	PROJECT NOTE NO.	PROJECT NO.
M60050.000830 MCAS EL TORO SSIC # 5090.3	PN-0145-46 CLE-C01-01F145-I2-0043	01-F145-H6

CONFIRMATION OF:	CONFERENCE	X	DATE HELD	18 June 1992
	TELECOM		DATE ISSUED	5 August 1992
	OTHER		RECORDED BY	J. Dolegowski/CH2M HILL
			PLACE	MCAS El Toro

SUBJECT

Minutes of Meeting with Regulatory Agencies
CTO #0145, Marine Corps Air Station (MCAS) El Toro
Remedial Investigation/Feasibility Study (RI/FS)
Phase 1

PARTICIPANTS: (* DENOTES PART-TIME ATTENDANCE)

A. Piszkin/Code 1812.AP
C. Mitchell/MCAS EL Toro
J. Dolegowski/CH2M HILL
C. Elliott/CH2M HILL
S. Ross/CH2M HILL
M. Alonzo/Cal EPA-DTSC
J. Hamill/EPA
J. Kao/SAIC
B. Peterson/CH2M HILL
L. Nuzum/SOUTHWESTDIV
G. Stewart/CRWQCB-SAR
J. Broderick/Cal EPA-DBC
K. Williams/RWQCB
R. Herndon/OCWD
Y. Chuang/CH2M HILL
R. Lard/COMCHBWEST
W. Lee/MCAS El Toro

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Representatives of Marine Corps Air Station (MCAS) El Toro; Naval Facilities Engineering Command-Southwest Division (SOUTHWESTDIV); CH2M HILL; and the regulatory agencies, the U.S. Environmental Protection Agency (EPA), SAIC (EPA's consultant), the California Department of Toxic Substances Control (DTSC), and the California Regional Water Quality Control Board (RWQCB); met in Building T-2006 (ROICC Office Conference Room) at MCAS El Toro at 0900 on 18 June 1992. These meeting minutes (prepared by CH2M HILL and reviewed by SOUTHWESTDIV) summarize the major points of discussion, significant decisions reached during the meeting, and action items.

TOPICS OF DISCUSSION

- Organizational and personnel changes
- Seismic survey at Site 17
- Desalter project
- Agua Chinon Wash construction
- Community relations activities
- Team building
- Status of field operations
- Proposed changes to the Sampling and Analysis Plan (SAP)
- Pesticide/herbicide sampling

SUMMARY OF ACTION ITEMS

- The RWQCB will review the January 1992 agency meeting minutes to identify statements with which they disagreed regarding enforceable and nonenforceable dates. These issues will be discussed at a future managers' meeting.

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- The Jacobs Engineering Group (Jacobs) Team will prepare a memorandum proposing an approach and costs to perform a seismic survey at Site 17.
- The Jacobs Team will propose a new approach to the analysis of environmental samples for pesticides and herbicides.
- Soil borings in the Agua Chinon Wash will be completed prior to the lining of the wash in October 1992.

SUMMARY OF DECISIONS REACHED

- The Navy will authorize a seismic survey at Site 17.
- Agency personnel will participate in team-building activities.
- To reduce the likelihood of casing failure, field personnel will use a Benseal/sand mixture for grouting the bottom of monitoring wells over approximately 150 feet instead of neat cement.
- Methanol will be substituted for isopropanol and hexane in decontamination activities.
- Although agencies may still have reservations regarding certain aspects of the proposed sampling approach in the SAP Amendment, these reservations will be documented and the RI/FS Phase I will move forward.

UPCOMING MEETINGS/OPEN HOUSE

- The next Managers' Meeting will take place on 06 August 1992.
- The environmental "Open House" will be held at MCAS El Toro on 19 June for on-Station personnel and 20 June for the public (the news media are invited for both days).

