

pump station



environmental engineers, scientists,
planners, & management consultants

CAMP DRESSER & McKEE INC.

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x 268

July 19, 1994

Mr. Scott Seery
Department of Environmental Health
Hazardous Materials Division
1131 Harbor Bay Parkway, Room #250
Alameda, California 94502-6577

Subject: *Remediation and Groundwater Monitoring of Former UST Location
Sunol Pump Station*

Dear Mr. Seery:

This work plan presents the scope of work prepared by Camp Dresser and McKee (CDM) to remove petroleum hydrocarbon impacted soil and monitor groundwater at the Sunol Pump Station in Sunol, California. The work has been proposed by the City and County of San Francisco following the discovery of petroleum impacted soils associated with three removed underground storage tanks at the site.

Background

The Sunol Pump Station operated three underground storage tanks (USTs) consisting of one 10,000 gallon diesel tank, one 400 gallon waste oil tank and one 400 gallon lube oil tank; the tanks were removed from the ground in November 1993. Soil borings were drilled around the USTs in June 1993 to determine, prior to tank removal, whether any leakage had occurred from the tank systems. Minor soil contamination by diesel and lube oil was detected between the diesel and oil tanks impacting a limited area and extending to a depth of approximately 20 feet below grade. Observations and sampling conducted during the UST removal performed in November 1993, confirmed the extent of soil contamination evidenced during the soil boring program. Additionally, limited diesel soil contamination was detected in the side walls of the diesel tank excavation. Figure 1 graphically presents the results of all phases of soil sampling. Following the collection of soil samples from the tank excavations the site was secured with a chain link fence.

Objective

The objective of this proposed work is to remove the petroleum hydrocarbon impacted soil from the site and perform groundwater monitoring to determine the

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impact to groundwater beneath the site.

Scope of Work

CDM proposes to excavate the impacted soil with a grade-all to a depth of approximately 20 feet (depth to groundwater). Soil samples will be collected during the course of the excavation to verify contaminant removal. Soil samples will be tested on-site in a mobil laboratory for real-time data. Upon removal of impacted soils, the excavation will be backfilled to original grade.

Following completion of soil excavation and backfilling activities, groundwater monitoring wells will be installed. Tentatively, CDM proposes to install between two and three groundwater monitoring wells in the immediate former tank vicinity. The precise number of monitoring wells and their location will be decided upon completion of soil excavation activities and a review of groundwater flow data from the City of San Francisco Maintenance Yard located off Calaveras Road directly north of the site. Following is a detailed description of the proposed scope of work.

Task 1: Soil Excavation

The excavation will be enlarged at the direction of L&W Environmental with a grade-all. The excavation will extend to a depth of 20 feet in the area between where the oil USTs and the diesel UST were located (see Figure 2). CDM has estimated that 30 to 50 yards of contaminated soil exists in this area. The side walls of the diesel tank excavation will be scraped to remove diesel contamination identified during tank removal and soil beneath the lube oil tank will be removed to an estimated depth of 5 feet below the former tank bottom. Soil removal will be terminated when petroleum hydrocarbon levels are consistently detected at a concentration of 100 ppm or less. Soil will be stockpiled on-site with a backhoe and segregated as clean or contaminated. Soil samples will be collected from the stockpiles for analysis to determine contaminant levels. Mitigation options for the excavated soil will be evaluated following completion of the excavation.

TPH-D?
 -MO?
 BTEX?

A health and safety plan will be prepared prior to beginning field work.

Task 2: Excavation Sampling and Analysis

Soil samples will be collected from the excavation side walls and bottom to verify contaminated soil removal. A mobil laboratory from Coast to Coast Analytical will be used to generate real-time data and guide the excavation process. Soil samples will be collected from the bucket of the excavator in glass jars and transferred to the on-site laboratory for analysis.

