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3 April 1998
Project No. 2323.01

Mr. Mark Johnson
Regional Water Quality Control Board
2101 Webster Street, Suite 500
Oakland, CA 94612

Subject: Arsenic Investigation Work Plan
South BGR Site, Emeryville, California

Dear Mr. Johnson:

On behalf of Shell Oil Company, Treadwell & Rollo, Inc. has prepared the enclosed *Arsenic Investigation Work Plan* (the Work Plan). This Work Plan presents the details for a focused groundwater investigation to evaluate whether the arsenic detected on-site is contributing to the arsenic plume migrating from the nearby Sherwin-Williams site. Specifically, the area reportedly upgradient of monitoring well LF-28 will be evaluated during this site investigation.

The proposed field work is scheduled to coincide with the next scheduled quarterly monitoring event to be performed by Levine-Fricke-Recon at the Sherwin-Williams site. We understand that the quarterly event is planned for June 1998. Therefore, we would like to get approval of the Work Plan by the beginning of May in order to allow an adequate mobilization period.

If you have any comments or questions, please feel free to contact me.

Sincerely yours,
TREADWELL & ROLLO, INC.

Margaret K. (Peggy) Peischl, P.E.
Senior Project Engineer

23230104.MKP

Enclosure

cc: Distribution List

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ARSENIC INVESTIGATION WORK PLAN
South BGR Property
Emeryville, California

Shell Oil Company
Houston, Texas

3 April 1998
Project No. 2323.01

Treadwell&Rollo
Environmental and Geotechnical Consultants

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1.0 INTRODUCTION

This Arsenic Investigation Work Plan (the Work Plan) presents a proposed scope and methodology for investigation of arsenic in groundwater at the former Shell Research Facility on the South BGR (SBGR) property (the Site), in Emeryville, California. The Site is located on Horton Street between 45th and 53rd Streets. The goal of this investigation is to characterize the extent of arsenic in groundwater from past site use. The results of the investigation will be evaluated with respect to potential on-site and off-site sources.

Much of the background for this Work Plan has been drawn from the *Preliminary Site Investigation Report - BGR and Chapman Properties,* prepared by Erler & Kalinowski, Inc. (EKI) for Chiron Corporation, dated 10 January 1994. EKI's information on past site use was supplemented by a Shell Company Site facilities map dated May 2, 1962. The 7.5 acre Site once contained approximately 61 structures and work areas as part of the Shell Research Facility. A discussion of possible former chemical use areas is presented in Section 2. Section 3 includes an evaluation of existing arsenic data and the rationale for the proposed sampling. The details of the proposed sampling program are presented in Section 4. The field procedures and chemical analytical testing program are presented in Sections 5 and 6, respectively. Sections 7 and 8 include a discussion of the investigation report and schedule.

2.0 BACKGROUND

The SBGR Site is located on Horton Street between 45th and 53rd Streets in Emeryville, California (see Figure 1, Site Location Map). The eastern boundary of the Site abuts a Pacific Gas and Electric (PG&E) work yard. The Site occupies approximately 7.5 acres of land, much of which is covered by buildings or paving. The Shell Research Facility, formerly located on the Site, consisted of approximately 61 activity areas, including office buildings, pilot plant structures, above- and below-ground storage tanks, reaction testing equipment, and related infrastructure. A range of crude and refined petroleum compounds, as well as chlorinated and non-chlorinated organic compounds, were stored, used, and produced by the facility. Figure 2 presents the general layout of the former Shell facility on the Site, based on a Shell facilities map dated 24 May 1962. Currently, all aboveground portions of the facility have been removed, with the exceptions of Buildings N, Q, R and V, and the electrical substation located in the middle of the site. The main types of use areas include:

- Chemical storage in either above- or below-ground tanks;
- Railcar loading racks;
- Drum storage areas;
- Waste disposal areas or equipment;

- Pilot plants and exploratory reaction test facilities; and
- Laboratories.

Table 1 lists the known or presumed past use of each area. Current site usage includes office buildings, parking, and live-work spaces.

3.0 SCREENING AND ASSESSMENT OF EXISTING SITE DATA

Soil and groundwater analytical data and hydrogeologic interpretations presented in selected on-site and off-site investigation reports are evaluated in this Section. The reports are listed in the attached References.

3.1 Analytical Data Screening

For purposes of this Work Plan, soil and groundwater analytical data from the previous studies were screened for inclusion in the following assessment of data. These studies included those conducted on-site and off-site (Horton Street, the Rifkin property, and the Sherwin-Williams property). Screening criteria included sampling methodology, age of data, and analytical methods. For instance, only discrete soil samples were retained in the final data set. Those on-site sample data selected for inclusion are summarized in Tables 2 and 3 for groundwater and Table 4 for soil. The off-site arsenic data are summarized in Table 5. The locations of historical soil and groundwater sampling locations are shown on Figure 3. Sample data sets rejected or retained are noted as follows:

<u>EKI Preliminary Investigation, 10 January 1994</u>

Laterally composited soil samples:	Rejected due to lateral compositing
Groundwater grab samples from borings:	Retained
Boring SBGR-15 soil samples:	Retained
Hydropunch® groundwater samples:	Retained

The EKI soil samples were composited from different borings located up to several hundred feet away. While useful for general site investigation purposes, these composited samples were uniformly rejected as being non-representative for use in this Work Plan. This rejection was due to both the potential dilution factor inherent in compositing, and the inability to identify specific locations where the reported detection would have been present.

Levine-Fricke-Recon Quarterly Groundwater Monitoring Report, 17 February 1998

Groundwater samples from wells: Retained

The 17 February 1998 Levine-Fricke-Recon (LFR) report includes groundwater level and chemical analytical data for selected wells on the Sherwin-Williams property, former Rifkin property, and along Horton Street. A copy of the chemical analytical data tables from the 17 February 1998 report is included in Appendix A.

3.2 Hydrogeologic Conditions

EKI and LFR identified upper and lower water-bearing zones at and adjacent to the Site. The upper zone was commonly encountered at approximately 15 to 25 feet bgs, and the lower zone was generally encountered at approximately 30 to 40 feet bgs.

Several chemicals were detected over a wide range of concentrations, and at various locations, in samples from both water-bearing zones. The most recently measured concentrations of arsenic in groundwater at previous sampling locations are presented on Figure 4 (upper zone) and Figure 5 (lower zone). These data indicate that high concentrations of arsenic in groundwater are present on the Rifkin and Sherwin-Williams properties, and that relatively low, isolated concentrations of arsenic have been measured in groundwater on the Site. The proposed groundwater sampling program presented in the following section was developed in order to collect current and more closely spaced data from the Site. These new data will be used in an evaluation of whether the arsenic detected on-site is contributing to the arsenic plume migrating from the Sherwin-Williams property. Specifically, the area reportedly upgradient of LF-28 will be evaluated during this site investigation.

The groundwater flow direction at the Rifkin and Sherwin-Williams properties is influenced by the presence of the slurry wall. Along Horton Street, the upper zone groundwater appears to flow in a northwesterly direction. There are no historical groundwater level measurements from locations on the Site; and, therefore, no site-specific groundwater direction for the Site.

4.0 PROPOSED SITE INVESTIGATION PROGRAM

The site investigation tasks presented in this section are proposed to provide sufficient data to evaluate the distribution of arsenic in groundwater at the Site. Due to a primary focus on supporting this evaluation, the sampling program is not designed at this time to provide complete delineation of any sources or areas impacted by other chemical constituents. As described below, the field investigation program will consist of groundwater grab samples at 10 locations, the temporary installation of 3 piezometers in order to obtain on-site groundwater level measurements, water level measurements in selected LFR wells, and collecting groundwater

samples from selected LFR wells during their June 1998 quarterly sampling event. The field work will be performed by Treadwell & Rollo, Inc. (T&R), environmental consultants for Shell Oil Company. It is assumed that access will be granted to the LFR wells identified in Section 4.1 and that adequate notice will be given by Sherwin-Williams so that T&R field personnel can collect water level measurements and groundwater samples at the same time that LFR is performing the quarterly sampling. The sampling locations will be field verified and may be relocated to adjust to existing site conditions.

4.1 Groundwater Samples

Groundwater grab samples will be collected from the upper zone at 10 locations, as shown on Figure 6. The locations are arranged to allow the collection of groundwater samples in the area reportedly upgradient to LF-28 where arsenic was detected at 0.66 milligrams per liter (mg/L) in December 1997. A target depth of 7 to 10 feet was selected for each location based on the reported depths to groundwater along Horton Street presented in the February 1998 LFR quarterly monitoring report for the Sherwin-Williams property.

Groundwater samples will be collected from the four LFR monitoring wells installed along Horton Street (LF-27, LF-28, LF-29, LF-30). Since these wells will not be sampled by LFR during their quarterly groundwater monitoring program, the wells will be purged and sampled by T&R personnel.

4.2 Groundwater Level Measurements

Currently there are no groundwater monitoring wells on the Site where water levels can be measured for this program. Therefore, three temporary piezometers will be installed at the locations shown on Figure 6. Groundwater level measurements will be measured at these on-site piezometers as well as at the groundwater grab sample locations and the four LFR monitoring wells located along Horton Street. These measurements will be used to define the current potentiometric surface and groundwater flow direction in the upper water bearing zone. The temporary piezometers will be removed upon completion of the water level measurements.

For maximum utilization of the these data, it is recommended that the schedule for this field program be coordinated with the next LFR quarterly monitoring event (June 1998) in order to effectively utilize water level measurements and groundwater sampling data from the adjacent off-site wells.

5.0 FIELD PROCEDURES

5.1 Mobilization For Field Work

Mobilization will include conducting a site reconnaissance to mark locations for the proposed groundwater grab samples and temporary piezometers, performing underground utility

clearances for the identified locations, and preparing a Health and Safety Plan to provide the basis for health and safety protocol. These pre-investigation activities will also include the bidding and awarding of subcontracts, scheduling of field personnel, and coordinating laboratory chemical testing.

Required permit applications for the pilot borings and the temporary piezometers will be filed with the Alameda County Department of Environmental Health Services (ACDEHS). The ACDEHS will be notified at least 24 hours prior to the start of the field program, and the Regional Water Quality Control Board (RWQCB) will be notified 7 days prior to the start of the field program.

5.2 Temporary Piezometers Installation Procedures

5.2.1 Initial Pilot Borings

The initial pilot borings for each temporary piezometer will be drilled Gregg Drilling & Testing, Inc., located in Martinez, California, using a limited access hollow-stem auger drill/soil probe rig. A T&R geologist will be present during drilling to obtain samples of subsurface materials, maintain logs of the borings, make observations of the work area conditions, conduct health and safety monitoring of organic vapors during drilling, screen and log soil samples, and provide technical assistance as required.

Prior to mobilization of the equipment, the drill rig, augers, drill pipe, and other associated equipment will be cleaned with a high-pressure steam cleaner. Pressure washing will be performed on a bermed and plastic-lined truck decontamination pad. Steam cleaned drilling equipment will be used at each location to reduce the potential for cross contamination. All rinsate, residual solids, and drilling waste produced during the piezometer installation program will be placed in storage containers on the Site for subsequent testing and disposal.

Prior to commencing drilling, it may be necessary to core through asphalt or concrete slabs. Coring services will be provided by a concrete cutting contractor or the driller. Where slabs are excessively thick (i.e., >12 inches), alternative methods will be considered to economically access the soil. One method that will be considered is the use of a small, probe-shaped hydraulic breaker attachment for use with either a backhoe or a Bobcat skid loader. The breaker will be able to penetrate the slab faster, albeit with a slightly rougher hole.

Hand auguring to five feet may be conducted at many locations as an extra precaution against damaging unidentified underground utilities.

Depending on the subsurface conditions encountered at the site, the pilot borings will be advanced using either the hydraulic hammer (i.e., PowerPunch, a push method for advancing the boring) or the hollow-stem auger. The PowerPunch is the preferred method because it is rapid and does not generate waste soil cuttings. However, if the PowerPunch cannot be advanced due

to obstructions in the fill, then the hollow-stem auger will be used to advance the pilot borings. Soil samples for lithologic description will be collected during the installation of the temporary piezometers. Soil sampling typically will begin below the base of any fill material, such as gravel subbase. Soil will be sampled continuously with (1) a hydraulically advanced rod (PowerPunch) or (2) a modified California split spoon sampler, a Christensen 94-millimeter wireline core barrel system, or equivalent systems, using the hollow-stem auger, as described in the following sections:

5.2.1.1 PowerPunch

The hydraulically driven PowerPunch uses an hydraulic hammer to advance sampling rods into undisturbed soils. The soil is collected in a 1-7/8-inch diameter, 3-feet long sample barrel that is attached to the end of the rod. Soil samples are retained in 1-3/4-inch by 6-inch brass or stainless steel sleeves that are placed inside the sample barrel. After being advanced 3 feet, the sample barrel is removed from the borehole; and the soil samples are removed and used for lithologic identification.

5.2.1.2 Modified California Split Spoon Sampler

The modified California split spoon sampler is a split barrel sampler. It will normally be lined with three 2-inch O.D., 6-inch long brass or stainless steel sample tubes. Following ASTM D1586-24, the sampler will be lowered downhole and will be driven 18 inches ahead of the lead auger using a 140-pound hammer with an approximate 30-inch fall. The number of blows required to drive the sampler each 6-inch increment will be recorded, and the sampler will be removed from the hole. If sample refusal occurs (refusal occurs when the sampler cannot be driven six inches with 50 blows from the sampler hammer), the sampler will be removed from the borehole and drilling will continue to the next sampling interval.

Upon retrieval from the borehole, the sampler will be disassembled. The sample tubes containing the soil samples are removed from the sampler and used for lithologic identification.

5.2.1.3 Christensen Core Barrel

The Christensen 94-millimeter wireline core barrel system is a double tube coring system. The system has two major components, an outer barrel and an inner spring-retraction barrel. The two are advanced together downhole with the inner core barrel 6 inches ahead of the drilling bit. The inner barrel has a 6-foot split tube attached to the lead drive shoe. This split tube collects the core sample as the borehole is advanced and simplifies the removal of unconsolidated or high plasticity soils. The inner core barrel is brought to the surface and sent back downhole by means of a wireline. Since the outer core barrel remains in place, the potential for cross-contamination and borehole collapse is minimized.

The core barrel will be lined with 2-inch O.D., 6-inch long brass or stainless steel sample tubes. After removal of these sample tubes from the core barrel, the soil samples will be used for lithologic identification.

5.2.2 Piezometer Construction

The temporary piezometers will be constructed in open pilot borings using ¾- to 2-inch diameter PVC casing, depending on the method used to advance the pilot borings. The casing will be slotted at the bottom to allow groundwater flow into the casing. After the casing is set into the open borehole, the water level at each piezometer will be measured at intervals until the level has equilibrated, as described in Section 5.3.1. If the piezometers must be left in place overnight, the surface opening will be covered by a temporary steel plate.

5.2.3 Piezometer Removal

Upon completion of water level measurements, the temporary piezometer casings will be removed and the boreholes will be grouted to the surface. A neat cement grout will be pumped into the borehole with a tremie pipe initially set several feet above the bottom of the borehole. The tremie will be raised at approximately the same rate as the grout will be pumped until relatively undiluted grout appeared at the surface. The grout will be allowed to settle overnight, and the surface will be repaired to match the surrounding area the following day.

5.3 Groundwater Level Monitoring and Sampling

5.3.1 Groundwater Level Monitoring

Groundwater levels will be measured by T&R in the temporary piezometers and the four existing LFR wells along Horton Street (LF-27, LF-28, LF-29, LF-30). Water level measurements will be made using a Solinst electronic water level probe or equivalent with gradations marked at a maximum of 0.05 foot intervals. Multiple readings will be taken from a surveyed reference point (the top of the well casing) until agreement will be reached between two consecutive readings to the nearest 0.01 foot after interpolation.

5.3.2 Groundwater Sampling Program

Gregg Drilling & Testing, Inc., of Martinez, California, will collect the groundwater grab samples following the completion of a pilot boring and will sample the four LFR groundwater wells located along Horton Street. The drilling procedures are the same as described above in Section 5.2.1 for the pilot borings for the temporary piezometers. A T&R geologist will be present for on-site access coordination, to make observations of the work area conditions, conduct health and safety monitoring of organic vapors, prepare and oversee chain-of-custody proceedings, and provide technical assistance as required.

5.3.2.1 Groundwater Grab Sampling Procedures

The groundwater grab sample collection procedure will depend on the method used to advance the pilot borings. The following is a brief description of the methods used with the PowerPunch and the hollow stem auger:

PowerPunch Method: This method consists of advancing a drive rod into the ground using a hydraulic hammer. Once total depth of approximately 10 to 15 feet bgs is reached, PVC riser with a screened section at the end is lowered into the drive rod. The drive rod is then pulled back until the screen is exposed. A description of the PowerPunch assembly and operation is presented in Appendix B. If the well screen does not readily yield water, the screen and casing can be left temporarily in the borehore to allow the water level to rise for sampling. The groundwater samples will be collected using a stainless steel or Teflon bailer.

