

**Chevron Environmental
Management Company**
6001 Bollinger Canyon Rd, K2236
P.O. Box 6012
San Ramon, CA 94583-2324
Tel 925-842-9559
Fax 925-842-8370

Dana Thurman
Project Manager

RECEIVED

By loprojectop at 8:41 am, May 16, 2006

5/11/06

(date)

ChevronTexaco

Alameda County Health Care Services
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

Re: Chevron Service Station # 9-0917

Address: 5280 Hopyard Road, Pleasanton, CA

I have reviewed the attached report titled Workplan for Remedial Pilot Test
and dated 5/11/06.

I agree with the conclusions and recommendations presented in the referenced report. The information in this report is accurate to the best of my knowledge and all local Agency/Regional Board guidelines have been followed. This report was prepared by Cambria Environmental Technology, Inc., upon whose assistance and advice I have relied.

This letter is submitted pursuant to the requirements of California Water Code Section 13267(b)(1) and the regulating implementation entitled Appendix A pertaining thereto.

I declare under penalty of perjury that the foregoing is true and correct.

Sincerely,



Dana Thurman
Project Manager

Enclosure: Report

May 11, 2006

RECEIVED

By loprojectop at 8:41 am, May 16, 2006

Mr. Jerry Wickham
Alameda County Health Care Services Agency
Department of Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502

Re: **Workplan for Remedial Pilot Test**
Chevron Station #9-0917
5280 Hopyard Road
Pleasanton, California



Dear Mr. Wickham:

Cambria Environmental Technology, Inc. (Cambria) has prepared this *Workplan for Remedial Pilot Test* on behalf of Chevron Environmental Management Company (Chevron) in order to address remaining hydrocarbons in groundwater. The site background, previous investigations and scope of work are presented below.

SITE BACKGROUND

Site Description: The site is located at the southern corner of the intersection of Hopyard Road and Owens Drive in Pleasanton, California (Figure 1). The site is an active Chevron station with a station building, car wash facility, four underground storage tanks (USTs), and three dispenser islands (Figure 2).

Local topography is flat and the site is approximately 335 feet above mean sea level (msl). The closest surface water is Chabot Canal approximately 250 feet east of the site. The area surrounding the site is primarily commercial.

Site Hydrogeology: The Livermore Valley Groundwater Basin is divided into twelve sub-basins based on fault traces and hydrologic discontinuities. The site is located in the Dublin Sub-Basin (DSB). Regionally, the upper, unconfined groundwater in the DSB generally flows south. Aquifers in the DSB are generally flat lying, but there is a drop in groundwater elevation of approximately 50 feet across the Parks Fault (*Evaluation of Groundwater Resources: Livermore and Sonol Valleys*, Department of the Water Resources Bulletin Number 118-2, June 1974). The Parks Fault trends east-northeast approximately 1 mile south of the site (Pacific Environmental Group, Inc., *Soil and Groundwater Investigation*, dated August 11, 1997).

**Cambria
Environmental
Technology, Inc.**

2000 Opportunity Drive
Suite 110
Roseville, CA 95678
Tel (916) 677-3407
Fax (916) 677-3687

Historically, the site groundwater flow direction has been variable, but recent events indicate a south-southeast flow direction at an approximate gradient between 0.004 to 0.009. Measured depth to groundwater at the site ranges between 7.5 and 10 fbg.

PREVIOUS INVESTIGATIONS


August 1989, Monitoring Well Installation: In August 1989, Groundwater Technology, Inc. (GTI) installed on-site groundwater monitoring wells MW-1 through MW-3. Soil samples from these well borings do not appear to have been submitted for laboratory analysis based on the information supplied by Chevron.



June 1991, UST Replacement and Soil Excavation: In June 1991, Blaine Tech Services, Inc. observed the UST system removal and soil excavation, and collected soil and grab-groundwater samples for chemical analyses. Five fiberglass USTs, consisting of three 10,000-gallon gasoline, one 10,000-gallon diesel, and one 500-gallon used-oil USTs, were removed and replaced with four 12,000-gallon double-walled fiberglass gasoline USTs. TPHg and benzene were reported in soil samples collected from the bottom of the UST excavation at maximum concentrations of 70 milligrams per kilogram (mg/kg) and 0.64 mg/kg, respectively, at depths of 9.5 fbg to 10 fbg. TPHg and benzene were reported in over-excavation soil samples collected from beneath the fuel product piping at concentrations of 440 mg/kg and 1.1 mg/kg, respectively, at 7 fbg. Total petroleum hydrocarbons as diesel (TPHd) was reported at a maximum concentration of 8.0 mg/kg from 10 fbg in the product piping area. Over-excavation of UST and product piping areas extended to maximum depths of approximately 10 fbg. Total petroleum hydrocarbons as gasoline (TPHg) and benzene were reported in a grab-groundwater sample collected from the bottom of the UST excavation at concentrations of 24,000 micrograms per liter ($\mu\text{g/L}$) and 1,000 $\mu\text{g/L}$, respectively. Depth to water in the excavation was measured at approximately 10 fbg. Approximately 90 cubic yards of soil, not including additional gravel, was removed during UST removal and over-excavation and approximately 70 cubic yards of soil was removed during product line removal and over-excavation. The probable source area, based on reported soil and grab-groundwater samples, is the former dispenser island and associated northeastern product lines. Soil analytical results and sample locations are found in Gettler-Ryan's (G-R) *Site Conceptual Model and Closure Request*, dated January 25, 2002.

