

DEPARTMENT OF TOXIC SUBSTANCES CONTROL *CLE-C01-01F145-S1-0005*

Region 4
245 West Broadway, Suite 350
Long Beach, CA 90802-4444
(714) 590-4868



August 23, 1994

AUG 25 1994

Mr. Wayne D. Lee
Assistant Chief of Staff
Environment and Safety
Marine Corps Air Station El Toro
P.O. Box 95001
Santa Ana, California 92709-5001

DRAFT GROUNDWATER MONITORING PLAN (GMP)

The Department of Toxic Substances Control (Department) has completed review of the above mentioned document. The enclosed comments are from: Bechtel National Inc., the Santa Ana Regional Water Quality Control Board (Board), and the Department.

Basically, a groundwater monitoring plan needs to be a "stand alone" document: especially since it is being prepared by CH2M Hill and will have to be executed by Bechtel. Please have all pertinent sections of the Sample and Analysis Plan (SAP) and other documents included in the GMP.

If you have any questions, please call me at (310) 590-4920.

Sincerely,

A handwritten signature in cursive script that reads "Albert A. Arellano, Jr.".

Albert A. Arellano, Jr., P.E.
Unit Chief
Region 4 Base Closure Unit
Office of Military Facilities

Enclosures

cc: Ms. Bonnie Arthur
U.S. Environmental Protection Agency
Region IX
Hazardous Waste Management Division, H-9-2
75 Hawthorne Street
San Francisco, California 94105



Memorandum

To: Mr. Albert A. Arellano, Jr., P.E. **Date:** August 23, 1994
Department of Toxic Substances
Control, Base Closure Branch
245 West Broadway, Suite 425
Long Beach, California

From: CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD - SANTA ANA REGION
2010 IOWA AVENUE, SUITE 100, RIVERSIDE, CALIFORNIA 92507-2409
Telephone: CALNET 632-4130 Public (909) 782-4130

Subject: Marine Corps Air Station, El Toro, Comment on the Draft
Groundwater Monitoring Program Plan

We have completed a review of the Draft Groundwater Monitoring Program Plan dated July 21, 1994, which we received July 25, 1994. In the scoping meeting of June 6, 1994, we discussed the Navy's contractor's specific issues of concern which are addressed and make up the major components of this plan. The objective of this proposed program is additional data collection to support the Operable Unit 1 remedial investigation and interim feasibility study. The need for this additional data is why we recommended the rejection of the previous submitted Draft Remedial Investigation Report for Operable Unit 1. For the most part this program plan meets the intended objective, therefore, we have no significant comment on it.

At the time of the June 6, 1994 scoping meeting, we provided the relatively new the "Long-Term Ground Water Monitoring Program Guidance" by the California Base Closure Environmental Committee as acceptable format for long term groundwater monitoring program. We strongly believe that a comprehensive long term (that is all environmental programs, all groundwater monitoring wells) should be conceived and implemented, instead of a program for only one of the operable units. This is not intended to stop the proposed sampling, however we hope to see a significant expansion of this program in the near future to include other relevant data collection points. We recommend the parties meet as soon as possible to begin the development of such a program.

For any questions on this review or related matters, please call me at (909) 782-4494 or CALNET 632 4494.

John Broderick
Special Projects Section

DEPARTMENT OF TOXIC SUBSTANCES CONTROL

Region 4
245 West Broadway, Suite 350
Long Beach, CA 90802-4444



M E M O R A N D U M

TO: Albert A. Arellano, Jr., P.E.
Unit Chief
Office of Military Facilities
Base Closure Unit
245 West Broadway, Suite 425
Long Beach, California 90802

FROM: Facility Management Branch
Geotechnical Support Unit
245 West Broadway, Suite 425
Long Beach, California 90802

DATE: August 18, 1994

SUBJECT: COMMENTS ON MARINE CORPS AIR STATION (MCAS) EL TORO,
CALIFORNIA, INSTALLATION RESTORATION PROGRAM, REMEDIAL
INVESTIGATION/FEASIBILITY STUDY DRAFT GROUNDWATER
MONITORING PROGRAM PLAN

