning

- 0900 Update on progress since last agency meeting (18 July 1991)
- 1000 Brief presentation of proposed schedule for MCAS El Toro RI/FS
- 1010 Proposed Work Plan modifications to reduce disposal costs
- a. Number and duration of aquifer tests
 - b. Use of multi-port wells
 - c. 3-Inch versus 4-inch diameter monitoring wells
- 1100 Remaining issues pertaining to RI-derived waste disposal
- a. On-station soil/drilling mud disposal
 - b. Disposal of clear water
 - c. Changes in analytical protocol for waste samples
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Afternoon

- 1315 Lining of Agua Chion Wash - City of Irvine
- 1400 Orange County Water District (OCWD) Desalter Project - Roy Herndon
- 1500 Continuation of waste disposal issues

Thursday, 12 Sept 1991

- 0900 Requested RI/FS and RFA schedule modifications

**MCAS EL TORO RI/FS
PRELIMINARY PHASE I ACTIVITIES**

Progress from 17 July 91 through 11 Sept 91

TASK A. Review Aerial Photographs, Site Surveys, and Topographic Maps

- o Review of historical aerial photography of the base prior to development will be completed at the Fairchild Collection (Whittier College) to evaluate surface and subsurface geologic features
- o Sample locations have been plotted on the aerial photography base maps prepared for MCAS El Toro. Copies of these maps will be prepared for use by the Navy and CH2M HILL.

TASK B. Existing Data Analysis

- o A technical memorandum on the condition of the well heads and to access to the Orange County Water District (OCWD) monitoring wells.

TASK C. Site Mapping

- o Reproducible mylars of each site and of the entire MCAS El Toro base were prepared.

TASK D. Waste Management Plan

- o Proposed disposal levels for non-hazardous soil have been developed.
- o Analytical tests for waste samples have been revised to increase efficiency of testing.
- o Comments on the Draft Waste Management Plan have been received from EPA and DHS. Revision of the document will be completed upon receipt of RWQCB comments and resolution of remaining issues.

TASK E. Preliminary Data Management Activities

- o A presentation of ITEMS was given to CH2M HILL project personnel.
- o CH2M HILL sample tracking software has been evaluated for use at El Toro.

TASK F. Subcontractor Procurement

A. Procurement of Drilling Services

- o Evaluation of drilling bids and recommendation for the subcontractor was completed.
- o The contract will be awarded upon receipt of funding for Phase I of the MCAS El Toro RI/FS.

B. Procurement of Professional Services

- o Preparation of RFP has begun.

TASK G. Easements/Permits

- o The well permit package has been reviewed by NAVFACENCOM, Southwest Division.

TASK H. Subcontracting/Coordination of Analytical Services

- o Contract will be awarded to selected laboratories after Phase I has been funded.

TASK I. Field Equipment/Facilities Design

- o Preliminary design plans for the temporary facilities have been completed.
- o Meeting with MCAS El Toro representatives was held on 29 August 1991 to discuss review comments on the preliminary design plans.
- o Specifications for preliminary internal review will be done this week.

TASK J. GEOPHYSICAL SURVEYS

- o No additional work needed.

TASK K. COMMUNITY RELATIONS

- o A community relations coordination meeting was held with representatives from the Navy, MCAS El Toro, DHS, and CH2M HILL on Monday, August 5.
- o Comments on the draft fact sheet have been received and the fact sheet has been revised.

- o An inventory of documents at the Heritage Park Library information repository was made. Plans have been made for the MCAS El Toro information repository.
- o Community meetings have been planned for MCAS El Toro (morning of 7 Oct 91) and the surrounding communities (Woodbridge High School, evening of 7 Oct 91). The Navy will have a dry run on Thursday, 3 Oct 91.

11 Sept 91

MCAS EL TORO RI/FS PHASE I

**PROPOSED WORK PLAN MODIFICATIONS
TO REDUCE DISPOSAL COSTS**

1. Number and Duration of Aquifer Tests

Currently Specified in Work Plan:

- a. 4-hour aquifer test at all new monitoring wells (118 tests assuming that 2 multiple port wells are used)
- b. 72-hour aquifer test at two wells

Proposed:

- a. 4-hour aquifer tests at half of all new wells (59 tests total). Drawdown data will be collected at all wells during purging.
- b. 48-hours aquifer test at two wells; continue to 72-hours if field data indicates boundary effects, leakage, or delayed yield

2. Use of Multiple-port (MP) Monitoring Wells

- a. MP wells are used in place of well clusters
- b. Individual permeable zones can be monitored from a single casing.