July 1991, Monitoring Well Destruction and Well Installation: In July 1991, GTI destroyed wells MW-1 through MW-3 and installed groundwater monitoring wells MW-4 through MW-6. Based on information provided by Chevron, no soil samples from the well borings were submitted for chemical analyses. Groundwater was encountered in the well borings at a depth of approximately 9 fbg.

May 1997, Monitoring Well Installation: On May 5, 1997, Pacific Environmental Group, Inc. (PEG), installed off-site groundwater monitoring wells MW-7 through MW-9 to define the extent of petroleum hydrocarbons and methyl tertiary butyl ether (MTBE) in groundwater south of the source area. Selected soil samples were analyzed for TPHg, MTBE, benzene, toluene, ethylbenzene, and xylenes (BTEX). These compounds were not reported in any of the soil samples. Selected soil samples were sent to Cooper Testing Facilities for physical analysis for moisture, density, porosity, specific gravity, and organic content.



March 1999, Enhanced Bioremediation: Oxygen releasing compound (ORC) socks were installed in wells MW-5 and MW-6 on March 26, 1999, to increase the dissolved oxygen concentrations in groundwater in the areas of known petroleum hydrocarbons to oxidize organic contaminants and enhance biodegradation within the plume. A significant decrease in dissolved hydrocarbon concentrations was observed in wells MW-5 and MW-6 after installation of the ORC. A significant decrease in dissolved oxygen (DO) concentrations in wells MW-5 and MW-6 was reported from samples collected from June 19, 2000 to September 18, 2000, suggesting that the ORC socks were spent and oxidation and biodegradation were occurring. DO concentrations stabilized around 3.6 mg/L and 4.3 mg/L in wells MW-5 and MW-6, respectively, for the next five quarters. A second significant decrease in DO was reported from samples collected from September 7, 2001 to December 5, 2001. DO concentrations have stabilized to an average of 1.3 mg/L and 1.4 mg/L in wells MW-5 and MW-6, respectively.

February 2006 Subsurface Investigation: In February 2009, Cambria advanced a total of five soil borings. Two of the borings were advanced to deeper groundwater bearing zones using a Cone Penetration Technology (CPT) direct push drill rig. TPHg was only reported in soil samples from boring GP-1 at concentrations ranging from 110 mg/kg to 7.9 mg/kg. Benzene was also only reported in soil boring GP-1 at concentrations ranging from 0.09 mg/kg to 0.003 mg/kg. MTBE was only reported in the soil sample from boring GP-2 at 10 fbg at a concentration of 0.006 mg/kg. TPHg was reported at a maximum concentration in groundwater sample GP-1 at 2,400 µg/L at 8 fbg and additionally reported in GP-2 at 28 fbg at a concentration of 110 µg/L. Benzene was only reported in samples from GP-1 at concentrations of 24 µg/L and 0.7 µg/L at depths of 8 fbg and 36 fbg, respectively. MTBE was reported in GP-1 at 36 fbg and GP-2 at 28 fbg at concentrations of 19 µg/L and 22 µg/L, respectively. No TPHG, benzene or MTBE was reported in grab-groundwater samples from borings GP-3 through GP-5 with the exception of 1 µg/L MTBE in GP-5.

PROPOSED SCOPE OF WORK

In order to address remaining hydrocarbons currently reported in groundwater, Cambria proposes a surfactant extraction pilot test. The specific scope of work is discussed below.

Site Health and Safety Plan: Cambria will prepare a health and site safety plan and journey management plan to inform site workers of known hazards and to provide health and safety guidance. The plans will be kept on site at all times, and the health and safety plan will be signed daily by all site workers.