INTRODUCTION

As requested, the Geotechnical Support Unit (GSU) of the Department of Toxic Substances Control (DTSC) has reviewed the document entitled *Marine Corps Air Station (MCAS) El Toro, California Installation Restoration Program, Remedial Investigation/Feasibility Study Draft Groundwater Monitoring Program Plan* (workplan), dated July 21, 1994. The workplan was prepared by Southwest Division, Naval Facilities Engineering Command, in conjunction with Jacobs Engineering Group, Inc., IT Corporation and CH2M Hill. The intended purpose of the workplan is to establish a foundation for future groundwater monitoring events. It is critical that the workplan serve as a practical and useful document that will be implemented immediately. In its present form, the workplan does not successfully accomplish these objectives. Overall, the document only briefly describes the needed detail to implement such a program.

Two major considerations the GSU has regarding this workplan is that it is not a "stand-alone" document, and that it does not provide the necessary detailed technical discussions needed to understand the various elements of the groundwater monitoring program. This is of particular concern principally because the CLEAN II contractor will be



responsible for implementing a CLEAN I document. Consequently, if the final workplan is not an all inclusive, detailed document, CLEAN II contractors will not be able to implement a comprehensive groundwater monitoring program in a timely fashion.

In order to recommend approval of this draft workplan, it is suggested that the following general issues and specific comments be addressed within the final workplan.

GENERAL ISSUES

1. Bechtel National Inc. Comments

The GSU agrees with all comments issued from Bechtel National Inc. (Bechtel). Comments of particular interest will be specifically referred to within this review. Also, please note Bechtel's comment numbers 7, 9, 11, 12, 16, 18, 20-24, 26, 28 and 29. To avoid redundancy, they are not included in this document.

2. Sampling and Analysis Plan

There are two primary reasons the workplan cannot rely on the unapproved Phase II RI/FS Sampling and Analysis Plan (SAP) (SWDIV, 1993b). The first is that it is inappropriate to implement an unapproved SAP. There are numerous agency comments not yet addressed (DTSC comments dated December 17, 1993 for the Phase II RI/FS). Second, for reasons mentioned in the Introduction of this review, the final workplan should be a "stand alone" document. It is recommended that the SAP from the Phase II RI/FS be used for the groundwater monitoring program, however, it should be an element of the workplan. In addition, all prior agency comments must be addressed and the SAP must be customized for this specific workplan.

3. VOC Sampling Procedures

It was the impression of the GSU, after the June 6, 1994 RI/FS groundwater monitoring meeting, that the workplan would present a resolution to the aeration problem for samples collected during the second round of the Phase I RI groundwater investigation. The aerated samples resulted from collection with constant speed pumps. An option to replacement of the existing constant speed pumps is a site-specific comparison to determine the degree of variation in VOC concentrations

between sampling with variable speed pumps at a flow rate of approximately 100 ml/min and constant speed pumps (flow rate of 5- to 10-gpm). This and other options are included in the attached August 27, 1993 letter from DTSC to the Navy (see comment number 2).

If the above option is implemented, results should be presented as soon as possible, either in the technical memorandum or the first groundwater monitoring report.

4. Inorganic Background Concentrations

The first bullet on page 1-2 states that an objective of the groundwater monitoring program is to "evaluate background concentrations of inorganic constituents in groundwater". Prior to this workplan, there has been very limited discussion regarding this subject. Many wells included in this groundwater monitoring program were specifically installed to determine if groundwater contamination exist as a result of specific-site activities. Therefore, it is unclear with respect to this workplan how background concentrations for inorganics will be determined using the wells presently scheduled to be sampled.

There is no discussion included in this workplan outlining the strategy the Navy intends to follow to delineate background values. The specific wells used for this purpose should be individually listed, rationale why each well was chosen should be provided, and location of the wells relative to its respective site should be identified.

It is the recommendation of the GSU that further verbal discussion occur before engaging in a station-wide study to determine background concentrations for inorganics.