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Soil samples will be analyzed for total petroleum hydrocarbons (TPH) by EPA method 418.1 and for diesel fuel by EPA method 8015 modified for diesel. Polynuclear aromatic hydrocarbons (PNAs) were detected beneath the waste oil tank. Therefore, the terminus samples from the bottom of the excavation will be analyzed for PNAs by EPA Method 8270 at CKY laboratory. The mobil laboratory will not be utilized for the PNA testing. *and sidewall*

Task 3: Excavation Backfilling

Following the completion of the excavation activities, the deep portion of the excavation below the removed tank bottoms (12 feet below grade beneath the diesel tank and 6 feet below grade beneath the oil tanks) will be filled with a self-compacting pea gravel. The remainder of the excavation above the old tank bottoms will be backfilled with native and imported soil. The soil will be compacted and the hole asphalted to match existing grade. On-site soils exhibiting less than 50 ppm TPH or diesel will be used as backfill.

Task 4: Groundwater Monitoring

Groundwater monitoring will be accomplished through the installation two to three groundwater monitoring wells. The precise number and location of groundwater monitoring wells will be determined following the results of the excavation activities. CDM will also evaluate the groundwater conditions at the City of San Francisco Maintenance Yard, located north of the site, to aid in monitoring well placement. The result of this work will be discussed with Alameda County Health to confirm monitoring well placement.

Prior to commencement of drilling activities well permits will be obtained from Zone 7 Water Resources Management.

Monitoring Well Installation

Monitoring wells will be installed with a truck-mounted hollow stem auger drill rig. Soil sample will be collected at a minimum five-foot intervals as drilling advances. After reaching the desired total depth in each boring, a four-inch diameter PVC groundwater monitoring well casing will be installed. The well will be screen from 10 feet above to 10 feet below the groundwater table. A filter pack of number 3 grade Monterey sand will be installed from two feet above the screened section to the bottom of the well. The annular space from the top of the filter pack will be sealed with a bentonite cement grout. A traffic-rated, locking, flush-mounted cover will be placed at the surface to complete the well.

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The top of the monitoring wells will be surveyed to the nearest benchmark to record their actual elevation referenced to Mean Sea Level.

Monitoring Well Development

The groundwater monitoring wells will be developed during (to ensure the sand filter pack fully settles) and directly following installation. The well development process will involve the initial removal of sediment by surging the monitoring well with a PVC bailer followed by purging with a PVC bailer or a submersible pump. The process will be repeated until the groundwater is free of observable silt and sand.

Groundwater Sampling and Analysis

Groundwater samples will be collected a minimum of 24 hours following the well development process. Water level measurements will be taken to the nearest one-hundredth foot and recorded. Monitoring wells will be purged of a minimum of three well volumes with a mechanical lift pump or a PVC bailer. During the purging process, groundwater parameters including temperature, electrical conductivity, pH and turbidity will be monitored. All purged groundwater will be stored on site in DOT approved 55-gallon drums with the final disposal determined following receipt of laboratory analysis.

Groundwater samples will be collected with 1-inch diameter disposable PVC bailers following purging. Samples will be labelled with appropriate collection information and placed into a cooled ice chest for shipment. Chain-of-Custody forms will accompany the samples.

Collected groundwater samples will be analyzed for the following compounds:

- Diesel by EPA Method 8015 Modified
- BTEX by EPA method 8020

plus PNA

Task 5: Reporting

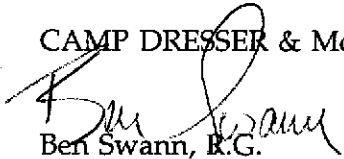
Following the completion of the above tasks, a Report of Findings will be generated detailing the excavation activities and the results of groundwater sampling. The report will include field and laboratory procedures, findings and conclusions. The report will include a scaled site diagram showing the extent of soil excavation, groundwater flow direction and gradient, and the location of soil samples collected during the excavation process.

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CDM will notify Alameda County Health of our schedule to perform the above field activities. In the meantime, if you have any question concerning this scope of work, please call.

Sincerely,

CAMP DRESSER & McKEE INC.