SURFACTANT EXTRACTION PILOT TEST

Cambria will conduct a pilot test utilizing existing monitoring well MW-5 to determine if residual hydrocarbons in the 'smear-zone' can be liberated and recovered through the subsurface application of a non-ionic surfactant and subsequent enhanced vacuum fluid recovery (EVFR). The goal of the treatment is to expedite the removal of residual hydrocarbons, thereby mitigating the source of the dissolved phase concentrations at the site and causing reduction in dissolved concentrations observed in source area monitoring wells.

Potential advantages of surfactant treatment for recovering residual hydrocarbons include:

- Residual hydrocarbons below the water table can be recovered;
- Recovery does not depend on dewatering the smear zone;
- Recovery is not restricted by hydrocarbon volatility or composition, or the thickness of the smear zone; and
- It is potentially an efficient, low cost, short term method to improve recovery.

Surfactants work by decreasing the interfacial surface tension between hydrocarbons and water, creating a micro-emulsion of oil in water. This significantly increases the mobility of the hydrocarbons during water extraction and can significantly enhance its recovery from soil contacted by the surfactant. Ideally, the residual hydrocarbons can be significantly reduced in the soil around the well resulting in significantly reduced dissolved concentrations in groundwater in the treated area.

A typical surfactant solution for remediation would consist of approximately 3 percent surfactant by volume in water. The surfactant we plan to use is Ivey-sol[®] selective phase transfer technology (Ivey-sol[®] SPTT) non-ionic surfactant, which is non-toxic, biodegradable, and is engineered for the specific hydrocarbon ranges impacting the site. A copy of the Ivey-sol[®] SPTT material safety data sheet (MSDS) is presented as Attachment A.



Surfactant will be injected at low pressure or gravity fed via monitoring well MW-5 to contact residual hydrocarbons in the source zone area. The rate of application will be low to minimize outward displacement of hydrocarbons during the surfactant application. The initial amount of surfactant solution to be injected will be based on a calculation of pore volume to reach a radius of at least 10 feet from each test well within the hydrocarbon-bearing soil horizon. The surfactant solution will then be allowed to equilibrate for a period of 24 to 48 hours to envelop and micro-emulsify any residual hydrocarbons in the vicinity of wells. This application will be followed by an EVFR event using a mobile vacuum truck to remove the surfactant solution and liberated hydrocarbons from the source area. During removal, the water will be periodically tested for surfactant and hydrocarbon concentrations in order to qualify the effectiveness of surfactant extraction during the pilot test. Typically, the volume of fluid withdrawn is at least three times the volume of injected surfactant solution. Cambria will repeat the surfactant application and EVFR events two times after the initial event at two-week intervals.

The efficiency of surfactant extraction will be evaluated by comparing pre- and post-treatment hydrocarbon concentrations in the extraction well. Cambria will monitor for the rebound of hydrocarbon concentrations in the extraction well monthly for approximately three months after the pilot test. Cambria will compare pilot test rebound results with pre-treatment data to estimate the impact of surfactant extraction treatment on groundwater in the source area.

Chemical Analysis: All groundwater samples will be analyzed for:

- TPHg by N. California LUFT Methods, and
- BTEX and MTBE by EPA Method 8260B.

Reporting: Upon completion, Cambria will document all field activities and analytical results in a report that, at a minimum, will contain:

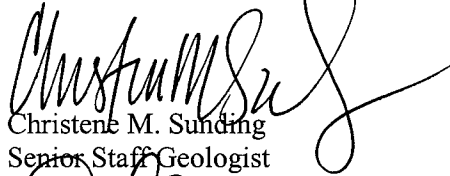
- A brief summary of the site background and history,
- Tabulated pre- and post-treatment hydrocarbon concentrations in groundwater sample analytic results,
- Analytic reports and chain-of-custody forms,
- Soil/water disposal methods,
- A summary of pilot test activities and results,
- A discussion of hydrocarbon distribution at the site, and
- Cambria's conclusions and recommendations.


CLOSING

Cambria will coordinate and perform the above activities after receiving written approval of this work plan from the ACHCSA. Cambria will submit an investigation report approximately six to eight weeks after completion of field activities. Please contact David Herzog (ext. 112) or Christene Sunding (ext. 109) at (916) 677-3407 (ext 112), if you have any questions or comments.

Sincerely,
Cambria Environmental Technology, Inc.