PROS:

- o The use of a single borehole greatly reduces soil volumes.
- o MP wells do not have to be purged prior to sampling.
- o Cost of an MP well may be significantly less than a well cluster, depending on the number and depths of sampling intervals.

CONS:

- o Aquifer testing of permeable intervals is not possible.
- o Packer leakage may potentially occur, resulting in loss of data and greater maintenance than convention wells.

3. Use of 3-inch Diameter Monitoring Wells

PROS:

- o May allow for drilling of wells with a 10-inch OD dual-tube percussion rig instead of a 14-inch OD rig.
- o Well purge volume for 3-inch diameter well is approximately half that of a 4-inch diameter well.

CONS:

- o Aquifer tests may not be possible with 3-inch diameter wells.
- o Wells will have reduced capacity for extraction if needed for groundwater containment in the future.

**MCAS El Toro Remedial Investigation - Phase I
Meeting with Regulatory Agencies
Waste Management Issues
11 September 1991**

On-Station Soil/Drilling Mud Disposal

1. Comparison of drinking water standards and Orange County Class III landfill acceptance levels (see attached table)

2. **Nonhazardous** wastes with contaminant levels greater than proposed levels for on-Station disposal ("**intermediate**" wastes) can be disposed:
 - o Off-Station at Class I landfill - *This alternative is the current proposal for disposal of intermediate wastes; however, because the disposal levels are much lower than hazardous waste threshold levels, an undetermined, and possibly large, volume of intermediate wastes may be generated.*

 - o On-Station at inactive landfill(s) - *The soil/drilling mud can be used as cover at one or more of the four inactive landfills. According to the RWQCB, this alternative is acceptable for disposal of nonhazardous wastes. Before actual placement of wastes on the landfills occur, each landfill should be studied to determine its suitability.*

 - o On-Station using bioremediation - *This alternative requires the acquisition of an air permit from the SCAQMD. If land application of soil/drilling mud is employed, the exact requirements for the alternative must be determined.*

 - o On-Station by stockpiling at a designated area - *The intermediate wastes can be stockpiled on-Station until a proper disposal alternative is determined after completion of the Feasibility Study phase of the project.*

Action Items:

- o The RWQCB, EPA, and DTSC need to concur with alternatives for disposal of nonhazardous, intermediate wastes

TABLE . Comparison of Drinking Water Standards and Class III Acceptance Levels.

Parameter	State Maximum Contaminant Level (ug/l)	Orange County Class III Landfill	
		Acceptance Level * (ug/kg)	Attenuation Factor
FFA List of Chemicals of Concern:			
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Carbon Tetrachloride	0.5	0.5	1
Chlorobenzene	30	30	1
Chloroform	NA	TBD	NA
1,1-Dichloroethane	5	5	1
1,1-Dichloroethylene	6	6	1
cis-1,2-Dichloroethylene	6	6	1
trans-1-2-Dichloroethylene	10	10	1
Ethyl Benzene	680	100	0.15
Methyl Ethyl Ketone	NA	TBD	NA
Tetrachloroethylene (PCE)	5	5	1
Toluene	NA	100	NA
1,1,1-Trichloroethane (TCA)	200	200	1
1,1,2-Trichloroethane	32	32	1
Trichloroethylene (TCE)	5	5	1
Xylenes	1750	620	0.35

NA - Not Available

TBD - To Be Determined

* The acceptance levels for benzene, ethyl benzene, toluene, and xylenes are established criteria. Disposal levels for other parameters are based on drinking water standards. Orange County is currently in the process of having acceptance levels approved by the Regional Water Quality Control Board, Santa Ana Region.

