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MOFFETT FIELD
SSIC NO.5090.3

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IX

75 Hawthorne Street
San Francisco, Ca. 94105-3901

August 3 , 1992

Stephen Chao
Department of the Navy
Western Division
Naval Facilities Engineering Command
900 Commodore Way, Bldg. 101
San Bruno, CA 94066-0720

Dear Mr. Chao:

The U.S. Environmental Protection Agency has reviewed the following report for the NAS Moffett Field NPL site: Hydrogeologic Investigation - Draft Report. The enclosed comments were prepared for EPA by our representative, SAIC. If you have any questions regarding these comments, please call me at (415) 744-2385. Thank you.

Sincerely,

A handwritten signature in black ink that reads "Roberta Blank".

Roberta Blank
Remedial Project Manager

Enclosures (3)

cc: Cyrus Shabahari, DTSC
Elizabeth Adams, RWQCB
Jim Haas, NASMF

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Science Applications International Corporation
An Employee-Owned Company
Technology Services Company

July 31, 1992

DCN: TZ4-C09015-RN-M13630

Ms. Roberta Blank (H-9-2)
U.S. Environmental Protection Agency
Region IX
75 Hawthorne Street
San Francisco, CA 94105

Ref: EPA Contract No. 68-W9-0008; Work Assignment No. C09015
SAIC/TSC Project No. 06-0794-03-0630
Hydrogeologic Investigation - Draft Report

Dear Roberta:

SAIC/TSC has completed its technical review of the referenced document. The review was performed by Mary Wesling, SAIC/TSC Geologist.

Several objectives of the hydrogeologic investigation, as stated in the work plan (PRC and JMM, 1992) and in Section 1.1 of this report, were not completed. These are among the major concerns addressed in this review and are described below:

- The mapping, surveying, and evaluation of the integrity of the storm drain lines in the North Base Area (NBA) were only partially completed. It is stated that Navy maps/plans were either not available or were inconsistent with field observations. Due to the interaction between groundwater and the storm drain system in the NBA, evaluation of the potential contaminant pathway, which the system represents, is vital to the investigation. Care should be taken to adequately evaluate this pathway in future tasks.
- Laboratory data sheets were not provided as part of the report. In order to evaluate the accuracy and quality of the analytical data presented in the report, it is necessary to have access to the this documentation. The laboratory data sheets would provide a complete list of analytes for each method and detection limits. These are two of the essential elements in evaluation of analytical results. This documentation should be included in future reports.

Ms. Roberta Blank
July 31, 1992
Page 2



- PRC and JMM conclude that Building 191 appears to provide hydraulic control for groundwater beneath the NBA, based solely on the shape of the piezometric surface in both the A1 and A2 zones as determined from one groundwater depth measurement. In order to support the conclusion, data showing pumping times and volumes at Building 191 and corresponding groundwater depth measurements must be provided.

Additional concerns are presented in the text of the enclosed review. If you have any questions, please call me at (415) 399-0140.

Sincerely,

SCIENCE APPLICATIONS INTERNATIONAL CORPORATION
Technology Services Company

A handwritten signature in cursive script, reading "Fred Molloy". The signature is written in black ink and is positioned above the typed name and title.

Fred Molloy
Work Assignment Manager

FM/kw

Enclosure

DCN: TZ4-C09015-RN-M13630

TECHNICAL REVIEW OF
NORTH BASE AREA
HYDROGEOLOGIC INVESTIGATION
DRAFT REPORT
NAVAL AIR STATION, MOFFETT FIELD
MOUNTAIN VIEW, CALIFORNIA

JULY 1992

SUBMITTED TO:

U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 HAWTHORNE STREET
SAN FRANCISCO, CALIFORNIA 94105

SUBMITTED BY:

SCIENCE APPLICATIONS INTERNATIONAL CORPORATION
TECHNOLOGY SERVICES COMPANY
20 CALIFORNIA STREET, SUITE 400
SAN FRANCISCO, CALIFORNIA 94111