5. Site-Specific Groundwater Evaluation

As the workplan is presented, it is difficult to evaluate specific sites. It is recommended that in addition to Table 3-1, a similar table be included in the workplan that presents the well data in groups according to specific sites. When sites are closely located within the same area and/or related, such as Sites 13, 14 and 15, then those sites should be grouped together. The table should also provide how each well

is situated within the site-specific wellfield, for example, an upgradient or downgradient well.

6. New RI/FS Phase II Groundwater Monitoring Wells

There is no indication included in the workplan that the new groundwater monitoring wells resulting from the RI/FS Phase II Workplan will be integrated into the monitoring program. Please provide the strategy how the new wells will be incorporated into the monitoring program. It is recommended that as new wells are installed they are included within the next planned sampling event (refer to Bechtel comment number 27).

7. Data Management Plan

Please provide a discussion regarding data management with respect to the sizable amount of data that will be collected over the next several years (refer to Bechtel comment number 3).

8. Data Presentation

Please provide a discussion regarding the presentation of groundwater and water level data. Elements to be addressed, but not limited to, are as follows:

- a) Frequency in which data will be submitted to the regulatory agencies;
- b) Time period between sample collection and data submittal;
- c) A detailed explanation on how the data will be presented, such as site-specific or station-wide, complete original sampling results, summary tables of selected constituents, graphs, contour maps, etc. Complete information must be reported so that conclusions can be evaluated.

9. Evaluation of the Groundwater Monitoring Program

It is strongly recommended to evaluate groundwater data after each sampling event. Variation in data and/or unforeseen circumstances may influence modifications of the program. Therefore, the workplan

should include a data review plan (refer to Bechtel comment numbers 2 and 17).

SPECIFIC COMMENTS

10. Well Number System

Please provide a explanation of the well number system.

11. Section 3.7 General Chemistry Parameters

Please include turbidity as a general field parameter for all sampling episodes.

12. Section 3.10 Site-Specific Analyses

Please specify the USEPA method described for explosives at Site 1. It is presumed that the method of analysis is USEPA Method 8330A, if not, this analysis is recommended.

Thank you for the opportunity to review and comment on this document. If you have any questions or comments, please feel free to contact me at extension 5528.

Sherrill Beard

Sherrill Beard
Hazardous Substances
Engineering Geologist
Geotechnical Service Unit

Karen Baker

Concur: Karen Thomas Baker, CEG
Unit Chief
Geotechnical Services Unit

DEPARTMENT OF TOXIC SUBSTANCES CONTROL

Region 4

245 West Broadway, Suite 350

Long Beach, CA 90802-4444



August 27, 1993

Mr. Andy Piszkin
Department of the Navy
Southwest Division
Naval Facilities Engineering Command
Environmental Division
1220 Pacific Highway, Code 1811
San Diego, California 92132-5181

Dear Mr. Piszkin:

MARINE CORPS AIR STATION (MCAS) EL TORO

SUBJECTS: 1) SCHEDULE EXTENSION REQUEST FOR DRAFT PHASE II WORK PLAN (OPERABLE UNITS 2 AND 3)
2) COMMENTS ON GROUNDWATER SAMPLING PROCEDURES (ROUND TWO OF PHASE I)
3) INVESTIGATION OF NEWLY IDENTIFIED POTENTIALLY CONTAMINATED AREAS

1) SCHEDULE EXTENSION REQUEST FOR DRAFT PHASE II WORK PLAN (OPERABLE UNITS 2 AND 3)

The California Department of Toxic Substances Control (Department) hereby concurs with the Navy's schedule extension request dated July 26, 1993. The request extends the due date for the Draft Phase II Remedial Investigation (RI) Work Plan from August 9 to November 9, 1993. No other Federal Facilities Agreement (FFA) milestone dates are affected by this request. The U.S. Environmental Protection Agency (U.S. EPA) transmitted their concurrence with the schedule extension in a letter dated August 4, 1993.

