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MCAS EL TORO
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☐ OTHER

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Gov't (Agency) Comments "Draft Groundwater Monitoring Program Plan"

ACTION REQUIRED

☐ WORK AUTHORIZATION (R. Ward)

☐ OTHER _____

TITLE: AGENCY COMMENTS "DRAFT RI REPORT FOR OU-1"

AUTHOR: VIRGINIA GARELICK/SWDIV

DATE: 11/28/94

CATEGORY: 3.4

CC:

SAN DIEGO

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- ☐ Lead PjM (for Activity) _____ *__
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- ☐ G. Rumford (Interim MTPQC) (JEG)
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- ☐ R. GATES (IT) (for distribution)
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- ☐ TR: _____ *__

Dist: **RFPs**-(PM, LRCM, CM, PCM 280 PJM) Fax initial RFP to R. Ward, CM, LRCM, PCM, & PM. They will review for CP funds and dist. further w/WAF	**MODs,Stop Work Orders**-(RCMs, CM,CA, LPjM, PjM, PCM, CSE,280 PjM)	**COMMENTs**-(Full set to LRCM, RCM(s), LPjM, PjM, TR, MTPQC cover sheet to others noted). PM to recieve full sets of Code 185 comments/top copy of all others.	**CLOSE-OUT LETTERS**-PM, RCM(s), CM, CA, PCM, CSE, MTPQC, LPjM, PjM)

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Enclosure A

MEMORANDUM

DATE: August 22, 1994

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

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To JOHN DOLEGOWSKI	From ANDY PISZKIN
Co. CH2M HILL	Co. NAVY
Dept. EL TORO	Phone # 619-532-2635
Fax # 714-250-~~6661~~ 5508	Fax # -2469

August 22, 1994

Mr. Joseph Joyce
BRAC Environmental Coordinator
Southwest Division
Naval Facilities Engineering Comm
Code 1811
1220 Pacific Highway
San Diego, CA 92132-5181

Dear Mr. Joyce:

DRAFT GROUNDWATER MONITORING PROGRAM PLAN

EPA has finished reviewing the "Remedial Investigation /Feasibility Study, Draft Groundwater Monitoring Plan (Plan)." Thank you for the opportunity to review and comment. The Plan does not meet EPA's standards for an acceptable groundwater monitoring plan as noted in the attached comments (Enclosures A and B). Please schedule a technical meeting with EPA, DTSC and the RWQCB as soon as possible to discuss the revision of this report. If you have any questions, I can be reached at (415) 744-2389.

Sincerely,

Bonnie Arthur
Remedial Project Manager
Federal Facilities Branch

Enclosures

cc: Mr. Al Arellano, Jr., DTSC
Mr. John Broderick, RWQCB
Mr. Wayne D. Lee, El Toro
Mr. Dante Tedaldi, Bechtel

Enclosure A

MEMORANDUM

DATE: August 22, 1994

SUBJECT: Comments to the "Draft Ground Water Monitoring Program Plan", MCAS, El Toro, Ca., July 21, 1994.

FROM: Rich Freitas, Hydrogeologist, Technical Support Section, H-9-3.

TO: Bonnie Arthur, Project Manager, Navy Section, H-9-2.

General Comments:

These comments supplement those provided by Dante Tedaldi, Bechtel, Inc., dated August 11, 1994.

1) Purpose. The purpose of the MCAS Groundwater Monitoring Plan is "to select groundwater monitoring wells, analytes, and frequencies of monitoring for further ground water monitoring at MCAS El Toro (Station) and the area downgradient of the Station. Descriptions of specific sampling and monitoring procedures and analytical protocols are not included in this document, as they will be discussed in detail in the MCAS El Toro Phase II Field Sampling Plan" (page 1-1, para. 2).