EPA CONTRACT NO. 68-W9-0008
EPA WORK ASSIGNMENT NO. C09015
SAIC/TSC PROJECT NO. 06-0794-03-0630

TECHNICAL REVIEW OF
NORTH BASE AREA
HYDROGEOLOGIC INVESTIGATION
DRAFT REPORT
NAVAL AIR STATION, MOFFETT FIELD
MOUNTAIN VIEW, CALIFORNIA

GENERAL COMMENTS

1. Documentation for analytical data is not presented for review in this report. The verification documentation should include laboratory analytical data sheets with detection limits listed for each analyte, and laboratory quality assurance/quality control documentation sheets. A summary of these documents prepared by the author of the report is inadequate to resolve discrepancies between summary tables, data cited in the text, and data on the figures. Future reports should include appendices containing these documents.
2. According to the work plan (PRC and JMM, 1992), one prime objective of the North Base Area (NBA) field investigation was to develop new cone penetrometer (CPT) data as an aid in further characterizing paleo-stream channels. Due to "adverse weather," collection of only a limited amount of new CPT data was accomplished. Based on Figure 3, (Proposed and Actual CPT Locations), a sufficient amount of existing well logs and CPT data was available at completion of this report and should have been used to develop additional cross-sections and to better define the locations of possible paleo-stream channels.

SPECIFIC COMMENTS

1. Section 2.2, Page 12, Paragraph 2

During the investigation, seven of twenty-seven proposed CPT locations were completed. CPT locations 1 through 9 were not paired with monitoring

well locations. Since no analytical data from the seven completed CPT locations is presented in the report, it is assumed that Hydropunch sampling was not performed in conjunction with the CPT phase of this investigation. According to the work plan, the purpose of CPT testing at locations 1 through 9 was to determine the areal extent of paleo-stream channels, which could transmit contaminants to the NBA at an accelerated rate. Hydropunch groundwater samples retrieved during these CPT operations would have provided analytical data helpful in resolving this question. If another attempt is made to complete the remaining proposed CPT test locations, inclusion of the Hydropunch sampling should be considered.

2. Section 2.2, Page 12, Paragraph 1

In the text and in Figure 3, CPT locations for the current study are identified by numbers with no preceding letters, while in Appendix A, (Cone Penetrometer Data), the locations are identified with "CPT-NB-" preceding the number. CPT locations from previous studies are identified with either "CPT-" or "CPT-8-" and a number in both text, table and figures. For consistency and to diminish the possibility of misinterpretation, the "CPT-NB-" should be added to the CPT locations in this study.

3. Section 2.6, Page 16, Paragraph 2

According to the text in this section the survey of the existing storm drain system included all drains, ditches, diversion boxes, collection basins, and drain line inverts. The survey of the storm drain system appears from this description to be complete; however, based on subsequent statements in the text this is not the case. In Section 3.2 - Horizontal Conduits (Page 24), it is stated that the definition of the pipelines connecting the catchment basins was not completed because Navy maps/plans were either not available or were inconsistent with field observations. It is further stated that "inferred" locations of the horizontal conduits connecting storm drain system inverts are represented on Figure 10 as

dotted lines. The text in this section should be revised to show that a survey of the existing storm drain system is incomplete.

4. Section 2.7, Page 17, Paragraph 1

The analyzed "selected inorganic parameters" and the laboratory detection limits for these parameters should be listed.

5. Section 3.1.1, Page 19, Paragraph 3

A stormwater "diversion box" at the junction of Lindberg Avenue and Zook Road is referenced. In the last sentence of this paragraph, a "distribution box" is referenced which is assumed to be the same "box." The use of consistent terminology should be employed.

6. Section 3.1.3.2, Page 23, Paragraph 2

The piezometric contours shown in Figure 7 are said to show the effect of pumping at Building 191. This is a reasonable conclusion based on the limited data presented; however, additional data is needed to substantiate the conclusion. No information is given on the pumping rate (time and volume) at Building 191 or whether pumping is continuous or intermittent. The piezometric contours are presented for only one groundwater level measurement period and no data from previous measurements are presented for comparison. To substantiate the conclusion, an additional piezometric surface map should be developed from groundwater depth measurements taken prior to pumping.