Christene M. Sunding
Senior Staff Geologist

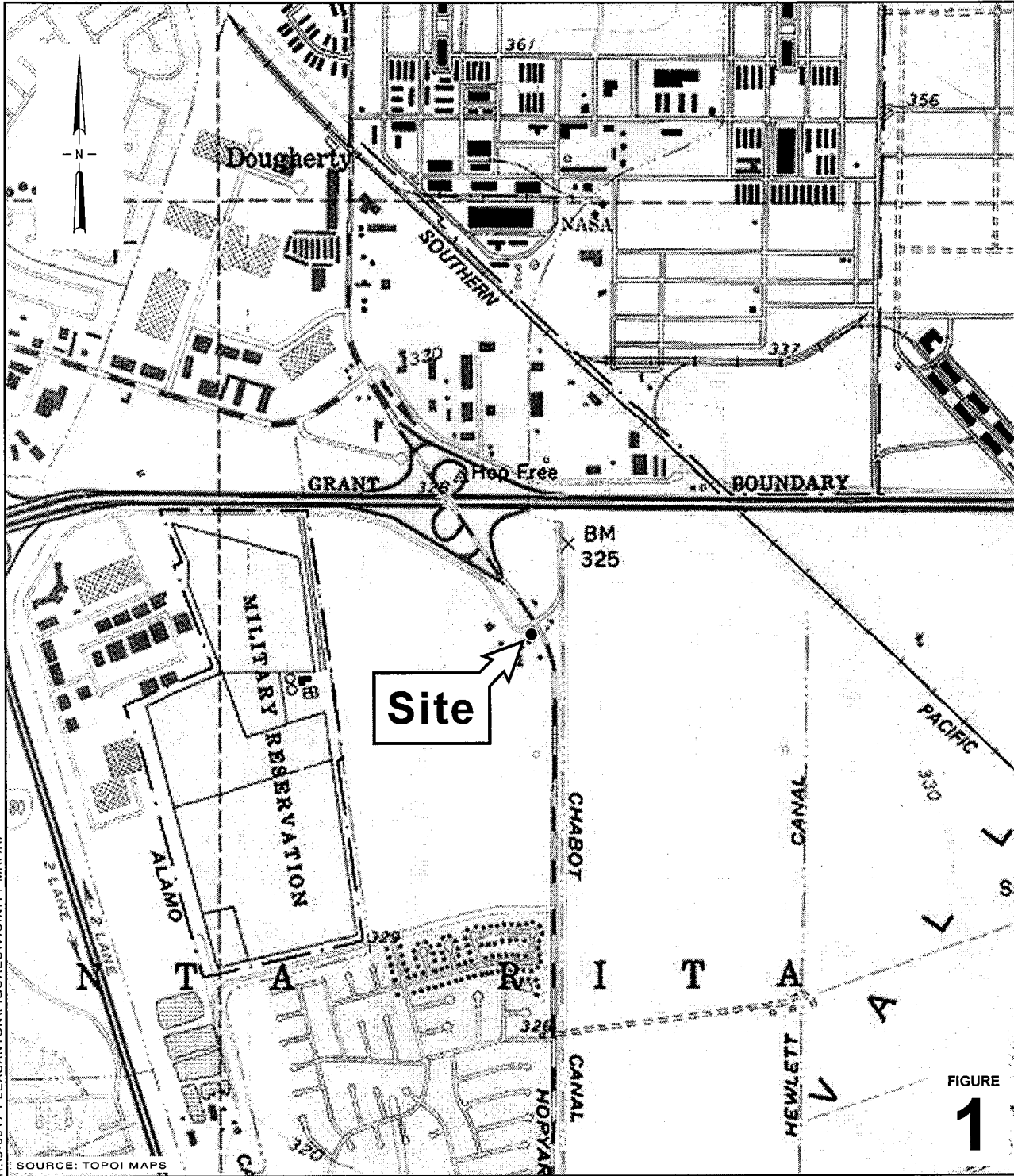

David W. Herzog, PG
Senior Project Geologist



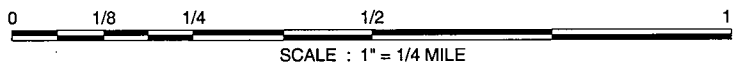
Figures: 1 – Vicinity map
 2 – Site Map

Attachments: A – Ivey-sol[®] SPTT MSDS

cc: Mr. Dana Thurman, Chevron Environmental Management Company, P.O. Box
 6012, San Ramon, CA 94583
 Cambria File Copy