MCAS El Toro Remedial Investigation - Phase I
Meeting with Regulatory Agencies
Waste Management Issues
11 September 1991

Disposal of Clear Water

1. Uncontaminated clear water (i.e., water not requiring any treatment) generated can be disposed:
 - o On-Station to drainage channels - *The field program will be conducted after the dry season. The NPDES permit will require modification to allow for discharge of nonhazardous clear water to drainage channels.*
 - o Off-Station to Irvine Ranch Water District (IRWD) via on-Station sewer line tie-in(s) - *This option requires obtaining permission from the IRWD (Contact: Jim Hyde, 476-7500). Appropriate on-Station sewer line tie-in(s) must also be identified.*

2. Clear water requiring activated carbon polishing/treatment can be disposed:
 - o On-Station to golf course as irrigation water - *Details of the treatment/irrigation system are needed. The appropriate Basin Plan objectives are also needed. Disposal levels for the water will be based on the Basin Plan objectives (for inorganic levels), as well as the discharge requirements for the water currently being treated and irrigated at the golf course (for volatile organic levels).*
 - o Off-Station to Irvine Ranch Water District (IRWD) via on-Station sewer line tie-in(s) - *Same issues as ones discussed above.*

3. Rainwater collected in the Waste Staging Area will require laboratory analysis on a periodic basis. *The conditions under which collected rainwater must be sampled should be specified.*

Action Items:

- o The RWQCB needs to concur with discharge of nonhazardous clear water to the drainage channels, including amendments to the NPDES permit
- o The Navy/CH2M HILL needs to contact the IRWD for permission to discharge to the sewers
- o MCAS El Toro needs to identify the appropriate sewer line tie-in(s)
- o The RWQCB, or MCAS El Toro, needs to provide a copy of the discharge order under which the treatment/irrigation system operates
- o The RWQCB needs to provide the appropriate Basin Plan objectives
- o The conditions for rainwater sampling needs to be specified

MCAS El Toro Remedial Investigation - Phase I
Meeting with Regulatory Agencies
Waste Management Issues
11 September 1991

Changes to Analytical Protocol for Waste Samples - Soil/Drilling Mud

1. *Total* contaminant analysis is proposed initially instead of the TCLP or the WET. When extraction testing is required, the TCLP is proposed instead of the WET.
2. The full lists of volatile organics (EPA 8240), semivolatile organics (EPA 8270), PCBs/pesticides (EPA 8080), and herbicides (EPA 8150) are proposed for analysis.
3. Ignitability testing is proposed to be removed.
4. Reactivity testing, specifically total sulfide and total cyanide, is proposed to be added.
5. Total fuel hydrocarbons (TFH) analysis is proposed to be removed; only total petroleum hydrocarbons (TPH) analysis is proposed instead.
6. Hexavalent chromium analysis is proposed to be removed.
7. Fluoride testing is proposed to be removed.
8. Organic lead analysis is proposed only at sites known or suspected to be contaminated with leaded fuels.
9. Pesticides/herbicides analysis is proposed only at sites where wastes of unknown sources are disposed.

Action Item:

- o The EPA, DTSC, and RWQCB need to concur on proposed changes

**MCAS El Toro Remedial Investigation - Phase I
Meeting with Regulatory Agencies
Waste Management Issues
11 September 1991**

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A *60-day extension* of the less-than-90-day storage requirement for the Waste Staging Area is requested in order to account for special circumstances (e.g., additional confirmation testing, consolidation of smaller volumes of wastes into one bin) which may prevent the timely transfer of wastes for final disposal.

Action Item:

- o The EPA and DTSC need to concur on extension request

AGENDA**MARINE CORPS AIR STATION (MCAS) EL TORO RI/FS
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AGENDA

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- a. Number and duration of aquifer tests
 - b. Use of multi-port wells
 - c. 3-Inch versus 4-inch diameter monitoring wells
- 1100 Remaining issues pertaining to RI-derived waste disposal
- a. On-station soil/drilling mud disposal
 - b. Disposal of clear water
 - c. Changes in analytical protocol for waste samples
 - d. Request for extension of the less-than-90-day storage requirement for the waste staging area

Afternoon

- 1315 Lining of Agua Chino Wash - City of Irvine
- 1400 Orange County Water District (OCWD) Desalter Project - Roy Herndon
- 1500 Continuation of waste disposal issues

Thursday, 12 Sept 1991

- 0900 Requested RI/FS and RFA schedule modifications

**MCAS EL TORO RI/FS
PRELIMINARY PHASE I ACTIVITIES**

Progress from 17 July 91 through 11 Sept 91

TASK A. Review Aerial Photographs, Site Surveys, and Topographic Maps

- o Review of historical aerial photography of the base prior to development will be completed at the Fairchild Collection (Whittier College) to evaluate surface and subsurface geologic features
- o Sample locations have been plotted on the aerial photography base maps prepared for MCAS El Toro. Copies of these maps will be prepared for use by the Navy and CH2M HILL.