Ben Swann, R.G.
Hydrogeologist

Attachments: Figures 1 and 2

cc: Ronald Krzyzanowski, SFDPW
Paul Mazza, SFWD

CDM/CADD ST6

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C5OIL01C

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DEPTH	DIESEL
5	ND
10	ND
15	ND
20	ND

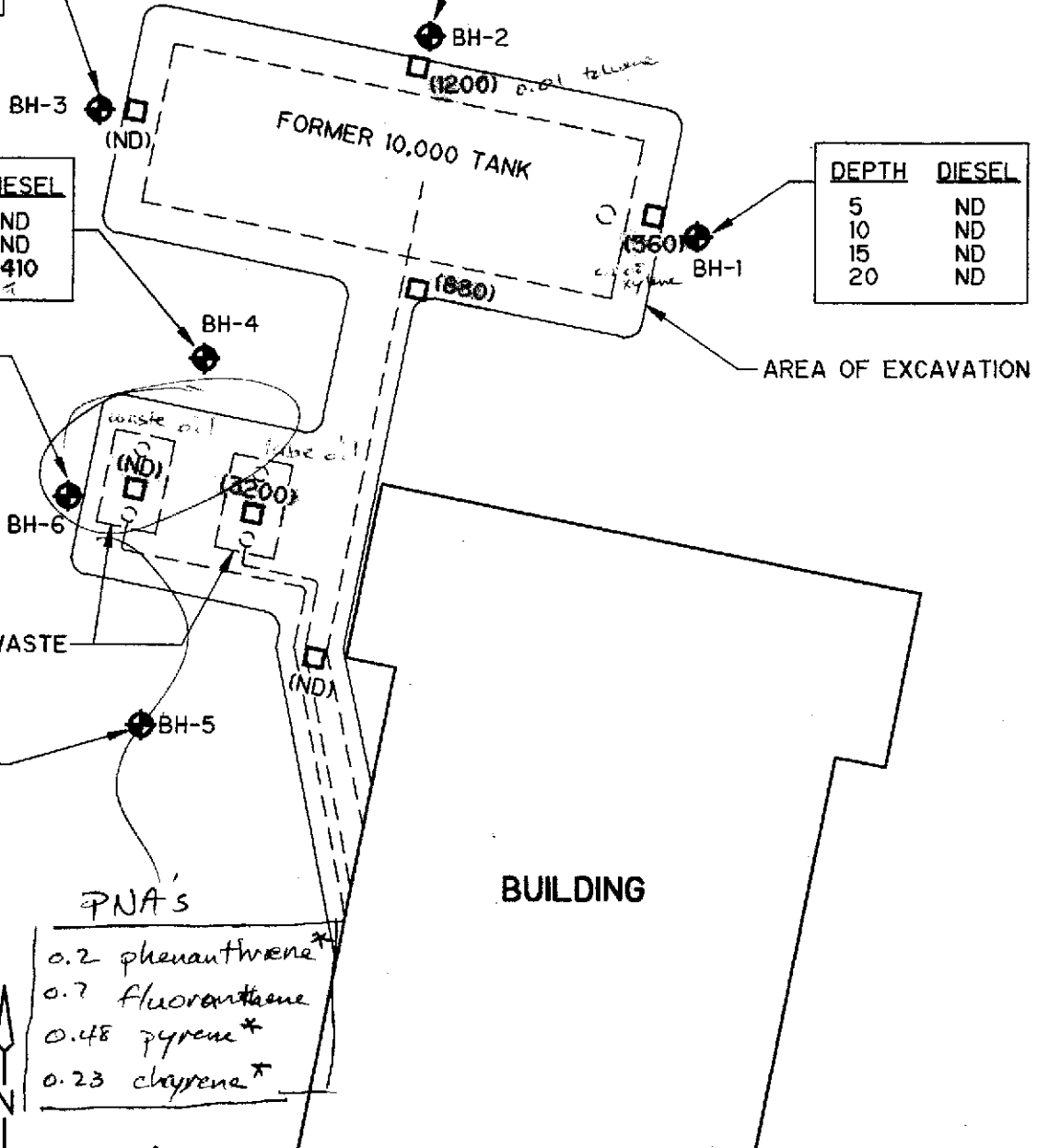
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10	ND
15	ND
20	ND

DEPTH	TOG
5	ND
10	ND
15	60

DEPTH	TOG
10	ND
15	ND
20	ND
23	ND



EXPLANATION

- SOIL BORING LOCATIONS
- SOIL SAMPLE LOCATIONS
- (880) HYDROCARBON CONCENTRATION
- TOG TOTAL OIL AND GREASE
- ALL HYDROCARBON CONCENTRATION ARE MILLIGRAMS/KILOGRAMS (mg/kg)