Hollow Stem Auger Method: Once a total depth of approximately 10 to 15 feet bgs is reached using the hollow stem auger, a 2-inch diameter PVC casing with a cloth well sock will be set in the open borehole. The PVC casing will have a five-foot section of slotted well screen to permit collection of a groundwater sample. If the well screen does not readily yield water, the screen and casing can be left temporarily in the borehore to allow the water level to rise for sampling. The groundwater samples will be collected using a stainless steel or Teflon bailer.

Upon completion of groundwater grab sampling collection, the sampling rods and/or PVC casings will be withdrawn, the borehole will be backfilled with neat cement grout and the area swept clean.

5.3.2.2 Groundwater Well Sampling Procedures

For each well to be sampled, water level and total depth will be measured and the casing volume calculated. A minimum of three casing volumes of water will be purged from each well prior to sampling to ensure that samples represent aquifer conditions as much as possible. Low yielding wells will be purged until dewatered and then sampled as soon as the well has recovered sufficiently.

A Middleburg displacement pump or a similar pump will be used to purge the four monitoring wells located along Horton Street. The displacement pump will be made entirely of stainless steel and Teflon, and the airline to the pump and the discharge line from the pump are both Teflon. The pump will have adjustable flow rates controlled by adjusting the cycling time and discharge pressure.

During purging, field water quality parameter will be monitored and recorded to evaluate the onset of steady-state conditions, which indicate that representative ground is being sampled. This information will be recorded on Water Purging and Sampling Logs. The final

measurements of temperature, pH, specific conductance, and turbidity measured at each well prior to sampling will also be recorded.

Primary field water quality parameters will be measured with the following types of instruments (or equivalents): VWR Scientific Digital Thermometer or Fluke Thermometer; Myron L. Company pH and specific conductance meter; and HF Scientific DRT-15C portable turbidimeter. Each of the meters will be calibrated daily with the appropriate standard, and the calibration information recorded on a sampling log. Typically, a minimum of four sets of readings are taken, three during purging and one immediately prior to sampling. If water quality parameters do not reach equilibrium following the evacuation of three casing volumes, purging will be continued until equilibrium is reached or five casing volumes have been evacuated.

When the water quality parameters have stabilized and a minimum of three casing volumes of water evacuated or, in the case of low-yielding wells, after the well had recovered sufficiently, groundwater samples will be collected for analysis using a decontaminated (steam-cleaned) stainless steel bailer gently lowered down the well by hand. The sampling bailer is designed with a small pouring port near the top of the bailer which allows for controlled pouring of samples and minimal aeration. Controlled sample pouring is also facilitated by a Teflon ball valve which remains seated longer than a standard stainless steel ball valve.

5.3.2.3 Sample Storage, Shipping, and Chain-of-Custody

Following collection, all groundwater and quality control samples will be placed in coolers containing bagged ice. Samples will be transported daily by courier to a state-certified laboratory for analysis under chain-of custody protocol. Copies of the chain-of-custody forms will be included in the investigation report.

5.3.2.4 Equipment Decontamination

All down-hole equipment will be steam cleaned prior to use. Down-hole equipment includes pumps, Teflon tubing, sampling bailers, and fittings.

5.3.2.5 Waste Containment

All water generated during purging, sampling, and equipment decontamination will be contained in an on-site storage tank or multiple 55-gallon drums for subsequent testing and proper disposal by Shell. The disposal method will be selected after analytical results are available.

5.4 Surveying

Following completion of the temporary piezometers, the top of casing and ground surface will be surveyed by a licensed land surveyor for horizontal and vertical control. The locations of the groundwater grab samples will be surveyed for horizontal control. Elevations will be surveyed to the nearest 0.01 foot and referenced to mean sea level datum.

6.0 PROPOSED ANALYTICAL PROGRAM

The 10 groundwater grab samples collected during the field investigation will be analyzed for arsenic using EPA Method 7060. Sample analyses will be performed by a California State certified laboratory.

For quality control purposes, one duplicate sample will be collected during the sampling program. The proposed Quality Assurance Project Plan (QAPP) is presented in Appendix C to this Work Plan.

7.0 DATA EVALUATION AND REPORTING

The investigation results will be presented in a technical report using figures, tables, and boring logs to describe Site conditions. Figures will include maps documenting sample locations, interpretations of chemical distribution in groundwater, and potentiometric surface maps for the upper water-bearing zone. Data summary tables will present detected concentrations of chemicals in groundwater.

8.0 SCHEDULE

It is anticipated that the investigation outlined in this Work Plan can be completed within approximately ten weeks of startup. The start of field work will be dependent on confirmation of site access and the availability of contractors. The proposed schedule is as follows, weather permitting:

Event	Week
Notice to proceed	0
Task 1: Mobilization	2
Task 2: Temporary Piezometers, water level measurements, and groundwater grab sampling	1
Task 3: Analytical testing program	2
Task 4: Data analyses and report preparation	5
Total anticipated project period:	10

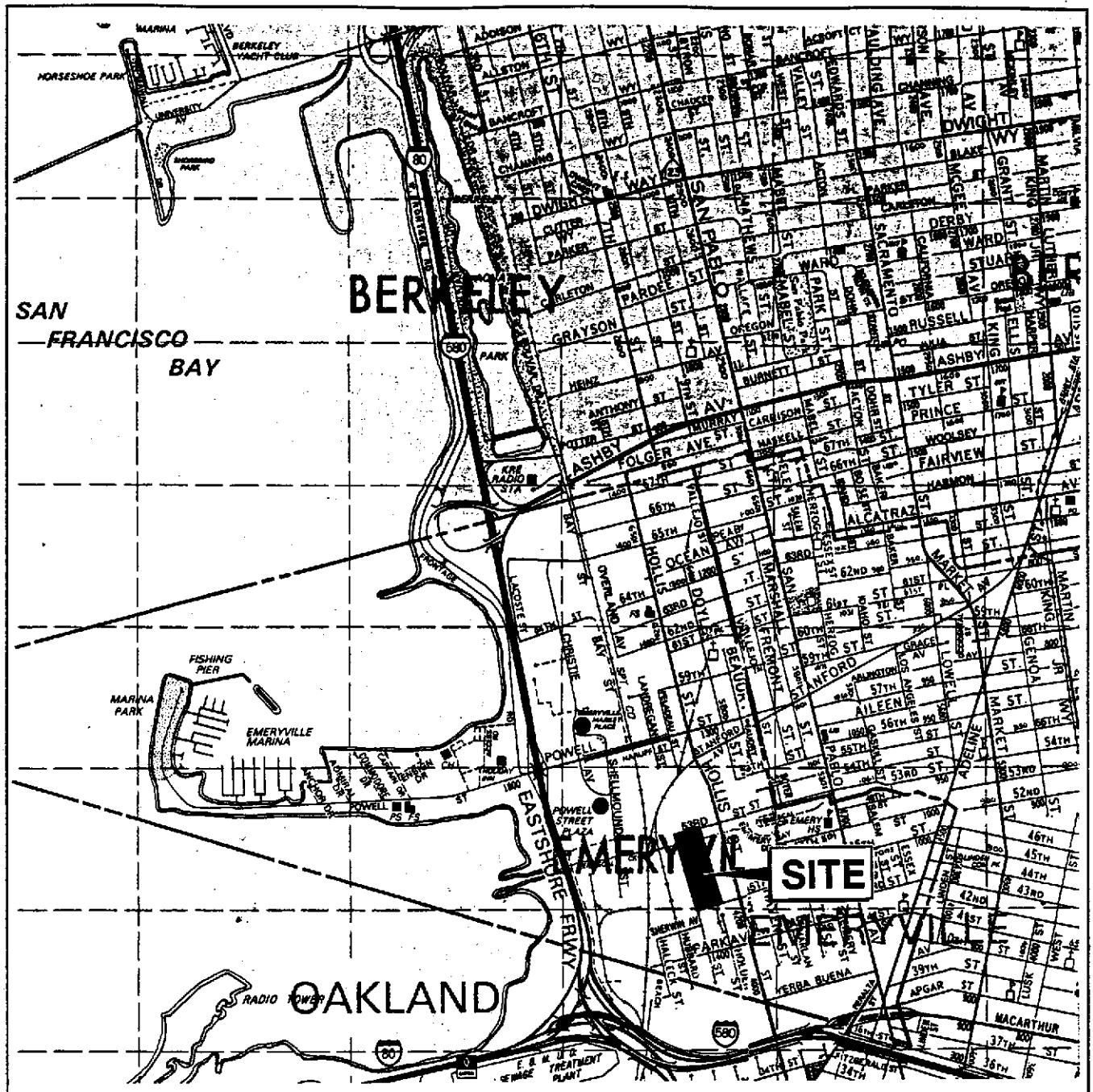
REFERENCES

Combined Quarterly Groundwater Monitoring Report for October 1 to December 31, 1997, prepared by Levine-Fricke-Recon (LFR) for Sherwin-Williams, dated 17 February 1998.

Preliminary Site Investigation Report - BGR and Chapman Properties, prepared by Erler & Kalinowski, Inc. (EKI) for Chiron Corporation, dated 10 January 1994.

U.S. Environmental Protection Agency, *Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods*. SW-846, Third Edition, Office of Solid Waste and Emergency Response, U.S. EPA, Washington, D.C., 1986.

U.S. Environmental Protection Agency, *Methods for Chemical Analysis of Water and Wastes*, U.S. EPA-600/4-79-020, Revised 1983.



Base map: The Thomas Guide
Alameda County
1993

0 2,200 Feet

Approximate scale

FORMER SHELL RESEARCH FACILITY
SOUTH BGR SITE
Emeryville, California

SITE LOCATION MAP

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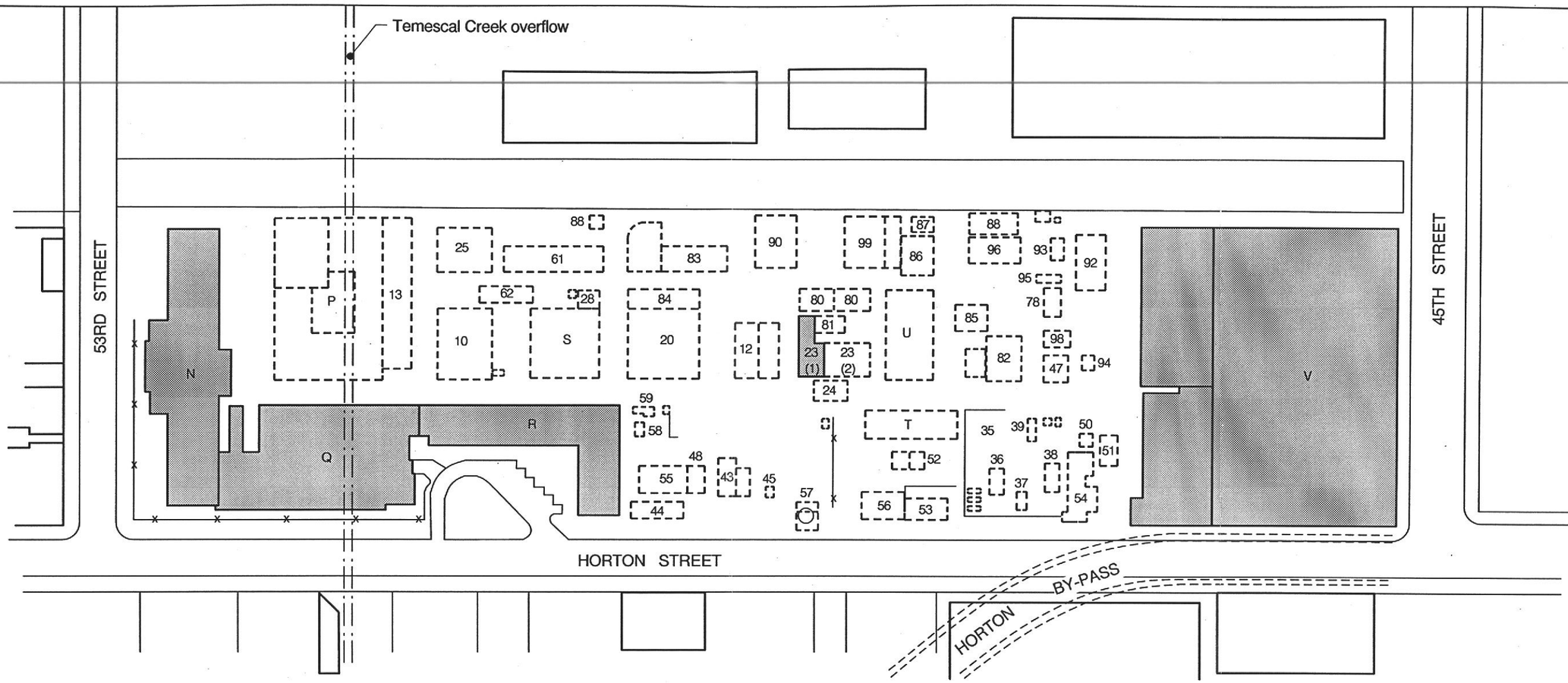
Project No. 2323.01 | Figure 1



EXPLANATION

10 Pilot plant building

12 Drum storage area and storage building

13 Laboratory and storage shed

20 Chemical products building

23 (1) Substation

23 (2) Storage

24 Abandoned underground (?) fuel tank

25 Chemical process unit

28 70 foot tower

35 Utility area (boilers, etc.)

36 Keeler boiler

37 Erie boiler and stack

38 B&W boiler

39 Hot oil furnace

43 Pilot plant structure

44 Sulfide corrosion laboratory

45 Temporary equipment enclosure

47 Exploratory reactions building

48 Pilot plant structure

50 Trash incinerator

51 Underground fuel tank for boilers (15,000 gallon)

52 Pilot plant structure

53 Aboveground Tank Farm No. 4

55 Furnace building

56 Drum packaging unit

57 Waste hydrocarbon disposal unit (incinerator?)

58 Smoke house

59 Unit sub

61 Aboveground Tank Farm No. 1

62 Pump equipment for Tank Farm No. 1

78 Compartment exploratory reactions building

80 Fluor cooling water towers

81 Field lavatory and equipment shed

82 Oxidation pilot plant building

83 Aboveground Tank Farm No. 2

84 Pump equipment for Tank Farm No. 2

85 Pilot plant with flare stack

86 Compressor house

87 Pilot plant structure

88 Tank car unloading racks (2)

90 Market development building

92 Solvent storage building

93 Twin shell blender

94 Enclosure

95 Aboveground Tank Farm No. 5

96 Aboveground Tank Farm No. 3

98 Two compartment exploratory reaction building

99 Product development building

N Original laboratory and office building

P Plastics and polymers building

Q Office and laboratory building

R Office building

S Laboratory and high process plant

T Experimental plants field office

U Original motor laboratory - experimental process plant building

V Motor laboratory, manufacturing facility and warehouse, shops, storage, offices, and laboratories

