Conor Pacific

Alameda County
MAR 31 2003
Environmental Health

March 27, 2003
Project No. BNC104

Mr. Balaji Angle
B&C Gas Mini Mart
35584 Connovan Lane
Fremont, California 94536

Re: Workplan for Interim Remediation, B&C Gas Mini Mart, 2008 First Street, Livermore, California

Dear Mr. Angle:

Conor Pacific has prepared the following Workplan for the B&C Gas Mini Mart (B&C) at 2008 First Street, Livermore, California (Figure 1), to address the requirement for interim remediation stated in the letter received from Ms. Donna Drogos of Alameda County Environmental Health (ACEH).[1] Conor Pacific recently submitted a revised workplan for additional site and downgradient characterization efforts.[2] It is anticipated that the work described herein will be performed concurrently with the additional characterization efforts.

SITE BACKGROUND

Soil and groundwater contamination by petroleum hydrocarbons was first discovered at the site in 1988. No action was taken until 1994-1995, when additional site characterization revealed free product and significant concentrations of petroleum hydrocarbons in soil and groundwater. Subsequent investigations revealed evidence of leaking product lines and underground storage tanks (USTs). In 1996, a waste-oil UST, two gasoline UST's, and two hydraulic lifts were removed, a smaller UST was grouted in-place, and about 725 cubic yards of impacted soil were removed. New double-walled fiberglass USTs and piping with leak detection systems were installed. No other remedial work has been performed at the site other than the UST system replacement, soil removal, and removal of free product from site wells by bailing and with passive adsorbent devices.

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[1] Alameda County Environmental Health (ACEH). 2003. Fuel Leak Case No. R0278, Desert Petroleum/BP Oil, 2008 1st Street, Livermore, CA. Letter dated January 22, 2003 prepared by Donna Drogos.

[2] Conor Pacific, *Workplan for Additional Site Characterization and Downgradient Investigation*, B&C Gas Mini Mart, 2008 First Street, Livermore, California. March 5, 2003.

CONCEPT FOR INTERIM REMEDIATION

The interim remediation plan has two primary objectives: (1) to initiate hydraulic containment in the immediate vicinity of the initial release, and (2) removal of contaminant mass in the source area. It is anticipated that dual phase extraction will be the best technology for achieving the interim remediation goals.

There are three long-screened wells that are well positioned for the interim remediation work: MW-1, MW-2 and MW-6. These wells are immediately adjacent to the source zone, just downgradient of the UST locations (Figure 2). We envision using well MW-1 as a groundwater extraction well to draw down the water table from its current depth of about 28 feet below ground surface (bgs), and expose the potential "smear zone" related to the gasoline release. Because of water table fluctuations in the area over the past decade, the smear zone is estimated to range from the point of the release (estimated depth of about 10 feet bgs) to a depth of as much as 65 feet bgs. Vapor will be extracted from wells MW-1 (screened interval 27 to 77 ft bgs), MW-2 (screened interval 30 to 60 ft bgs) and MW-6 (screened interval 15 to 40 ft bgs [well is obstructed at 28 feet bgs]). Treatment options for the extracted water and vapor will depend on volumes and concentrations, and will be evaluated as part of the scope of work described below.

SCOPE OF WORK

The purpose of the current scope of work is to collect the data necessary to effectively implement a plan of interim remediation. We have identified six tasks for this proposed phase of work. These tasks include:

1. Preparation of this workplan,
2. Hydraulic evaluation of extraction wells,
3. Design and selection of remedial system and components,
4. System permitting,
5. Lease and installation of remedial system and start up,
6. System operation and maintenance.

Each of the above tasks is described in more detail below.

Task 1 – Workplan preparation

This task is for preparation of the subject workplan.

Task 2 – Hydraulic evaluation of extraction wells

The subsurface data available from previous investigations of the source area will be evaluated to estimate reasonable pneumatic and hydraulic parameters for the extraction wells. Empirical relationships will be used to estimate a steady state pumping rate for the

groundwater extraction well and a corresponding estimated total draw down and capture zone. A vacuum, flow rate, and radius of influence will be estimated for the proposed vapor extraction wells based on earth material type and exposed screen interval.

A 24-hour constant-discharge pumping test will be performed on Well MW-1 to confirm the sustainable pumping rate estimated from available data. Water levels will be monitored in wells MW-2, MW-3, MW-6 (if possible) using transducers and data loggers. The data will be used to determine aquifer parameters (i.e., transmissivity and storage coefficient), set an appropriate extraction rate for the interim remediation, and estimate the hydraulic capture zone associated with the extraction well. A water sample will be obtained during the test and analyzed for total petroleum hydrocarbons as gasoline (TPH-G) by modified EPA Method 8015M, and for BTEX, MTBE, TAME, ETBE, DIPE, TBA, EtOH, EDB and EDC by EPA Method 8260 by a state-certified laboratory.