INTRODUCTIONS/PERSONNEL CHANGES

Andy Piszkin/SOUTHWESTDIV welcomed the attendees to the meeting, distributed copies of the agenda, and asked each person to introduce themselves to the group. During the introductions, John Hamill/EPA introduced Jim Kao of SAIC, who is replacing Sebastian Tindall. John Broderick/RWQCB has moved to the Water Board from DTSC.

Wayne Lee/MCAS El Toro spoke of organizational changes at MCAS El Toro. A separate environmental department had been formed, different from facilities management. He introduced Colonel Ronald Lard, who will head this division. Wayne Lee will be Colonel Lard's Deputy. He continued that there will be three divisions within the new department: Environmental Engineering (headed by LCDR Serafini), Resource Recovery, and Hazardous Waste Management. Colonel Lard then spoke briefly, and mentioned his desire that the new division work effectively with the regulatory agencies. He said that his office would be happy to provide information or

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assistance on environmental efforts at any of the local Marine stations (Yuma, Tustin, and Air Station Pendleton, in addition to El Toro).

PROGRESS REPORTS

Andy Piszkin said that the May Monthly Progress Report and the 14 May 1992 meeting minutes were supplied to the regulatory agencies in advance of the present meeting. He said that efforts were being made to speed up the process. He also said that from now on the agencies could have copies of the Monthly Progress Reports. Ken Williams said that he wanted to amend an item on the January minutes regarding enforceable and nonenforceable dates.

ONGOING ISSUES

Desalter Project

Andy Piszkin stated that the Jacobs Team was conducting an economic analysis of the Navy's appropriate share of the funding of the Desalter Project and the construction of the "MCAS" wells and ET-1. He anticipated a draft document on 03 August 1992. Cathy Quinn and Ed Rogan will be taking the lead on this project. The sampling of the "MCAS" wells is not part of the scope of the Statement of Work (SOW) for the RI/FS. However, the Navy intends to take over sampling the wells, and will probably release a SOW to begin sampling all wells in the sampling network after the RI Phase I field work is concluded. The first sampling episode could be as soon as three or four months. Westbay has agreed to send a representative to train the samplers. In the meantime, the Orange County Water District (OCWD) is continuing to sample the off-Station wells.

Roy Herndon/OCWD then gave a presentation on the progress of the Desalter project. He said that OCWD had provided the Marines with a Certificate of Insurance so that they could move forward and process the licensing agreement that will allow OCWD to construct on Marine property. After receiving the agreement, OCWD will go out to bid, and hope to begin drilling in late August or early September. They hope to complete the project and go online about 2 years after starting the drilling. They are also presently negotiating with the Irvine Ranch Water District and the Irvine Company to allow for water pumping from the groundwater basin. Present agreements limit pumpage to about 1,000 acre-feet per year and the Desalter Project will greatly exceed that amount. Roy went on to say that they are adding another pump bowl to ET-1 to increase the discharge from that well from about 850 gpm to about 1,100-1,200 gpm.

Roy continued that it may be necessary to change the location of one extraction well based on the final location of the Desalter treatment facility. There are currently three sites that are receiving consideration. This well will be the last (fourth) to be drilled. Chuck Elliott/CH2M HILL asked whether the potential changes would significantly alter the projected groundwater flow paths or drawdowns. Roy replied that he did not expect any significant change. Finally, he said that in negotiations with the Navy over financial contributions to the project, he did not think that OCWD would be inflexible. For example, they expected that MCAS El Toro may assign a dollar value for granting easement rights to Marine property. Andy Piszkin said that property valuations were not part of the CH2M HILL study.

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John Hamill then asked for clarification on the holdup on the Desalter Project, and expressed EPA's interest in seeing the project go forward. Roy replied that the restraints were mainly legal, licensing, easements, contractual, etc. John Hamill then offered to help if any regulatory restraints held up the project.

Andy Piszkin asked whether Roy had seen any data yet. Roy replied that Sylvia Ross/CH2M HILL had invited him onto the Station. Andy confirmed that Roy is welcome to look at the data, and that the Navy sees him as a valuable resource.

