RO-213

CAMBRIA

July 29, 2002

JUL 31 2002

eva chu
Alameda County Health Care Services Agency
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502

Re: **Subsurface Investigation Work Plan Addendum**
Shell-branded Service Station
11989 Dublin Boulevard
Dublin, California
Incident # 98995328
Cambria Project # 244-0548

Dear Ms. chu:

Cambria Environmental Technology, Inc. (Cambria) is submitting this *Subsurface Investigation Work Plan Addendum* on behalf of Equilon Enterprises LLC dba Shell Oil Products US (Shell). This addendum is being submitted in response to a June 24, 2002 correspondence from eva chu of the Alameda County Health Care Services Agency (ACHCSA) requesting a change to the scope of work recommended in our June 5, 2002 *Well Installation Work Plan.* Presented below are summaries of the site background and our proposed scope of work.

SITE BACKGROUND

Site Location: This operating Shell-branded service station is located at the intersection of Dublin Boulevard and San Ramon Road in Dublin, California (Figure 1). The surrounding area is primarily commercial with retail businesses adjacent to the site. A Chevron service station is located northeast of the Shell-branded site. Currently, three gasoline underground storage tanks (UST) and one diesel UST are in use onsite.

Soil and Groundwater Investigation Summary

June 1997 Dispenser and Piping Removal and Replacement: In June 1997, soil samples were collected from beneath each of the dispensers and product piping runs at the site during dispenser and piping replacement. Maximum detected concentrations of total petroleum hydrocarbons as gasoline (TPHg) and total petroleum hydrocarbons as diesel (TPHd) were 690 parts per million (ppm) and 12,000 ppm, respectively. The highest detected benzene and methyl tertiary

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butyl ether (MTBE) (by EPA Method 8020) concentrations during the same sampling event were 0.55 ppm and 8.9 ppm, respectively, both from beneath the center dispenser in the northern pump island.

August 1997 Tank Backfill Well Destruction: On August 8, 1997, six tank backfill wells were destroyed in accordance with permit #97433 issued by the Alameda County Flood Control and Water Conservation District Zone 7 (Zone 7). One tank backfill well (BW-7) still exists onsite. Water was not encountered at 12 feet below grade (fbg), the maximum tank backfill well depth.

November 1997 Subsurface Investigation: On November 19, 1997, Cambria advanced four soil borings (SB-1 though SB-4) at the site to define the extent of hydrocarbons in soil and groundwater. The maximum hydrocarbon concentrations in soil were 11 ppm TPHg, 300 ppm TPHd and 0.0051 ppm benzene in sample SB-3 from 25 fbg. The maximum MTBE concentration in soil (by EPA Method 8020) was 0.11 ppm in sample SB-2 at 20 fbg. A grab groundwater sample collected from SB-2 contained 470 parts per billion (ppb) TPHg, 4,900 ppb TPHd, 17 ppb benzene and 110 ppb MTBE. No groundwater was encountered in the other borings to the total explored depth of 41 fbg.

August 1998 Subsurface Investigation: On August 5, 1998, Cambria advanced two soil borings to evaluate soil and groundwater conditions in the assumed downgradient direction of the UST complex. Maximum concentrations detected in soil were 250 ppm TPHg and 2.8 ppm benzene from SB-2 at 30 fbg. Grab groundwater samples collected from borings SB-1 and SB-2 contained maximum TPHg, TPHd and MTBE (by EPA Method 8260) concentrations of 140,000 ppb, 54,000 ppb, 14,000 ppb, respectively. Benzene was below detection limits in grab groundwater samples from both borings.