Existing structures

Removed structures/facilities

0 100 Feet

Approximate scale

FORMER SHELL RESEARCH FACILITY
SOUTH BGR SITE
Emeryville, California

LOCATION OF FORMER SHELL FACILITIES

Project No. 2323.01 | Figure 2

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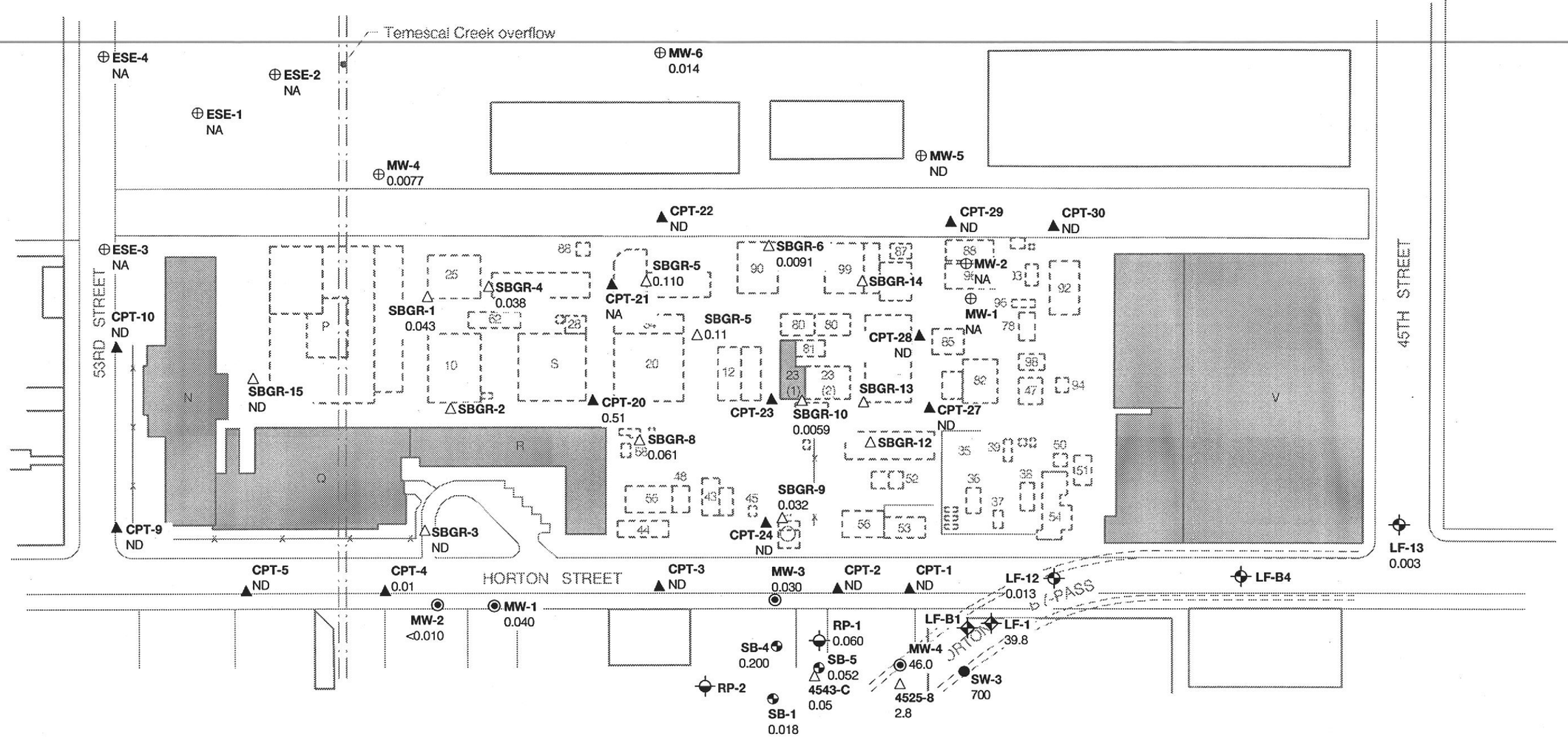

EXPLANATION

- ⊕ Existing monitoring well location
- △ Grab groundwater location by EKI
- ▲ CPT/hydropunch location by EKI
- ◕ Grab groundwater location by Levine-Fricke
- ● Grab groundwater location by TMC
- ⌖ Groundwater monitoring well
- ⌖ Rifkin property monitoring well (LFR)
- ◉ Rifkin property monitoring well (TMC)
- ⌖ Monitoring well destroyed under permit
- Existing structures
- Removed structures/facilities
- 0.51 Arsenic concentration, mg/l; ND = not detected, NA = not analyzed

Notes: 1. Refer to Figure 2 for facility information.
2. Arsenic Maximum Contaminate Level (MCL) is 0.05 mg/l.
3. Source: 10 January EKI, 17 February 1998 LFR.

FORMER SHELL RESEARCH FACILITY
SOUTH BGR SITE
Emeryville, California

HISTORICAL SUBSURFACE SOIL AND GROUNDWATER SAMPLING LOCATIONS

Project No. 2323.01 | Figure 3

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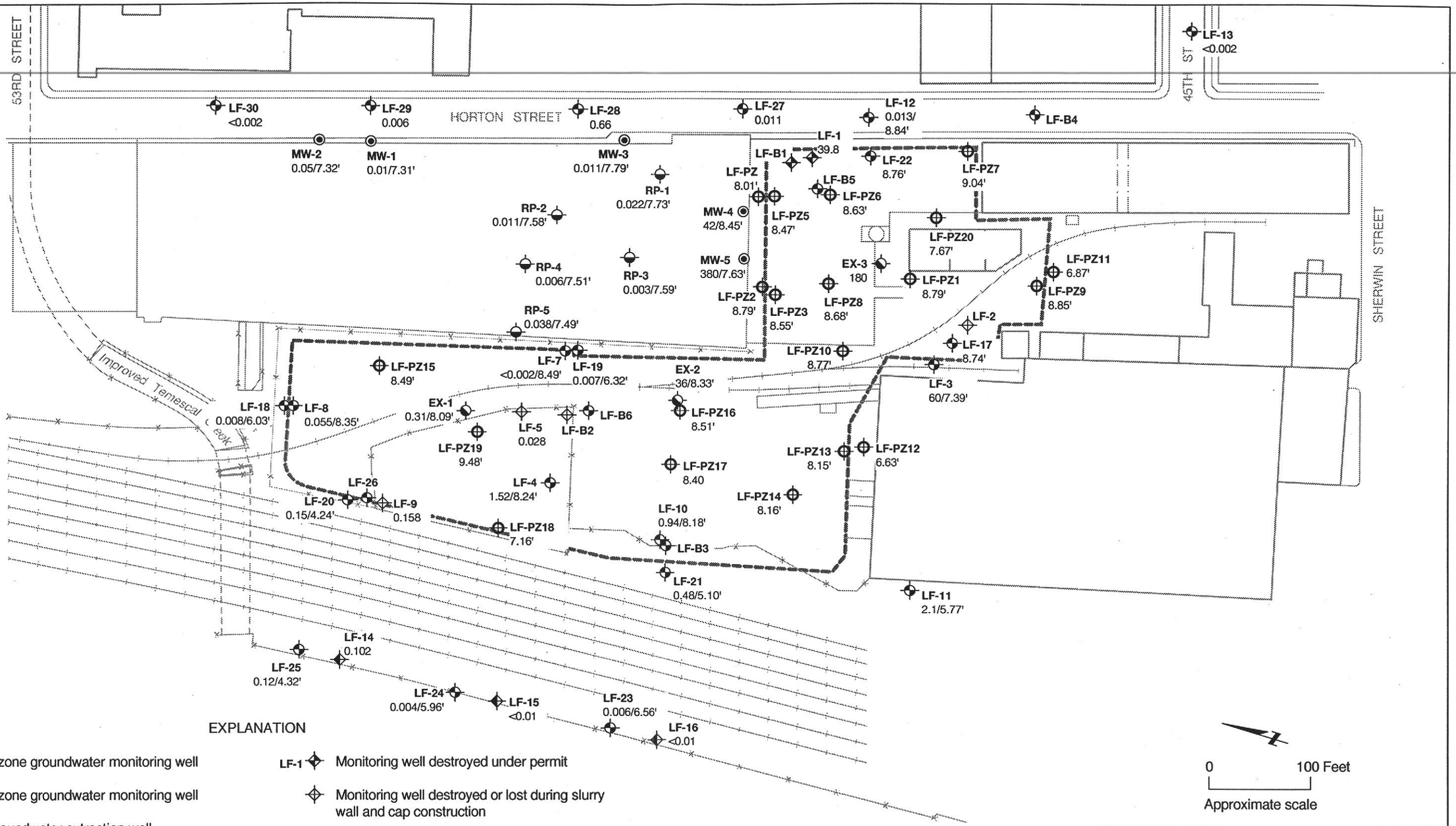


EXPLANATION

- LF-10 — A-zone groundwater monitoring well
- LF-B3 — B-zone groundwater monitoring well
- EX-1 — Groundwater extraction well
- RP-1 — Rifkin property monitoring well (LFR)
- MW-4 — Rifkin property monitoring well (TMC)
- LFPZ-1 — A-zone piezometer
- LF15 — Monitoring well destroyed during railway expansion
- LF-1 — Monitoring well destroyed under permit
- Monitoring well destroyed or lost during slurry wall and cap construction
- Slurry wall
- 2.1/5.77' — Concentration in parts per million/Groundwater elevation (measured 12/15/97), both data shown when available
- <0.002 — Not detected at or above method reporting limit

Source: Levine•Fricke•Recon, Combined Quarterly Groundwater Monitoring Report for October 1 to December 31, 1997, 2/17/98.

0 100 Feet

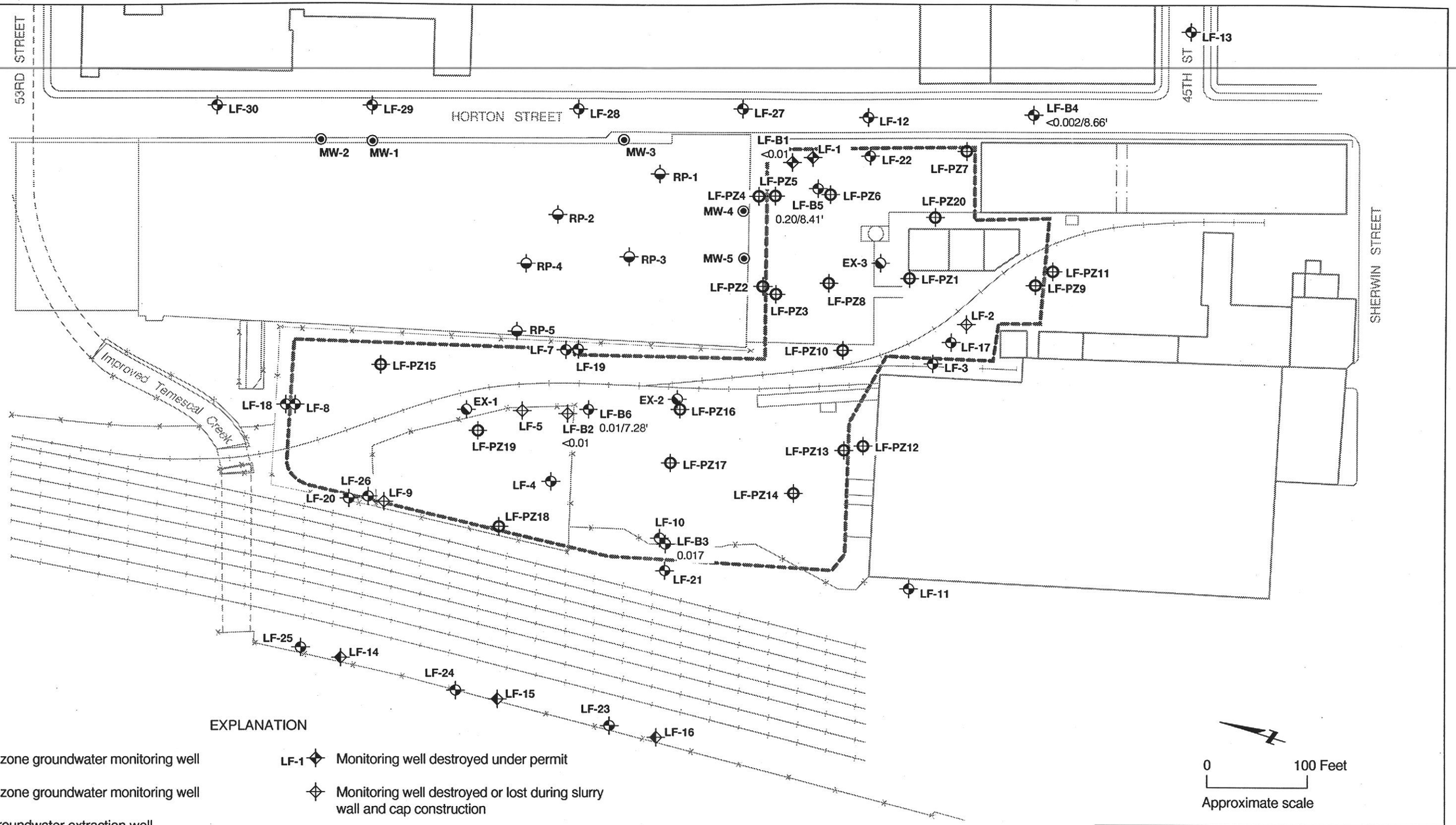
Approximate scale

FORMER SHELL RESEARCH FACILITY
SOUTH BGR SITE
Emeryville, California

SHERWIN-WILLIAMS PROPERTY
SITE PLAN
ARSENIC IN GROUNDWATER, UPPER ZONE

Project No. 2323.01 | Figure 4

Treadwell&Rollo



EXPLANATION

- LF-10 — A-zone groundwater monitoring well
- LF-B3 — B-zone groundwater monitoring well
- EX-1 — Groundwater extraction well
- RP-1 — Rifkin property monitoring well (LFR)
- MW-4 — Rifkin property monitoring well (TMC)
- LFPZ-1 — A-zone piezometer
- LF15 — Monitoring well destroyed during railway expansion
- LF-1 — Monitoring well destroyed under permit
- Monitoring well destroyed or lost during slurry wall and cap construction
- Slurry wall
- 0.01/7.28' — Concentration in parts per million/Groundwater elevation (measured 12/15/97), both data shown when available
- <0.002 — Not detected at or above method reporting limit

Source: Levine•Fricke•Recon, Combined Quarterly Groundwater Monitoring Report for October 1 to December 31, 1997, 2/17/98.

0 100 Feet

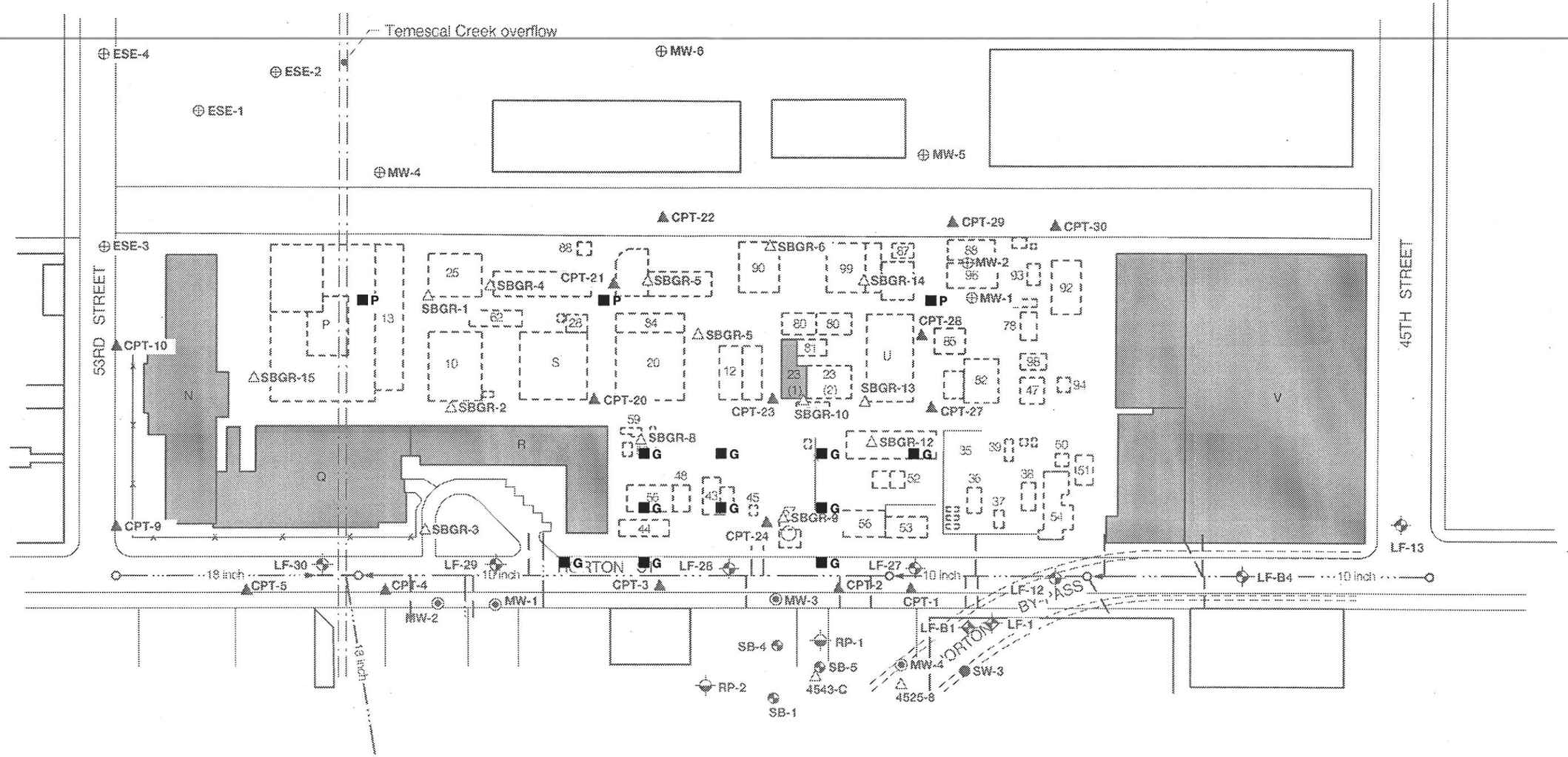
Approximate scale

FORMER SHELL RESEARCH FACILITY
SOUTH BGR SITE
Emeryville, California

SHERWIN-WILLIAMS PROPERTY
SITE PLAN
ARSENIC IN GROUNDWATER, LOWER ZONE

Project No. 2323.01 | Figure 5

Treadwell&Rollo



EXPLANATION

- ■G Proposed groundwater grab sample location
- ■P Proposed temporary piezometer location
- ⊕ Existing monitoring well location
- △ Grab groundwater location by EKI
- ▲ CPT/hydropunch location by EKI
- Grab groundwater location by Levine-Fricke
- Grab groundwater location by TMC
- Groundwater monitoring well
- Rifkin property monitoring well (LFR)
- Rifkin property monitoring well (TMC)
- Monitoring well destroyed under permit
- Existing structures
- Removed structures/facilities
- Sanitary sewer main and laterals

Note: Refer to Figure 2 for facility information.

