SPRINGTOWN GAS
909 BLUEBELL DRIVE
LIVERMORE, CA 94551

RECEIVED

2:21 pm, Mar 05, 2008

Alameda County
Environmental Health

March 3, 2008

Mr. Jerry Wickham
Hazardous Materials Specialist
ACHCSA-EHS
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

SUBJECT: OFF-SITE GROUNDWATER INVESTIGATION WORK PLAN FOR THE PROPERTY
909 Bluebell Drive, Livermore, CA

Dear Mr. Wickham:

Enclosed, please find a copy of the February 29, 2008 subject Revised Work Plan for Off-Site Groundwater Investigation report prepared by my consultant, Enviro Soil Tech Consultants.

I declare, under penalty of perjury, that the information and/or recommendations contained in this report are true and correct to the best of my knowledge.

Sincerely,

MASOOD AMINI

File No. 10-93-567-ST

REVISED WORK PLAN FOR OFF-SITE GROUNDWATER INVESTIGATION FOR THE PROPERTY LOCATED AT 909 BLUEBELL DRIVE LIVERMORE, CALIFORNIA FEBRUARY 29, 2008

PREPARED FOR:
MR. MASOOD AMINI FILABADI
SPRINGTOWN GAS
909 BLUEBELL DRIVE
LIVREMORE, CALIFORNIA 94551

BY:
ENVIRO SOIL TECH CONSULTATNS
131 TULLY ROAD
SAN JOSE, CALIFORNIA 95111

ENVIRO SOIL TECH CONSULTANTS

LIST OF FIGURES

LIST OF APPENDIX

TABLE OF CONTENTS

TABLE OF CONTENTS CONT'D PAGE NO.

APPENDIX "A"

ENVIRO SOIL TECH CONSULTANTS

Environmental & Geotechnical Consultants

131 TULLY ROAD, SAN JOSE, CALIFORNIA 95111

Tel: (408) 297-1500 Fax: (408) 292-2116

February 29, 2008

File No. 10-93-567-ST

Mr. Masood Amini Filabadi
Springtown Gas
909 Bluebell Drive
Livermore, California 94551

SUBJECT: REVISED WORK PLAN FOR OFF-SITE GROUNDWATER INVESTIGATION FOR THE PROPERTY
Located at 909 Bluebell Drive, in
Livermore, California

Dear Mr. Filabadi:

In accordance with correspondence received from Alameda County Health Care Services Agency-Environmental Health Division (ACHCSA-EHD) dated January 16, 2008, Enviro Soil Tech Consultants (ESTC) has revised the work plan for further environmental site assessment at your facility. Sections on the vapor extraction test, well installation, and interim remediation have been modified as requested by ACHCSA-EHD.

File No. 10-93-567-ST
February 29, 2008

Please do not hesitate to call if you have any questions regarding the proposed scope of work.

If you have any questions or require additional information, please feel free to contact our office at 408-297-1500 or via email at infor@envirosoiltech.com.

Sincerely yours,

ENVIRO SOIL TECH CONSULTANTS

PROFESSIONAL GEOLOGIST
VICTOR B. CHERVEN
No. 3475
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VICTOR B. CHERVEN, Ph.D.
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REGISTERED PROFESSIONAL ENGINEER
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C 34928
CIVIL
STATE OF CALIFORNIA

FRANK HAMEDI-FARD
GENERAL MANAGER

REVISED WORK PLAN FOR OFF-SITE GROUNDWATER INVESTIGATION SPINGTOWN GAS 909 BLUEBELL DRIVE LIVERMORE, CALIFORNIA

1.0 INTRODUCTION

Enviro Soil Tech Consultants (ESTC) completed a preliminary investigation of soil and groundwater contamination at the referenced site in March 2007 and followed this with additional drilling in August. Based on the results of those investigations, the ACHCSA-EHD has requested further investigation north of the site to delineate the extent of impacted groundwater. ACHCSA-EHD has also asked for a pilot test to evaluate the feasibility of potential remediation methods to reduce hydrocarbon concentrations in the vicinity of the underground fuel storage tanks.