Near the end of the constant discharge test, once a steady-state drawdown has been achieved, a pneumatic test will be performed on MW-6 or MW-1. A range of vacuums will be applied to the vapor extraction well and flow rates measured. Magnehelic gauges will be used to measure induced vacuum at wells MW-2, MW-3, MW-4, and MW-6. The data will be used to design an appropriate vapor extraction system, and estimate the radius of influence for the interim remediation effort. A vapor sample will be obtained and analyzed for TPH-G, BTEX, and MTBE by EPA Method TO-3 Modified.

All water from the pumping test will be contained on site and disposed of via sanitary sewer (with proper permit) or with an approved subcontractor. Vapor from the vapor extraction test will be properly treated before its release into the atmosphere (e.g., IC engine and/or granular activated carbon).

Task 3 – Design and selection of remedial system and components

An appropriate dual phase extraction system will be designed based on the field test results obtained from Task 2. At this time, we anticipate that leasing of a mobile or skid-mounted dual phase extraction system will be the most cost-effective interim remedial option. A detailed site plan will be prepared showing the locations of the extraction wells, underground utilities, and infrastructure related to the retail outlet. A preferred system location, utility connections, and piping runs will be identified and confirmed with the site owner. Because of the location of the three extraction wells, we intend to try to situate the remedial system in the northwestern corner of the subject property and minimize costs associated with subsurface work and piping.

Treatment and disposal options for water will be evaluated based on the volume of water and concentration of various constituents, and relative cost. It is assumed at this time that the water treatment will consist of air stripping followed by granular activated carbon with subsequent disposal in the City sewer system. Vapor treatment options will likewise be evaluated on the basis of volumes, contaminant concentrations and relative cost. It is assumed that vapor treatment will be through catalytic oxidation or granular activated carbon.

Following system design, bids will be obtained for lease, delivery and installation of the system. A contractor will be selected and the bid will be forwarded for cost approval from the State of California Underground Storage Tank Cleanup Fund.

Task 4 – System permitting

Necessary permits for operation of the interim remedial system will be obtained. We assume that these include a sanitary sewer discharge permit with the City of Livermore Public Works Department, an operating permit from the Bay Area Air Quality Management District, and construction permit(s).

Task 5 – Installation of remedial system and start up

Following cost approval from the State of California Underground Storage Tank Cleanup Fund, the selected contractor will be authorized to install and start up the interim remediation system. A representative of Conor Pacific will be on site to observe and document the installation and start up.

The interim remedial system will be checked on a weekly basis for the first month of operations to ensure that the system is functioning as designed. Adjustments to extraction rates and vacuum will be made as necessary.

Task 6 – Interim remedial system operations and maintenance

Following the initial month of operations, the system will be checked monthly with routine maintenance performed as recommended by the system vendor. Sampling and analysis of vapor and water will be performed as required by the operating permits. It is assumed that a quarterly monitoring frequency will be required for both media.

We anticipate that the system will operate for a minimum of six months and until the additional site and downgradient characterization efforts are complete. A recommendation for continued operation, system modifications, or system shut down will made based on the findings of the additional characterization, the concentration and mass of contaminants being removed from the site, and the potential risk posed by the source area.

SCHEDULE AND COST ESTIMATE

We are prepared to begin project work immediately following cost approval from the State of California Underground Storage Tank Cleanup Fund. Scheduling and permitting of the well evaluations (Task 2) is estimated to require approximately two weeks; the field-testing and data reduction will require an additional two weeks. Tasks 3 and 4 will be performed concurrently and will require four to six weeks. System construction and installation will depend on the subcontractor; however, we anticipate that system installation could proceed within two to three weeks of authorization to proceed. In total, we estimate that the interim remedial design and installation will require approximately ten to thirteen weeks following approval from the Tank Fund.

A detailed cost estimate spreadsheet is attached. Conor Pacific will not exceed the cost estimate without prior authorization. All charges will be provided on a time-and-expense basis in accordance with our terms and conditions.

If you are in agreement with the scope of work, estimated costs, and schedule outlined in this proposal, please sign and return the attached work authorization form. We look forward to helping you with this project. Please feel free to call Bill Fowler (408-286-5363) or Martha Watson (650-386-3828) if you have any questions.