0 100 Feet

Approximate scale

FORMER SHELL RESEARCH FACILITY
SOUTH BGR SITE
Emeryville, California

PROPOSED GROUNDWATER GRAB SAMPLING AND TEMPORARY PIEZOMETER LOCATIONS

Project No. 2323.01 | Figure 6

Treadwell&Rollo

TABLE 1 - FORMER SHELL FACILITIES
Arsenic Investigation Work Plan
Former Shell Research Facility
South BGR Site; Emeryville, California

Facility Designation	Facility Name	Known or Presumed Use
N	North Laboratory Building	Laboratory
P	Plastics & Polymers Building (Original Warehouse)	Storage (?)
Q	Office and Laboratory Building	Laboratory
R	Office Building	Office
S	Experiemental Plants Laboratory Building (High Process)	Laboratory and testing
T	Experimental Plants Field Office	Office
U	Experimental Plants (Original Motor Lab.)	Laboratory and testing
V	Service Building (Former Manufacturing and Warehouse)	Repairs and storage
10	Pilot Plant Building	Testing
12	Corrugated Storage Building	Storage
13	Laboratory & Storage Shed	Laboratory
20	Chemical Products Building	Chemical storage
b	Electrical Substation	Transformers
24	Former underground fuel tank for generator	Fuel Storage
25	Chemical Process Unit	Chemical manufacturing
28	Process Tower	Chemical manufacturing
35	Utility Area (for boilers)	Storage and steam generation
36	Keeler Boiler	Steam generation
37	Erie Boiler & Stock	Steam generation
38	B&W Boiler	Steam generation
39	Hot Oil Furnace	Steam generation
43	Pilot Plant Structure	Chemical manufacturing
44	Sulfide Corrosion Laboratory	Laboratory
45	Temporary Equipment Enclosure	Storage
47	Exploratory Reactions Building	Chemical manufacturing

TABLE 1 - FORMER SHELL FACILITIES
Arsenic Investigation Work Plan
Former Shell Research Facility
South BGR Site; Emeryville, California

Facility Designation	Facility Name	Known or Presumed Use
48	Pilot Plant Structure	Chemical manufacturing
50	Trash Incineratory	Burn trash
51	Boilers Fuel Tank	Fuel storage
52	Pilot Plant Structure (small)	Chemical manufacturing
53	Underground Tank Farm No. 4	Chemical or product storage
54	Locker Room & Shower Building	Personnel
55	Furnace Building	Heating (?)
56	Drum Packaging Unit	Chemical Storage
57	Waste Hydrocarbon Disposal Unit	Fuel incinerator (?)
58	Smoke House	(?)
59	Unit Sub (?)	(?)
61	Aboveground Tank Farm No. 1	Chemical or product storage
62	Pump Shelter for Tank Farm No. 1	Chemical or product storage
78	(3) Compartment Exploratory Reactions Building	Chemical testing
80	Fluor Cooling-Water Tower	Process cooling
81	Field Lavatory & Equipment Shed	Storage
82	Oxidation Pilot Plant Building	Chemical testing
83	Aboveground Tank Farm No. 2	Chemical or product storage
84	Pump House for Tank Farm No. 2	Chemical or product storage
85	Pilot Plant Structure with Flare Stack	Chemical Manufacturing (?)
86	Compressor House	Equipment
87	Pilot Plant Structure	Chemical manufacturing (?)
88	Tank Car Unloading Racks (2)	Chemical or product loading
90	Market Development Building	Laboratory?
92	Solvent Storage Building	Chemical storage

TABLE 1 - FORMER SHELL FACILITIES
Arsenic Investigation Work Plan
Former Shell Research Facility
South BGR Site; Emeryville, California

Facility Designation	Facility Name	Known or Presumed Use
93	Twin Shell Blender	Chemical manufacturing
94	Enclosure	Storage
95	Aboveground Tank Farm No. 5	Chemical or product storage
96	Underground Tank Farm No. 3	Chemical or product storage
98	Two Compartment Exploratory Reaction Building	Chemical manufacturing
99	Product Development Building	Chemical manufacturing

TABLE 2 - COMPOUNDS DETECTED IN EKI GROUND WATER SAMPLES - ON-SITE CPT LOCATIONS
Arsenic Investigation Work Plan
Former Shell Research Facility
South BGR Site; Emeryville, California

Location	CPT-20*	CPT-20	CPT-21	CPT-22	CPT-22	CPT-23	CPT-24	CPT-27	CPT-27
Sample ID	HP-20-18	HP-20-33	HP-21-40	HP-22-18	HP-22-46	-	HP-24-42	HP-27-20	HP-27-34
Sample Date	27-Oct-93	27-Oct-93	25-Oct-93	28-Oct-93	28-Oct-93	28-Oct-93	27-Oct-93	26-Oct-93	26-Oct-93
Depth Interval (ft)	15-20	31-36	37-42	15-20	44-49	-	39-44	18-23	32-36
Unit	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l
Reference	EKI 1/10/94	EKI 1/10/94	EKI 1/10/94	EKI 1/10/94	EKI 1/10/94	EKI 1/10/94	EKI 1/10/94	EKI 1/10/94	EKI 1/10/94
Analytical Method - EPA 8240 (EKI Table 11-B)									
1,2-DCA	<7.1	440	<2.0	<2.0	<2.0	-	4.4	<2.0	10
cis-1,2-DCE	20	<400	<2.0	<2.0	<2.0	-	<2.0	110	30
TCE	31	<400	<2.0	<2.0	<2.0	-	<2.0	15	9.4
Chlorobenzene	7.9	<400	<2.0	<2.0	<2.0	-	<2.0	<2.0	<2.0
Chloroform	<7.1	<400	<2.0	<2.0	<2.0		<2.0	<2.0	<2.0
Vinyl Chloride	12	200	<2.0	<2.0	<2.0	-	<2.0	50	4.3
Acetone	<36	<2000	<10	<10	11	-	<2.0	<2.0	<2.0
MEK	<36	<2000	21	12	46	-	21	11	83
Benzene	120	130	<2.0	<2.0	<2.0	-	<2.0	<2.0	<2.0
Ethyl-Benzene	37	<400	<2.0	<2.0	<2.0	-	<2.0	<2.0	<2.0
Toluene	17	<400	<2.0	<2.0	<2.0	-	<2.0	<2.0	<2.0
Total Xylenes	59	<400	<2.0	<2.0	<2.0	-	<2.0	<2.0	<2.0
Analytical Method - EPA 5030/8015 (EKI Table 12-B)									
TVPH	3700 (1)	NA	NA	<50	NA	-	NA	<50	NA
Analytical Method - EPA 3510/3520/8015 (EKI Table 12-B)									
TEPH	39000 (2)	NA	NA	200 (3)	NA	-	NA	5,300 (4)	NA
Analytical Method - EPA 8270 (EKI Table 15)									
Phenol	ND	NA	NA	NA	NA	-	NA	ND	NA
Analytical Method - EPA 8080 (EKI Table 10-B)									
Total PCBs (7)	<2.5	NA	NA	<0.50	NA	-	NA	<0.50	NA

TABLE 2 - COMPOUNDS DETECTED IN EKI GROUND WATER SAMPLES - ON-SITE CPT LOCATIONS
Arsenic Investigation Work Plan
Former Shell Research Facility
South BGR Site; Emeryville, California

Location	CPT-20*	CPT-20	CPT-21	CPT-22	CPT-22	CPT-23	CPT-24	CPT-27	CPT-27
Sample ID	HP-20-18	HP-20-33	HP-21-40	HP-22-18	HP-22-46	-	HP-24-42	HP-27-20	HP-27-34
Sample Date	27-Oct-93	27-Oct-93	25-Oct-93	28-Oct-93	28-Oct-93	28-Oct-93	27-Oct-93	26-Oct-93	26-Oct-93
Depth Interval (ft)	15-20	31-36	37-42	15-20	44-49	-	39-44	18-23	32-36
Unit	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l
Reference	EKI 1/10/94	EKI 1/10/94	EKI 1/10/94	EKI 1/10/94	EKI 1/10/94	EKI 1/10/94	EKI 1/10/94	EKI 1/10/94	EKI 1/10/94
Metals (EKI Table 14-B)									
Unit	mg/l			mg/l				mg/l	
As	0.51	NA	NA	<0.0050	NA	-	NA	<0.0050	NA
Cr	1.5	NA	NA	<0.010	NA	-	NA	0.011	NA
Cr+6	<0.0050	NA	NA	<0.0050	NA	-	NA	<0.0050	NA
Pb	<0.0050	NA	NA	<0.0050	NA	-	NA	<0.0050	NA
Hg	0.00023	NA	NA	<0.00020	NA	-	NA	<0.00020	NA

TABLE 2 - COMPOUNDS DETECTED IN EKI GROUND WATER SAMPLES - ON-SITE CPT LOCATIONS
Arsenic Investigation Work Plan
Former Shell Research Facility
South BGR Site; Emeryville, California

Location	CPT-28	CPT-28	CPT-29	CPT-29	CPT-30	CPT-30
Sample ID	HP-28-20	HP-28-40	HP-29-15	HP-29-40	HP-30-15	HP-30-28
Sample Date	3-Nov-93	3-Nov-93	25-Oct-93	25-Oct-93	25-Oct-93	25-Oct-93
Depth Interval (ft)	17-22	37-42	13.5-18.5	38-43	17-12	25-30
Unit	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l
Reference	EKI 1/10/94	EKI 1/10/94	EKI 1/10/94	EKI 1/10/94	EKI 1/10/94	EKI 1/10/94
Analytical Method - EPA 8						
1,2-DCA	2.2	240	<2.0	<2.0	<2.0	<2.0
cis-1,2-DCE	<2.0	<3.1	<2.0	<2.0	<2.0	<2.0
TCE	<2.0	<3.1	<2.0	<2.0	<2.0	<2.0
Chlorobenzene	<2.0	<3.1	<2.0	<2.0	<2.0	<2.0
Chloroform	<2.0	<3.1	<2.0	<2.0	2.9	<2.0
Vinyl Chloride	<2.0	<3.1	<2.0	<2.0	<2.0	<2.0
Acetone	<10	<16	<10	<10	<10	<10
MEK	<10	28	15	<10	38	54
Benzene	<2.0	<3.1	<2.0	<2.0	<2.0	<2.0
Ethyl-Benzene	<2.0	<3.1	<2.0	<2.0	<2.0	<2.0
Toluene	<2.0	<3.1	<2.0	<2.0	<2.0	<2.0
Total Xylenes	<2.0	<3.1	<2.0	<2.0	<2.0	2.9
Analytical Method - EPA 5						
TVPH	<50	NA	<50	NA	<50	NA
Analytical Method - EPA 3						
TEPH	21,000 (5)	NA	140 (6)	NA	<50	NA
Analytical Method - EPA 8						
Phenol	16	NA	NA	NA	ND	NA
Analytical Method - EPA 8						
Total PCBs (7)	<0.50	NA	<0.50	NA	<0.50	NA

TABLE 2 - COMPOUNDS DETECTED IN EKI GROUND WATER SAMPLES - ON-SITE CPT LOCATIONS
Arsenic Investigation Work Plan
Former Shell Research Facility
South BGR Site; Emeryville, California

Location	CPT-28	CPT-28	CPT-29	CPT-29	CPT-30	CPT-30
Sample ID	HP-28-20	HP-28-40	HP-29-15	HP-29-40	HP-30-15	HP-30-28
Sample Date	3-Nov-93	3-Nov-93	25-Oct-93	25-Oct-93	25-Oct-93	25-Oct-93
Depth Interval (ft)	17-22	37-42	13.5-18.5	38-43	17-12	25-30
Unit	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l
Reference	EKI 1/10/94	EKI 1/10/94	EKI 1/10/94	EKI 1/10/94	EKI 1/10/94	EKI 1/10/94
Metals (EKI Table 14-B						
Unit	mg/l		mg/l		mg/l	
As	<0.0050	NA	<0.0050	NA	<0.0050	NA
Cr	<0.010	NA	<0.010	NA	0.011	NA
Cr+6	<0.0050	NA	<0.0050	NA	<0.0050	NA
Pb	<0.0050	NA	<0.0050	NA	<0.0050	NA
Hg	<0.00020	NA	<0.00020	NA	<0.00020	NA

Notes:
* = Sample contained free-product
(1) Chromatographic TVPH (gas and discrete peaks)
(2) Chromatographic TEPH (kerosene)
(3) Chromatographic TEPH (discretepeaks)
(4) Chromatographic TEPH (discretepeaks)
(5) Chromatographic TEPH (discretepeaks)
(6) Chromatographic TEPH (discretepeaks)
(7) Total PCBs = PCB 1248 + PCB 1254 + PCB 1260

Reference: Prelininary Site Investigation Report BGR and Chapman Properties, EKI, January 10, 1994.

TABLE 3 - COMPOUNDS DETECTED IN EKI GROUND WATER SAMPLES - PERIMETER CPT LOCATIONS
Arsenic Investigation Work Plan
Former Shell Research Facility
South BGR Site; Emeryville, California

Location	CPT-1	CPT-1	CPT-2	CPT-2	CPT-3	CPT-3	CPT-4	CPT-5	CPT-9	CPT-10
Sample ID	HP1-16-19	HP1-35-38	HP2-21-24	HP2-36-40	HP3-18-21	HP3-29-33	HP4-15-18	HP5-16-19	HP10-16-19	HP-28-20
Sample Date										
Depth Interval (ft)	16-19	35-38	21-24	36-40	18-21	29-33	15-18	16-19	16-20	16-19
Unit	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l
Reference	EKI 1/10/94	EKI 1/10/94	EKI 1/10/94	EKI 1/10/94	EKI 1/10/94	EKI 1/10/94	EKI 1/10/94	EKI 1/10/94	EKI 1/10/94	EKI 1/10/94
Analytical Method - EPA 8240 (EKI Table 11-B)										
1,2-DCA	<2.0	260	20	150	<2.0	<2.0	<2.0	<5.0	<2.0	<2.0
1,2-DCP	<2.0	<4.0	<2.0	<2.0	<2.0	<2.0	3.0	270	<2.0	<2.0
cis-1,2-DCE	<2.0	<4.0	30	<2.0	30	<2.0	2.0	<5.0	<2.0	<2.0
trans-1,2-DCE	<2.0	<4.0	30	<2.0	3.0	50	<2.0	<5.0	<2.0	<2.0
TCE	3	<4.0	40	<2.0	5.0	<2.0	20	70	3.0	<2.0
Carbon Disulfide	<2.0	<4.0	<2.0	<2.0	<2.0	<2.0	20	<5.0	<2.0	<2.0
Carbon Tetrachloride	<2.0	<4.0	<2.0	<2.0	<2.0	<2.0	<2.0	290	<2.0	<2.0
Chlorobenzene	<2.0	<4.0	<2.0	<2.0	3.0	<2.0	<2.0	<5.0	<2.0	<2.0
Chloroform	<2.0	<4.0	<2.0	<2.0	<2.0	<2.0	<2.0	270	<2.0	<2.0
Vinyl Chloride	<2.0	<4.0	<2.0	<2.0	4.0	<2.0	<2.0	<5.0	<2.0	<2.0
Benzene	<2.0	<4.0	<2.0	<2.0	7.0	<2.0	10	<5.0	<2.0	<2.0
Ethyl-Benzene	<2.0	<4.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<2.0	<2.0
Toluene	<2.0	<4.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<2.0	<2.0
Total Xylenes	<2.0	<4.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<2.0	<2.0
Analytical Method - EPA 5030/8015 (EKI Table 12-A)										
TVPH	<50	70 (1)	<50	<50	590 (2)	<50	590 (3)	490 (4)	<50	<50
Analytical Method - EPA 3510/3520/8015 (EKI Table 12-A)										
TEPH	500 (5)	480 (6)	790 (7)	580 (8)	4,200 (9)	3,400 (10)	1,200 (11)	1,300 (12)	100 (13)	130 (14)
Analytical Method - EPA 8080 (EKI Table 10-B)										
Total PCBs (7)	<0.50	NA	<0.50	NA	<0.50	NA	<0.50	<0.50	<0.50	<0.50

