



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

January 2, 1991

Eddie Sarmiento
Naval Station Treasure Island, Bldg. 1 (Code 84)
San Francisco, CA 94130

Dear Mr. Sarmiento:

The U.S. Environmental Protection Agency has the attached comments regarding the Aquifer Testing Work Plan and the Phase I Aquifer Testing Results/Recommendations for Phase II Aquifer Testing report for Hunters Point Annex. Please call me at (415) 744-2385 to discuss how these issues will be resolved.

Sincerely,

A handwritten signature in cursive script that reads "Roberta Blank".

Roberta Blank
Remedial Project Manager

Attachments (3)

cc: Louise T. Lew, Code 1911
Bonnie Arthur, DTSC
Barbara Smith, RWQCB



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

December 31, 1991

Memorandum

Subject: Review of Slug Test for Hunters Point

To: Roberta Blank, RPM

From: Herb Levine, RPM

A handwritten signature in cursive script, appearing to read "Herb Levine".

In general, I agree with Bechtel's comments. However I do have something to add.

1. The slug test report never states the assumptions made. At this point in the project cross sections have probably been generated. I recommend showing the areas where the slug tests were conducted in cross section and describe the hydrogeology and the assumptions for the test.
2. No real justification for the analyses were made, other than that the data best fit the analysis chosen. This is an incorrect approach. I have the impression that the software was used as a 'black box'. I do recommend checking the use of the software.
3. I agree with the approach of estimating hydrogeologic characteristics with slug tests prior to conducting pumping tests. I would like to see the calculations for zone of influence. It would be appropriate to show calculated drawdown in cross section along with locations and screened intervals of observation wells.

If you have any questions please feel free to discuss them with me.

Bechtel

50 Beale Street
San Francisco, CA 94105-1895
Mailing address: P.O. Box 193965
San Francisco, CA 94119-3965

December 20, 1991

Ms. Roberta Blank, H-7-5
Work Assignment Manager
U.S. EPA Region IX
75 Hawthorne Street
San Francisco, California 94105

Subject: ARCSWEST Program Contract No. 68-W9-0060
Hunters Point Annex Work Assignment No. 60-05-9PP3
Review of Phase I Aquifer Testing Results/Recommendations for
Phase II Aquifer Testing

Dear Roberta:

As you requested, we have reviewed the Navy's "Phase I Aquifer Testing Results/Recommendations for Phase II Aquifer Testing" for Hunters Point Annex (HPA).

Our review of this document indicates that it provides a very limited analysis of the results of Phase I results (slug testing). The choice of aquifer analysis methods, although technically adequate, may not be the most appropriate. Specific comments are included in the attached pages.

Please contact me or Wayne Mayer (768-6127) if you have comments or questions.

Very truly yours,



Cathie L. Gardinier
Project Manager
(415) 768-2766

Attachment
cc: M. Mitguard



Bechtel Environmental, Inc.

TECHNICAL REVIEW COMMENTS ON
PHASE I AQUIFER TESTING RESULTS/RECOMMENDATIONS FOR PHASE II
AQUIFER TESTING
NAVAL STATION, TREASURE ISLAND, HUNTERS POINT ANNEX

COMMENT NO.

- 1) General. The analytical methods applied may not be the most appropriate for the data collected. The Cooper method is designed for use on fully penetrating, confined aquifers. Neither of these conditions are met on most of the wells on the site. Both methods used, the Cooper method and the Bouwer & Rice method, assume a homogeneous, isotropic aquifer which is definitely not the case at HPA. The text should provide a more thorough discussion of the validity of the analytical methods chosen, along with a discussion of other methods such as the Hvorslev method.
- 2) General. The document does not address whether the saturated or unsaturated hydraulic conductivity was measured. Due to the number of wells in which the well screen was only partially saturated (screened zone extending above water table), this could substantially influence the results. Inclusion of raw data in an appendix would permit a more thorough review of this and other aspects of the data.
- 3) Page 8, Section 3.1. The extreme range of hydraulic conductivities for the clay to gravel fill is clearly an artifact of encompassing a wide range of fill materials into a single unit. If possible, this grouping should be further subdivided into primarily clay and silt fill and sand and gravel fill. This might yield more meaningful results.
- 4) Page 13, Section 3.3. The maximum hydraulic conductivity (k) for IR-17 is misprinted. It should be 1,140 ft/day.
- 5) Page 13, Section 3.5. The hydraulic conductivity numbers cited for weathered bedrock do not match the values presented in Table 3 which are 12.5 ft/day (Cooper method) and 6.99 ft/day (Bouwer & Rice method).
- 6) Page 14, Section 3.6. Thirteen wells are listed for the Bouwer & Rice method for industrial fill, but only twelve wells are listed for the Cooper method.