2.0 PROPOSED SCOPE OF WORK

TASK 1—SECURE OFF-SITE DRILLING ACCESS

The first task to be undertaken will be to contact property owners to the east and north of the site, including the City of Livermore, to obtain permission to drill. This will require completing an access agreement with the adjacent landowners.

TASK 2—LOCATE UNDERGROUND UTILITIES IN VICINITY OF PROPOSED BORINGS

After we have negotiated access agreements with affected neighbors, ESTC will contact Underground Services Alert to request notification of the proposed drilling activity. ESTC will mark the proposed drilling locations, and after the locations of buried utility lines have been marked, ESTC will make any necessary adjustments to the locations to avoid the utility lines.

TASK 3—DRILL SIX GEOPROBE BORINGS

We estimate drilling six shallow borings on these adjacent properties, at or near the locations shown in Figure 1. Most of these are located in a vacant lot on the north side of Bluebell Drive, but GP-6 is located in a grassy median strip within this roadway and GP-5 is located in a parking lot east of the site. The borings will be drilled with a direct-push, trailer-mounted drilling rig (Geoprobe®), equipped with translucent polyethylene sample liners. The borings will be drilled to a depth of 20 feet, as in the previous drilling phases, and will be continuously sampled. The core will be screened with a portable photo-ionization detector (PID) to detect any organic (hydrocarbon) vapors, and a field geologist or engineer will log the core on a descriptive boring log. Samples will be taken at 5-foot intervals or at locations where PID readings indicate the presence of hydrocarbons, and will be preserved in a cooled ice chest for possible laboratory analysis. However, based on the distance of the proposed borings from the fuel leak source, we do not expect to encounter much, if any, contaminated soil.

Recent drilling indicates that the normal depth to groundwater is less than 10 feet, so it is anticipated that the borings will encounter groundwater before reaching total depth. Therefore, a length of temporary PVC casing will be lowered into the boring to

allow groundwater to accumulate and a disposable bailer will then be lowered into the casing to collect a groundwater sample. The samples will be sealed in 40-ml glass vials, labeled, and preserved in a cooled ice chest for later transport to the testing laboratory.

TASK 4—LABORATORY ANALYSIS

The samples from Task 3 will be analyzed at a state-certified laboratory. EPA method 8015 will be used to detect Total Petroleum Hydrocarbons in the gasoline range (TPH-g). EPA method 8260 will be used to detect volatile aromatic hydrocarbons (BTEX), gasoline oxygenates, and lead scavengers (EDB and 1,2-DCA). The samples will be analyzed on standard 2-week turnaround. Because Ethanol, Methanol, and Chlorinated Hydrocarbons were not detected in the borings that were drilled closer to the leak source in August 2007, the samples from these more distant borings will not be analyzed for these compounds.

TASK 5—DRILL ADDITIONAL MONITORING WELLS

In order to complete the delineation of the dissolved-phase contaminant plume, we anticipate that ACHCSA-EHD will require the installation of one or more additional monitoring wells downgradient of STMW-1. We have therefore included a provision in this work plan to drill and install at least one well to the north or east of the site. The number and location of the additional well(s) will be determined after the results of the Geoprobe® borings have been reviewed so as to optimize the well locations. ACHCSA-EHD has already indicated that it will review the proposed locations and construction details of additional wells prior to granting approval for their installation.

The Geoprobe® rig, equipped with hollow-stem augers, will be used to drill the wells. Drill cuttings and rinseate from the wells will be placed in 55-gallon drums and temporarily stored on site. Soil samples will again be collected continuously for description, but because the intent is to locate the wells beyond the contamination limits, no samples will be analyzed for hydrocarbons unless hydrocarbon odors or staining are evident in the samples.

TASK 6—SURVEY MONITORING WELLS

After the new wells have been allowed to stabilize, a licensed surveyor will be retained to survey their locations and the elevations of the well casings. This information will be used to determine the elevation of the piezometric surface and the direction of groundwater flow.