2) COMMENTS ON GROUNDWATER SAMPLING PROCEDURES (ROUND TWO OF PHASE I)

During July 1993, the Department surveyed sampling procedures conducted at MCAS El Toro for the second round of the Phase I RI groundwater investigation. The Department recommends the following:

- a) use of field blanks as a check on ambient airborne contamination for those wells located at or near tarmacs with significant jet traffic. Field blanks should consist of purified water that is taken into the field (during sampling and at the specific well location) and transferred from the



water container to the individual sample vial(s);
and

- b) closing the purge line valve during actual sampling of wells equipped with Grundfos Rediflow 2-inch diameter variable-speed pumps. Closing the purge line valve will prohibit the remaining head in the elevated purge line from siphoning back into the riser tee and possibly entering the sample line when the flow is controlled to approximately 100 ml/min.

Furthermore, the Department requests a correction in the sampling procedures for 5-inch wells equipped with 4-inch constant speed Grundfos pumps (both 5-gpm and 10-gpm pumps). It was observed that in an effort to reduce the flow rates on these pumps during actual sampling, the purge line valve was restricted resulting in aeration of the sample. Wisps of water vapor were also observed emanating from the sample line when the purge line valve was restricted. Such a condition significantly compromises the validity of the sample, especially for volatile organic compounds (VOCs).

In Phase I RI Report comments with a transmittal letter dated July 8, 1993, the U.S. EPA also indicated some concerns about the types of pumps chosen for VOC sampling (see page 7). The U.S. EPA comments focused on the use of bladder pumps or bailers vs. submersible pumps. However, some studies conclude that the use of submersible pumps is a reliable method of obtaining statistically equivalent VOC concentrations as compared to bladder pumps or bailers.

At a minimum, the purge line valve should remain open during actual sampling of wells equipped with the constant speed pumps. Nevertheless, the Department requests that the constant speed pumps be replaced with variable speed pumps capable of achieving a 100 ml/min sampling flow rate. An option to replacement is a site-specific comparison to determine the degree of variation in VOC concentration between sampling with variable speed pumps at a flow rate of approximately 100 ml/min and constant speed pumps (flow rate of 5- to 10-gpm).

The correction in the sampling procedures for the 5-inch wells equipped with constant speed pumps should be performed before the next round of groundwater sampling. Based upon the review of the second round groundwater sampling results, the Department may request that sampling for the 5-inch wells equipped with constant speed pumps be

repeated after a correction is made in a timely manner.

3) **INVESTIGATION OF NEWLY IDENTIFIED POTENTIALLY CONTAMINATED AREAS**

The Department believes additional effort should be expended to identify potentially contaminated areas at MCAS El Toro. In a recent visit to MCAS El Toro in which the Department reviewed historic plans, the locations of at least two former plating shops were identified in Buildings 296 and 297. Previously it was apparently thought that the locations of the former plating shops were unknown. The former plating shop locations were not investigated in the Phase I RI. Groundwater results from round one of the Phase I RI indicate a 10 ppb concentration of cadmium in a monitoring well located approximately 700-feet downgradient from the former plating shop in Building 297; MCAS El Toro plans indicate that a cadmium plating tank was inside the plating shop. The Department requests a complete description of the former plating shops in both Buildings 296 and 297 as well as all other plating shops, including information obtained from reviewing plans such as the locations of specific units (e.g., degreaser, alkali, acid and plating tanks). This information, if applicable, should be provided as part of the site description for Site 7 or new Site 24.

In addition to the former plating shops, the site description for Site 7 or new Site 24 should include the former "refurbishing or rework" operations at Buildings 295, 296, 297 and all other applicable buildings. The site description should also include the former engine overhaul operations at Building 324; apparently a former degreaser tank was located inside. For new Site 25, the Department recommends that a complete description of potential VOC source areas upgradient of Site 8 be provided; this description should include current and former uses of the Motor Pool area.

Furthermore, the Department recommends a review of the plans and all other pertinent information for all of the RI sites. For example, review of the plans coupled with aerial photograph information will provide the layout of former sewage treatment plant units at Site 12. The Department also recommends that current and/or former personnel associated with the "refurbishing or rework" and plating operations be interviewed to obtain information on historic waste handling practices, including those for solvent wastes.