Sincerely,
Conor Pacific

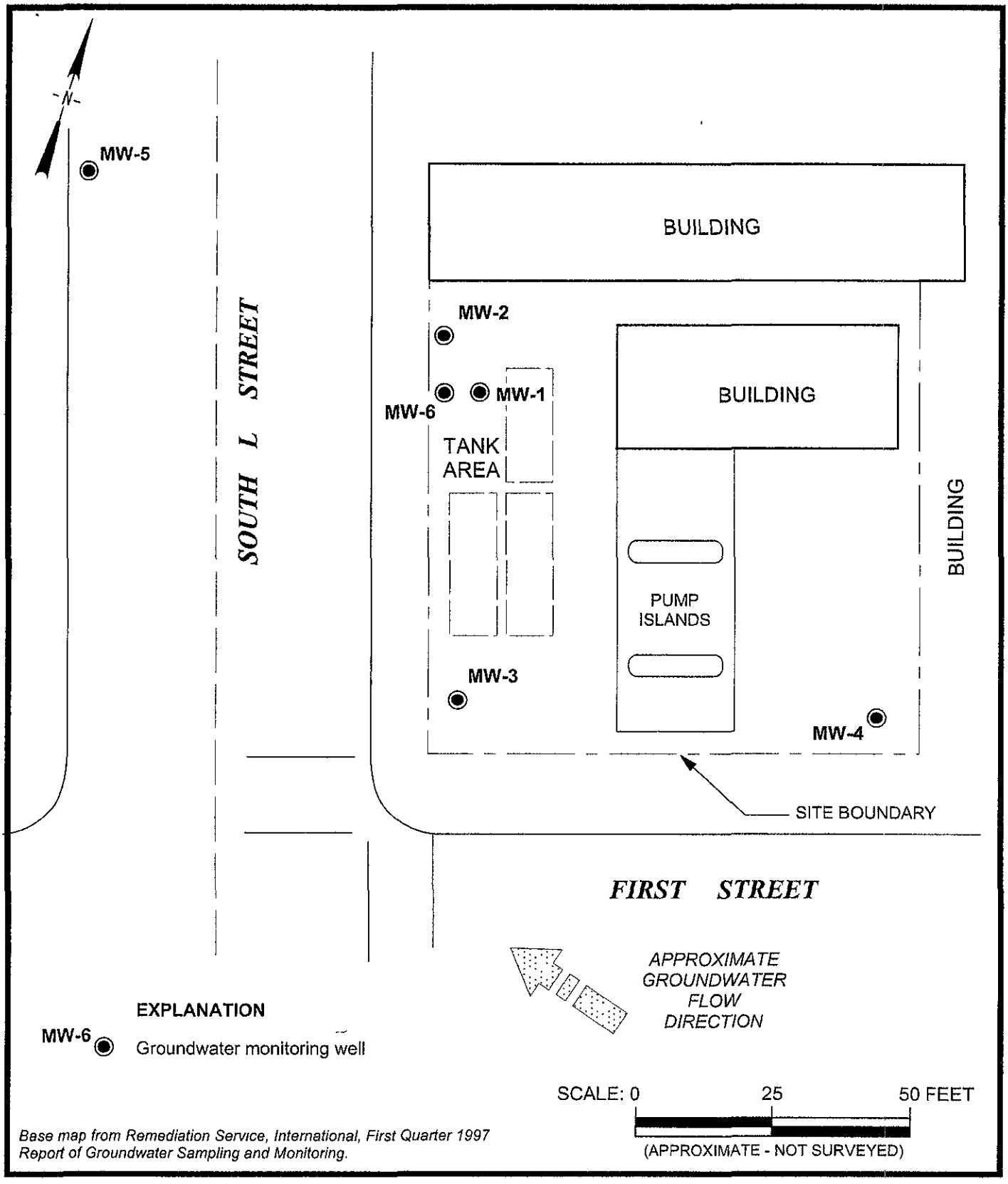
William L. Fowler, C.E.G. 1401
Project Manager

for Martha Watson
Principal Environmental Engineer

Figures
Figure 1 - Site Location
Figure 2 - Site Plan

Appendices
Appendix A – Cost Estimate Spreadsheet

cc: Ms. Donna Drogos, ACEHS (without Appendix A)
Ms. Colleen Winey, Alameda County Zone 7 (without Appendix A)



Base map from Remediation Service, International, First Quarter 1997 Report of Groundwater Sampling and Monitoring.