TABLE 3 - COMPOUNDS DETECTED IN EKI GROUND WATER SAMPLES - PERIMETER CPT LOCATIONS
Arsenic Investigation Work Plan
Former Shell Research Facility
South BGR Site; Emeryville, California

Location	CPT-1	CPT-1	CPT-2	CPT-2	CPT-3	CPT-3	CPT-4	CPT-5	CPT-9	CPT-10
Sample ID	HP1-16-19	HP1-35-38	HP2-21-24	HP2-36-40	HP3-18-21	HP3-29-33	HP4-15-18	HP5-16-19	HP10-16-19	HP-28-20
Sample Date										
Depth Interval (ft)	16-19	35-38	21-24	36-40	18-21	29-33	15-18	16-19	16-20	16-19
Unit	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l
Reference	EKI 1/10/94	EKI 1/10/94	EKI 1/10/94	EKI 1/10/94	EKI 1/10/94	EKI 1/10/94	EKI 1/10/94	EKI 1/10/94	EKI 1/10/94	EKI 1/10/94
Metals (EKI Table 14-B)										
Unit	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
As	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.01	0.01	<0.005	<0.005
Cd	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	NA	<0.01
Cr	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cr+6	<0.005	<0.005	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Pb	<0.005	<0.005	0.006	0.006	<0.005	<0.005	<0.005	0.04	<0.005	0.005
Hg	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Ni	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.6	<0.05	<0.05
Zn	0.02	<0.01	0.02	0.05	0.03	0.04	0.1	0.59	<0.01	<0.01

Notes:
(1) Chromatographic TVPH (discrete peak)
(2) Chromatographic TVPH (non-gas C4-C12)
(3) Chromatographic TVPH (non-gas C4-C12)
(4) Chromatographic TVPH (discrete peaks)
(5) Chromatographic TEPH (non-diesel mix C10-C22))
(6) Chromatographic TEPH (non-diesel mix C9-C17)
(7) Chromatographic TEPH (discrete peaks)
(8) Chromatographic TEPH (non-diesel peaks C9-C19)
(9) Chromatographic TEPH (non-diesel mix C9-C22)
(10) Chromatographic TEPH (non-diesel mix C9-C22)
(11) Chromatographic TEPH (non-diesel mix C9-C19)
(12) Chromatographic TEPH (non-diesel mix C9-C19)
(13) Chromatographic TEPH (discrete peaks)
(14) Chromatographic TEPH (discrete peaks)
(15) Total PCBs = PCB 1248 + PCB 1260

Reference: Prelininary Site Investigation Report BGR and Chapman Properties, EKI, January 10, 1994.

TABLE 4 - DISCRETE EKI SOIL SAMPLES - BORING SBGR-15
Soil and Ground Water Sampling and Analysis Work Plan
Shell-SBGR Site

Location	SBGR-15	SBGR-15	SBGR-15
Sample ID	SBGR-15A	SBGR-15B	SBGR-15C
Sample Date	9-Nov-93	9-Nov-93	9-Nov-93
Depth Interval (ft)	1.0-2.5	3.5-5.0	6.0-7.5
Unit	mg/kg	mg/kg	mg/kg
Reference	EKI 1/10/94	EKI 1/10/94	EKI 1/10/94
Analytical Method - EPA 5030/8015 (EKI Table 12-5)			
TVPH	<1.0	<1.0	<1.0
Analytical Method - EPA 3510/3520/8015 (EKI Table 12-5)			
TEPH	<1.0	<1.0	<1.0
Analytical Method - EPA 8080 (EKI Table 10-B)			
Total PCBs (1)	<0.02	<0.02	<0.02
Metals (EKI Table 14-B)			
As	<5.0	<5.0	<5.0
Cd	0.82	0.99	0.71
Cr	41	40	42
Pb	32	17	21
Hg	0.2	0.12	<0.10

Notes:
(1) Total PCBs = PCB 1248 + PCB 1254 + PCB 1260

Reference: Preliminary Site Investigation Report BGR and Chapman Properties, EKI, January 10, 1994

TABLE 5
Arsenic Detected in Groundwater
Sherwin-Williams Quarterly Monitoring Program
Results reported in parts per million (ppm)

Well Number	Notes	Date Sampled	Arsenic
LF-1	(1)	6/10/93	39.8
LF-3		12/17/97	60
DUP		12/17/97	67
LF-4		6/9/93	1.52
LF-5	(2)	6/9/93	0.0283
LF-6	(3)	7/20/90	14
LF-7		1/6/94	<0.002
LF-8		1/6/94	0.055
LF-9	(2)	6/9/93	0.158
LF-10		1/6/94	0.94
DUP		1/6/94	0.82
LF-11		12/17/97	2.1
LF-12		12/18/97	0.013
LF-13		12/18/97	<0.002
LF-14		6/9/93	0.102
LF-15	(4)	6/9/93	<0.010
LF-16	(1)	6/9/93	<0.010
LF-18		12/17/97	0.008
LF-19		8/19/97	0.007
LF-20		12/18/97	0.15
LF-21		12/17/97	0.48
LF-23		12/18/97	0.006
LF-24		12/18/97	0.004
LF-25		12/18/97	0.12
LF-27		12/29/97	0.011
LF-28		12/29/97	0.66
LF-29		12/29/97	0.006
LF-30		12/30/97	<0.002
LF-B1		6/8/93	<0.010
LF-B2		6/8/93	<0.010

TABLE 5
Arsenic Detected in Groundwater
Sherwin-Williams Quarterly Monitoring Program
Results reported in parts per million (ppm)

Well Number	Notes	Date Sampled	Arsenic
LF-B3		12/17/97	0.017
LF-B4		12/18/97	<0.002
LF-B5		12/17/97	0.20
LF-B6		12/18/97	0.01
EX-1		12/17/97	0.31
EX-2		12/22/97	36
EX-3		12/19/97	180
RP-1		12/19/97	0.022
DUP		12/19/97	0.010
RP-2		12/19/97	0.011
RP-3		12/19/97	0.003
RP-4		12/19/97	0.006
RP-5		12/19/97	0.038
MW-1		12/19/97	0.010
MW-2		12/19/97	0.050
MW-3		12/19/97	0.011
MW-4		12/19/97	42
MW-5		12/19/97	380

Notes:
(1) Destroyed under permit.
(2) Destroyed or lost during slurry wall and cap construction activities.
(3) Sealed August 2, 1990.
(4) Destroyed during railway expansion activities.

Reference: Combined Quarterly Groundwater Monitoring Report for 1 October to 31 December 1997; LFR, 17 February 1998.

Treadwell&Rollo

APPENDIX A

Historical Groundwater Data

Sherwin-Williams Site

Table 1
Groundwater Elevation Data, December 1997
The Sherwin-Williams Plant
Emeryville, California

Well Number	Well Elevation	Measured Depth to Water 12/15/97	Ground-Water Elevation 12/15/97
Sherwin-Williams Wells			
LF-3	12.00	4.61	7.39
LF-4	12.53	4.29	8.24
LF-7	14.44	5.95	8.49
LF-8	12.91	4.56	8.35
LF-10	10.99	2.81	8.18
LF-11	10.05	4.28	5.77
LF-12	14.95	6.11	8.84
LF-13	14.78	NM	NM
LF-17	12.53	3.79	8.74
LF-18	13.05	7.02	6.03
LF-19	14.18	7.86	6.32
LF-20	11.77	7.53	4.24
LF-21	10.37	5.27	5.10
LF-22	19.16	10.40	8.76
LF-23	10.64	4.08	6.56
LF-24	10.22	4.26	5.96
LF-25	11.31	6.99	4.32
LF-26	12.90	7.11	5.79
EX-1	10.08	1.99	8.09
EX-2	10.08	1.75	8.33
EX-3	14.90	NM	NM
LFPZ-1	14.92	6.13	8.79
LFPZ-2	18.04	9.32	8.72
LFPZ-3	18.00	9.45	8.55
LFPZ-4	18.99	10.98	8.01
LFPZ-5	18.75	10.28	8.47
LFPZ-6	18.44	9.81	8.63
LFPZ-7	19.05	10.01	9.04
LFPZ-8	17.03	8.35	8.68
LFPZ-9	12.76	3.91	8.85
LFPZ-10	12.26	3.49	8.77
LFPZ-11	12.79	5.92	6.87
LFPZ-12	11.01	4.38	6.63
LFPZ-13	10.93	2.78	8.15
LFPZ-14	10.21	2.05	8.16
LFPZ-15	14.33	5.84	8.49
LFPZ-16	11.03	2.52	8.51
LFPZ-17	10.12	1.72	8.40
LFPZ-18	13.01	5.85	7.16
LFPZ-19	14.64	5.16	9.48
LFPZ-20	13.45	5.78	7.67
LF-B3	10.30	NM	NM
LF-B4	14.55	5.89	8.66
LF-B5	18.29	9.88	8.41
LF-B6	11.99	4.71	7.28

Table 1
Groundwater Elevation Data, December 1997
The Sherwin-Williams Plant
Emeryville, California

Well Number	Well Elevation	Measured Depth to Water 12/15/97	Ground-Water Elevation 12/15/97
Rifkin Property Well			
RP-1	15.14	7.41	7.73
RP-2	15.24	7.66	7.58
RP-3	15.17	7.58	7.59
RP-4	15.13	7.62	7.51
RP-5	15.04	7.55	7.49
MW-1	13.78	6.47	7.31
MW-2	13.58	6.26	7.32
MW-3	14.60	6.81	7.79
MW-4	15.53	7.08	8.45
MW-5	15.24	7.61	7.63

Data entered by TGL. Proofed by LG.

TABLE 2
SUMMARY OF HISTORICAL VOLATILE ORGANIC COMPOUNDS (EPA 8240) IN GROUNDWATER MONITORING WELLS
THE SHERWIN-WILLIAMS PLANT
EMERYVILLE, CALIFORNIA
(Results reported in parts per million (ppm))

Well Number	Date Sampled	Acetone	Benzene	Ethyl-Benzene	Methyl Ethyl Ketone	Total Xylenes	2-Hexa-none	Toluene	1,1,1-TCA	1,2-DCA	PCE	TCE	Chloro-benzene	Total Quantified Conc.	Notes
LF-1	01-Jun-89	30.000	<0.200	0.900	20.000	3.600	15.000	6.000	<0.200	<0.200	<0.200	<0.200	<0.200	75.500	
LF-1	07-Dec-89	<0.010	<0.001	<0.001	<0.020	0.040	<0.001	<0.001	<0.001	0.002	<0.001	<0.001	<0.001	0.042	
LF-1	20-Jul-90	0.450	0.002	<0.001	0.200	0.160	<0.001	0.018	<0.001	<0.001	0.005	0.004	<0.001	0.840	#2
LF-1	21-Jun-91	<0.020	<0.005	0.019	<0.020	0.010	<0.010	<0.005	<0.005	<0.005	0.002	<0.005	<0.005	0.032	
LF-1	09-Jul-92	<0.020	<0.005	0.008	<0.020	<0.005	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.008	
LF-1	09-Jun-93	<0.020	<0.005	<0.005	<0.020	<0.005	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
LF-1	Destroyed under permit														
LF-2	02-Jun-89	<0.050	0.015	0.015	<0.100	0.300	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.330	
LF-2	07-Dec-89	0.350	<0.020	<0.020	<0.400	0.840	<0.020	0.029	<0.020	<0.020	<0.020	<0.020	<0.020	1.219	
LF-2	20-Jul-90	<0.500	<0.050	0.066	8.800	0.910	12.000	0.051	<0.050	<0.050	<0.050	<0.050	0.050	21.827	
LF-2	Destroyed or lost during slurry wall and cap construction activities														
LF-3	02-Jun-89	<1.000	<0.100	2.500	<2.000	12.000	<0.100	17.000	<0.100	<0.100	<0.100	<0.100	<0.100	31.500	
LF-3	07-Dec-89	<5.000	<0.500	6.300	<10.000	32.000	<0.500	77.000	<0.500	<0.500	<0.500	<0.500	<0.500	115.300	
LF-3	20-Jul-90	10.000	0.110	5.000	7.700	22.000	1.900	52.000	<0.050	<0.050	<0.050	<0.050	<0.050	98.710	
LF-3	21-Jun-91	9.900	<1.000	7.500	8.200	44.000	<2.000	62.000	<1.000	<1.000	<1.000	<1.000	<1.000	131.600	
LF-3	09-Jul-92	<10.000	<2.500	8.900	<10.000	43.000	<5.000	92.000	<2.500	<2.500	<2.500	<2.500	<2.500	143.900	
DUP	09-Jul-92	<20.000	<5.000	8.800	<20.000	45.000	<10.000	100.000	<5.000	<5.000	<5.000	<5.000	<5.000	153.800	
LF-3	09-Jun-93	<10.000	<2.500	9.800	<10.000	48.000	<5.000	120.000	<2.500	<2.500	<2.500	<2.500	<2.500	177.800	
DUP	09-Jun-93	<10.000	<2.500	7.600	<10.000	37.000	<5.000	110.000	<2.500	<2.500	<2.500	<2.500	<2.500	154.600	
LF-3	16-Apr-96	<50.000	<3.000	5.500	<50.0	27.000	<30.000	45.000	<3.000	<3.000	<3.000	<3.000	<3.000	77.500	
LF-3	31-Jul-96	<50.000	<3.000	4.500	<50.000	24.000	<30.000	44.000	<3.000	<3.000	<3.000	<3.000	<3.000	72.500	
LF-3	20-Nov-96	<50.000	<3.000	4.000	<50.000	12.000	<30.000	41.000	<3.000	<3.000	<3.000	<3.000	<3.000	57.000	
LF-3	19-Mar-97	<50.000	<3.000	3.000	<50.000	16.000	<30.000	43.000	<3.000	<3.000	<3.000	<3.000	<3.000	62.000	
LF-3	12-Jun-97	<50.000	<3.000	7.000	<50.000	31.000	<30.000	70.000	<3.000	<3.000	<3.000	<3.000	<3.000	108.000	
LF-3	19-Aug-97	<100	<5	6	<100	31	<50	91	<5	<5	<5	<5	<5	128.000	
LF-3	17-Dec-97	<100	<5	<5	<100	<10	<50	40	<5	<5	<5	<5	<5	40.000	
DUP	17-Dec-97	<100	<5	<5	<100	<10	<50	38	<5	<5	<5	<5	<5	38.000	
LF-4	02-Jun-89	1.300	<0.200	1.300	4.700	3.800	0.260	<0.200	<0.020	<0.020	<0.020	<0.020	<0.020	11.360	
Dup	02-Jun-89	1.300	<0.200	1.700	4.700	4.100	0.280	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	12.080	
LF-4	06-Dec-89	<0.020	<0.020	0.200	<0.040	0.650	<0.002	<0.004	<0.002	<0.002	<0.002	<0.002	<0.002	0.850	
DUP	06-Dec-89	<0.050	<0.005	0.250	<0.100	0.750	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	1.000	
LF-4	20-Jul-90	<1.000	<1.000	<0.100	<2.000	0.380	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	0.380	
LF-4	21-Jun-91	0.079	0.039	0.058	<0.040	0.350	<0.020	0.007	<0.010	<0.010	<0.010	<0.010	0.005	0.556	
DUP	21-Jun-91	<0.040	0.040	0.140	<0.040	0.380	<0.020	0.008	<0.010	<0.010	<0.010	<0.010	0.006	0.594	#4
LF-4	09-Jul-92	<0.020	0.016	0.015	<0.020	0.069	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	0.008	0.108	
LF-4	09-Jun-93	<0.200	0.051	0.210	<0.200	1.500	<0.100	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	1.761	
LF-5	01-Jun-89	220.000	<2.000	2.000	390.000	8.000	<2.000	300.000	<1.000	<1.000	<1.000	<2.000	<1.000	920.000	
LF-5	06-Dec-89	51.000	<1.000	<1.000	320.000	<1.000	<1.000	310.000	<1.000	<1.000	<1.000	<1.000	<1.000	681.000	
LF-5	20-Jul-90	<10.000	<1.000	1.100	170.000	2.600	6.700	170.000	<1.000	<1.000	<1.000	<1.000	<1.000	350.400	
LF-5	21-Jun-91	<20.000	<5.000	<5.000	<20.000	5.400	<10.000	>200.00	<5.000	<5.000	<5.000	<5.000	<5.000	5.400	
LF-5	09-Jul-92	<20.000	<5.000	<5.000	<20.000	<5.000	<10.000	150.000	<5.000	<5.000	<5.000	<5.000	<5.000	150.000	
LF-5	09-Jun-93	<10.000	<2.500	<2.500	<10.000	4.500	<5.000	83.000	<2.500	<2.500	<2.500	<2.500	<2.500	87.500	
LF-5	Destroyed or lost during slurry wall and cap construction activities														