The Department also has concerns about the following areas:

- a) the Aircraft Maintenance Department in Buildings 288 and 289. Operations at these buildings generated waste fuels, oils and solvents;
- b) the former Heavy Duty Maintenance Shop in Building 1589 at Site 10. This building apparently included at least two-500 gallon tanks used for the storage of waste oils and solvents and a paint booth where paint sludges were drained onto the ground; and
- c) the Light Duty Maintenance Shop in Building 298. This building included a caustic tank and two parts dip tanks. The parts dip tank solvent was apparently changed every six weeks and through the mid-1960s was used to clean the cement decks. One parts dip tank was disposed of in October 1984 due to a leak from corrosion. Neutralized battery acid was apparently poured down a floor drain located in the west end of Building 298.

The Phase II RI contract task order (CTO) for investigation and characterization of newly identified areas should incorporate flexibility and contingencies so that these areas will be evaluated completely.

Please provide a response to Subjects 2 and 3 above. In your response to Subject 3, please indicate if the identified areas were investigated in the Phase I RI or in the RCRA Facility Assessment (RFA). For example, the Department is aware that a possible former hazardous waste storage area (Solid Waste Management Unit/Area of Concern 95) near the southwestern corner of Building 324 was investigated in the RFA. However, this area is apparently upgradient of any engine overhaul/degreasing activities that may have taken place at Building 324.

If have any questions concerning these matters, please contact Joe J. Zarnoch at (310) 590-4278.

Sincerely,



John Scandura, Chief
Site Mitigation Branch

cc: Next page

Mr. Andy Piszkin
August 27, 1993
Page 5

cc: Commanding General
Attn: LCDR L. Serafini
Environmental Department, 1AU
Marine Corps Air Station
El Toro, California 92709-5010

Mr. John Hamill
U.S. Environmental Protection Agency
Region IX
Hazardous Waste Management Division, H-7-5
75 Hawthorne Street
San Francisco, California 94105-3901

Mr. John Broderick
Regional Water Quality Control Board
Santa Ana Region
2010 Iowa Avenue, Suite 100
Riverside, California 92507-2409

Mr. Roy L. Herndon
Orange County Water District
P.O. Box 8300
Fountain Valley, California 92728-8300

Bechtel

401 West A Street
Suite 1000
San Diego, CA 92101-7905

CLEAN II Program
Bechtel Job No. 22214
Contract N68711-92-D-4670
File Code: 0316

IN REPLY/REFERENCE: CTO-0048/0035

August 11, 1994

State of California Environmental Protection Agency
Department of Toxic Substances Control
245 West Broadway
Suite 350
Long Beach, CA 90802-4444

Attention: Al Arellano, P.E. Unit Chief Base Closure Branch

Subject: Review Comments on Marine Corps Air Station El Toro, California -
Draft Groundwater Monitoring Program Plan

Dear Mr. Arellano:

Attached are review comments on the subject Groundwater Monitoring Program Plan dated 21 July 1994. The overall impression is that the report provides a sound basis for the selection of analytes and frequency of monitoring; however, it is inadequate for the purpose of describing a long-term monitoring program. A complete monitoring program plan (as the title of the document states), would include adequate detail for immediate execution. This does not appear possible because of gaps in the descriptions of activities and a lack of acknowledgement of the necessity for coordination of updates of CLEAN I documents and plans by the CLEAN II contractor.

These concerns as well as technical comments are included in the attachments.

I can be reached in Bechtel's San Diego office at (619) 687-8780; the facsimile number is (619) 687-8787.

Sincerely,

BECHTEL NATIONAL, INC.



Dante J. Tedaldi, Ph.D., P.E.