   EPA will need to closely examine the Phase II Field Sampling Plan to ensure it addresses all the issues commonly associated with the development of an EPA ground water sampling plan, such as pre-sampling activities, ground water sampling equipment and use, field analyses, sample containers and preservation, chain-of-custody/records management, analytical procedures, field and Laboratory QA/QC and the procedures for display and interpretation of the ground water quality data . An excellent guidance on ground water well sampling is the EPA "RCRA Ground-Water Monitoring: Draft Technical Guidance", Nov. 1992. Additionally, a Quality Assurance Project Plan will need to be developed which details all appropriate laboratory QA/QC procedures. This document should include the Field Sampling Plan. For guidance on the development of the Quality Assurance Project Plan, contact Hedy Fiklin at the EPA Quality Assurance Section.

2) Much of the proposed sampling is not well explained/documented. It is therefore very difficult for the reader to determine whether the proposed approach is appropriate. For example, the lateral and vertical extent of contaminants of concern are not illustrated in the sampling plan. Therefore it is difficult to determine whether the wells proposed for sampling are within or outside the various zones of ground water contamination.

3) A discussion should be included which details how the data will be tabulated and illustrated for purposes of interpretation. The ground water data can be stored in an EPA-MCAS compatible electronic database. This data can be displayed and contoured for interpretation with any number of commercially available software packages.

Specific comments:

1) page 1-1, para. 2, "..Descriptions of specific sampling and monitoring procedures and analytical protocols are not included in this document, as they will be discussed in detail in the MCAS El Toro Phase II Field Sampling Plan"

   Comment: This is somewhat confusing. Generally, EPA expects to see all pertinent field sampling information detailed in the Quality Assurance Project Plan rather than as bits and pieces in separate documents, e.g. Phase I, Phase II, etc. The Phase I and Phase II reports should be combined into one Quality Assurance Project Plan which includes the Field Sampling Plan.

2) page ES-1, para. 3, "After Round 6, the groundwater data will be evaluated and the monitoring program may be modified for further monitoring..."

page 1-1, para. 3, "After Round 6, the data will be evaluated and the monitoring network of wells, chemical analyses, and monitoring frequency may be modified for a future monitoring program".

Comment: The ground water data should be evaluated after each round of sampling. It does not seem wise to wait until after Round 6 to evaluate the ground water data.

3) page 1-2, "This Groundwater Monitoring Program Plan proposes to sample groundwater from 163 wells/ sampling ports, which consist of 113 conventional single-screen wells and 50 sampling ports at 14 multiple-port monitoring wells..."

Comment: This is quite a large number of wells to be sampling especially when you consider that this will involve and additional four rounds of sampling. Is it really necessary to sample ALL these wells for each round of sampling? How will this large amount of data be organized and illustrated for purposes of interpretation?

4) page 2-2, Site Hydrogeology

Comment: A description of the site aquifer system should be a bit more detailed. The site aquifer system should be illustrated by reference to the hydrogeologic sections, e.g. Which aquifers are to be monitored? Which wells are screened within which aquifer? The contaminants of concern should briefly be described and the estimated lateral and vertical extent in each aquifer zone should be discussed and illustrated, e.g. What is the known lateral and vertical extent of contamination in each aquifer to be monitored? Will wells both inside and outside of the contaminanted zones be sampled? Please illustrate. The rate(s) and direction(s) on contaminant migration in each aquifer zone should be briefly discussed..

5) Figures 2-1 and 2-2, Regional Groundwater Elevations

Comment: The Figure should show the exact date(s) that the water level measurements were made and not only the months. Since water levels in wells will fluctuate daily, for accurate measurements, all water levels from wells should all be measured within a short time of one another. (Twenty four hours is ideal, however, for such a large number of wells three to four days may be more realistic).

6) page 3-1, para. 3, "Table 3-1 summarizes the parameters to be monitored in groundwater from each well and the frequency of analyses"

Comment: The locations of these wells with respect to the contaminant plume(s) in each aquifer zone and rate(s) direction of contaminant movement should be discussed. Some discussion should be included to support the chosen sampling frequencies.