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- 7) Page 14, Section 3.6. Presentation of only maximum and minimum k values is misleading. Inclusion of the average and standard deviation would provide a better insight on the hydraulic conductivity differences between the various groupings. For example, averages for the Cooper method are:

Clay to Gravel Fill	32.7 ft/day
Boulder Fill	235 ft/day
Industrial Fill	63.3 ft/day
Undifferentiated Upper Sands	298 ft/day
Undifferentiated Sedimentary Deposits	6.7 ft/day
Weathered Bedrock	12.5 ft/day (See Comment 5)

- 8) Page 15, Top of page. Based on range of concentrations only, as given on page 15, it would seem that Industrial Fill should be included with the other two high permeability groupings. As noted in Comment 7 above, average concentrations provide a better picture of the relationships between the groupings.
- 9) Page 17, Section 4.1, Paragraph 2. The criteria for piezometer placement should be presented.
- 10) Table 3. Why was well IR01MWI-7 tested when it does not meet the stated criteria (its water level was less than 5')?
- 11) Table 3. Why was well IR09MW-37A tested when it does not meet the stated criteria (its water level was less than 5')?
- 12) Plate 3. Hydraulic conductivity results for the Bouwer & Rice method could be included on this plate.

Bechtel

50 Beale Street
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Mailing address: P.O. Box 193965
San Francisco, CA 94119-3965

November 27, 1991

Ms. Roberta Blank, H-7-5
Work Assignment Manager
U.S. EPA Region IX
75 Hawthorne Street
San Francisco, California 94105

Subject: ARCSWEST Program Contract No. 68-W9-0060
Hunters Point Annex Work Assignment No. 60-05-9PP3
Review of Draft Aquifer Testing Workplan

Dear Roberta:

As you requested, we have reviewed the Navy's draft Aquifer Testing Workplan for Hunters Point Annex (HPA).

Our review of this document indicates that it is generally accurate and technically adequate. Some details of the Phase II testing should be clarified. These details and other specific comments are included in the attached pages.

Please contact me if you have comments or questions.

Very truly yours,



Cathie L. Gardinier
Project Manager
(415) 768-2766

Attachment
cc: M. Mitguard



Bechtel Environmental, Inc.

TECHNICAL REVIEW COMMENTS ON
AQUIFER TESTING WORK PLAN
NAVAL STATION, TREASURE ISLAND, HUNTERS POINT ANNEX

COMMENT NO.

- 1) Page 2, Paragraph 2. Note missing word in last sentence; should read "reliable estimantes of hydraulic properties".
- 2) Page 3, Section 1.3, Paragraph 1. The first reference to "hydraulically deposited" should be defined. Hydraulically deposited could refer to current action, dredging activities, or to other actions. The second reference suggests that hydraulically deposited sands are a form of industrial fill. In both instances, the source of "hydraulically deposited" sands is not clear.
- 3) Page 3, Section 1.3, Paragraph 1. The undifferentiated upper sand unit is given a stratigraphic symbol (Quus). To be consistent, the Bay Mud deposits should also be given a stratigraphic symbol.
- 4) Page 4, Last Paragraph. The first sentence should be modified to state that groundwater is assumed to flow radially outward from inland areas of higher elevation.
- 5) Page 5, Section 2.0. Paragraph 1. The first sentence should be modified by removal of the word all from "all monitoring wells installed..." or addition of the phrase "which meet the criteria listed below".
- 6) Page 5, Section 2.1 and Table 2. The term "considered for slug testing" is explained in the text, but becomes obscure when used as the title for Table 2. Perhaps the table could be entitled "Wells Installed during the Primary Phase RI" or "Wells Available for Slug Testing".
- 7) Page 5, Section 2.1.1, First Bullet. Are there wells screened in other zones?
- 8) Page 5, Section 2.1.1, Second Bullet. Is the depth of water in the well casing determined in the field, or is it determined by review of monitoring data?
- 9) Page 5, Section 2.1.1, Third Bullet. Will the presence of free product be determined in the field, or will it be determined by review of monitoring data? Were wells in which free product have been detected during installation or monitoring included in Table 2?
- 10) Page 6, Section 2.1.3. If well characteristics are documented in previous reports, these reports should be referenced. If not documented elsewhere, this information would be appropriate as an appendix to this plan.
- 11) Page 7, Section 2.2, Paragraph 2. How many observation wells will be monitored for each test well?

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- 12) Page 7, Section 2.2, Paragraph 2. Routine procedure for constant-rate tests include testing for 24 hours for a confined aquifer and 72 hours for an unconfined aquifer (Reference: Driscoll, Groundwater and Wells, 1986). How will "analyzable drawdown" be determined to discontinue the test after less than 24 hours?
- 13) Page 7, Section 2.2, Paragraph 2. The statement that monitoring will be performed through completion of the discharge testing is not clear. Does completion mean the end of the pumping of the test well or, more correctly, until recovery of the observation wells?
- 14) Page 8, Section 2.2.1. Will there be a minimum number of wells selected for Phase II pump tests, such as one per IR or one per unit of area?
- 15) Page 8, Section 2.2.1, Bullet 7. What is the criteria for large versus small sites?
- 16) Page 8, Section 2.2.1, Bullet 8. What is the maximum distance from the pumping well which an observation well can be located?
- 17) Page 8/9, Section 2.2.2. What criteria (recovery of test well, set time, tests conducted on different days) will be used to set the period between the step-drawdown test and the constant-rate test for each well?
- 18) Page 10, Section 3.0. If the list of analytes required for discharge to the sanitary sewer is known, it should be included in this document.