Seismic Survey

Andy Piszkin announced that the Navy had decided to go ahead and authorize a seismic survey of the bedrock/alluvium interface at the mouth of the canyon at Site 17 (the Communication Station Landfill). This will be completed prior to drilling the downgradient well. Ken Williams/RWQCB then asked for specifics on the survey. Andy replied that the exact approach of the study and costs have not been investigated yet. John Dolegowski will write a memo proposing an approach, such as one line or two, the configuration of the lines, the cost, etc. The agencies would have input on the technical issues relating the seismic survey. Ken said that the seismic survey should not hold up the Sampling and Analysis Plan (SAP) Amendment.

Agua Chinon Construction

Andy Piszkin stated that he had contacted Shawn Thompson of the City of Irvine regarding the proposed lining of Agua Chinon Wash. He had agreed to perform data validation on sample results collected by City in soil beneath the wash. He anticipated that they would begin construction in October 1992, which would coordinate well with the RI's slant boring program. Additional slant borings would be part of the SAP Amendment.

Jim Kao/SAIC then mentioned a memo he had read that indicated that the City had agreed on the potential need to tear up the liner or box if sample results indicated that the soil was contaminated. John Hamill confirmed that the City had agreed to tear up the last 100 feet if necessary. Andy Piszkin said that they would try to complete soil sampling prior to the City's construction. Wayne Lee said that he would contact the City of Irvine.

Community Relations Activities

Andy Piszkin invited the regulators to tour the site facilities on Friday morning; Chrisa Mitchell/MCAS El Toro suggested meeting at her office. Andy went on to describe the Friday afternoon and Saturday morning activities, with presentations and exhibits. For example, a drill rig, bins, Baker Tanks, safety equipment, etc., would be on display. Friday would be held for MCAS personnel, with John Hamill in attendance. Saturday would be open to the public, with Ken Williams and a representative from DTSC in attendance. The objective was to educate the public about environmental activities at MCAS El Toro. The media would be invited both days.

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Other Scoping Activities

Andy Piszkin said that Desire Chandler/SOUTHWESTDIV was working on budgeting and contracts to begin additional aerial photo analysis. The RCRA Facility Assessment contracts for MCAS El Toro had been signed by the Navy and were almost ready to be awarded.

Team Building

Larry Nuzum/SOUTHWESTDIV described the team-building process as it had worked for the agency and Navy personnel involved in work at Yuma. After a three-day focused retreat without distractions, all the parties had been able to reach agreement on objectives and goals for the project. As a consequence, the project is running much more smoothly. Larry then proposed that the MCAS El Toro team do the same thing. He said that the Navy was looking for funding, and hoped to be able to have the retreat by late July, with a second session in a couple months.

John Hamill asked whether this was part of the Data Quality Objectives (DQO) process. Larry replied that it was not, but the team-building efforts would help when it was time to develop DQOs. Three meetings would be devoted to formulating DQOs. John Hamill then asked whether EPA senior management would be invited. Larry said that senior management would be invited to attend the first session. Manny Alonzo/DTSC said that California EPA was going through a restructuring, and that it may be difficult getting buy-in from upper management now. Signature authority appears to be consolidating in Sacramento at this point. Some person from Sacramento may have to attend. In any case, it was important that people with authority attend the team-building retreat.

STATUS OF FIELD OPERATIONS

Sylvia Ross then gave a presentation on the status of field operations. She said that Waste Management facilities were substantially complete–the decontamination pad and waste storage area were ready, and the granular activated carbon (GAC) towers were about ready. Drilling had begun with the Operable Unit (OU-) 1 wells, of which there were about 60. They had started with two mud rotary rigs, one mud/air combo, and 2 dual-tube rigs (Becker rigs). They were having problems with clay at well #15 (on the northwest of the base); clay was clogging the annular space between the inner and outer casing of the dual-tube rigs. Even though they tried moving the smaller rig off the hole and substituting a larger dual-tube rig, they were still having problems. They finally decided to use an air rotary with drill-through casing drive at Well #15. They also had located coarse stream-channel deposits on the north side of the station in Well #16. Because of the difficulties, the drillers had brought a CME-95 hollow-stem auger onsite to see if there was any improvement.