Conor Pacific EFW

WORKPLAN FOR INTERIM REMEDIATION
B & C GAS MINI MART
LIVERMORE, CALIFORINA

SITE PLAN

FIGURE
2

PROJECT NO.
BNC104

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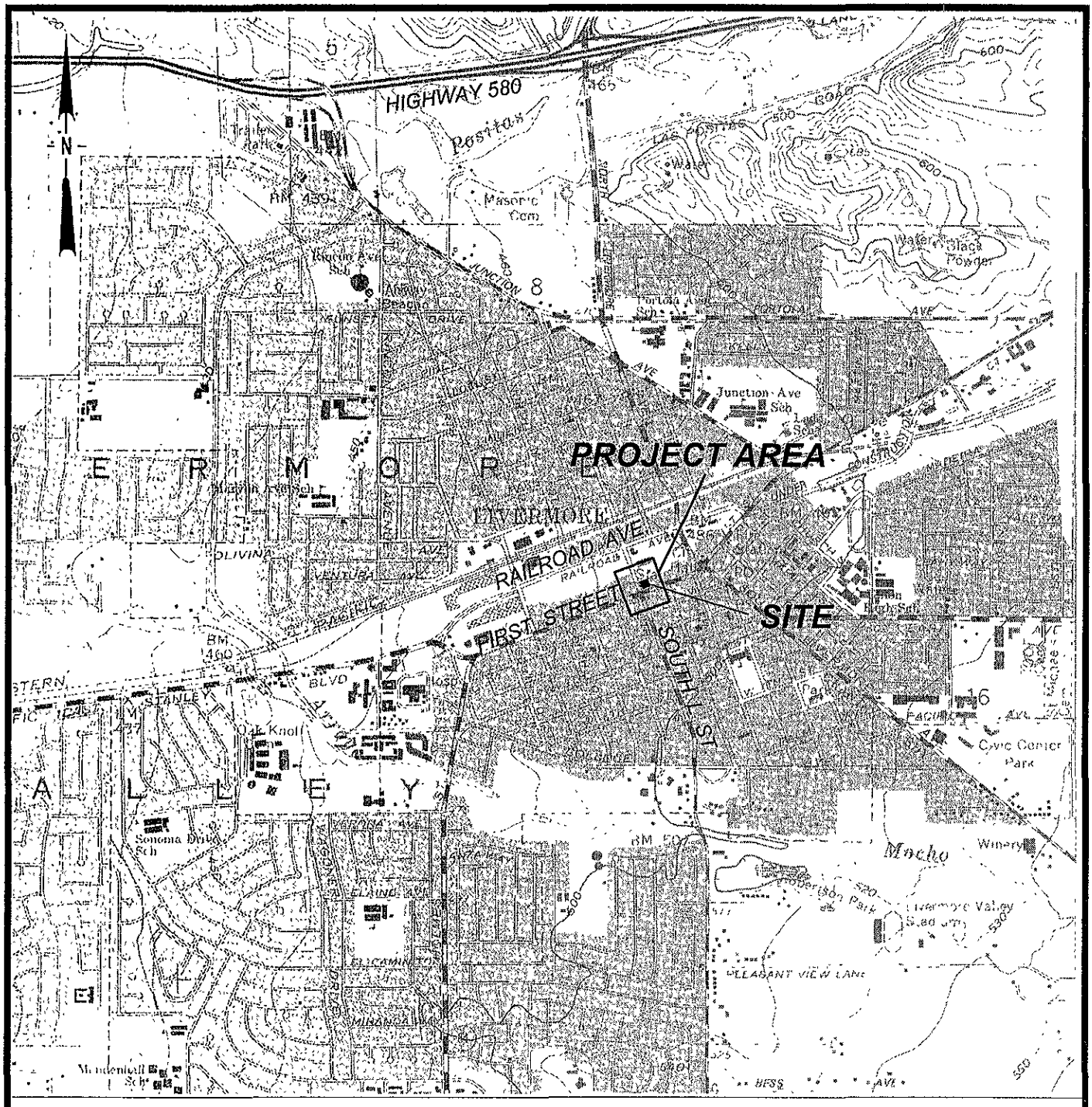
APPENDIX A

COST ESTIMATE SPREADSHEET



Base map: USGS 7.5' topography, Livermore, California (1961; photorevised 1980)

Conor Pacific EFW	WORKPLAN FOR INTERIM REMEDIATION B & C GAS MINI MART LIVERMORE, CALIFORINA	FIGURE 1
	SITE LOCATION	PROJECT NO BNC104

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