TASK 7—DEVELOP AND SAMPLE MONITORING WELLS

Once the wells have stabilized and the concrete has set, the surge-and-purge method will be used to develop the wells, remove sediment, and tighten the sand pack. Twenty-five to fifty (25-50) gallons of water will be purged from each well before samples are collected.

ESTC will not sample the new monitoring wells until ACHCSA-EHD has granted approval to conduct the next quarterly monitoring event. In their correspondence dated January 16, 2008, ACHCSA-EHD has directed you to suspend groundwater monitoring until further notice.

TASK 8—VAPOR EXTRACTION/GROUNDWATER EXTRACTION FEASIBILITY TEST

ACHCSA-EHD has requested the RP to conduct a pilot test of one or more remedial methods to assess the feasibility of reducing the concentration of Methyl Tertiary Butyl Ether (MTBE) and Tertiary Butanol (TBA) in the vicinity of the underground storage tanks.

Comparison of the combined MTBE/TBA concentrations in soil samples in the unsaturated zone above 10 feet with those in groundwater samples from the saturated zone below this depth indicates that concentrations in the unsaturated zone appear to be higher than those in the saturated zone. For example, the combined concentration at 5 feet in GP-1 is 1,300 parts per billion (Figure 2), whereas the concentration in the water sample from this boring was 171 parts per billion (Figure 3). Closer to the leak source, the concentration at 7 feet in SB-8 was 110,000 ppb, while the concentration in the groundwater was about half this amount (56,000 ppb). These concentrations imply that treating the groundwater would remove a portion of the hydrocarbons but would leave the site vulnerable to continued leaching of hydrocarbons from the unsaturated zone into the saturated zone. Therefore, we propose to conduct a vapor extraction test to determine whether this method would be effective in treating the soil.

TASK 8.1 DRILL VAPOR EXTRACTION TEST WELL

None of the existing or proposed groundwater monitoring wells is suitable for a vapor extraction test, because none are screened within the unsaturated zone. Therefore, the first proposed task is to drill a 4-inch diameter vapor test well that will be screened from 3 to 10 feet. The test well will be located next to SB-8, where the highest concentrations were detected in soil. The well will be drilled with a Geoprobe® rig

equipped with hollow-stem augers. No soil samples will be collected, because they have already been collected and analyzed in SB-8. Figure 4 illustrates the proposed construction details of the test well.

TASK 8.2 DOWNHOLE CAMERA SURVEY

The original work plan proposed drilling a second vadose-zone well to serve as an observation well during the test. ACHCSA-EHD has requested that more than one observation well be used during the test. Further, ACHCSA-EHD has requested that one of the wells be located within the tank pit, and that the screened interval of the existing tank pit wells be confirmed if they are to be used as the observation wells.

Drilling an additional well within the tank pit would be dangerous, because it would be difficult to avoid striking one of the fuel tanks. It would also be difficult to prevent caving of the pea gravel, and large-diameter well casing would be needed to hold back the gravel. Utilizing the two existing tank pit wells (Figure 1) would be far safer and easier. When the tanks were replaced several years ago, casing for these two potential remedial wells was emplaced in the gravel, and both are screened but not grouted. However, the screen interval was not recorded. Therefore, we propose to conduct a downhole camera survey to identify the screened interval. A licensed well logging company equipped with a TV camera probe will be subcontracted to perform this survey, and a recording tape will be provided to ACHCSA-EHD to document the results.

TASK 8.3 MOBILIZE A SOIL VAPOR EXTRACTION UNIT AND INSTALL PIPING

After the test and observation wells have been constructed, a trailer-mounted internal combustion (IC) gasoline-driven engine vapor extraction unit will be mobilized

to the site. To minimize noise and site disruption, the IC engine will likely be located on the east side of the station building.

The IC engine will then be connected to the extraction well with temporary above-ground PVC piping and the necessary fittings and valves. The area between the extraction well and the engine will be cordoned off to prevent motorists from driving over the piping during the test. An inlet sampling port will be inserted into the piping ahead of the engine so that vapor concentrations in the inlet stream can be measured and samples can be collected.