Ken Williams asked whether 3-inch-diameter wells would be used and why. Sylvia Ross replied that, if used, they would be for water-table wells to generate smaller volumes of water for disposal during purging and sampling. John Dolegowski/CH2M HILL pointed out that the agencies had already agreed to this, and that the agreement was documented in the November 1991 meeting minutes. Ken replied that 3-inch wells would not save much volume--it was the volume of the gravel pack that mattered,

not that of the well. He then asked whether field personnel would use a "pig" in the well to ensure straightness. John Dolegowski replied that the key was whether a pump would fit down the well. If not, the well would not be accepted, and the driller would have to construct another well.

Sylvia Ross continued that the only volatile organic compounds (VOCs) detected so far were trihalomethane compounds that likely originated in the potable water they are using to help develop two wells. A sample of potable water had been submitted for analysis to test this hypothesis. John Hamill asked whether there had been any problems with wells off-Station yet. John Dolegowski replied that they had not started drilling off-Station, because they had received permission from the Irvine Company only that week.

Sylvia finished her discussion by showing a typical electric borehole log taken from the pilot borehole for the deep well from a cluster of wells. She used the log to demonstrate how screened intervals were selected, as well as how the decision was reached to stop drilling when semiconsolidated sediments were contacted. She indicated that Geographic Information System (GIS) analysis will be used for interim analysis of data. For example, as water elevation data is collected, it will be entered on GIS and there will be a steadily improved understanding of the groundwater flow directions.

John Dolegowski then brought up some proposed changes to the procedures in the SAP. First, he proposed substituting for neat grout in deep wells. Because of the heat of formulation of the grout and the potential for damaging the casing, he proposed using two grouts: a Benseal/sand grout above the screen to a depth of about 40-50 feet below grade, and a neat grout above that to the surface. John went on to explain that the SAP gave them the option to use either jars or baggies for headspace analysis of soils, and that they had settled on baggies. He finally proposed that methanol be substituted for isopropanol or hexane, since it would not be picked up on a gas chromatograph, and is miscible in water. Agency representatives agreed that these changes would be okay.

SAMPLING PLAN CHANGES

John Dolegowski stated that at the last meeting the agencies had expressed disagreement with the statistical approach to sampling. This had surprised him, because he thought that the Navy had been given firm direction to pursue a statistically-based approach by the agencies. John Hamill replied that initially EPA did want a statistical approach, but that the Navy had balked at using the approach during Phase I, and wanted to delay to Phase II. The SAP had been approved without a statistical approach. Now, with the aerial photographs, CH2M HILL for the first time had indicated that the statistical approach could be accomplished. Chuck Elliott stated that every effort had been made to include a statistical approach, and pointed to Sections 4.6.1 (General Sampling Approach) and Section 6.4.2.1 (Soil Sampling–Random Sampling) in the original SAP as examples. The problem had been that so little was known about the sites, other than anecdotal evidence, that it was difficult to establish rigorous strata. Most sites had one or at most only two strata. Later, with the results of the geophysical surveys and aerial photo analysis in hand, it was possible to do a more precise job of defining strata. So, the approach had not