7) page 3-1, last para. "..the environmental database for CTO 145 was used as the source of groundwater quality data"

Comment: Is this an electronic database? Does EPA have access to this database?

8) page 3-1, Section 3.1 VOCs, "The primary contamination found in ground water beneath MCAS El Toro consists of chlorinated VOCs..."

Comment: The lateral and vertical extent of individual VOCs should be referenced. Maps showing isopleths of contaminant concentrations should be presented where sufficient data is available.

9) page 3-1, Section 3.1, VOC, para. 2. "All wells will be sampled during the Rounds 3-6 of ground water monitoring"

Comment: EPA recommends a technical meeting after Round 4 ground water sampling to determine if the number of wells proposed for sampling can be reduced.

Comment: EPA recommends that a selected number of wells be sampled for Total Petroluem Hydrocarbons.

10) page 3-2, Section 3.2, SVOCs, "There is no evidence that the detected phthalates indicate contaminant releases at the Station. However, the maximum contaminant level (MCL) for bis(2-ethylhexyl) phthalate ...was exceeded in 30 wells..."

Comment: Please clarify. What is the suspected source of the phthalates? Phthalates are also common laboratory contaminants. Were any of these contaminants found in the field blanks? If so, it may indicate a laboratory QA/QC problem.

Comment: The wells which have previously detected SVOCs should be illustrated on a map. The wells proposed to be sampled for SVOCs in sampling rounds 3 through 6 should also be illustrated on Figure 3-1 or some other suitable well location map.

11) Table 3-1,

Comment: This table might be better organized by well depth, e.g. Which parameters are to be sampled for the shallow wells and which to be sampled for the deep wells?

Comment: Please provide the rationale for the sampling of all wells for the general chemistry parameters.

12) Table 3-3 "Summary of Analytes,,"

Comment: This table would be more useful if actual measured concentrations for each sampling date were presented rather than listing only the maximum concentrations detected in ground water. It would be useful if all the collected data could be placed in an EPA-MCAS compatible database so the data can be sorted and reviewed. This data can then be contoured with any number of commercially available software programs to assist in interpretation of lateral-vertical extent of ground water contamination and direction of ground water flow.

13) Table 3-4, Summary of Well Completion

Comment: This table may be more helpful if the wells were organized by screen elevation (e.g., wells in shallow aquifer vs. wells in deeper aquifer) rather than a listing of "Phase I RI/FS wells" vs. "Previously Drilled Wells". The timing of well installation is less important than the depth and construction of these wells.

14) page 3-33, Pesticides

Comment: It would be useful to indicate on a well location map those wells which have detected pesticides and the resulting concentrations over time, e.g. Spider diagrams. Those wells which are to be sampled for pesticides should be indicated on Figure 3-1 or some other suitable well location map.

15)) page 3-34, Herbicides

Comment: It would be useful to indicate on a well location map, those wells which have detected pesticides along with the resulting concentrations over time, e.g., Spider diagrams.. Those wells that are to be sampled for herbicides should be indicated on Figure 3-1 or some other suitable well location map.

16) page 3-34, Radionuclides

Comment: It would be useful to indicate on a well location map, those wells which have detected values of alpha particle activity and the resulting count., e.g. Spider diagrams. Those wells that are to be sampled for radionuclides, gross alpha and beta should be indicated on Figure 3-1 or some other suitable well location map.

17) page 3-35, Metals

Comment: It would be useful to indicate on a well location map, those wells which have detected elevated levels of metals and the resulting concentrations over time, e.g. Spider diagram. EPA will need to closely examine the field sampling plan for metals analysis. EPA procedures for sampling ground water for metals is currently being revised. In general, current guidance recommends against the use of filtered samples for metals analysis. Instead, for ground water samples exceeding 5 Ntu turbidity, a low flow sampling technique is recommended to reduce turbidity without the use of filtration. For more info., please refer to the EPA guidance document, "RCRA Ground-Water Monitoring: Draft Technical Guidance", Nov. 1992.