Exhaust from the IC engine (carbon dioxide and water) will be vented to the atmosphere. It is likely that this will require a temporary permit from the Bay Area Air Quality Management District (BAAQMD). An exhaust sampling port in the exhaust stack will make it possible to collect samples to demonstrate that hydrocarbon vapors have been destroyed by the IC engine. A Process Diagram of the I.C. Engine is shown on VET-2 (Appendix "A").

TASK 8.4 CONDUCT SVE TEST

ACHCSA-EHD has requested that the extraction test be conducted in stepwise fashion, with an increase in vacuum and flow rate at each step. Although we are not certain that this is necessary or possible, ESTC will attempt to comply with this request. The feasibility of increasing the flow rate will depend on the permeability of the soil as well as the power of the extraction unit, which is built to supply up to 100 cubic feet per minute. Typically, however, our IC engine operates at 50 cfm or less at most sites. Hence, in order to achieve four flow steps, the test will begin at a flow rate of 10 cfm, which is considered easily achievable.

Magnehelic gauges will be placed on the extraction and observation wells to measure the induced vacuum caused by vapor withdrawal from the test well. ACHCSA-EHD has directed that operational parameters be measured at 10-15 minute intervals "during the initial phase" of each step and at 15-30 minute intervals thereafter, but did not specify what is meant by "initial phase". Hence, we will likely make measurements at 15 minute intervals for the first hour or two of each step and at 30 minute intervals thereafter until vapor concentrations begin to decline or vacuum pressure stabilizes.

TASK 8.5 MEASURE VAPOR CONCENTRATIONS AND COLLECT VAPOR SAMPLES

During the test, a portable photo-ionization detector (PID) and vacuum pump will be used to sample the inlet vapor stream and measure hydrocarbon vapor concentrations. The vacuum pump will be connected to the sample port, and the outlet line from the pump will be inserted into a tedlar sample bag until it is filled. The pump will then be removed and the PID will be inserted into the bag's sample port to obtain a reading. Readings will be taken at approximately 1-hour intervals during the test to measure concentration changes over time.

We had proposed to collect and retain vapor samples at the start and conclusion of the vapor test for laboratory analysis, which has been the standard procedure on all SVE tests that we have previously conducted and has been approved by the lead regulatory agency. That method is a reasonable way to estimate the average vapor concentration over the duration of the test. However, ACHCSA-EHD has requested analysis of only the initial and final samples during the step in which the highest PID readings are recorded. Because the steps will be shorter in duration than the overall test, there is likely

to be less variation in the concentration between these initial and final samples than there would be between the first and last samples, and therefore the concentrations will likely overestimate the average concentration that could be expected during a long-term vapor extraction operation.

In addition to vapor readings, the field technician will take periodic measurements of induced vacuum at the test and observation wells and will note engine rpm's and air flow rate using gauges on the extraction unit. These readings will be recorded on the field data sheet.

TASK 8.6 ANALYZE VAPOR SAMPLES

The vapor samples will be analyzed in a state-certified analytical laboratory for TPHg, BTEX, MTBE, and TBA using EPA methods 8015 and 8260.

TASK 3—REPORT

Upon completion of all field and laboratory work, a registered California geologist will analyze the data and prepare a report.