Technical Quality Assurance MCAS El Toro



cc:

John Hamill, RPM
U.S. Environmental Protection Agency
Region IX
Hazardous Waste Management Division, H-9-2
75 Hawthorne Street
San Francisco, CA 94105-3901

Joseph Joyce
BRAC Environmental Coordinator
Department of the Navy
Southwest Division
Naval Facilities Engineering Command
Environmental Division
1220 Pacific Highway, RM 18
San Diego, CA 92132-5181

John C. Broderick
Associate Engineering Geologist
California Regional Water Quality Control Board - Santa Ana Region
2010 Iowa Avenue, Suite 100
Riverside, CA 92507-2409

Attachments

To: MCAS El Toro BRAC Cleanup Team

From: Dante J. Tedaldi

Re: Jacobs Engineering Group, Inc, Groundwater Monitoring Program Plan

Date: August 11, 1994

Overall impression:

The plan is not adequate for the stated purpose. It is not a monitoring program plan, but merely a brief analysis and justification for the selection of specific analytes and sampling frequency. A complete monitoring program plan (as the title of the document states), would include adequate detail for immediate execution. This does not appear possible. Cross-reference to other companion documents must be performed to execute this plan. While this is not a fatal flaw, the fact that the main document referenced (Phase II Field Sampling Plan) is part of a group of unapproved plans leads to questions regarding how much revision will be made to these documents and whether this monitoring plan is premature.

In addition, there is no mention of the database management plan for the data during the course of this monitoring effort. Considering the long time period and the immense amount of data to be collected, it makes good sense to address data management as part of this program plan. This should address the relationship of new data storage, links with rounds 1 and 2, and capability for inclusion of data collected from wells which have not been installed to-date.

It will be necessary for the CLEAN II contractor to almost immediately update this monitoring plan (as soon as an appropriate CTO is awarded). Therefore, it would be helpful if more thought were provided here with respect to the details of how additional wells will be included into the monitoring program and especially, how data from the new wells will be addressed as part of the quarterly program.

Specific comments follow.

Introduction and Objectives

Comment Number	Page No. and Paragraph	C O M M E N T S
1	1-1 2nd ¶	The MCAS El Toro Phase II RI Field Sampling Plan will require some modification by the CLEAN II contractor to compensate for difference between CLEAN I and CLEAN II SOPs and Program Procedures. These modifications, unknown at this time, should be acknowledged with a statement.
2	1-1 3rd ¶	Data should be evaluated after each round and not held for review until after the 6th round as stated in the text.
3	1-1 3rd ¶	<p>It will be necessary for the CLEAN II contractor to almost immediately update this monitoring plan (as soon as an appropriate CTO is awarded). Therefore, it would be helpful if more thought were provided here with respect to the details of how additional wells will be included into the monitoring program and especially, how data from the new wells will be addressed as part of the quarterly program.</p> <p>In addition, there is no mention of the database management plan for the data during the course of this monitoring effort. Considering the long time period and the immense amount of data to be collected, it makes good sense to address data management as part of this program plan.</p>

Comment Number	Page No. and Paragraph	C O M M E N T S
4	1-2 1st ¶	The second bullet item is not correct because the current network of wells is known to be inadequate for monitoring the potential impact of RI sites; that is why more wells are planned for Phase II.

Site Background

Comment Number	Page No. and Paragraph	C O M M E N T S
5	Figure 2-1	At the top right of the figure the label "Groundwater Divide" is included but there is no arrow or other specification defining where the divide is perceived to be. Also, if this label is provided, the authors should state the significance of the divide with respect to the monitoring program.

Monitoring Program Approach and Rationale

Comment Number	Page No. and Paragraph	C O M M E N T S
6	3-1 2nd ¶	A statement should be added stating whether the data have undergone validation.

Comment Number	Page No. and Paragraph	C O M M E N T S
7	3-1 2nd ¶	It seems that there is an oversight in the text regarding the relationship of rounds 1 and 2 to the upcoming rounds 3 through 6. The authors should state the facts. Rounds 1 and 2 were not acceptable for the purposes of this monitoring plan because of the time intervals used for sampling and because of the analytes reported (or not reported). The distinction between the use of previously collected data and the new data needs to be identified.
8	Table 3-2	The California Action Level appears for only 4 analytes. Explain the significance of this guideline and the reason it appears only very infrequently?
9	Table 3-2	Why are the entries in this table not coordinated with those in Table 3-3? Specifically, the title of Table 3-2 states that the table contains "...chemicals detected in groundwater..." However, Table 3-3 includes numerous chemicals and elements that have been neglected in Table 3-2. For example, boron, calcium, cobalt, sodium, potassium, magnesium, and vanadium are elements detected at the Station but excluded from Table 3-2.