January 1999 Subsurface Investigation: On June 8 and 9, 1999, Cambria installed three onsite groundwater monitoring wells (MW-1 though MW-3). The maximum TPHg concentration in soil of 4.1 ppm was detected in the sample collected from well MW-3 at a depth of 25.5 fbg. The maximum TPHd and MTBE (by EPA Method 8260) concentrations in soil of 103 ppm and 1.14 ppm, respectively, were detected in MW-2 at a depth of 25.5 fbg. No benzene, toluene, ethylbenzene and xylenes (BTEX), hydrocarbons, or MTBE (by EPA Method 8020) were detected in soil samples collected from monitoring well MW-1 or in vadose zone soil samples collected from wells MW-2 and MW-3.

July 2001 Subsurface Investigation: On July 26, 2001, Cambria installed downgradient monitoring well MW-4 across San Ramon Road from the site. A soil sample collected at the soil-groundwater interface contained no TPHg, BTEX or MTBE.

Groundwater Depth and Flow Direction: The depth to groundwater at the site varies from 5.6 to 6.7 fbg in well MW-1 and from 18.7 to 26.6 fbg in wells MW-2 through MW-4. Groundwater flow direction has been consistently east and a groundwater gradient of 0.125 ft/ft was determined in Cambria's *Second Quarter 2001 Monitoring Report*. No apparent explanation for the discrepancy between depths-to-water in the wells at the site has been identified. Topography slopes slightly to the east.

Soil Lithology: The site is underlain by gravelly fill to approximately 2 fbg. The fill is underlain by clayey sands to the maximum explored depth of 35 fbg.

Quarterly Groundwater Monitoring: Quarterly monitoring has been conducted at the site since July 1999. Maximum TPHg, TPHd, benzene and MTBE (by EPA Method 8260) concentrations in groundwater have been reported in well MW-2 at 7,130 ppb, 1,490 ppb, 125 ppb and 28,000 ppb, respectively. Groundwater samples collected from downgradient well MW-4 have contained up to 2,400 ppb TPHg and 8,600 ppb MTBE (by EPA Method 8260). No BTEX has been detected in well MW-4 since installation.

PROPOSED SCOPE OF WORK

In lieu of the groundwater monitoring well installation proposed in our June 5, 2002 *Well Installation Work Plan*, Cambria recommends the installation of three soil borings downgradient of recently installed well MW-4 at the site to determine the best location for a potential downgradient monitoring well. The nearest practical location for monitoring well installation is on private property across San Ramon Road from the site. The proposed soil boring locations are shown on Figure 2. In addition to this scope, Cambria recommends the installation of an onsite soil boring in the vicinity of well MW-1. This onsite boring will be continuously cored to determine if the shallow groundwater consistently encountered in well MW-1 is lithologically controlled. The groundwater elevation in this well has been approximately 15 to 20 feet higher than in the other onsite wells.

Cambria's scope of work for this investigation will include the following tasks:

Right-of-Entry Agreement: Cambria will contact the property owners and obtain a right-of-entry agreement for boring installation. Due to the potential for lengthy access agreement negotiations, Cambria will begin this portion of the scope of work immediately. While the ACHCSA requested a soil boring south of the Coco's Restaurant located across San Ramon Road from the site, Cambria recommends two soil borings west of Coco's Restaurant, one to be located adjacent to the southern property boundary, to limit access agreement negotiations to one property.

Utility Location: Cambria will notify Underground Services Alert (USA) of our drilling activities, and USA will identify utilities in the site vicinity. If appropriate, Cambria will contract a private utility location contractor to identify utilities in the vicinity of the borings.

Site Health and Safety Plan: Cambria will prepare a comprehensive site safety plan to protect site workers. The plan will be reviewed and signed by each site worker and kept onsite during field activities.

Permits: Cambria will obtain the required boring installation permits from Zone 7.

Soil Boring: Assuming the absence of subsurface and overhead obstructions, Cambria will use a direct-push drill rig to advance four soil borings in the approximate locations shown on Figure 2. The borings will be advanced to approximately 35 fbg. Each boring will be continuously cored for lithology. Soil samples will be collected at a minimum of 5-foot intervals. All collected soil samples will be transported to a State-approved analytical laboratory.