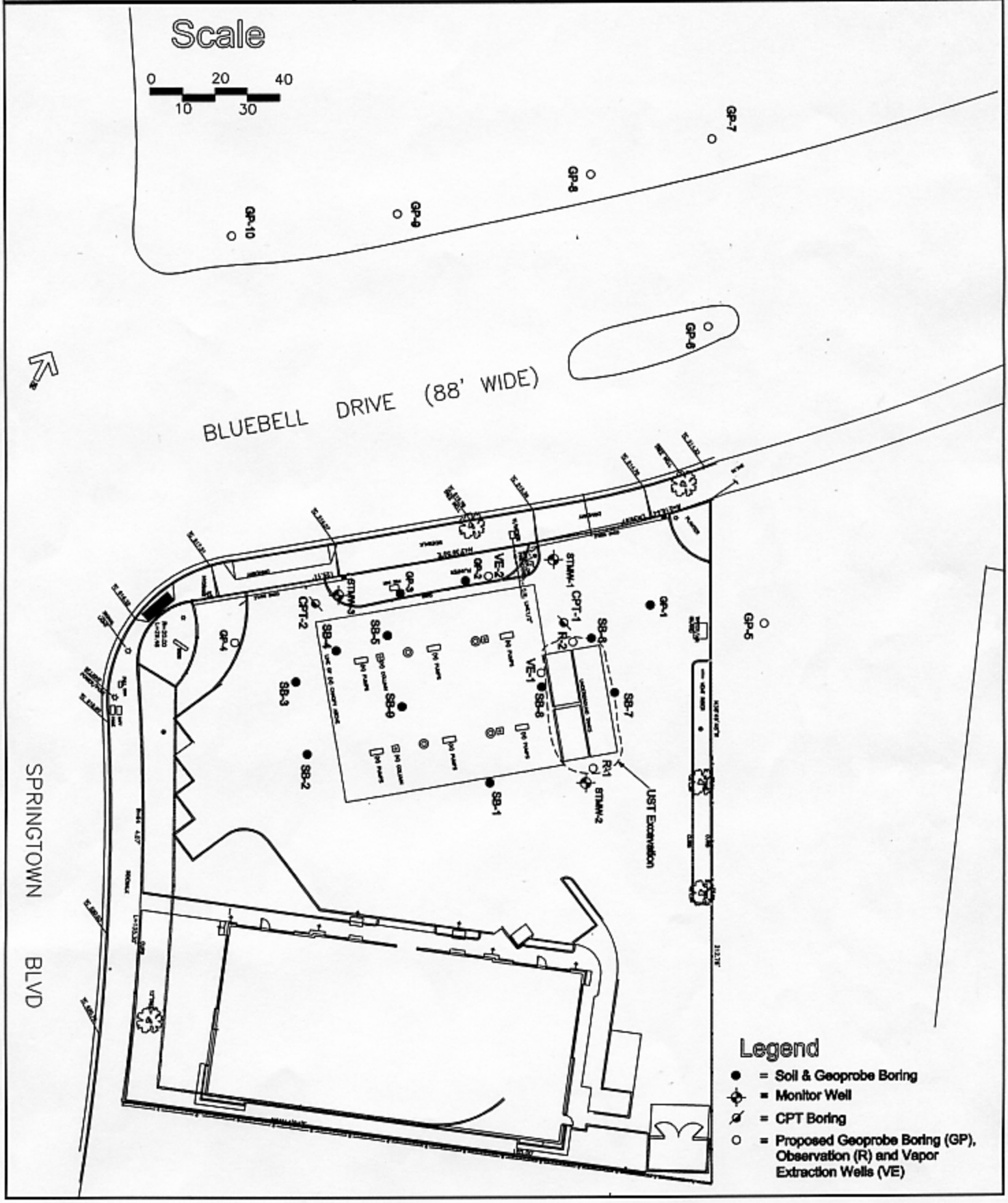
File No. 10-93-567-ST
February 29, 2008

A P P E N D I X "A"