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	changed, but the analysis had improved. Andy Piszkin emphasized that the statistical approach would continue in Phase II and would continue to be refined.
	Ken Williams said that the RWQCB has no problem with statistically based sampling, only with this application of it. For example, he did not think it would be possible to reduce the list of Contaminants of Concern (COCs) in Phase II, because the present approach failed to assign samples to locations where aerial photos showed clearly that contamination had existed in the past. If these places were not sampled, then the samples that were collected would not conclusively demonstrate that contaminants were not present. John Dolegowski then suggested that Bruce Peterson/CH2M HILL, who is a statistician, make a brief presentation on the statistical approach to sampling.
	Bruce Peterson began by saying that there were three main objectives to the RI/FS Phase I: 1) evaluate the extent of VOC contamination in regional groundwater and identify source areas; 2) estimate constituent concentrations at potential source areas for preliminary risk assessment; and 3) refine the list of COCs for the phase II investigation.
	The statistical sampling strategy is directed at providing a defensible basis for the second and third objectives of the RI/FS. The key decisions to be made at the end of Phase I are the number and allocation of samples needed for Phase II sampling and the list of constituents for which the samples should be analyzed. The sampling strategy is designed to provide information both in the case of constituent concentrations being below the detection limit of the analytical method and the case of detectable constituent concentrations.
	The soil sampling strategy has two components designed to provide confidence that the inferences made from Phase I data are correct. First, each site is subdivided into statistical strata. Each strata consists of regions, based on historical records and photographs, in which similar activities and patterns of contamination took place. Second, a minimum number of randomly located samples are collected from each strata. The random allocation of samples allows inferences to be made about constituent concentrations in the strata even if all samples yield nonquantifiable results.
	The preliminary risk assessment will be based on reasonable maximum exposures (RMEs) to the COCs. The soils sampling method is designed to provide an upper bound on the RME concentrations even if all samples result in concentrations below the detection limit. Because little is known about the statistical distribution of constituent concentrations, RMEs will be estimated using a largest of N sample strategy. Such a sampling strategy makes no assumptions about the expected concentrations or detectability of the constituents of concern.
	Simple probability is used to show that the confidence (probability of being correct) in the largest constituent concentration in N samples is greater than P percent (as fraction) of all potential sample concentrations ($C = 1 - P^N$). For the Phase I sampling, P was chosen to be 0.5 (the median) and N was chosen to be three, for a confidence of 87.5% that the largest value is greater than the median. If all the sample concentrations for a constituent are nonquantifiable, then this implies (with 87.5% confidence) that the constituent is typically not quantifiable in the strata. If the samples

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	analyzed show detectable levels of a constituent, then the values can be used during the DQO process to indicate the number of additional samples required. John Hamill asked why the median was used rather than the mean. Bruce replied that use of the mean implied that the data were normally distributed. Other distributions were also possible. Using the median avoids the need to make initial assumptions regarding the distribution of the data. John Hamill then asked whether the data would be used to support decisions that the site was "clean" before beginning Phase II. Ken Williams expressed his concern that we still do not have enough information to assume that a stratum was homogeneous. Bruce continued that the second objective of the Phase I sampling is to refine the list of COCs. Representative samples collected at random at each potential source area or site allow a decision tree to be used to refine the list with confidence that the samples are representative of the strata constituent concentrations. For example, the flow of decisions that might be made to determine whether a constituent is dropped from the list during Phase II may begin by asking whether the COC poses a risk at the site. If so, keep it on the list. If not, ask whether it poses a risk at any other site. If so, probably keep it on the list. If not, ask whether it has been in general use at the station. If so, possibly keep it on the list. If not, and it has not shown up in samples, then drop it from the list. Stratified random sampling provides a tool for making these decisions, and makes these decisions defensible. Also, the regulatory agencies will participate in the decision-making process. Larry Nuzum assured the group that the statistical approach provided a foundation to build on. Statistical sampling would continue in Phase II, although it would serve different objectives at that time. For example, evaluation of the extent of contamination would be a Phase II statistical activity, probably using a grid approach. Attention then turned to Sites 8 and 10, to work through the process of assigning strata and samples. Yueh Chuang/CH2M HILL discussed the process he went through in trying to mark stain locations on the base maps. The scale was very small on the aerial photos, and many of the stains were listed as "possible". In some cases, there were so many stains that it was not possible to mark all of them on the map (as the east side of the main storage yard at Site 8). In other cases, it was possible that EMSL had been inaccurate in the aerial photo interpretation; for example, EMSL mistakenly referred to a mountain located north of El Toro as an "excavation". After some discussion, the agencies decided that the approach at these sites was adequate. John Hamill remarked that, at this point, Phase I was too far along to make too many fundamental changes. It was best to go ahead and collect the data, and do the best possible job on Phase II. John Dolegowski reminded the group that 74 additional samples were proposed for addition under the SAP Amendment, as well as many other scope increases (additional screen length, etc.). Yueh Chuang went through a cost analysis he had made of the proposed changes to that point. For example, Yueh stated that the additional analytical cost was $130,000. The additional costs for drilling, soil borings and well construction was $137,000, for a total increase of approximately $270,000, plus Jacobs Team labor.