In addition, a grab groundwater sample will be collected at first encountered groundwater, expected to be at approximately 25 fbg. Discrete groundwater samples will be also be collected at approximately 30 fbg and 35 fbg using a hydropunch temporary screen. Groundwater samples will be transported to a State-approved laboratory for chemical analysis. Upon completion of sampling, the borings will be backfilled with cement-grout to the surface and capped to match the existing grade. Cambria's standard field procedures are included as Attachment A.

Chemical Analysis: Selected soil and grab groundwater samples will be analyzed by a State-certified analytical laboratory for TPHg, BTEX, and MTBE.

Reporting: Upon receipt of analytical results, Cambria will prepare a report that, at a minimum, will contain:

- A summary of the site background and history;
- Descriptions of the drilling and sampling methods;
- Soil boring logs;
- Tabulated soil and grab groundwater analytical results;
- Analytical reports and chain-of-custody forms; and
- Cambria's conclusions and recommendations.

Schedule: Upon receiving written work plan approval, permits will be acquired and the field activities will be scheduled. An investigation report will be submitted approximately 60 days after completing the field activities.

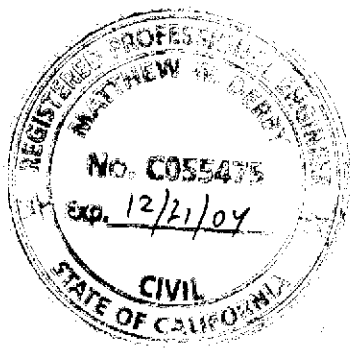
CLOSING

Please call Jacquelyn Jones at (510) 420-3316 if you have any questions or comments.

Sincerely,
Cambria Environmental Technology, Inc.

Jacquelyn L. Jones
Project Geologist

Matthew W. Derby, P.E.
Senior Project Engineer



Figures: 1 - Vicinity/Area Well Survey Map
2 - Proposed Monitoring Well Location Map