SUNOL PUMPING STATION

SITE PLAN

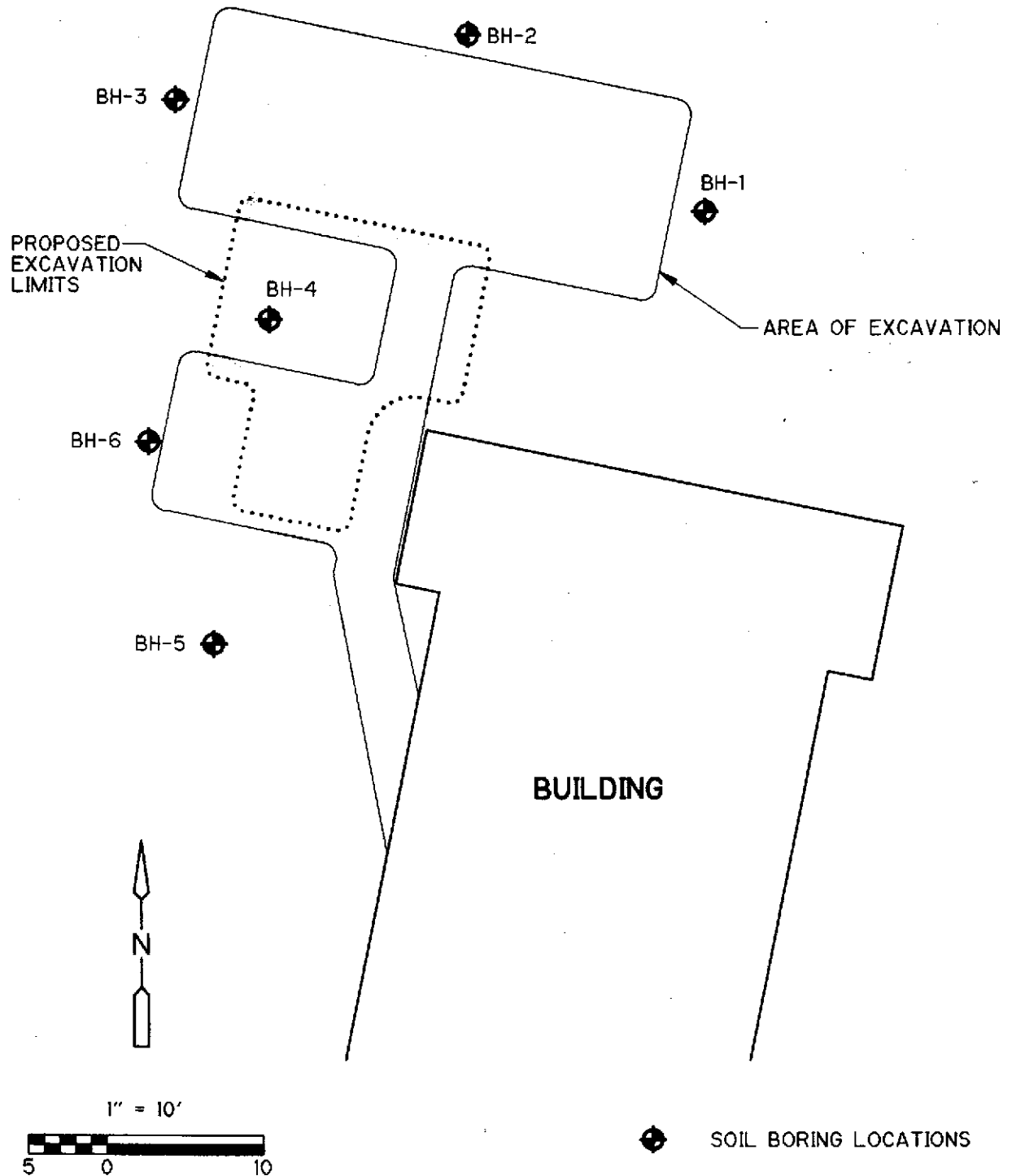
Figure No. 1

CDM/CADD ST6

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SUNOL PUMPING STATION

PROPOSED EXCAVATION AREA



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Figure No. 2