Comment Number	Page No. and Paragraph	C O M M E N T S
10	Table 3-2	<p>What thought if any has been given to the issue of detection limits and the perceived levels to which regulatory agencies may require data reporting?</p> <p>In almost all cases, for previously detected compounds and elements, this does not appear to be a problem, with the notable exception of phenol. However, if PRGs or PEAs are used as standards for comparison, in some cases this issue may be a problem. Consider for example the carcinogen, benzo(a)pyrene (which has not been found at the base). This compound has a soil PRG of 120 µg/kg and a PEA of 19 µg/kg while the CLP CRDL is 330 µg/kg.</p>
11	Table 3-3	<p>Several apparent gross errors were found in this table and this fact points towards a lack of quality review. The entire table should be rechecked.</p> <p>A maximum field pH of 24.7 was reported. This is not possible. The maximum reported water sample temperature was 2,606 deg C. This is not possible.</p> <p>There does not appear to be a consistent approach to the use of significant figures in the presentation. Why are the anions shown as 14.332 meq/L when the significant figures for the raw data are no better than one decimal place (in most cases)?</p>
12	Table 3-3	<p>What is the purpose of this table? How do the data in the table help the reader to understand the monitoring plan?</p>

Comment Number	Page No. and Paragraph	C O M M E N T S
13	Table 3-3	Are the data for metals representative of filtered or unfiltered samples? For instance, aluminum (maximum reported at 22 mg/L) is quite high and is possibly an unfiltered sample.
14	3-33 1st full ¶ and last ¶	The statement "...this information is needed in order to determine the requirements for landfill closure." is misleading. The statement is only partially correct because there are several other factors involved in such a decision, not just the results of sampling and analysis for Phase I wells.
15	3-34 2nd ¶	Do not state "...at the other well...", be specific. Identify the well as 12_DBMW48.
16	3-34 2nd ¶	<p>It is not correct to state that "Typically, gross alpha and gross beta are due to natural sources..." If the authors believe that the relatively low levels of beta and gamma at the site are due to natural sources, they should state that specifically and with justification.</p> <p>This comment also applies to the last sentence of this paragraph in which it is noted that "...natural sources are more likely." If that is so, please state the reason.</p>

Comment Number	Page No. and Paragraph	C O M M E N T S
17	3-35 1st ¶	See comment number 2. If the data are not reviewed until the 6th round and at that time it is determined that specific analyses are required, the project will have lost at least 3 rounds of specific analyses. For this reason, a data review plan needs to be developed now, prior to the collection of the next round of data.
18	3-36 1st full ¶	The statement regarding an alleged mechanism of metal mobilization is premature pending the review of the Draft RI Phase I. Therefore, the sentence should be removed.
19	3-37 entire page	The forethought to analyze water samples for selected parameters which may be of interest to the remedial option designers is commendable. However, it is not possible to assess the adequacy of these proposed analyses without a description of the proposed alternatives. A major concern is that although many analyses listed may be appropriate, there may be others that are needed for feasibility study consideration and it is impossible to provide an adequate review with the limited information provided here. Moreover, with respect to RO and ED units, the OCWD Preliminary Design Report (31 March 1994) provided an extensive review of water quality, scaling and corrosion potential and this report should have been consulted. The level of detail provided in that report, with respect to RO and ED, was far beyond what could be provided in a monitoring plan.

