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Consulting Engineers, Inc.

January 21, 1992 *This letter modifies the 2B+3
Work Plan.*



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Contract No.: N-62474-88-D-5086 File No.: 2738.0250/3.1
CTO No. 0121

Subject: Work Plan for Tidal Influence Study, NAS Alameda

Dear Mr. Wong:

This letter presents our proposed methods for performance of a tidal influence study for sites investigated under CTO No. 0121 at Naval Air Station (NAS) Alameda. Performance of this work was authorized under Modification No. 1 to the original CTO, using excess funds from the original CTO to cover costs of the field work described below.

Background

The work plan for the NAS Alameda Remedial Investigation/Feasibility Study (RI/FS) prepared by Canonie Environmental (Canonie) included a brief description (Attachment A) of a minimal tidal influence study at several sites. Six of the sites that were to be included in the Canonie tidal influence study were investigated by PRC/JMM under CTO No. 0121. The tidal influence study was inadvertently omitted from the JMM/PRC scope of work and thus was authorized under Modification No. 1 to CTO No. 121.

Proposed Field Activities for Tidal Influence Study

The tidal influence study will be performed at the following sites: Site 7A (Building 459), Sites 7B and 11 (Buildings 162 and 14), Sites 14 and 15 (Fire Training Area and Buildings 301 and 389), and Site 10A (Building 400). Based on data collected to date, shallow groundwater at these sites is influenced by tidal activity in the San Francisco Bay. Canonie had originally proposed a tidal influence study at Site 6 (Building 41) and not at Site 7A (Building 459). However, groundwater level measurements did not indicate tidal influence on shallow groundwater at Site 6.

The tidal influence study will include collection of groundwater elevation data using transducers and data loggers at a frequency of not less than 12 readings per hour, for a continuous period of 72 hours. All wells installed by JMM under CTO No. 0121 at each of the indicated sites will be monitored. In addition, pressure transducers and data loggers will be installed at the Sea Plane Lagoon and in the Oakland Channel for the duration of the study.

Reference elevations for the points at which the transducers are installed in the lagoon and the Oakland Channel will be surveyed by a State of California-licensed surveyor. Locations will be surveyed vertically relative to mean sea level.

The following assumptions are associated with the tidal influence study.

- Portions of roads, driveways, and other areas, can be barricaded as necessary for the 72-hour duration of the study to protect monitoring equipment.
- Access to NAS Alameda during night hours and weekends will be available for the duration of the study.

Proposed Interpretation and Reporting

Data from the tidal influence study will be plotted, evaluated, and included in the draft final version of the CTO No. 0121 Phases 2B and 3 data summary report. Data evaluation will include the generation of plots of water level versus time in each well and in the Oakland Harbor and Sea Plane Lagoon. Curves generated for each well will be compared to curves generated for the lagoon and harbor to determine whether influence exists, and to the extent possible, the lag time between tides in the bay and influences in the well. In addition, an average head will be calculated for each tidally influenced well using the methods of Serfes ("Determining the Mean Hydraulic Gradient of Ground Water Affected by Tidal Fluctuations", Ground Water Vol. 29, No. 4, July August 1991). This information will be used to prepare both basewide (within the industrialized area) and site-specific groundwater contour maps that reflect the net groundwater flow direction.

Schedule

The results of the tidal influence study will be incorporated into the draft final and final data summary reports for Phases 2B and 3 for CTO No. 0121. In order to meet this schedule the field work must be completed by the end of January. Currently, field work is planned for the week of January 27. January 22 is the last day that we can postpone the delivery of equipment rented for the tidal influence study.

Because the California Department of Toxic Substances Control (DTSC) approved performance of the minimally defined tidal influence study, we do not feel that their review of this more thorough study is warranted. This revised study will provide more data than that originally approved by DTSC.

As discussed above, we will need notification of PRC and Navy approval prior to January 22, 1992. We must notify the supplier of the rental equipment on this date in order to avoid incurring a one week rental charge. Please direct questions or comments regarding the proposed tidal study to Ms. Donna Courington or me.

Sincerely,

**JAMES M. MONTGOMERY
CONSULTING ENGINEERS, INC.**


Steven M. Newton, P.E.
Project Manager

Attachment

cc: Mr. Greg Reller, PRC
Mr. Kirk Switzer, PRC

3.26.2 Sediment and Surface Water Sampling

Sediment and surface water samples will be collected at the offshore locations shown on Figure 3.26.1. Marine macrobenthos bioassays will also be performed, if elevated levels of contamination are detected, as discussed in Section 3.20.5.1. Sampling and laboratory procedures will be followed that are consistent with EPA accepted protocols.

3.26.3 Measurement of Tidal Influence on Ground Water Levels

Concern has been expressed by DHS and in the data gaps discussions of the PHEE, Volume 7, that the tides in San Francisco Bay may exercise a significant influence on the ground water levels (and therefore on the ground water flow direction), at NAS Alameda, especially in areas near the shoreline. To measure any influence, a series of pressure transducers will be placed in selected monitoring wells to measure changes in the ground water levels. These transducers will be connected to a portable data logger to record measurements. Measurements will be continuously recorded for two 48-hour periods in each well where these data are collected. Data will be obtained during peak high and low tides.

Table 3.26.3 provides a list of the number of monitoring wells at each site where these studies will be performed. Measurements of this type have also been proposed for additional monitoring wells along the perimeter of the landfills, as discussed in Section 3.2.4 of Volume 1A, the SWAT Proposal Addendum.