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The group then worked on Site 9, Crash Crew Pit No. 1. Yueh Chuang presented an overview of the proposed investigation at the site. John Broderick/RWQCB said that he felt that surface soil samples should be collected for risk assessment. This appeared to be the only site where surface soil samples were not being collected. Chuck Elliott said that the reasoning had been that the surface soil represented fill that had been placed in the pits. The sampling effort should focus on and beneath the former surface of the pits. John Hamill suggested that surface soil samples could be collected at the boring locations. Chuck Elliott said that then the samples would not be statistically based. Bruce Peterson said that surface soil samples for risk assessment should be randomly placed. Ken Williams pointed out that risk assessment and source identification were two different goals. John Broderick said that it was apparent that there were inconsistencies in approach among the sites. Ken Williams suggested that this be documented in the notes. John Hamill said that the best thing to do at this point was to document the disagreement and move on.

Ken Williams asked whether the sum of strata at a given site equaled the total area of the site. Chuck Elliott agreed that this was true. Ken then said that, if all the "blobs" at the site were included in strata, then the remainder of the site should constitute a stratum also and be sampled. Discussion continued of this "blob/antiblob" approach. Bruce Peterson said that a statistically viable approach was to include the stains visible on aerial photographs as one or more strata, and sample the remaining area as another stratum. This would alleviate fears that stains that show up on the aerial photo analysis would be missed in random sampling. Chuck Elliott said that he did not think that too many sites would fall under this category. Andy Piszkin reminded the group that it was late to be tinkering too much with the sampling strategy. Also, costs were relatively fixed at this point. Ken Williams said that, in other words, the Navy admitted that there were technical deficiencies but financial limitations prevented them from fixing them. Andy Piszkin said that Ken was speaking in general terms, and that when we looked for specific examples of deficiencies, they were few and far between. The basic approach was sound and we need to go ahead and implement it. There was general agreement with this statement.

PESTICIDE/HERBICIDE ANALYSES

Yueh Chuang presented the proposed additional analyses for pesticides and herbicides. The proposal included herbicides (EPA Method 8150) analyses: 1) for shallow soil borings and surface soil samples at Site Nos. 7,8, 10, 12, 21, and 22; 2) for 22 additional background shallow soil borings; and 3) on the first round of groundwater samples for wells at sites listed above. The same 22 background shallow soil borings will also be analyzed for organochlorine pesticides (EPA Method 8080). Organophosphorus pesticides (EPA Method 8140) were not proposed for analysis.

There was much discussion on the proposal. Ken Williams suggested analyzing for herbicides in surface water samples. John Hamill indicated the need to perform the additional pesticide/herbicide analyses at landfill sites. The other regulatory agency representatives concurred with the suggestion. Manny Alonzo felt there is a need to analyze for EPA Method 8140 analytes, even though organochlorine pesticides are already proposed. At the end of the discussions, it was agreed that there are disagreements on the proposed pesticide/herbicide analyses. The Navy may reevaluate the pesticide/herbicide investigative approach.

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	Forward Planning John Hamill said that quality assurance auditors for EPA would be in contact with the Navy and CH2M HILL to schedule times to observe field work. The group then agreed to schedule the next managers' meeting for Thursday, August 6, 1992. **Non-Attendees Distribution** R. Green/Code 0232.RG T. Young/Code 1841.TY File/CTO Notebook/PMO File/CTO Notebook/PAS File/PMO File/PAS File/CH2M HILL