Comment Number	Page No. and Paragraph	C O M M E N T S
20	3-37 entire page	<p>With respect to the analyses listed the following comments apply:</p> <p>COD is subject to interference by reduced metals such as ferrous iron or manganous ions. Nitrite exerts a 1.1 mg O₂/mg nitrite COD load. These interferences may seem small but considering the fact that organic levels are at the µg/L at the Station, these interferences may be large. A greater understanding of the limitations of this test and the perceived use of the data needs to be demonstrated.</p> <p>TOC is a usually a good measurement of organic content but it can be an inconclusive measurement when applied for groundwater with very low levels of organic material (as is the case at the Station). So called inorganic carbon (bicarbonate alkalinity) must be removed completely by acidification and sparging or the TOC value be in error.</p> <p>Ammonia is a useful parameter when considering the nutrient limitations of aerobic bioremediation. What is the contaminant of interest in groundwater that is being considered for aerobic degradation?</p> <p>Phosphorous. See comments on ammonia. Also, only very low values have been reported and there should not be a potential scaling problem associated with phosphorous.</p> <p>Strontium was not reported present in other studies, is there an expectation that an unusually high concentration of strontium is present? If not, the analysis seems unnecessary.</p>

Comment Number	Page No. and Paragraph	C O M M E N T S
25	3-37	Apparently, numerous gross measure of organic content will be added to the list of analyses. It is surprising that this is the case because the sensitivity of these methods is far less than the "high end" analytical methods already being used to evaluate specific organic compounds. The real benefit of these tests needs to be demonstrated.
26	3-38 2nd full ¶	When will there be an evaluation and presentation of the monthly water level data?

Re-evaluation of the Groundwater Monitoring Program

Comment Number	Page No. and Paragraph	C O M M E N T S
27	4-1 2nd ¶	All wells that are installed as part of Phase II should be included in the long-term program. Why is there a plan to evaluate the wells and possibly excluded some? If the wells are not intended for long-term sampling, why not use a different, non-permanent approach rather than installing expensive wells?
28	5-1 1st ¶	The text states that "...Table 6-1 lists all..." The Table is 5-1.

Sampling Procedures and QA/QC

Comment Number	Page No. and Paragraph	C O M M E N T S
29	Table 5-1	The purpose of this table is not clear, other than to identify analytical methods. Why provide detailed information on size and number of sample containers? This table is nothing more than superfluous here without the real backup contained in the QAPP. Unless the authors choose to create a technical addendum to the QAPP within this monitoring plan they should identify analytical methods, but remove this table and note where the modifications will be made in the QAPP.

Memorandum

TO: Mr. Albert A. Arellano, Jr., P.E. **Date:** August 23, 1994
Department of Toxic Substances
Control, Base Closure Branch
245 West Broadway, Suite 425
Long Beach, California

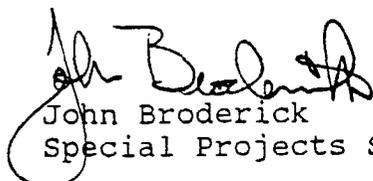
From: CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD - SANTA ANA REGION
2010 IOWA AVENUE, SUITE 100, RIVERSIDE, CALIFORNIA 92507-2409
Telephone: CALNET 632-4130 Public (909) 782-4130

Subject: Marine Corps Air Station, El Toro, Comment on the Draft
Groundwater Monitoring Program Plan

We have completed a review of the Draft Groundwater Monitoring Program Plan dated July 21, 1994, which we received July 25, 1994. In the scoping meeting of June 6, 1994, we discussed the Navy's contractor's specific issues of concern which are addressed and make up the major components of this plan. The objective of this proposed program is additional data collection to support the Operable Unit 1 remedial investigation and interim feasibility study. The need for this additional data is why we recommended the rejection of the previous submitted Draft Remedial Investigation Report for Operable Unit 1. For the most part this program plan meets the intended objective, therefore, we have no significant comment on it.

At the time of the June 6, 1994 scoping meeting, we provided the relatively new the "Long-Term Ground Water Monitoring Program Guidance" by the California Base Closure Environmental Committee as acceptable format for long term groundwater monitoring program. We strongly believe that a comprehensive long term (that is all environmental programs, all groundwater monitoring wells) should be conceived and implemented, instead of a program for only one of the operable units. This is not intended to stop the proposed sampling, however we hope to see a significant expansion of this program in the near future to include other relevant data collection points. We recommend the parties meet as soon as possible to begin the development of such a program.

For any questions on this review or related matters, please call me at (909) 782-4494 or CALNET 632 4494.


John Broderick
Special Projects Section