TASK B. Existing Data Analysis

- o A technical memorandum on the condition of the well heads and to access to the Orange County Water District (OCWD) monitoring wells.

TASK C. Site Mapping

- o Reproducible mylars of each site and of the entire MCAS El Toro base were prepared.

TASK D. Waste Management Plan

- o Proposed disposal levels for non-hazardous soil have been developed.
- o Analytical tests for waste samples have been revised to increase efficiency of testing.
- o Comments on the Draft Waste Management Plan have been received from EPA and DHS. Revision of the document will be completed upon receipt of RWQCB comments and resolution of remaining issues.

TASK E. Preliminary Data Management Activities

- o A presentation of ITEMS was given to CH2M HILL project personnel.
- o CH2M HILL sample tracking software has been evaluated for use at El Toro.

TASK F. Subcontractor Procurement

A. Procurement of Drilling Services

- o Evaluation of drilling bids and recommendation for the subcontractor was completed.
- o The contract will be awarded upon receipt of funding for Phase I of the MCAS El Toro RI/FS.

B. Procurement of Professional Services

- o Preparation of RFP has begun.

TASK G. Easements/Permits

- o The well permit package has been reviewed by NAVFACENCOM, Southwest Division.

TASK H. Subcontracting/Coordination of Analytical Services

- o Contract will be awarded to selected laboratories after Phase I has been funded.

TASK I. Field Equipment/Facilities Design

- o Preliminary design plans for the temporary facilities have been completed.
- o Meeting with MCAS El Toro representatives was held on 29 August 1991 to discuss review comments on the preliminary design plans.
- o Specifications for preliminary internal review will be done this week.

TASK J. GEOPHYSICAL SURVEYS

- o No additional work needed.

TASK K. COMMUNITY RELATIONS

- o A community relations coordination meeting was held with representatives from the Navy, MCAS El Toro, DHS, and CH2M HILL on Monday, August 5.
- o Comments on the draft fact sheet have been received and the fact sheet has been revised.

CONS:

- o Aquifer testing of permeable intervals is not possible.
- o Packer leakage may potentially occur, resulting in loss of data and greater maintenance than convention wells.

3. Use of 3-inch Diameter Monitoring Wells

PROS:

- o May allow for drilling of wells with a 10-inch OD dual-tube percussion rig instead of a 14-inch OD rig.
- o Well purge volume for 3-inch diameter well is approximately half that of a 4-inch diameter well.

CONS:

- o Aquifer tests may not be possible with 3-inch diameter wells.
- o Wells will have reduced capacity for extraction if needed for groundwater containment in the future.

11 Sept 91

MCAS EL TORO RI/FS PHASE I

**PROPOSED WORK PLAN MODIFICATIONS
TO REDUCE DISPOSAL COSTS**

1. Number and Duration of Aquifer Tests

Currently Specified in Work Plan:

- a. 4-hour aquifer test at all new monitoring wells (118 tests assuming that 2 multiple port wells are used)
- b. 72-hour aquifer test at two wells

Proposed:

- a. 4-hour aquifer tests at half of all new wells (59 tests total). Drawdown data will be collected at all wells during purging.
- b. 48-hours aquifer test at two wells; continue to 72-hours if field data indicates boundary effects, leakage, or delayed yield

2. Use of Multiple-port (MP) Monitoring Wells

- a. MP wells are used in place of well clusters
- b. Individual permeable zones can be monitored from a single casing.

PROS:

- o The use of a single borehole greatly reduces soil volumes.
- o MP wells do not have to be purged prior to sampling.
- o Cost of an MP well may be significantly less than a well cluster, depending on the number and depths of sampling intervals.

- o An inventory of documents at the Heritage Park Library information repository was made. Plans have been made for the MCAS El Toro information repository.
- o Community meetings have been planned for MCAS El Toro (morning of 7 Oct 91) and the surrounding communities (Woodbridge High School, evening of 7 Oct 91). The Navy will have a dry run on Thursday, 3 Oct 91.