Attachment: A - Standard Field Procedures for Soil Borings

cc: Karen Petryna, Shell Oil Products US, P.O. Box 7869, Burbank, CA 91510-7869

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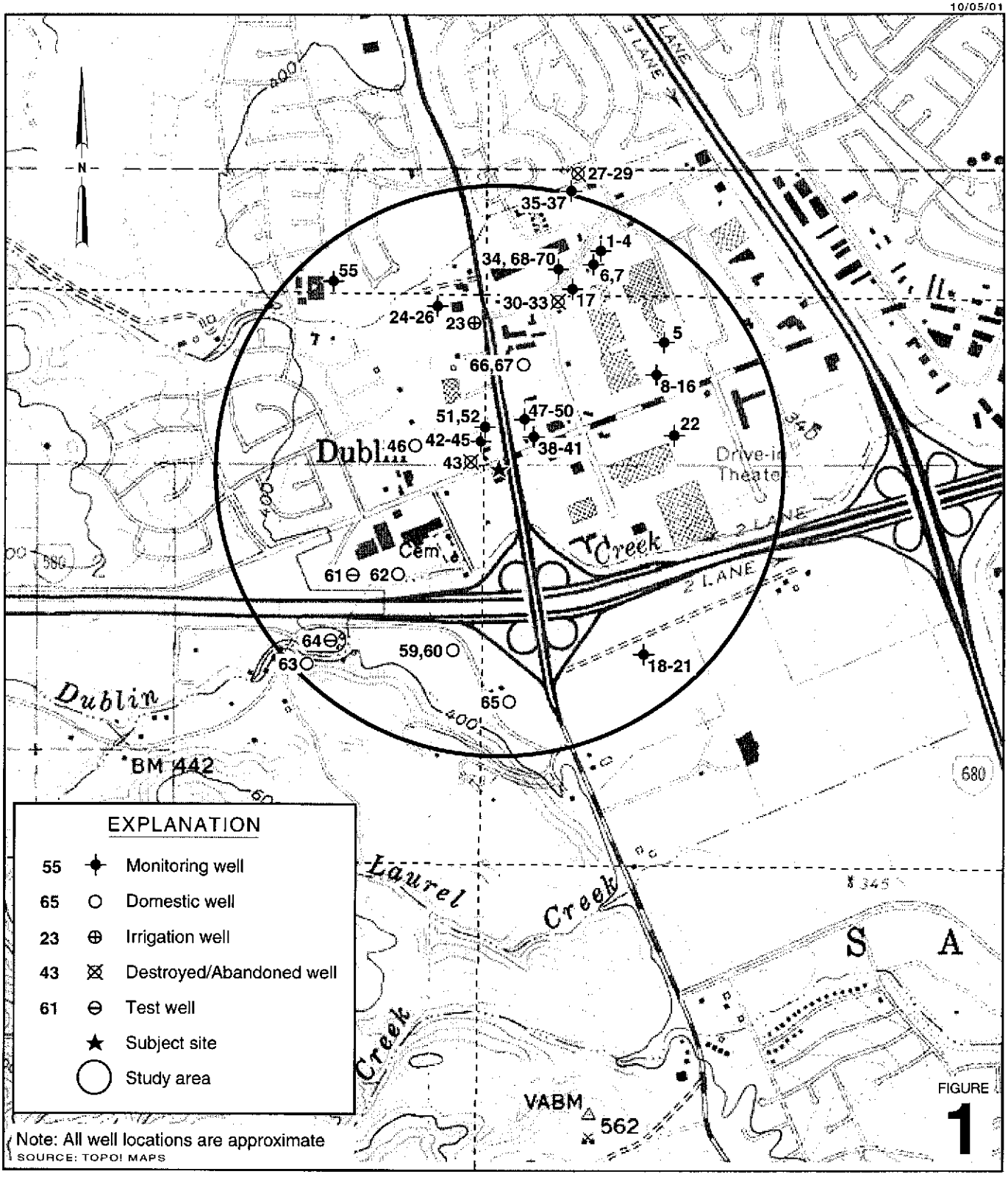