TABLE 2
SUMMARY OF HISTORICAL VOLATILE ORGANIC COMPOUNDS (EPA 8240) IN GROUNDWATER MONITORING WELLS
THE SHERWIN-WILLIAMS PLANT
EMERYVILLE, CALIFORNIA
(Results reported in parts per million [ppm])

Well Number	Date Sampled	Acetone	Benzene	Ethyl-Benzene	Methyl Ethyl Ketone	Total Xylenes	2-Hexa-none	Toluene	1,1,1-TCA	1,2-DCA	PCE	TCE	Chloro-benzene	Total Quantified Conc.	Notes
LF-6	01-Jun-89	280.000	<1.000	6.000	470.000	210.000	<1.000	22.000	<0.200	<0.200	<0.200	<1.000	<0.200	988.000	
LF-6	05-Dec-89	64.000	<1.000	5.000	320.000	17.000	<1.000	59.000	<1.000	<1.000	<1.000	<1.000	<1.000	465.000	
LF-6	20-Jul-90	200.000	<1.000	4.000	720.000	13.000	24.000	45.000	<1.000	<1.000	45.000	<1.000	<1.000	1051.000	
LF-6	Sealed August 2, 1990														
LF-7	01-Jun-89	<0.005	0.050	<0.005	<0.005	0.580	<0.005	0.270	<0.001	<0.001	<0.001	<0.005	<0.001	0.900	
LF-7	06-Dec-89	<0.010	0.031	0.052	<0.020	0.150	<0.001	0.003	<0.001	<0.001	<0.001	<0.001	0.007	0.243	
LF-7	19-Jul-90	<0.010	<0.001	0.007	<0.020	0.044	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.052	
LF-7	20-Jun-91	<0.020	0.061	0.045	<0.020	0.120	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	0.007	0.233	
LF-7	09-Jul-92	<0.020	<0.005	<0.005	<0.020	<0.005	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.020	
DUP	09-Jul-92	<0.020	<0.005	<0.005	<0.020	<0.005	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.020	
LF-7	09-Jun-93	<0.020	<0.005	<0.005	<0.020	<0.005	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
DUP	09-Jun-93	<0.020	<0.005	<0.005	<0.020	<0.005	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
LF-7	06-Jan-94	<0.050	0.031	0.003	<0.050	0.014	<0.030	0.120	<0.003	<0.003	<0.003	<0.003	0.009	0.177	
LF-8	05-Dec-89	<0.010	<0.001	<0.001	<0.020	<0.001	<0.001	0.003	<0.001	<0.001	<0.001	<0.001	<0.001	0.003	
LF-8	19-Jul-90	<0.010	<0.001	0.007	<0.020	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.010	
LF-8	21-Dec-90	<0.010	<0.001	<0.001	<0.020	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.020	
LF-8	20-Jun-91	<0.020	<0.005	<0.005	<0.020	<0.005	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.020	
LF-8	09-Jul-92	<0.020	<0.005	<0.005	<0.020	<0.005	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.020	
LF-8	30-Dec-92	<0.020	<0.005	<0.005	<0.020	<0.005	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.020	
LF-8	09-Jun-93	<0.020	<0.005	<0.005	<0.020	<0.005	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
LF-8	06-Jan-94	<0.050	<0.003	<0.005	<0.050	<0.005	<0.030	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	0.000	
LF-9	05-Dec-89	<0.010	<0.001	0.022	<0.020	<0.001	<0.001	0.003	<0.001	<0.001	<0.001	<0.001	0.005	0.030	
LF-9	19-Jul-90	<0.010	<0.001	0.011	<0.020	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.004	0.017	
LF-9	21-Dec-90	<0.010	<0.001	<0.001	<0.020	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.020	
LF-9	21-Jun-91	<0.020	<0.005	<0.005	<0.020	<0.005	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	0.006	0.006	
LF-9	09-Jul-92	<0.020	<0.005	<0.005	<0.020	<0.005	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	0.005	0.005	
LF-9	30-Dec-92	<0.020	<0.005	0.007	<0.020	<0.005	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	0.005	<0.020	
LF-9	09-Jun-93	<0.020	0.005	<0.005	<0.020	<0.005	<0.010	0.005	<0.005	<0.005	<0.005	<0.005	0.005	0.010	
LF-9	Destroyed or lost during slurry wall and cap construction activities														
LF-10	07-Dec-89	<0.010	<0.001	<0.001	<0.020	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.020	
LF-10	19-Jul-90	<0.010	<0.001	<0.001	<0.020	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.020	
LF-10	19-Dec-90	<0.010	<0.001	<0.001	<0.020	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.020	
DUP	19-Dec-90	<0.010	<0.001	<0.001	<0.020	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.020	
LF-10	21-Jun-91	<0.020	<0.005	<0.005	<0.020	<0.005	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.020	
LF-10	21-Jun-91	<0.020	<0.005	<0.005	<0.020	<0.005	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.020	
LF-10	09-Jul-92	<0.020	<0.005	<0.005	<0.020	<0.005	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.020	
LF-10	31-Dec-92	<0.020	<0.005	<0.005	<0.020	<0.005	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.020	
DUP	31-Dec-92	<0.020	<0.005	<0.005	<0.020	<0.005	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.020	
LF-10	09-Jun-93	<0.020	<0.005	<0.005	<0.020	<0.005	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
LF-10	06-Jan-94	<0.050	<0.003	<0.005	<0.050	<0.005	<0.030	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	0.000	
DUP	06-Jan-94	<0.050	<0.003	<0.005	<0.050	<0.005	<0.030	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	0.000	
LF-11	05-Dec-89	<0.010	<0.001	<0.001	<0.020	<0.001	<0.001	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	
DUP	05-Dec-89	<0.010	<0.001	<0.001	<0.020	<0.001	<0.001	<0.023	<0.001	<0.001	<0.001	<0.001	<0.001	0.000	
LF-11	19-Jul-90	0.015	<0.001	<0.001	<0.020	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	0.016	

TABLE 2
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THE SHERWIN-WILLIAMS PLANT
EMERYVILLE, CALIFORNIA
(Results reported in parts per million [ppm])

Well Number	Date Sampled	Acetone	Benzene	Ethyl-Benzene	Methyl Ethyl Ketone	Total Xylenes	2-Hexa-none	Toluene	1,1,1-TCA	1,2-DCA	PCE	TCE	Chloro-benzene	Total Quantified Conc.	Notes
LF-11	21-Dec-90	<0.010	<0.001	<0.001	<0.020	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.020	
LF-11	21-Jun-91	<0.020	<0.005	<0.005	<0.020	<0.005	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.020	
DUP	21-Jun-91	<0.020	<0.005	<0.005	<0.020	<0.005	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.020	
LF-11	09-Jul-92	<0.020	<0.005	<0.005	<0.020	<0.005	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.020	
LF-11	31-Dec-92	<0.020	<0.005	<0.005	<0.020	<0.005	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.020	
LF-11	09-Jun-93	<0.020	<0.005	<0.005	<0.020	<0.005	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
LF-11	05-Jan-94	<0.050	<0.003	<0.005	<0.050	<0.005	<0.030	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	0.000	
LF-11	4-Apr-96	<0.100	<0.005	<0.005	<0.1	<0.010	<0.050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
LF-11	31-Jul-96	<0.100	<0.005	<0.005	<0.100	<0.010	<0.050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
LF-11	20-Nov-96	<0.100	<0.005	<0.005	<0.100	<0.010	<0.050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
LF-11	18-Mar-97	<0.100	<0.005	<0.005	<0.100	<0.010	<0.050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
DUP	18-Mar-97	<0.100	<0.005	<0.005	<0.100	<0.010	<0.050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
LF-11	11-Jun-97	<0.100	<0.005	<0.005	<0.100	<0.010	<0.050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.016	#5
LF-11	19-Aug-97	<0.1	<0.005	<0.005	<0.1	<0.01	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
DUP	19-Aug-97	<0.1	<0.005	<0.005	<0.1	<0.01	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
LF-11	17-Dec-97	<0.1	<0.005	<0.005	<0.1	0.024	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.024	
LF-12	06-Dec-89	<0.010	<0.001	<0.001	<0.020	<0.001	<0.001	0.005	<0.001	<0.001	<0.001	<0.001	<0.001	0.005	
LF-12	18-Jul-90	<0.010	<0.001	<0.001	<0.020	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.002	<0.001	0.003	
LF-12	19-Dec-90	<0.010	<0.001	<0.001	<0.020	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	0.003	<0.001	0.005	
LF-12	19-Jun-91	<0.020	<0.005	<0.005	<0.020	<0.005	<0.010	<0.005	<0.005	<0.005	<0.005	0.002	<0.005	0.002	
LF-12	08-Jul-92	<0.020	<0.005	<0.005	<0.020	<0.005	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.020	
LF-12	30-Dec-92	<0.020	<0.005	<0.005	<0.020	<0.005	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.020	
LF-12	08-Jun-93	<0.020	<0.005	<0.005	<0.020	<0.005	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
LF-12	06-Jan-94	<0.050	<0.003	<0.005	<0.050	<0.005	<0.030	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	0.000	
LF-12	16-Apr-96	<0.100	<0.005	<0.005	<0.1	<0.010	<0.050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
LF-12	30-Jul-96	<0.100	<0.005	<0.005	<0.100	<0.010	<0.050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
LF-12	20-Nov-96	<0.100	<0.005	<0.005	<0.100	<0.010	<0.050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
LF-12	17-Mar-97	<0.100	<0.005	<0.005	<0.100	<0.010	<0.050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
LF-12	1-Jul-97	<0.100	<0.005	<0.005	NA	<0.010	<0.050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
Dup	1-Jul-97	<0.100	<0.005	<0.005	NA	<0.010	<0.050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
LF-12	20-Aug-97	<0.1	<0.005	<0.005	<0.1	<0.01	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
LF-12	18-Dec-97	<0.1	<0.005	<0.005	<0.1	<0.01	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
LF-13	06-Dec-89	<0.010	<0.001	<0.001	<0.020	<0.001	<0.001	0.002	0.029	<0.001	<0.001	<0.001	<0.001	0.031	
LF-13	18-Jul-90	<0.010	<0.001	<0.001	<0.020	0.001	<0.001	0.002	0.056	<0.001	0.001	<0.001	<0.001	0.060	
LF-13	19-Dec-90	<0.010	<0.001	<0.001	<0.020	<0.001	<0.001	<0.001	0.042	0.002	0.002	<0.001	<0.001	0.046	#3
LF-13	19-Jun-91	<0.020	<0.005	<0.005	<0.020	<0.005	<0.010	<0.005	0.032	<0.005	<0.005	<0.005	<0.005	0.032	
LF-13	08-Jul-92	<0.020	<0.005	<0.005	<0.020	<0.005	<0.010	<0.005	0.010	<0.005	<0.005	<0.005	<0.005	<0.020	
LF-13	30-Dec-92	<0.020	<0.005	<0.005	<0.020	<0.005	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.020	
LF-13	08-Jun-93	<0.020	<0.005	<0.005	<0.020	<0.005	<0.010	<0.005	0.008	<0.005	<0.005	<0.005	<0.005	0.008	
LF-13	05-Jan-94	<0.050	<0.003	<0.005	<0.050	<0.005	<0.030	<0.003	0.004	<0.003	<0.003	<0.003	<0.003	0.004	
LF-13	16-Apr-96	<0.100	<0.005	<0.005	<0.1	<0.010	<0.050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
LF-13	30-Jul-96	<0.100	<0.005	<0.005	<0.100	<0.010	<0.050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
DUP	30-Jul-96	<0.100	<0.005	<0.005	<0.100	<0.010	<0.050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
LF-13	20-Nov-96	<0.100	<0.005	<0.005	<0.100	<0.010	<0.050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
LF-13	17-Mar-97	<0.100	<0.005	<0.005	<0.100	<0.010	<0.050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
DUP	17-Mar-97	<0.100	<0.005	<0.005	<0.100	<0.010	<0.050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
LF-13	12-Jun-97	<0.100	<0.005	<0.005	<0.100	<0.010	<0.050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	

TABLE 2
SUMMARY OF HISTORICAL VOLATILE ORGANIC COMPOUNDS (EPA 8240) IN GROUNDWATER MONITORING WELLS
THE SHERWIN-WILLIAMS PLANT
EMERYVILLE, CALIFORNIA
(Results reported in parts per million [ppm])

Well Number	Date Sampled	Acetone	Benzene	Ethyl-Benzene	Methyl Ethyl Ketone	Total Xylenes	2-Hexa-none	Toluene	1,1,1-TCA	1,2-DCA	PCE	TCE	Chloro-benzene	Total Quantified Conc.	Notes
LF-13	19-Aug-97	<0.1	<0.005	<0.005	<0.1	<0.01	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
LF-13	18-Dec-97	<0.1	<0.005	<0.005	<0.1	<0.01	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
LF-14	04-Sep-90	<0.010	<0.001	<0.001	<0.020	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.020	
LF-14	21-Dec-90	<0.010	<0.001	<0.001	<0.020	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.020	
LF-14	20-Jun-91	<0.020	<0.005	<0.005	<0.020	<0.005	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.020	
LF-14	09-Jul-92	<0.020	<0.005	<0.005	<0.020	<0.005	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.020	
LF-14	31-Dec-92	<0.020	<0.005	<0.005	<0.020	<0.005	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.020	
LF-14	09-Jun-93	<0.020	<0.005	<0.005	<0.020	<0.005	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
LF-14	Destroyed during railway expansion activities														
LF-15	04-Sep-90	<0.010	<0.001	<0.001	<0.020	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.020	
LF-15	21-Dec-90	<0.010	<0.001	<0.001	<0.020	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.020	
LF-15	20-Jun-91	<0.020	<0.005	<0.005	<0.020	<0.005	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.020	
LF-15	08-Jul-92	<0.020	<0.005	<0.005	<0.020	<0.005	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.020	
LF-15	30-Dec-92	<0.020	<0.005	<0.005	<0.020	<0.005	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.020	
LF-15	09-Jun-93	<0.020	<0.005	<0.005	<0.020	<0.005	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
LF-15	Destroyed during railway expansion activities														
LF-16	04-Sep-90	<0.010	<0.001	<0.001	<0.020	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.020	
LF-16	20-Dec-90	<0.010	<0.001	<0.001	<0.020	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.020	
LF-16	20-Jun-91	<0.020	<0.005	<0.005	<0.020	<0.005	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.020	
LF-16	09-Jul-92	<0.020	<0.005	<0.005	<0.020	<0.005	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.020	
LF-16	30-Dec-92	<0.020	<0.005	<0.005	<0.020	<0.005	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.020	
LF-16	09-Jun-93	<0.020	<0.005	<0.005	<0.020	<0.005	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
LF-16	Destroyed under permit														
LF-18	11-Apr-96	<0.1	<0.005	<0.005	<0.100	<0.010	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
LF-18	30-Jul-96	<0.100	<0.005	<0.005	<0.100	<0.010	<0.050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
LF-18	20-Nov-96	<0.100	<0.005	<0.005	<0.100	<0.010	<0.050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
LF-18	19-Mar-97	<0.100	<0.005	<0.005	<0.100	<0.010	<0.050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
LF-18	11-Jun-97	<0.100	<0.005	<0.005	<0.100	<0.010	<0.050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
Dup	11-Jun-97	<0.100	<0.005	<0.005	<0.100	<0.010	<0.050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
LF-18	19-Aug-97	<0.1	<0.005	<0.005	<0.1	<0.01	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
LF-18	17-Dec-97	<0.1	<0.005	<0.005	<0.1	<0.01	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
LF-19	13-Jun-97	<0.100	<0.005	<0.005	<0.100	<0.010	<0.050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
LF-19	19-Aug-97	NA	<0.0005	<0.0005	NA	<0.002	NA	0.0006	NA	NA	NA	NA	NA	0.001	
LF-20	11-Apr-96	<0.1	<0.005	<0.005	<0.1	<0.010	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
LF-20	30-Jul-96	<0.100	<0.005	<0.005	<0.100	<0.010	<0.050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
LF-20	21-Nov-96	<0.100	<0.005	<0.005	<0.100	<0.010	<0.050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
LF-20	18-Mar-97	<0.100	<0.005	<0.005	<0.100	<0.010	<0.050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
LF-20	11-Jun-97	<0.100	<0.005	<0.005	<0.100	<0.010	<0.050	<0.005	<0.005	<0.005	<0.005	<0.005	0.005	0.005	
LF-20	19-Aug-97	<0.1	<0.005	<0.005	<0.1	<0.01	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
LF-20	18-Dec-97	<0.1	<0.005	<0.005	<0.1	<0.01	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
LF-21	10-Apr-96	<0.1	<0.005	<0.005	<0.1	<0.010	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
LF-21	31-Jul-96	<0.1	<0.005	<0.005	<0.1	<0.010	<0.050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	