R:\19-0917 PLEASANTON\FIGURES\VICINITY.MAP.A1

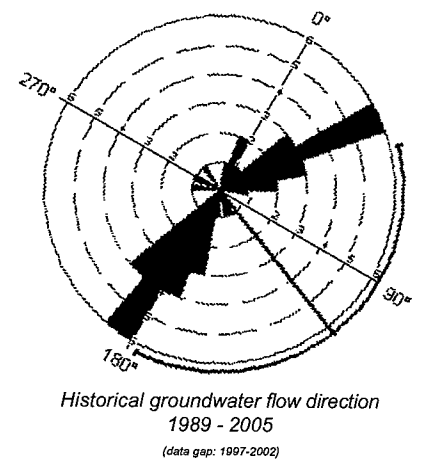


Chevron Service Station 9-0917
 5280 Hopyard Road
 Pleasanton, California



C A M B R I A

Vicinity Map



EXPLANATION	
GP-2	Soil boring location
MW-1	Monitoring well location
MW-3	Destroyed monitoring well location
S-8	Monitoring well location (Shell)
V-1	Vapor extraction well (Shell)
21	Soil sample location
	Former excavation limits

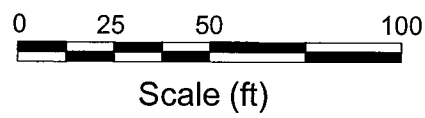
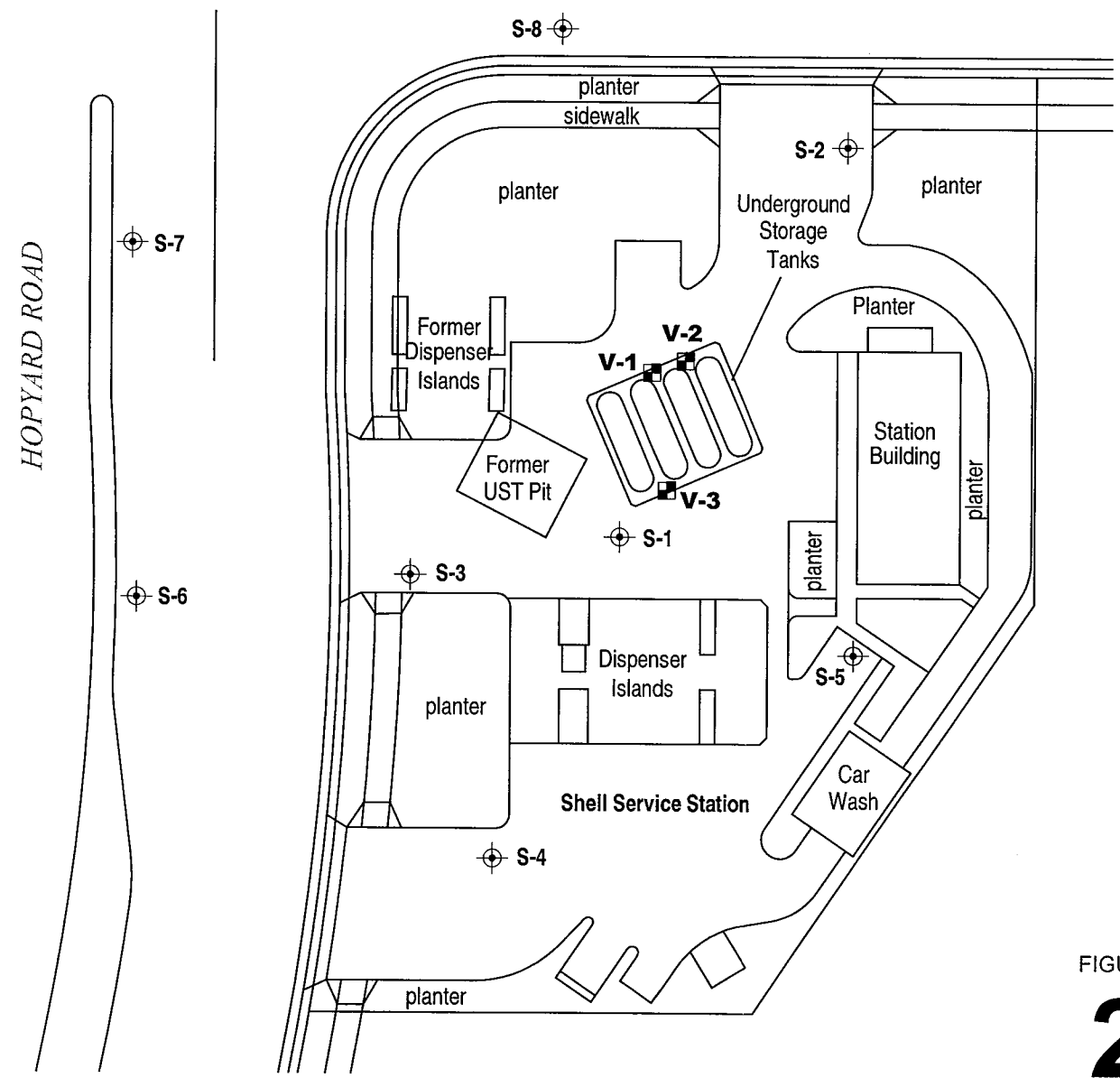
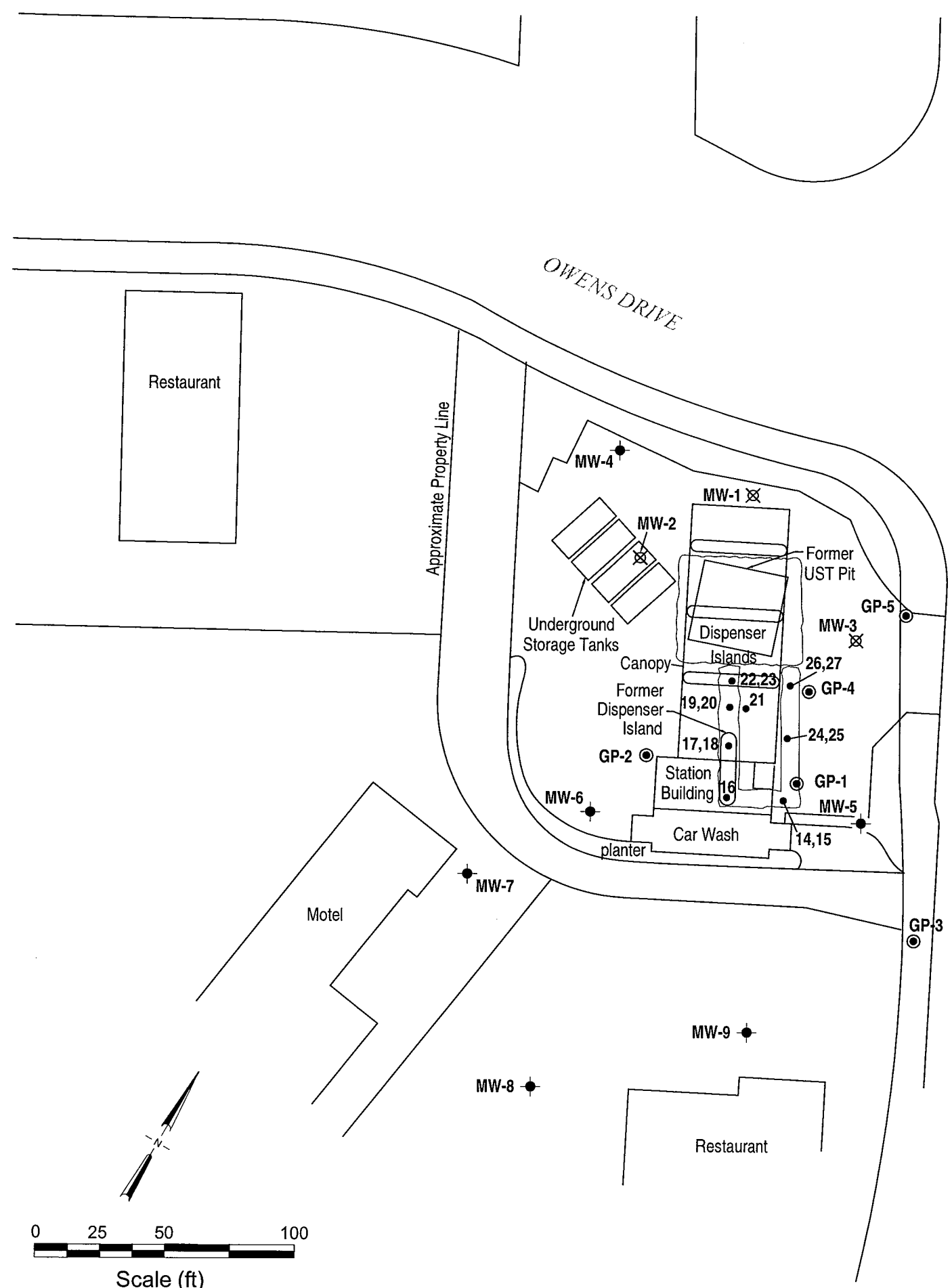


FIGURE 2

I:\9-0917 PLEASANTON\FIGURES\SITEPLAN.DWG



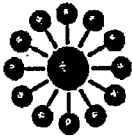
C A M B R I A

Chevron Service Station 9-0917

5280 Hopyard Road
Pleasanton, California

ATTACHMENT A

Ivey-sol[®] SPTT MSDS



Ivey International Inc.