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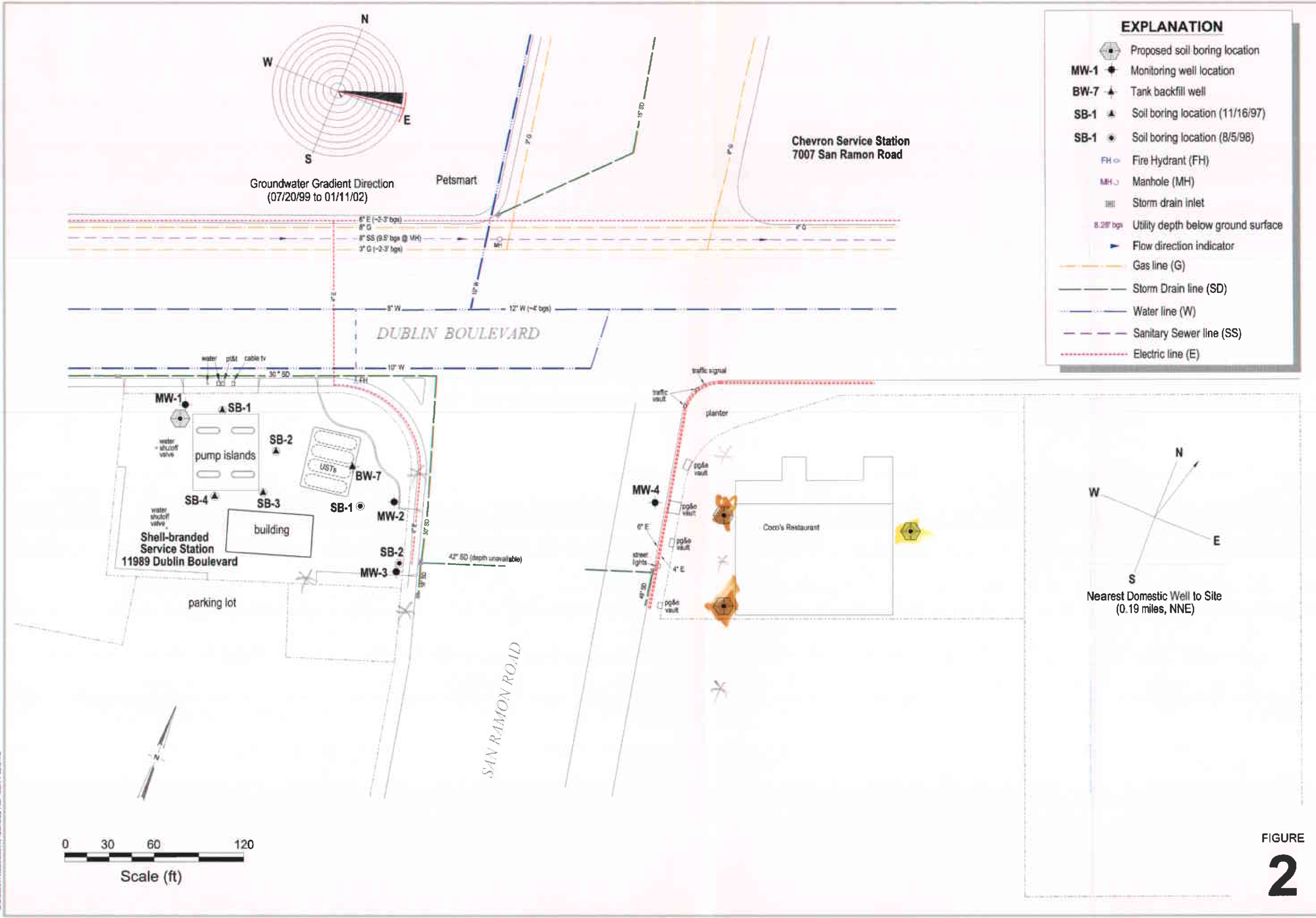
Vicinity / Area Well Survey Map
(1/2 Mile Radius)


EXPLANATION
Proposed soil boring location
MW-1 Monitoring well location
BW-7 Tank backfill well
SB-1 Soil boring location (11/16/97)
SB-1 Soil boring location (8/5/98)
Fire Hydrant (FH)
Manhole (MH)
Storm drain inlet
Utility depth below ground surface
Flow direction indicator
Gas line (G)
Storm Drain line (SD)
Water line (W)
Sanitary Sewer line (SS)
Electric line (E)
Groundwater Gradient Direction
(07/20/99 to 01/11/02)
N
W
E
S
Petsmart
Chevron Service Station
7007 San Ramon Road
DUBLIN BOULEVARD
SAN RAMON ROAD
MW-1
SB-1
SB-2
pump islands
USTs
BW-7
SB-4
SB-3
SB-1
MW-2
building
Shell-branded
Service Station
11989 Dublin Boulevard
SB-2
MW-3
parking lot
MW-4
planter
traffic signal
Coco's Restaurant
Nearest Domestic Well to Site
(0.19 miles, NNE)
0
30
60
120
Scale (ft)
FIGURE
2

Proposed Soil Boring Location Map

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ATTACHMENT A

Standard Field Procedures for Soil Borings

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STANDARD FIELD PROCEDURES FOR SOIL BORINGS

This document describes Cambria Environmental Technology's standard field methods for drilling and sampling soil borings. These procedures are designed to comply with Federal, State and local regulatory guidelines. Specific field procedures are summarized below.

Objectives

Soil samples are collected to characterize subsurface lithology, assess whether the soils exhibit obvious hydrocarbon or other compound vapor odor or staining, estimate ground water depth and quality and to submit samples for chemical analysis.

