





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

CLEAN II Program  
Bechtel Job No. 22214  
Contract No. N68711-92-D-4670  
File Code: 0218.5

**IN REPLY REFERENCE: CTO-80/0199**

March 27, 1997

Mr. Joseph Joyce  
BRAC Environmental Coordinator  
MCAS El Toro and Navy  
Building T-2006  
P.O. Box 95004  
Santa Ana, CA 92709-5001

**Subject: Comments on CDM Federal Programs Corp. Quarterly Groundwater Monitoring Report for the Period January Through February 1997**

Dear Joseph:

We have completed our review of the CDM Federal Programs Corp. quarterly groundwater monitoring report for the period January through February 1997. Our comments are attached. In general the report succeeds in presenting the current results in a comprehensible format. However, a few areas for improvement were noted in the field data collection methods and a reexamination of the current approach to data validation may be in order at this time.

We are pleased to provide this commentary and assistance to the MCAS El Toro team and look forward to continued success for the Team on the road to Base closure in 1999.

Very truly yours,

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

DT/sp

Attachments



**Bechtel National, Inc.** Systems Engineers-Constructors

## Technical Review Comments

Prepared by CTO-080 CLEAN II on

CDM Federal Programs Corp.

Groundwater Monitoring Report February 1997

### General Impressions

This report was reviewed in its entirety by CTO-080. The objective of the report was to present the results of the November-December groundwater sampling round conducted at MCAS El Toro. The document has achieved its objective; most comments are not related to the data presentation but rather, the data collection methods.

### Volume I

#### *Specific Comments*

##### Executive Summary

Page ES-1

##### Document Description

The text states that the distribution and concentrations of on-station TCE and other VOCs were comparable to those detected in January-February 1996. However, the document notes that locally minor increases in TCE concentrations in several, off-station wells suggest the continuing migration of the regional VOC plume.

##### Comment

It may be premature to conclude in the Executive Summary that there is continuing migration of the regional VOC plume. This is a sensitive issue from the standpoint of compliance with ARARs; therefore, statements to that effect must be strongly supported by data. The current data, while indicative of a single event increase in some wells are not supportive of a regional plume trend.

##### Suggestion

The text should retain the notification that some wells showed an increase; however, several caveats should be employed. First, the document leads the nonspecialist to believe that variations in VOC concentrations of several micrograms per liter (and very near the detection limit) are significant. Analytical chemists will strongly dispute this position and thus the text should indicate that variability in analytical results of this type are often of the same magnitude or greater than the exceedences reported. Second, The text should not make the polemic statement that the single round data are indicative of continuing migration of the regional plume.

The purpose of the long-term as well as the initial four quarters of groundwater sampling and analysis is to provide a historical record and robust data set to make conclusions from. It would seem better to wait until further data are collected prior to advancing the position in the draft report.

## Section 2

Page 2-3

### Document Description

The text states that the field teams used a flow-through system to measure DO, pH, electrical conductivity, turbidity and redox potential. Field teams recorded DO as percent saturation in the field and converted to mg/L later. Further, it notes that the instruments were calibrated daily and performed properly throughout the sampling round.

### Comment

There appears to be a discrepancy between the text descriptions and the data presented in Volume II, field logs section. Inspection of Vol. II indicates that on many occasions the logs show DO as mg/L rather than percent saturation. Moreover, the field data appear to demonstrate that problems encountered in the last round were not entirely corrected. Specifically, there are numerous DO measurements which exceeded the theoretical maximum saturation value in water, both during the previous round and this round. At many wells, DO values from the previous round which were in excess of the theoretical values were recently reported to be much lower and thus some observers may conclude that these most recent values are more likely to be correct. However, such a simplistic assessment would be baseless and the fact remains that the bulk, if not all of the DO and redox measurements are highly dubious. Consider the fact that as DO increases to near saturation there should be a similar increase in redox. Likewise as DO approaches anoxic conditions, redox should drop to negative levels. However, the data in this and the previous report show no relationship between the two measurements. While it is true that redox is a difficult measurement to obtain, the flow through unit, if properly used should have greatly increased the probability of obtaining satisfactory measurements. Also note that there are data values in Table C-1 which are clearly erroneous --- for example, see the pH value of 716.00 for 08\_DGMW77 and a DO value of 22.30 for 08\_UGMW29. There are many other examples in Table C-1.

### Suggestions

The authors as well as other data users should be extremely cautious in the use of DO and redox data collected in the past two rounds. These data appear to be, for the most part, unusable due to their significant departure from theoretical predictions. The danger in the use of these data, since they vary widely from anoxic to saturated values is that users can selectively present values which support preferential geochemical hypotheses which may in fact be completely erroneous. We acknowledge the known difficulties in obtaining accurate in-situ DO and redox measurements and suggest that extra care be allocated to this step in the future sampling rounds.