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SUMMARY OF HISTORICAL VOLATILE ORGANIC COMPOUNDS (EPA 8240) IN GROUNDWATER MONITORING WELLS
THE SHERWIN-WILLIAMS PLANT
EMERYVILLE, CALIFORNIA
(Results reported in parts per million [ppm])

Well Number	Date Sampled	Acetone	Benzene	Ethyl-Benzene	Methyl Ethyl Ketone	Total Xylenes	2-Hexa-none	Toluene	1,1,1-TCA	1,2-DCA	PCE	TCE	Chloro-benzene	Total Quantified Conc.	Notes
LF-21	21-Nov-96	<0.100	<0.005	<0.005	<0.100	<0.010	<0.050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
LF-21	18-Mar-97	<0.100	<0.005	<0.005	<0.100	<0.010	<0.050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
LF-21	11-Jun-97	<0.100	<0.005	<0.005	<0.100	<0.010	<0.050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
LF-21	19-Aug-97	<0.1	<0.005	<0.005	<0.1	<0.01	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
LF-21	17-Dec-97	<0.1	<0.005	<0.005	<0.1	<0.01	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
LF-23	10-Apr-96	<0.1	<0.005	<0.005	<0.1	<0.010	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
Dup	10-Apr-96	<0.1	<0.005	<0.005	<0.1	<0.010	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
LF-23	2-Aug-96	<0.100	<0.005	<0.005	<0.100	<0.010	<0.050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
LF-23	21-Nov-96	<0.100	<0.005	<0.005	<0.100	<0.010	<0.050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
LF-23	18-Mar-97	<0.100	0.010	<0.005	<0.100	<0.010	<0.050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.010	
LF-23	11-Jun-97	<0.100	<0.005	<0.005	<0.100	<0.010	<0.050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
LF-23	20-Aug-97	<0.1	<0.005	<0.005	<0.1	<0.01	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
LF-23	18-Dec-97	<0.1	<0.005	<0.005	<0.1	<0.01	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
LF-24	11-Apr-96	<0.1	<0.005	<0.005	<0.1	<0.010	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
LF-24	2-Aug-96	<0.100	<0.005	<0.005	<0.100	<0.010	<0.050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
LF-24	21-Nov-96	<0.100	<0.005	<0.005	<0.100	<0.010	<0.050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
LF-24	18-Mar-97	<0.100	<0.005	<0.005	<0.100	<0.010	<0.050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
LF-24	11-Jun-97	<0.100	<0.005	<0.005	<0.100	<0.010	<0.050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
LF-24	20-Aug-97	<0.1	<0.005	<0.005	<0.1	<0.01	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
LF-24	18-Dec-97	<0.1	<0.005	<0.005	<0.1	<0.01	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
LF-25	11-Apr-96	<0.1	<0.005	<0.005	<0.1	<0.01	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
LF-25	2-Aug-96	<0.100	<0.005	<0.005	<0.100	<0.010	<0.050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
LF-25	21-Nov-96	<0.100	<0.005	<0.005	<0.100	<0.010	<0.050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
LF-25	18-Mar-97	<0.100	<0.005	<0.005	<0.100	<0.010	<0.050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
LF-25	11-Jun-97	<0.100	<0.005	<0.005	<0.100	<0.010	<0.050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
LF-25	20-Aug-97	<0.1	<0.005	<0.005	<0.1	<0.01	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
LF-25	18-Dec-97	<0.1	<0.005	<0.005	<0.1	<0.01	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
LF-27	29-Dec-97	<0.1	<0.005	<0.005	<0.1	<0.01	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
LF-28	29-Dec-97	<0.1	<0.005	<0.005	<0.1	<0.01	<0.05	<0.005	<0.005	<0.005	<0.005	0.005	<0.005	0.045	#13
LF-29	29-Dec-97	<0.5	<0.03	<0.03	<0.5	<0.05	<0.3	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.210	#14
LF-30	30-Dec-97	<0.1	<0.005	<0.005	<0.1	<0.01	<0.05	<0.005	<0.005	0.02	<0.005	0.023	<0.005	0.152	#15
LF-B1	07-Dec-89	<0.010	<0.001	<0.001	<0.020	<0.001	<0.001	<0.001	<0.001	0.051	<0.001	<0.001	<0.001	0.051	#6
LF-B1	18-Jul-90	<0.010	<0.001	<0.001	<0.020	<0.001	<0.001	<0.002	<0.001	0.170	0.001	<0.001	<0.001	0.171	#6
LF-B1	20-Dec-90	<0.010	<0.001	<0.001	<0.020	<0.001	<0.001	<0.001	<0.001	0.130	<0.001	<0.001	<0.001	0.130	#6
LF-B1	20-Jun-91	<0.020	<0.005	<0.005	<0.020	<0.005	<0.010	<0.005	<0.005	0.180	<0.005	<0.005	<0.005	0.180	#6
LF-B1	08-Jul-92	<0.020	<0.005	<0.005	<0.020	<0.005	<0.010	<0.005	<0.005	0.150	<0.005	<0.005	<0.005	0.150	#6
LF-B1	30-Dec-92	<0.020	<0.005	<0.005	<0.020	<0.005	<0.010	<0.005	<0.005	0.140	<0.005	<0.005	<0.005	0.140	#6
LF-B1	08-Jun-93	<0.020	<0.005	<0.005	<0.020	<0.005	<0.010	<0.005	<0.005	0.160	<0.005	<0.005	<0.005	0.160	#6
LF-B1	Destroyed under permit														
LF-B2	06-Dec-89	<0.010	<0.001	<0.001	<0.020	0.013	<0.001	<0.001	<0.001	0.007	<0.001	<0.001	<0.001	0.020	
LF-B2	18-Jul-90	<0.010	<0.001	<0.001	<0.020	<0.001	<0.001	0.002	<0.001	0.007	<0.001	<0.001	<0.001	0.009	
DUP	18-Jul-90	<0.010	<0.001	<0.001	<0.020	<0.001	<0.001	0.002	<0.001	0.007	<0.001	<0.001	<0.001	0.009	
LF-B2	19-Dec-90	<0.010	<0.001	<0.001	<0.020	<0.001	<0.001	<0.001	<0.001	0.004	0.002	<0.001	<0.001	0.006	

TABLE 2
SUMMARY OF HISTORICAL VOLATILE ORGANIC COMPOUNDS (EPA 8240) IN GROUNDWATER MONITORING WELLS
THE SHERWIN-WILLIAMS PLANT
EMERYVILLE, CALIFORNIA
(Results reported in parts per million [ppm])

Well Number	Date Sampled	Acetone	Benzene	Ethyl-Benzene	Methyl Ethyl Ketone	Total Xylenes	2-Hexa-none	Toluene	1,1,1-TCA	1,2-DCA	PCE	TCE	Chloro-benzene	Total Quantified Conc.	Notes
LF-B2	20-Jun-91	<0.020	<0.005	<0.005	<0.020	<0.005	<0.010	<0.005	<0.005	0.150	<0.005	<0.005	<0.005	0.150	
LF-B2	08-Jul-92	<0.020	<0.005	<0.005	<0.020	<0.005	<0.010	<0.005	<0.005	0.006	<0.005	<0.005	<0.005	0.006	
LF-B2	08-Jun-93	<0.020	<0.005	<0.005	<0.020	<0.005	<0.010	<0.005	<0.005	0.006	<0.005	<0.005	<0.005	0.006	
LF-B2	Destroyed or lost during slurry wall and cap construction activities														
LF-B3	07-Dec-89	<0.010	<0.001	<0.001	<0.020	<0.001	0.001	<0.001	<0.001	0.100	<0.001	<0.001	<0.001	0.101	#1
DUP	07-Dec-89	<0.010	<0.001	<0.001	<0.020	<0.001	<0.001	<0.001	<0.001	0.073	<0.001	<0.001	<0.001	0.073	
LF-B3	18-Jul-90	<0.010	<0.001	<0.001	<0.020	<0.001	<0.001	0.002	<0.001	0.086	<0.001	<0.001	<0.001	0.088	
LF-B3	20-Dec-90	<0.010	<0.001	<0.001	<0.020	<0.001	<0.001	<0.001	<0.001	0.084	<0.001	<0.001	<0.001	0.084	
LF-B3	19-Jun-91	<0.020	<0.005	<0.005	<0.020	<0.005	<0.010	<0.005	<0.005	0.110	<0.005	<0.005	<0.005	0.110	
LF-B3	08-Jul-92	<0.020	<0.005	<0.005	<0.020	<0.005	<0.010	<0.005	<0.005	0.110	<0.005	<0.005	<0.005	0.110	
LF-B3	30-Dec-92	<0.020	<0.005	<0.005	<0.020	<0.005	<0.010	<0.005	<0.005	0.110	<0.005	<0.005	<0.005	0.110	
LF-B3	08-Jun-93	<0.020	<0.005	<0.005	<0.020	<0.005	<0.010	<0.005	<0.005	0.110	<0.005	<0.005	<0.005	0.110	
LF-B3	05-Jan-94	<0.050	<0.003	<0.005	<0.050	<0.005	<0.030	<0.003	<0.003	0.099	<0.003	<0.003	<0.003	0.099	
LF-B3	16-Apr-96	<0.100	<0.005	<0.005	<0.100	<0.010	<0.050	<0.005	<0.005	0.013	<0.005	<0.005	<0.005	0.013	
LF-B3	1-Aug-96	<0.100	<0.005	<0.005	<0.100	<0.010	<0.050	<0.005	<0.005	0.022	<0.005	<0.005	<0.005	0.022	
LF-B3	21-Nov-96	<0.100	<0.005	<0.005	<0.100	<0.010	<0.050	<0.005	<0.005	0.036	<0.005	<0.005	<0.005	0.036	
DUP	21-Nov-96	<0.100	<0.005	<0.005	<0.100	<0.010	<0.050	<0.005	<0.005	0.021	<0.005	<0.005	<0.005	0.021	
LF-B3	17-Mar-97	<0.100	<0.005	<0.005	<0.100	<0.010	<0.050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
LF-B3	12-Jun-97	<0.100	<0.005	<0.005	<0.100	<0.010	<0.050	<0.005	<0.005	0.034	<0.005	<0.005	<0.005	0.034	
LF-B3	20-Aug-97	<0.1	<0.005	<0.005	<0.1	<0.01	<0.05	<0.005	<0.005	0.032	<0.005	<0.005	<0.005	0.032	
LF-B3	17-Dec-97	<0.1	<0.005	<0.005	<0.1	<0.01	<0.05	<0.005	<0.005	0.018	<0.005	<0.005	<0.005	0.018	
LF-B4	18-Jul-90	<0.010	<0.001	<0.001	<0.020	<0.001	<0.001	0.002	<0.001	0.001	<0.001	<0.001	<0.001	0.003	
LF-B4	19-Dec-90	<0.010	<0.001	<0.001	<0.020	<0.001	<0.001	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	
LF-B4	19-Jun-91	<0.020	<0.005	<0.005	<0.020	<0.005	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.020	
LF-B4	08-Jul-92	<0.020	<0.005	<0.005	<0.020	<0.005	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.020	
LF-B4	30-Dec-92	<0.020	<0.005	<0.005	<0.020	<0.005	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.020	
LF-B4	08-Jun-93	<0.020	<0.005	<0.005	<0.020	<0.005	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
LF-B4	05-Jan-94	<0.050	<0.003	<0.005	<0.050	<0.005	<0.030	<0.003	<0.003	<0.003	<0.003	0.012	<0.003	0.012	
LF-B4	16-Apr-96	<0.100	<0.005	<0.005	<0.1	<0.010	<0.050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
LF-B4	30-Jul-96	<0.100	<0.005	<0.005	<0.100	<0.010	<0.050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
LF-B4	22-Nov-96	<0.100	<0.005	<0.005	<0.100	<0.010	<0.050	0.010	<0.005	<0.005	<0.005	<0.005	<0.005	0.010	
DUP	22-Nov-96	<0.100	<0.005	<0.005	<0.100	<0.010	<0.050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
LF-B4	17-Mar-97	<0.100	<0.005	<0.005	<0.100	<0.010	<0.050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
LF-B4	1-Jul-97	<0.100	<0.005	<0.005	NA	<0.010	<0.050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
LF-B4	20-Aug-97	<0.1	<0.005	<0.005	<0.1	<0.01	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
LF-B4	18-Dec-97	<0.1	<0.005	<0.005	<0.1	<0.01	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
LF-B5	9-Apr-96	<1.000	<0.050	<0.050	<1.0	<0.100	<0.500	<0.050	<0.050	0.280	<0.050	<0.050	<0.050	0.280	#7
LF-B5	1-Aug-96	<0.500	<0.030	<0.030	<0.500	<0.050	<0.300	<0.030	<0.030	0.380	<0.030	<0.030	<0.030	0.380	#7
LF-B5	22-Nov-96	<0.500	<0.030	<0.030	<0.500	<0.050	<0.300	<0.030	<0.030	0.320	<0.030	<0.030	<0.030	0.320	#7
LF-B5	17-Mar-97	<0.500	<0.030	<0.030	<0.500	<0.050	<0.300	<0.030	<0.030	0.290	<0.030	<0.030	<0.030	0.290	#7
LF-B5	11-Jun-97	<0.500	<0.030	<0.030	<0.500	<0.050	<0.300	<0.030	<0.030	0.310	<0.030	<0.030	<0.030	0.310	#7
LF-B5	20-Aug-97	<1	<0.05	<0.05	<1	<0.1	<0.5	<0.05	<0.05	0.38	<0.05	<0.05	<0.05	0.380	#7
LF-B5	17-Dec-97	<1	<0.05	<0.05	<1	<0.1	<0.5	<0.05	<0.05	0.34	<0.05	<0.05	<0.05	0.340	#7
LF-B6	9-Apr-96	<2.000	<0.100	0.290	<2.0	0.970	<1.000	0.290	<0.100	<0.100	<0.100	<0.100	<0.100	1.550	
LF-B6	1-Aug-96	<0.100	<0.005	0.110	<0.100	<0.010	<0.050	<0.005	<0.005	0.030	<0.005	<0.005	<0.005	0.140	

TABLE 2
SUMMARY OF HISTORICAL VOLATILE ORGANIC COMPOUNDS (EPA 8240) IN GROUNDWATER MONITORING WELLS
THE SHERWIN-WILLIAMS PLANT
EMERYVILLE, CALIFORNIA
(Results reported in parts per million [ppm])