7. Section 3.2, Page 24, Paragraph 2

Elevations of the manhole inverts and drop inlets at the north end of the runways were surveyed during field activities. It is not clear whether these structures were also surveyed for location using California Coordinate Zone measurements, as were the monitoring wells. In order to accurately locate the components of the stormwater drainage system for use

in characterizing the groundwater movement in the NBA, a survey for location should be completed.

It is stated that the horizontal conduits connecting the inverts are represented in Figure 10 as dotted lines indicating inferred locations; however, Figure 10 does not display this representation.

8. Section 3.2, Page 25, Paragraph 4

The results of analysis of discharge water from the wet well into the Navy Channel is reported to have shown a level of 7 $\mu\text{g/L}$ of trichloroethene (TCE). Since this is above the EPA and state MCL of 5 $\mu\text{g/L}$ and the RWQCB's freshwater objectives for human health (3.0 $\mu\text{g/L}$), a statement should be made as to whether discharge is ongoing.

9. Section 3.2, Page 26, Paragraph 7

The term "ND" is used to describe a level of TCE below contract laboratory detection limits. The actual detection limit should be stated.

10. Section 4.3, Page 36, Paragraph 1

Contract required detection limits (CRDLs) are said to be provided in the last column of Tables 7, 8, and 9. Detection limits are not provided in these tables or anywhere else in the report. Laboratory data sheets showing detection limits for each analyte should be provided.

11. Section 4.3, Page 37, Paragraph 2

Since the laboratory analytical data sheets are not included in the report, the analytical precision and accuracy of the analytical procedures cannot be verified by the reviewer.

12. Section 5.0, Page 37, Paragraph 2

Monitoring wells WNB-4 and WNB-6 may provide lithologic and water quality data within a common paleo-channel. Monitoring well WNB-8, however, does not provide lithologic data. According to the drilling log (Appendix B), problems with the 5-foot moss sampler caused poor recoveries from 9 to 10 feet below ground level (bgl), no recovery from 10 to 19 feet bgl, and only 50% sample recovery from 19 feet to the total boring depth of 24 feet. In an environment of anastomosing distributory channels, two wells lying approximately 1,000 feet apart are not sufficient to define a paleo-channel.

13. Figure 3, Page 44, NBA Proposed and Actual CPT Locations

It is stated in Section 2.2, (Page 12, Paragraph 1), that of CPT locations 23 through 27, only CPT-NB-27 was completed. In Figure 3, the symbol used for CPT-NB-23 is defined as a "tested CPT location." This discrepancy should be corrected.

14. Figure 6, Page 47, North Base Area Storm Drain Locations

In this figure, storm drains are illustrated by lines and arrows, which in several instances cross each other. It is unclear whether storm drains actually join and combine their flows where these crossings are indicated, or whether the storm drains remain as individual lines after crossing. This should be clarified and a source for the information cited.

15. Figure 7, Page 48, North Base Area Piezometric Surface A1-Aquifer

The representation for the piezometric surface for the A1 aquifer appears to have been computer-generated from monitoring well and/or piezometer data points. Please provide these data points, including monitoring well numbers, either overlain or on the same map.

16. Figures 16 through 21, Pages 57 through 62

The meaning of the contour representing the "observed/inferred extent of contamination" is not clear. If the contour represents the isoconcentration contour for the lowest detection limit in the investigation, then the contour should be labeled with the detection limit and a "less-than" symbol.

17. Table 1, Page 66

Under "parameters measured during development," only two parameters, electrical conductivity and maximum pumping rate, are listed. In the Field Sampling Plan (PRC and JMM, November 1991), it was stated that water temperature and pH were also to be recorded to determine when the wells had been adequately developed. These two parameters should be included in Table 1.