In addition, the authors should ensure that a rigorous data verification step is conducted in the future. This step will ensure that clearly erroneous data are not included in the final product.

Page 2-4

Document Description

The text states that the CLEAN II contractor is OHM Remediation Services.

Comment

Bechtel National, Inc. is the CLEAN II contractor and OHM is the RAC contractor.

Suggestion

Clarify which contractor actually removed the pumps described in the text.

## **Appendix D**

Page 1-5

Document Description

The text notes that a few analytes were detected in the rinseate blank and trip blank samples and states that samples which were qualified due to blank contamination are summarized in Table 1-3. Table 1-3 includes the analyses bromodichloromethane, chlorodibromomethane, chloroform, methylene chloride, and toluene. Table 1-2 which lists the analytes found in the blanks indicates that TCE was typically <1 microgram/liter in blanks with a single air contamination blank exhibiting 2 microgram/liter TCE.

Comment

The text and Tables 1-2 and 1-3 indicate no blank contamination by TCE and thus all TCE results should be valid and presented in the final output. However, some data are missing from the final tables and figures presented in the main body of this report. Table 1-5 indicates that sample 18MCAS07-6-002 (TCE at 33 microgram/liter) and 18MCAS07-7-002 (TCE at 46 microgram/liter) are valid TCE results. Yet, inspection of Table 4-1 and Figure 4-2 show the associated TCE values for these locations as below detection levels.

Suggestion

The document should be reviewed and corrected as necessary. The two VOC values missing from Table 4-1 and Figure 4-2 represent a level of contamination which would be at the higher end of the range of values detected in the off-station plume and thus may be significant to future assessments of contaminant fate and transport. In addition, since the validation procedure calls for only 10 percent of the data, this single VOC sample delivery group was apparently adequate to meet project objectives. However, unusual and unexpected incidences of VOCs, such as the EOD range, may necessitate the selection of additional SDGs for validation to ensure that the

results are accurate. The possibility of such selective validation was discussed during the development of the current sampling plan and it since the analytical laboratory provides full Level IV data packages, this would not be a problem. Finally, it is not clear if a single SDG from each major group of analyses is adequate to meet the 10 percent goal and this issue should be addressed.

Page 7-1

#### Document Description

Here (TPH-g and TPH-d) and on page 8-1 (metals) the selected SDGs are missing several of the standard blanks and duplicates used as part of the that validation process.

#### Comment

Since there are numerous blanks and duplicates absent from the randomly selected SDGs it is not possible to perform the full data validation for these sets as described for the VOCs.

#### Suggestions

While it is acknowledged that a goal was to randomly select SDGs, the primary intent was to select SDGs which would be adequate for the intended purpose of validation. The selection of complete SDGs should be the primary concern in the future.

## ***Volume II***

### **Well Purging and Sampling Logs**

#### Document Description

The forms include a small note at the bottom to indicate when a low flow purge was used. Several logs also have notes regarding the presence or absence of entrained air.

#### Comment

There does not seem to be any place within the documents where a listing of the low flow purge wells is given. It is quite time consuming to have to page through the logs to find the specific wells. In addition, while the text indicates that low flow was used, the exact flow rates are sometimes not provided (for example, compare 02DGMW59 to 02DGMW61).

The logs contain other information which may prove to be important yet the data do not appear in the text. For example, at Site 1 the EOD range, TCE has recently been reported and there have been no detections in the past and there are no known sources for TCE to be present at this site. Interestingly, the logs note that for several of the Site 1 wells the cover locks were either absent or cut, specifically for 01MW101 where 18 microgram/liter of TCE was reported. While this situation may be purely circumstantial, the entire situation should always be assessed when unusual data are reported.

The air entrainment data appear to be valuable since many notes indicate that entrained air was present in VOC samples collected for analysis (for example see 18BGMW01C, 18BGMW02E, and 18PS2). However, the observations were reported for only a select group of wells and it seems strange that a simple visual observation which incurs no cost could not be used at every well. Moreover, there is no discussion in the text regarding these observations and their apparent relative significance.

### Suggestions

Provide a table of the wells which were subjected to low flow purging and sampling. Also list the flow rates from these wells. In the next round provide complete observations for entrained air at all wells and include a discussion of the results with respect to the data collected. Scan the data logs to ensure that any ancillary, but potentially relevant field note is included in the text discussions, especially when unusual data are reported.