MSDS NUMBER: 100764/02

MATERIAL SAFETY DATA SHEET SELECTIVE PHASE TRANSFER TECHNOLOGY

IVEY-SOL® • Selective Phase Transfer Technology (SPTT®)

SECTION 1: CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: Ivey-sol/SPTT (Stock Mixtures: SPTT#101-104)
Chemical Name: Not Applicable (mixture)
Chemical Family: Non-ionic Surfactant
Formula: Not Applicable (mixture)
Synonym(s): Ivey-sol® and SPTT®

COMPANY IDENTIFICATION

Ivey International (USA) Inc.
Ivey International (CAN) Inc
Prepared By:
Telephone Number:
Prepared:

26 Berkeley Place, Newington, CT USA 06111
PO Box 706 Campbell River BC Canada V9W 6J3
Technical Products Department
1-800-246-2744 (Emergency Also)
April 2005 (Last Updated)

Ivey International Inc. (II) urges each customer or receipt of this MSDS to study it carefully to become aware of and understand the proper use and handling of the subject product. The reader should consider consulting reference materials, and/or III technical support personnel, and/or other recognized experts, as necessary or appropriate to the use and understanding of the data contained in this MSDS. To promote the safe handling, storage and use of this product, each customer or recipient should (1) notify his employees, agents, contractors, and others whom he knows or believes will use this product, of the information in this MSDS and any other information regarding product use, storage and handling, (2) furnish this same information to each of his customers for the product, and (3) request his customers to notify their employees, customers, and other users of the product, and of this information.

SECTION 2: COMPOSITION INFORMATION

Components:
Ivey-sol 101 3% (By-volume)
Ivey-sol 102 3% (By-volume)
Ivey-sol 103 3% (By-volume)
Ivey-sol 104 3% (By-volume)

Ivey-sol® / SPTT® Technology - Stock Mixtures. Patented and or proprietary blends. Information in this MSDS is applicable for all component products listed.

SECTION 3: HAZARDS IDENTIFICATION

Effects Of A Single Exposure

Swallowing: Slightly toxic. May cause abdominal discomfort, nausea, vomiting, and diarrhea.
Skin Absorption: No evidence of harmful effects from available information.
Inhalation: No evidence of harmful effects from available information.
Skin Contact: Brief contact should result in not significant effects. Prolong exposure may cause mild irritation with local itching and redness.
Eye Contact: May cause mild to moderate irritation, experienced as discomfort or pain.
Effects Of
Repeated Exposure: Repeated skin contact may cause mild dermatitis.
Medical Conditions: Existing dermatitis may be aggravated through repeated skin contact.
Other Effects: None currently known.

Section 4: FIRST AID MEASURES

Swallowing: If patient is fully conscious, give two glasses of water
Skin Absorption: Wash with soap and water. Obtain medical attention if irritation or dermatitis persists.
Wash any exposed clothing before reuse.
Inhalation: Not applicable.
Eye Contact: Immediately flush eyes with water and continue to flush as required. Remove any contact lenses, if worn. Obtain medical attention if deemed necessary
Note To Physician: There is no antidote. Treatment should be directed at the control of symptoms and the clinical condition of the patient.

Section 5: FIRE FIGHTER MEASURES

Flammability: Not Flammable.
Auto Ignition Temp. Not Available
Upper Flammable Limit Not Established
Lower Flammable Limit Not Established
Explosive Data: Explosive Power Not Available
Rate Of Burning Not Available.

Hazardous Combustion Products: Burning can produce the following combustion products: Carbon monoxide, and/or Carbon Dioxide. Carbon monoxide is highly toxic if inhaled; carbon dioxide is sufficient concentrations can act as an asphyxiant.

Special Protective Equipment: Use self contained breathing apparatus and protective clothing.
Extinguishing Media: Apply alcohol type or all-purpose-type foam by manufacturer's recommended techniques for large fires. Use water spray, carbon dioxide, or dry chemical for small fires.

Extinguishing Media To Be Avoided: None.
Special Fire Fighting Procedures: Do not direct a solid stream of water or foam into hot, burning pools; this may cause frothing and increase fire intensity.

Section 6: ACCIDENTAL RELEASE MEASURES

Step To Be Taken If Material Is Released or Spilled: Eliminate and/or contain source with inert material (sand, earth, absorbent pads, etc.). Wear eye and skin protective. Floor may be slippery; use care to avoid falling. Avoid discharge to natural waters. Transfer liquids and solid dyking material to suitable containers for recovery or disposal. Contact III for technical assistance if required.

Section 7: HANDLING AND STORAGE

Handling Procedures: Avoid contact with eyes, skin, and clothing. Do not swallow. Keep containers closed or sealed when not in use. Wash thoroughly after handling.
Storage: Keep closed or sealed when not in use. Do not allow to freeze.
Ventilation: General (mechanical) room ventilation is expected to be satisfactory.

Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Gloves / Type Gloves / Type: Latex would be sufficient.
Respiratory / Type: None expected to be needed. However, if an engineered / industrial application where vapors and/or misting may occur, wear MSHA/NIOSH approved half mask air purifying respirator.
Eye / Type: Mono Goggles
Footwear / Type: No special requirements.
Clothing / Type: Wear an apron and /or coveralls.
Other / Type: Eye bath.
Engineering Controls: General (mechanical) room ventilation is expected to be satisfactory.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

Physical state:	Liquid
Appearance:	Transparent
Odor:	Mild
Molecular Weight:	Mixture (Not Applicable)
Boiling Point:	260 C (Average At 760 mm Hg)
Freezing Point:	Not Applicable
Pour Point:	Not Applicable
Melting Point:	Not Applicable
Specific Gravity:	0.99-1.04 (Water = 1.0)
Vapor Pressure:	<0.01 mm Hg ¹
Vapor Density:	> 1 (Air = 1.00)
Ph:	Not Available
Solubility In Water:	100%
Evaporation Rate:	<0.01
Coefficient of Oil/Water Distribution	Not Determined

Section 10: STABILITY AND REACTIVITY

Stability:	Stable
Conditions To Avoid:	Prolonged excessive heat may cause product decomposition. Freezing should also be avoided as it may cause product decomposition.
Incompatible Materials:	Normally un-reactive; however avoid strong bases at high temperatures, strong acids, strong oxidizing agents, and materials with reactive hydroxyl compounds.
Hazardous Decomposition Products:	Burning may produce carbon monoxide and/or carbon dioxide.
Hazardous Polymerization:	Will not occur.

Section 11: TOXICOLOGICAL INFORMATION

Exposure Limit of Material:	Not Established
LD/50:	48 Hour: 0.11 %, Species: Daphnia magna 96 Hour: 0.07695% Species: Daphnia magna (Route Species)
LC/50:	Not Available
EL:	Not Established
Carcinogenicity of Material:	None Known
Reproductive Effects:	Not Available.
Irritancy of Material:	See Section 3
Sensitizing Capability:	Not Available
Synergistic Materials:	Not Available

LD: Lethal Dose LC: Lethal Concentration EL: Exposure Limit

Section 12: ECOLOGICAL CONSIDERATIONS

Environmental Toxicity:	Low Potential to affect aquatic organisms*
Biodegradability:	>90% in 28 days**

* When used in accordance with Ivey International Inc. In-situ and Ex-situ Remediation Application Guidelines.

** Based on actual testing or on data for similar material(s). Degradation Biodegradation reached in Modified OECD Screening Test (OECD Test No.301 E) after 28 days: 90 %. Biodegradation reached in CO2 Evolution Test (Modified Sturm Test, OECD Test No. 301 B) after 28 days: 70 %.

All available ecological data have been taken into account for the development of the hazard and precautionary information contained in this Material safety data Sheet.

Section 13: DISPOSAL CONSIDERATIONS

Waste Disposal Method: For aqueous Ivey-sol mixture solutions; aerobic biological wastewater treatment systems are effective in treating said mixtures.

Disposal methods identified are for the product as sold. For proper disposal of used materials, an assessment may be required to determine the proper and permissible waste management option permissible under applicable rules, regulations, and/or laws.

Section 14: TRANSPORTATION INFORMATION

UN Number: Not Applicable
TDG Classification: Not Required
Shipping Name: Selective Phase Transfer Mixture (Ivey-sol)
Packing Group: Not Applicable
Special Shipping Instructions: Do not allow to freeze

Section 15: REGULATORY INFORMATION

WHMIS Classification: D2B
CPR Compliance: This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.

Section 16: OTHER INFORMATION

Available Literature and Brochures: Additional information on this product may be obtained by calling our customer service representative.

Recommended Uses and restrictions: For the application of air, soil, groundwater, shoreline, and off-shore spill petroleum reclamations purposes. Secondary recoveries of petroleum products form crude-oil, oil-shale, and oil-sands. Additional information on uses can be made available by contacting out technical sales director.

Legend:

- TS - Trade Secret
- D2B - Toxic Material causing Other Effects.
- < - Less Than
- mm - Millimeters
- LD - Lethal Dose
- LC - Lethal Concentration
- EL - Exposure Limit
- Hg - Mercury (760 mm Hg = 1 Atmosphere, Sea Level)

Notes:
i) **Revised Sections In This Issue:** Section 5: Fire-Fighter Measures
Section 8: Latex Gloves Sufficient
Section 1: Trade Mark Registrations ©