FIGURES

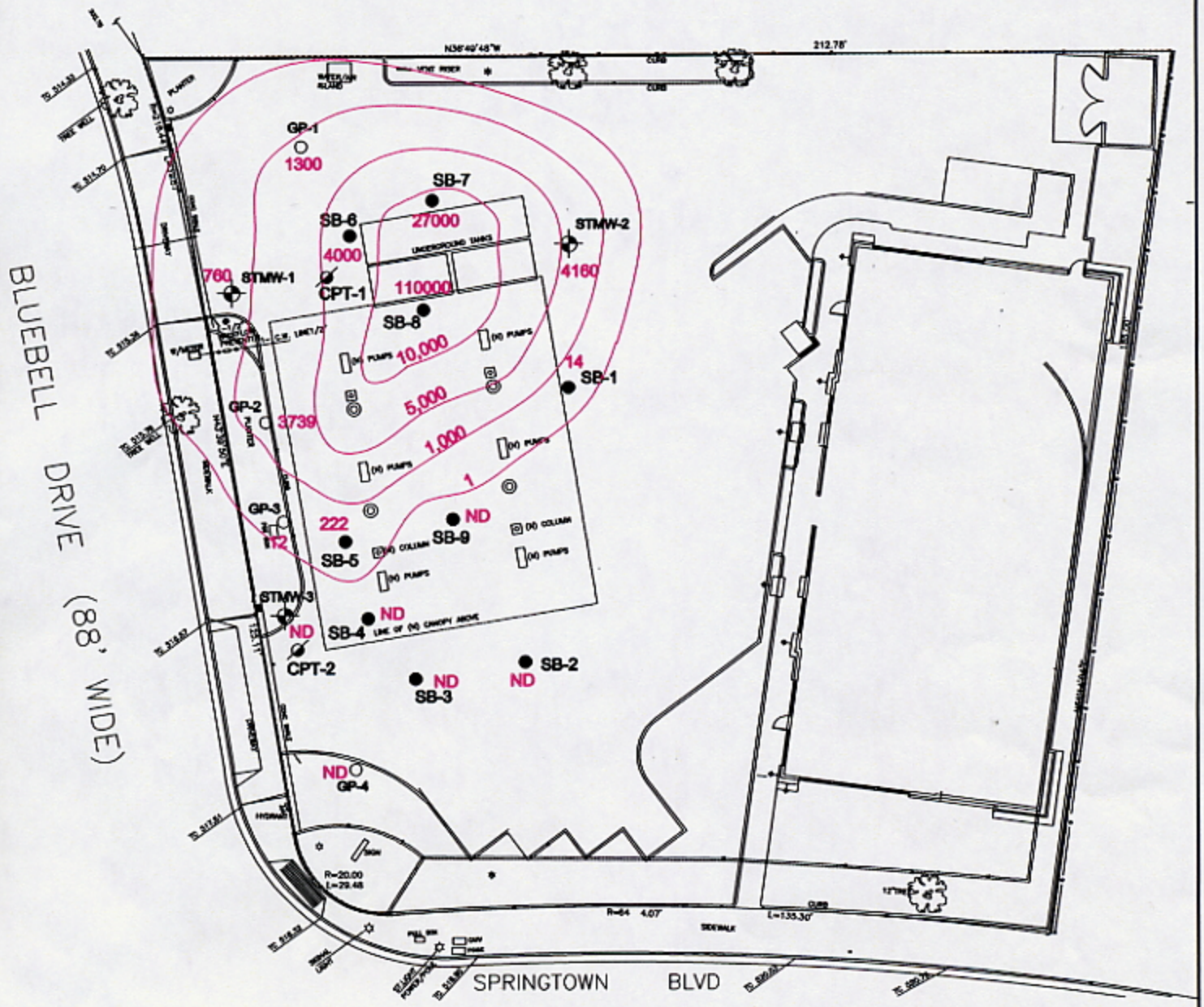
ENVIRO SOIL TECH CONSULTANTS

Enviro Soil Tech Consultants 131 Tully Road San Jose, CA 95112	PROJECT 909 Bluebell Drive Livermore, California PROJECT # 10-93-567-ST DATE: 2/13/2008	Figure 1 Site Map



M1

Enviro Soil Tech Consultants 131 Tully Road San Jose, CA 95112	PROJECT 909 Bluebell Drive Livermore, California PROJECT # 10-93-567-ST DATE: 12/4/2007	Figure 2 **Isocontours of Highest MTBE & TBA in Soil @ 5-10 feet**