Soil Classification/Logging

All soil samples are classified according to the Unified Soil Classification System by a trained geologist or engineer working under the supervision of a California Registered Geologist (RG) or a Certified Engineering Geologist (CEG). The following soil properties are noted for each soil sample:

- Principal and secondary grain size category (i.e. sand, silt, clay or gravel)
- Approximate percentage of each grain size category,
- Color,
- Approximate water or product saturation percentage,
- Observed odor and/or discoloration,
- Other significant observations (i.e. cementation, presence of marker horizons, mineralogy), and
- Estimated permeability.

Soil Boring and Sampling

Soil borings are typically drilled using hollow-stem augers or hydraulic push technologies. At least one and one half ft of the soil column is collected for every five ft of drilled depth. Additional soil samples are collected near the water table and at lithologic changes. Samples are collected using lined split-barrel or equivalent samplers driven into undisturbed sediments beyond the bottom of the borehole. The vertical location of each soil sample is determined by measuring the distance from the middle of the soil sample tube to the end of the drive rod used to advance the split barrel sampler. All sample depths use the ground surface immediately adjacent to the boring as a datum. The horizontal location of each boring is measured in the field from an onsite permanent reference using a measuring wheel or tape measure.

Drilling and sampling equipment is steam-cleaned prior to drilling and between borings to prevent cross-contamination. Sampling equipment is washed between samples with trisodium phosphate or an equivalent EPA-approved detergent.

Sample Storage, Handling and Transport

Sampling tubes chosen for analysis are trimmed of excess soil and capped with Teflon tape and plastic end caps. Soil samples are labeled and stored at or below 4°C on either crushed or dry ice, depending upon local regulations. Samples are transported under chain-of-custody to a State-certified analytic laboratory.

Field Screening

One of the remaining tubes is partially emptied leaving about one-third of the soil in the tube. The tube is capped with plastic end caps and set aside to allow hydrocarbons to volatilize from the soil. After ten to fifteen minutes, a portable photoionization detector (PID) measures volatile hydrocarbon vapor concentrations in the tube headspace, extracting the vapor through a slit in the cap. PID measurements are used along with the field observations, odors, stratigraphy and ground water depth to select soil samples for analysis.

Water Sampling

Water samples, if they are collected from the boring, are either collected using a driven Hydropunch type sampler or are collected from the open borehole using bailers. The ground water samples are decanted into the appropriate containers supplied by the analytic laboratory. Samples are labeled, placed in protective foam sleeves, stored on crushed ice at or below 4°C, and transported under chain-of-custody to the laboratory.

Duplicates and Blanks

Blind duplicate water samples are collected usually collected only for monitoring well sampling programs, at a rate of one blind sample for every 10 wells sampled. Laboratory-supplied trip blanks accompany samples collected for all sampling programs to check for cross-contamination caused by sample handling and transport. These trip blanks are analyzed if the internal laboratory QA/QC blanks contain the suspected field contaminants. An equipment blank may also be analyzed if non-dedicated sampling equipment is used.

Grouting

If the borings are not completed as wells, the borings are filled to the ground surface with cement grout poured or pumped through a tremie pipe.

Waste Handling and Disposal

Soil cuttings from drilling activities are usually stockpiled onsite on top of and covered by plastic sheeting. At least four individual soil samples are collected from the stockpiles for later compositing at the analytic laboratory. The composite sample is analyzed for the same constituents analyzed in the borehole samples. Soil cuttings are transported by licensed waste haulers and disposed in secure, licensed facilities based on the composite analytic results.

Ground water removed during sampling and/or rinsate generated during decontamination procedures are stored onsite in sealed 55 gallon drums. Each drum is labeled with the drum number, date of generation, suspected contents, generator identification and consultant contact. Disposal of the water is based on the analytic results for the well samples. The water is either pumped out using a vacuum truck for transport to a licensed waste treatment/disposal facility or the individual drums are picked up and transported to the waste facility where the drum contents are removed and appropriately disposed.