18. Table 2, Page 67

The footnote to this table reads "through July, 1991." It is unclear whether the listed concentrations are the maximum concentrations detected in the history of the investigation of the site, or within the most recent sampling round. Two columns should be added to this table: one showing the monitoring well number where the maximum concentrations were detected, and the second giving the dates the maximum concentrations were detected.

19. Table 5, Page 71

Since there are no laboratory analysis data sheets included in the report, it is not possible to verify whether the analysis results listed in Table 5, preceded by a less-than symbol, are the detection limits for that round of sampling. If these data figures do represent the laboratory detection limits for the analyses, then the limits for the April 1992 sample rounds are all higher than the EPA MCL and/or the state MCL for analytes 1,1-dichloroethane (1,1-DCA), 1,1-dichloroethene (1,1-DCE), cis-1,2-DCE,

tetrachloroethene (PCE), and TCE. The results of the analyses for cis-1,2-DCE and trans-1,2-DCE should be listed separately, not totaled, since there are separate MCLs listed for each. When samples are analyzed by a method having a detection limit higher than the required MCL, the usefulness of the data in evaluating the extent of contamination is questionable.

REFERENCES

PRC and JMM, 1991. Naval Air Station Moffett Field Mountain View California, Remedial Investigation/Feasibility Study, Draft Field Sampling Plan, November 1, 1991.

PRC and JMM, 1992. Naval Air Station Moffett Field California, North Base Area Final Work Plan, San Francisco, California, February, 1992.

DEPARTMENT OF TOXIC SUBSTANCES CONTROL

REGION 2
700 HEINZ AVE., SUITE 200
BERKELEY, CA 94710-2737



(510) 540-3724

August 4, 1992

Mr. Stephen Chao
Western Division
Naval Facilities Engineering Command
San Bruno, California 94066-0727

VARIANCE FROM THE SECONDARY CONTAINMENT FOR THE TANK SYSTEM TREATMENT

Dear Mr. Chao:

The Department of Toxic Substances Control (Department) has reviewed the variance request received from the Navy. After careful consideration and consultation with RCRA personnel, the Department can not grant a variance from the secondary containment of the tank system at NAS Moffett Field. The reasons provided in the request letter of July 21, 1992, to the Department are not satisfactory. The author seems to emphasize more on the process instrumentation in lieu of secondary containment.

Although the process instrumentation is an integral part of the design, it fails to stop any release from the tank itself. The purpose of the secondary containment for ANY tank system for the purpose of storage, transfer or treatment of waste, as it is expressed in Title 22 Chapter 14, Article 10, "...to prevent any migration of waste or accumulated liquid out of the system to the soil, groundwater or surface water at any time during the use of the tank system."

The tank system must " provide a leak detection system that is designed and operated so that it will detect the failure of either the primary and secondary containment structure or any release of hazardous waste or accumulated liquid in the secondary containment system within 24 hours, or at the earliest practicable time if the existing detection technology or site conditions will not allow detection of release within 24 hours" per Article 10. The system should also be capable of detecting and collecting releases and accumulated liquid until the collected material is removed.

The Department has considered the cost benefit as being minimal in the overall cleanup cost at Moffett Field. Although, there is going to be an additional cost to incorporate the secondary containment requirements, but the long term benefits



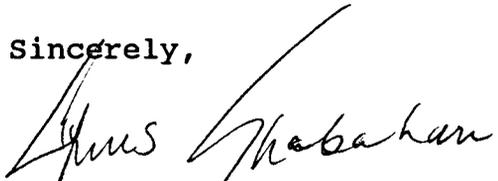
Mr. Stephen Chao
August 4, 1992
Page Two

will outweigh the cost.

In closing, the tank integrity, its components, containment and detection of releases, O&M and inspection must be in accordance with the Title 22 Chapter 22, Article 10.

Should you have any questions, please call me at (510) 540-3821.

Sincerely,



Cyrus Shabahari
Waste Management Engineer
Site Mitigation Branch

cc: RWQCB
San Francisco region
Attn: Ms. Elizabeth Adams
2101 Webster Street, Suite 500
Oakland, California 941647