Legend

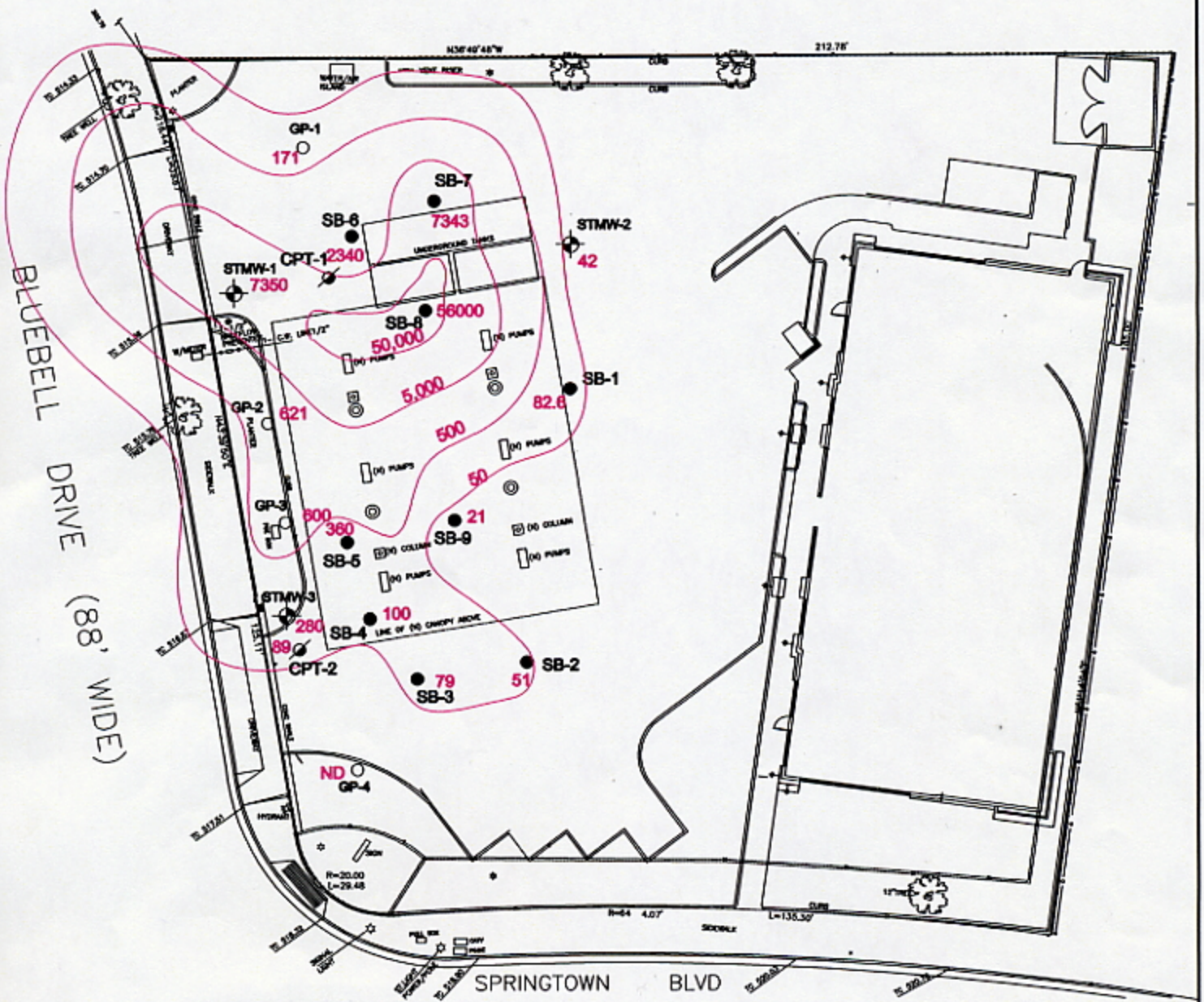
- ● = Soil Boring
- ○ = Geoprobe Boring
- ⌖ = Monitor Well
- ⌖ = CPT Boring

Isocontours are Variable in ug/kg

Scale

0 5 10 15 20

Enviro Soil Tech Consultants 131 Tully Road San Jose, CA 95112	PROJECT 909 Bluebell Drive Livermore, California PROJECT # 10-93-567-ST DATE: 12/4/2007	Figure 3 **Isocontours of MTBE & TBA in Groundwater for all 2007 Samples**