Those wells that are to be sampled for metals should be clearly indicated on the well location map, e.g. Figure 3-1 or some other suitable well location map.

18) page 3-36, para. 1, "Calcium, magnesium, sodium and potassium (the major cations) are included in the analysis, because they are important parameters for hydrogeochemical evaluations"

Comment: These parameters are not considered hazardous waste, hazardous waste constituents, and/or priority pollutants. These parameters should be included under Section 3.7, General Chemistry Parameters.

19) page 3-36, General Chemistry Parameters, ".. it is proposed that the following general chemistry parameters be monitored from all wells during each of the next four rounds of sampling.."

Comment: Please provide the rationale for the sampling of all wells for the general chemistry parameters.

Comment: I would eliminate the measurement of pH since ground water is generally expected to be near pH=7. I would eliminate the measurement of TDS since this can be estimated from the electrical conductivity which is easily measured in the field and requires no lab analyses. I would include the measurement of dissolved oxygen and turbidity as part of sampling protocol for metals analysis.

20) page 3-37, Treatability Parameters

Comment: I am not sure why many of these parameters are necessary. Please explain in more detail.

21) page 3-38, Section 3.10, Site Specific Analysis,

Comment: The wells to be sampled should be illustrated on a map, e.g., Figure 3-1 or some other suitable Figure.

Enclosure B

CLEAN II
CTO 048
Date 8/9/94

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.

CLEAN II
CTO 048
Date 8/9/94

Introduction and Objectives

Comment Number	Page No. and Paragraph	COMMENTS
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 ¶	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. 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.

Comment Number	Page No. and Paragraph	COMMENTS
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	COMMENTS
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	COMMENTS
6	3-1 2nd ¶	A statement should be added stating whether the data have undergone validation.

CLEAN II
CTO 048
Date 8/8/94

Comment Number	Page No. and Paragraph	COMMENTS
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	COMMENTS
10	Table 3-2	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? 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.
11	Table 3-3	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. 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. 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)?
12	Table 3-3	What is the purpose of this table? How do the data in the table help the reader to understand the monitoring plan?

Comment Number	Page No. and Paragraph	COMMENTS
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 ¶	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. 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.

Comment Number	Page No. and Paragraph	COMMENTS
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.

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Date 8/9/94

Comment Number	Page No. and Paragraph	COMMENTS
20	3-37 entire page	With respect to the analyses listed the following comments apply: COD is subject to interference by reduced metals such as ferrous iron or manganous ions. Nitrite exerts a 1.1 mg O_2/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. 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. 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? 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. 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.

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Date 8/9/94

Comment Number	Page No. and Paragraph	COMMENTS
21	3-37	Total Suspended Solids, TSS, is incorrectly defined. A gravimetric factor does not measure the absorbance of light. As the term implies it is measure of weight. Turbidity is a light scattering measurement which is definitely not equivalent to TSS. A relationship between TSS and Turbidity can be established if the suspended material is always of the same particle size and consistency.
22	3-37	Turbidity is normally defined as an optical property that causes light to be scattered and absorbed rather than transmitted in straight lines through the sample.
23	3-37	Color can be measured by absorption of a specific wavelength of light if turbidity does not interfere. Normally, turbidity is removed prior to color evaluation. Apparent color would include suspended matter. It may also be determined by visual comparison to standard APHA platinum solution color standards. How will color be measured and for what purpose?
24	3-37	There is no apparent concern about iron and sulfate reducing bacteria. These are important parameters which should also be in the monitoring plan and treatment alternatives may need to be designed for their removal if found, e. g. chlorination.

CLEAN II
CTO 046
Date 8/9/94

Comment Number	Page No. and Paragraph	COMMENTS
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	COMMENTS
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	COMMENTS
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.