Legend

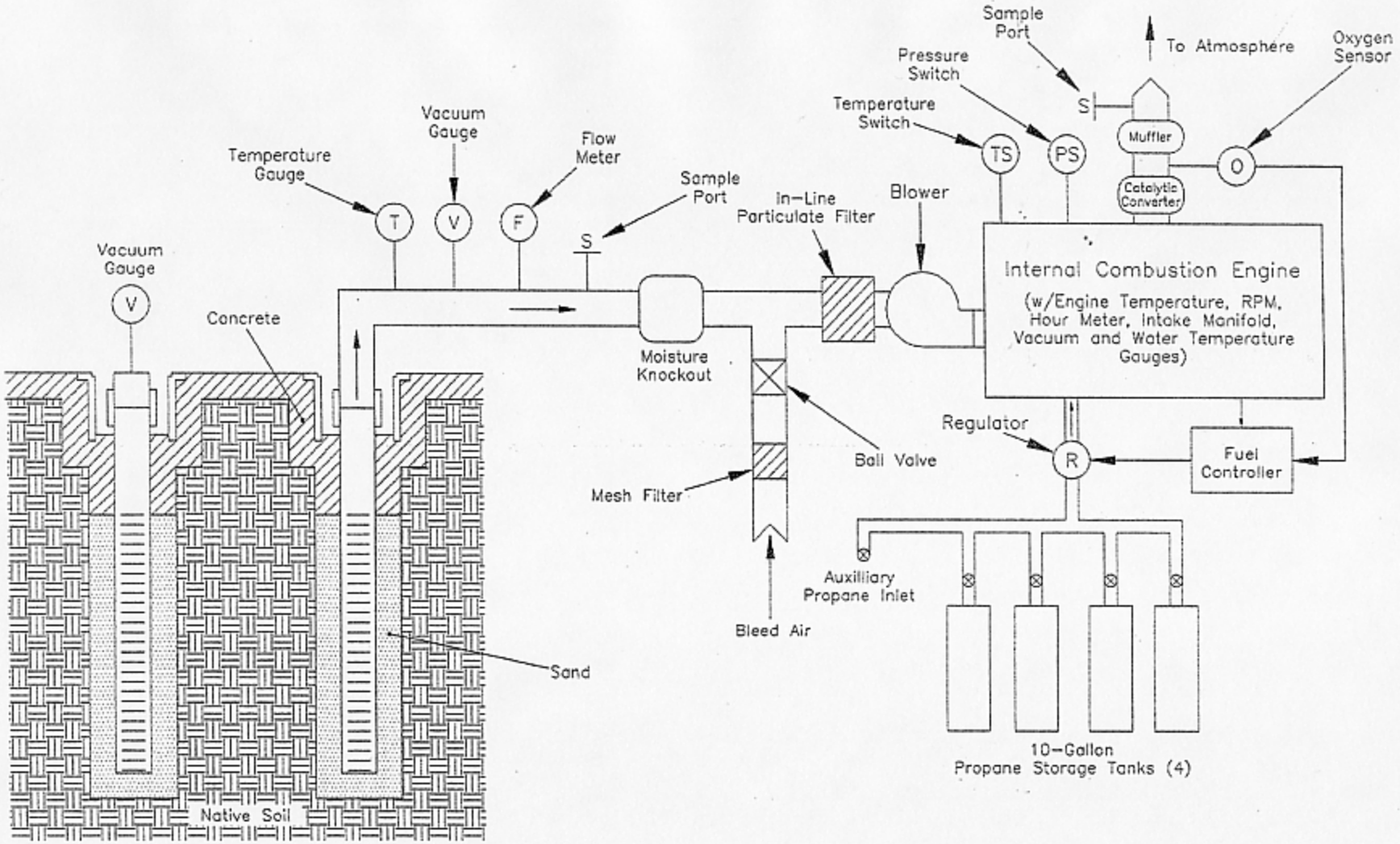
- ● = Soil Boring
- ○ = Geoprobe Boring
- ⌖ = Monitor Well
- ⌀ = CPT Boring

Isocontours are Variable in ug/L

Scale

0 10 20
5 15

M3



CEECON
CALIFORNIA ENVIRONMENTAL ENGINEERS & CONTRACTORS

Drawing: VET-2 Date: 12/06/07

Vapor-Extraction Internal Combustion Engine Process Flow Diagram

File No. 10-93-567-ST

M5