Well Number	Date Sampled	Acetone	Benzene	Ethyl-Benzene	Methyl Ethyl Ketone	Total Xylenes	2-Hexa-none	Toluene	1,1,1-TCA	1,2-DCA	PCE	TCE	Chloro-benzene	Total Quantified Conc.	Notes
LF-B6	25-Nov-96	<0.100	<0.005	<0.005	<0.100	<0.010	<0.050	<0.005	<0.005	0.046	<0.005	<0.005	<0.005	0.046	
DUP	25-Nov-96	<0.100	<0.005	<0.005	<0.100	<0.010	<0.050	<0.005	<0.005	0.047	<0.005	<0.005	<0.005	0.047	
LF-B6	17-Mar-97	<0.100	<0.005	<0.005	<0.100	<0.010	<0.050	<0.005	<0.005	0.025	<0.005	<0.005	<0.005	0.025	
LF-B6	12-Jun-97	<0.100	<0.005	<0.005	<0.100	<0.010	<0.050	<0.005	<0.005	0.041	<0.005	<0.005	<0.005	0.041	
LF-B6	19-Aug-97	<0.1	<0.005	<0.005	<0.1	<0.01	<0.05	<0.005	<0.005	0.07	<0.005	<0.005	<0.005	0.070	
LF-B6	18-Dec-97	<0.1	<0.005	<0.005	<0.1	<0.01	<0.05	<0.005	<0.005	0.067	<0.005	<0.005	<0.005	0.067	
EX-1	18-Apr-96	<0.100	<0.005	0.006	<0.100	0.020	<0.050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.026	
EX-1	1-Aug-96	<0.100	<0.005	<0.005	<0.100	0.019	<0.050	0.027	<0.005	<0.005	<0.005	<0.005	<0.005	0.046	
EX-1	18-Dec-96	<0.100	<0.005	0.031	<0.100	1.4	<0.050	0.87	<0.005	<0.005	<0.005	<0.005	<0.005	2.301	
EX-1	15-Apr-97	<10.0	<0.5	<0.5	<10.0	2.2	<5.0	3.20	<0.5	<0.500	<0.500	<0.500	<0.500	5.400	
EX-1	1-Jul-97	<2.000	<0.100	0.100	NA	1.8	<1.000	2.000	<0.100	<0.100	<0.100	<0.100	<0.100	3.900	
EX-1	22-Sep-97	<0.1	<0.005	<0.005	<0.1	0.21	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.210	
EX-1	18-Dec-97	<0.5	<0.03	0.22	<0.5	0.74	<0.3	0.2	<0.03	<0.03	<0.03	<0.03	<0.03	1.160	
EX-2	18-Apr-96	<50	<3.0	8.000	<50	10.0	<30.0	24.0	<3.0	<3.0	<3.0	<3.0	<3.0	42.000	
EX-2	1-Aug-96	<10.0	<0.500	0.650	<10.0	3.7	<5.0	6.6	<0.500	<0.500	<0.500	<0.500	<0.500	10.950	
EX-2	18-Dec-96	<20.0	<1.0	2.5	<20.0	12.0	<10.0	23.0	<1.0	<1.0	<1.0	<1.0	<1.0	37.500	
EX-2	15-Apr-97	<50.0	<3.0	<3.0	<50.0	10.0	<30.0	26.0	<3.0	<3.0	<3.0	<3.0	<3.0	36.000	
EX-2	1-Jul-97	<30.000	<1.000	2.000	NA	10.0	<10.000	27.000	<1.000	<1.000	<1.000	<1.000	<1.000	39.000	
EX-2	22-Sep-97	<30	<1	1.8	<30	8.4	<10	21	<1	<1	<1	8.2	<1	39.400	
EX-2	22-Dec-97	<10	<0.5	1.6	<10	6.6	<5	8.3	<0.5	<0.5	<0.5	<0.5	<0.5	16.500	
EX-3	18-Apr-96	<5.0	<0.3	<0.3	<5.0	<0.5	<3.0	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	0.000	
EX-3	1-Aug-96	<0.100	<0.005	<0.005	<0.100	<0.010	<0.050	<0.005	<0.005	0.006	<0.005	<0.005	<0.005	0.006	
EX-3	18-Dec-96	<0.100	<0.005	<0.005	<0.100	<0.010	<0.050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
EX-3	15-Apr-97	<0.100	<0.005	<0.005	<0.100	<0.010	<0.050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
EX-3	1-Jul-97	<0.100	<0.005	<0.005	NA	<0.010	<0.050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
EX-3	22-Sep-97	<0.1	<0.005	<0.005	<0.1	<0.01	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
EX-3	19-Dec-97	<0.1	<0.005	0.017	<0.1	0.073	<0.05	0.05	<0.005	<0.005	<0.005	<0.005	<0.005	0.140	
RP-1	28-Jul-94	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
RP-1	08-Sep-94	<0.100	<0.005	<0.0005	<0.100	<0.002	<0.050	<0.0005	NA	0.002	NA	<0.005	NA	NA	
RP-1	28-Feb-95	NA	<0.0005	<0.0005	NA	<0.002	NA	<0.0005	NA	NA	NA	NA	NA	NA	
RP-1	29-Mar-95	<0.100	<0.005	<0.005	NA	<0.01	NA	<0.005	NA	<0.005	NA	<0.005	NA	NA	#11
RP-1	10-May-95	NA	<0.0005	<0.0005	NA	<0.002	NA	<0.0005	NA	NA	NA	NA	NA	NA	
RP-1	09-Aug-95	NA	<0.0005	<0.0005	NA	<0.002	NA	<0.0005	NA	NA	NA	NA	NA	NA	
RP-1	17-Nov-95	NA	<0.0005	<0.0005	NA	<0.002	NA	0.001	NA	NA	NA	NA	NA	NA	
RP-1	10-Jan-96	<0.100	<0.0005	<0.0005	<0.100	<0.002	<0.050	0.001	NA	<0.005	NA	<0.005	NA	NA	
RP-1	17-Apr-96	NA	<0.0005	<0.0005	NA	<0.002	NA	<0.0005	NA	NA	NA	NA	NA	NA	
DUP	17-Apr-96	NA	<0.0005	<0.0005	NA	<0.002	NA	<0.0005	NA	NA	NA	NA	NA	NA	
RP-1	31-Jul-96	NA	<0.0005	<0.0005	NA	<0.002	NA	<0.0005	NA	NA	NA	NA	NA	NA	
RP-1	19-Nov-96	NA	<0.0005	<0.0005	NA	<0.002	NA	<0.0005	NA	NA	NA	NA	NA	NA	
RP-1	25-Mar-97	NA	<0.0005	<0.0005	NA	<0.002	NA	<0.0005	NA	NA	NA	NA	NA	NA	
RP-1	10-Jun-97	NA	<0.0005	<0.0005	NA	<0.002	NA	<0.0005	NA	NA	NA	NA	NA	NA	
RP-1	18-Aug-97	NA	<0.0005	<0.0005	NA	<0.002	NA	<0.0005	NA	NA	NA	NA	NA	NA	
RP-1	19-Dec-97	NA	<0.0005	0.0006	NA	0.002	NA	0.0006	NA	NA	NA	NA	NA	0.0032	
DUP	19-Dec-97	NA	<0.0005	0.0011	NA	0.003	NA	0.001	NA	NA	NA	NA	NA	0.0051	

TABLE 2
SUMMARY OF HISTORICAL VOLATILE ORGANIC COMPOUNDS (EPA 8240) IN GROUNDWATER MONITORING WELLS
THE SHERWIN-WILLIAMS PLANT
EMERYVILLE, CALIFORNIA
(Results reported in parts per million (ppm))

Well Number	Date Sampled	Acetone	Benzene	Ethyl-Benzene	Methyl Ethyl Ketone	Total Xylenes	2-Hexa-none	Toluene	1,1,1-TCA	1,2-DCA	PCE	TCE	Chloro-benzene	Total Quantified Conc.	Notes
RP-2	28-Jul-94	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
RP-2	08-Sep-94	<0.100	<0.005	<0.005	<0.100	<0.002	<0.050	0.001	NA	0.001	NA	0.001	NA	NA	
DUP	08-Sep-94	<0.100	<0.005	<0.005	<0.100	<0.002	<0.050	<0.0005	NA	0.001	NA	0.001	NA	NA	
RP-2	28-Feb-95	NA	<0.0005	<0.0005	NA	<0.002	NA	<0.0005	NA	NA	NA	NA	NA	NA	
RP-2	29-Mar-95	<0.100	<0.005	<0.005	NA	<0.01	NA	<0.005	NA	<0.005	NA	<0.005	NA	NA	#8
RP-2	10-May-95	NA	<0.0005	<0.0005	NA	<0.002	NA	<0.0005	NA	NA	NA	NA	NA	NA	
RP-2	09-Aug-95	NA	<0.0005	<0.0005	NA	<0.002	NA	<0.0005	NA	NA	NA	NA	NA	NA	
RP-2	17-Nov-95	NA	0.002	0.001	NA	0.004	NA	0.003	NA	NA	NA	NA	NA	NA	
RP-2	10-Jan-96	<0.100	<0.0005	<0.0005	<0.100	<0.002	<0.050	<0.0005	NA	<0.005	NA	<0.005	NA	NA	
RP-2	17-Apr-96	NA	<0.0005	<0.0005	NA	<0.002	NA	<0.0005	NA	NA	NA	NA	NA	NA	
RP-2	31-Jul-96	NA	<0.0005	<0.0005	NA	<0.002	NA	<0.0005	NA	NA	NA	NA	NA	NA	
RP-2	19-Nov-96	NA	<0.0005	<0.0005	NA	<0.002	NA	<0.0005	NA	NA	NA	NA	NA	NA	
RP-2	25-Mar-97	NA	<0.0005	<0.0005	NA	<0.002	NA	<0.0005	NA	NA	NA	NA	NA	NA	
RP-2	10-Jun-97	NA	<0.0005	<0.0005	NA	<0.002	NA	<0.0005	NA	NA	NA	NA	NA	NA	
RP-2	18-Aug-97	NA	<0.0005	<0.0005	NA	<0.002	NA	<0.0005	NA	NA	NA	NA	NA	NA	
DUP	18-Aug-97	NA	<0.0005	<0.0005	NA	<0.002	NA	<0.0005	NA	NA	NA	NA	NA	NA	
RP-2	19-Dec-97	NA	<0.0005	<0.0005	NA	<0.002	NA	<0.0005	NA	NA	NA	NA	NA	0	
RP-3	28-Jul-94	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
RP-3	08-Sep-94	<0.100	<0.005	<0.005	<0.100	<0.002	<0.050	<0.0005	NA	<0.005	NA	<0.0005	NA	NA	
RP-3	28-Feb-95	NA	<0.0005	<0.0005	NA	<0.002	NA	0.001	NA	NA	NA	NA	NA	NA	
RP-3	29-Mar-95	<0.100	<0.005	<0.005	NA	<0.01	NA	<0.005	NA	<0.005	NA	<0.005	NA	NA	
RP-3	10-May-95	NA	<0.0005	<0.0005	NA	<0.002	NA	<0.0005	NA	NA	NA	NA	NA	NA	
RP-3	09-Aug-95	NA	<0.0005	<0.0005	NA	0.009	NA	0.001	NA	NA	NA	NA	NA	NA	
RP-3	17-Nov-95	NA	<0.0005	<0.0005	NA	0.005	NA	0.001	NA	NA	NA	NA	NA	NA	
RP-3	10-Jan-96	<0.100	<0.0005	<0.0005	NA	0.003	NA	0.001	NA	<0.005	NA	<0.005	NA	NA	
RP-3	17-Apr-96	NA	<0.0005	0.001	NA	0.0008	NA	<0.0005	NA	NA	NA	NA	NA	NA	
RP-3	31-Jul-96	NA	<0.0005	0.001	NA	0.007	NA	0.001	NA	NA	NA	NA	NA	NA	
RP-3	19-Nov-96	NA	<0.0005	0.001	NA	0.003	NA	0.001	NA	NA	NA	NA	NA	NA	
RP-3	25-Mar-97	NA	<0.0005	<0.0005	NA	0.004	NA	<0.0005	NA	NA	NA	NA	NA	NA	
RP-3	10-Jun-97	NA	<0.0005	<0.0005	NA	<0.002	NA	<0.0005	NA	NA	NA	NA	NA	NA	
RP-3	18-Aug-97	NA	<0.0005	<0.0005	NA	0.0041	NA	<0.0005	NA	NA	NA	NA	NA	NA	
RP-3	19-Dec-97	NA	<0.0005	<0.0005	NA	0.003	NA	0.0006	NA	NA	NA	NA	NA	0.0036	
RP-4	28-Jul-94	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
RP-4	08-Sep-94	<0.100	<0.005	<0.005	<0.100	<0.002	<0.050	<0.0005	NA	0.001	NA	0.002	NA	NA	
RP-4	28-Feb-95	NA	<0.0005	<0.0005	NA	<0.002	NA	<0.0005	NA	NA	NA	NA	NA	NA	
DUP	28-Feb-95	NA	<0.0005	<0.0005	NA	<0.002	NA	<0.0005	NA	NA	NA	NA	NA	NA	
RP-4	29-Mar-95	<0.100	<0.005	<0.005	NA	<0.01	NA	<0.005	NA	<0.005	NA	<0.005	NA	NA	
RP-4	10-May-95	NA	<0.0005	<0.0005	NA	<0.002	NA	<0.0005	NA	NA	NA	NA	NA	NA	
DUP	10-May-95	NA	<0.0005	<0.0005	NA	<0.002	NA	<0.0005	NA	NA	NA	NA	NA	NA	
RP-4	09-Aug-95	NA	<0.0005	<0.0005	NA	<0.002	NA	<0.0005	NA	NA	NA	NA	NA	NA	
DUP	09-Aug-95	NA	<0.0005	<0.0005	NA	<0.002	NA	<0.0005	NA	NA	NA	NA	NA	NA	
RP-4	17-Nov-95	NA	<0.0005	<0.0005	NA	<0.002	NA	<0.0005	NA	NA	NA	NA	NA	NA	
DUP	17-Nov-95	NA	<0.0005	<0.0005	NA	<0.002	NA	<0.0005	NA	NA	NA	NA	NA	NA	
RP-4	09-Jan-96	<0.100	<0.0005	0.001	<0.100	<0.002	<0.050	<0.0005	NA	<0.005	NA	<0.005	NA	NA	
RP-4	17-Apr-96	NA	<0.0005	<0.0005	NA	<0.002	NA	<0.0005	NA	NA	NA	NA	NA	NA	

TABLE 2
SUMMARY OF HISTORICAL VOLATILE ORGANIC COMPOUNDS (EPA 8240) IN GROUNDWATER MONITORING WELLS
THE SHERWIN-WILLIAMS PLANT
EMERYVILLE, CALIFORNIA
(Results reported in parts per million [ppm])

Well Number	Date Sampled	Acetone	Benzene	Ethyl-Benzene	Methyl Ethyl Ketone	Total Xylenes	2-Hexa-none	Toluene	1,1,1-TCA	1,2-DCA	PCE	TCE	Chloro-benzene	Total Quantified Conc.	Notes
RP-4	31-Jul-96	NA	<0.0005	<0.0005	NA	<0.002	NA	<0.0005	NA	NA	NA	NA	NA	NA	
DUP	31-Jul-96	NA	<0.0005	<0.0005	NA	<0.002	NA	<0.0005	NA	NA	NA	NA	NA	NA	
RP-4	19-Nov-96	NA	<0.0005	<0.0005	NA	<0.002	NA	<0.0005	NA	NA	NA	NA	NA	NA	
RP-4	25-Mar-97	NA	<0.0005	<0.0005	NA	<0.002	NA	<0.0005	NA	NA	NA	NA	NA	NA	
RP-4	10-Jun-97	NA	<0.0005	<0.0005	NA	<0.002	NA	<0.0005	NA	NA	NA	NA	NA	NA	
RP-4	10-Jun-97	NA	<0.0005	<0.0005	NA	<0.002	NA	<0.0005	NA	NA	NA	NA	NA	NA	
RP-4	18-Aug-97	NA	<0.0005	<0.0005	NA	<0.002	NA	<0.0005	NA	NA	NA	NA	NA	NA	
RP-4	19-Dec-97	NA	<0.0005	<0.0005	NA	<0.002	NA	0.0006	NA	NA	NA	NA	NA	0.0006	
RP-5	28-Jul-94	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
RP-5	08-Sep-94	<0.100	<0.005	<0.005	<0.100	<0.002	<0.050	<0.0005	NA	0.001	NA	<0.005	NA	NA	
RP-5	28-Feb-95	NA	<0.0005	<0.0005	NA	<0.002	NA	0.001	NA	NA	NA	NA	NA	NA	
RP-5	29-Mar-95	<0.100	<0.005	<0.005	NA	<0.01	NA	<0.005	NA	<0.005	NA	<0.005	NA	NA	
RP-5	10-May-95	NA	<0.0005	<0.0005	NA	<0.002	NA	<0.0005	NA	NA	NA	NA	NA	NA	
RP-5	09-Aug-95	NA	<0.0005	<0.0005	NA	<0.002	NA	<0.0005	NA	NA	NA	NA	NA	NA	
RP-5	17-Nov-95	NA	<0.0005	<0.0005	NA	<0.010	NA	<0.0005	NA	NA	NA	NA	NA	NA	
RP-5	09-Jan-96	<0.100	<0.0005	<0.0005	<0.100	<0.002	<0.050	<0.0005	NA	<0.005	NA	<0.005	NA	NA	
DUP	09-Jan-96	<0.100	<0.0005	<0.0005	<0.100	<0.002	<0.050	<0.0005	NA	<0.005	NA	<0.005	NA	NA	
RP-5	17-Apr-96	NA	<0.0005	<0.0005	NA	<0.002	NA	<0.0005	NA	NA	NA	NA	NA	NA	
RP-5	31-Jul-96	NA	<0.0005	<0.0005	NA	<0.002	NA	<0.0005	NA	NA	NA	NA	NA	NA	
RP-5	19-Nov-96	NA	<0.0005	<0.0005	NA	<0.002	NA	<0.0005	NA	NA	NA	NA	NA	NA	
DUP	19-Nov-96	NA	<0.0005	<0.0005	NA	<0.002	NA	<0.0005	NA	NA	NA	NA	NA	NA	
RP-5	25-Mar-97	NA	<0.0005	<0.0005	NA	<0.002	NA	<0.0005	NA	NA	NA	NA	NA	NA	
DUP	25-Mar-97	NA	<0.0005	<0.0005	NA	<0.002	NA	<0.0005	NA	NA	NA	NA	NA	NA	
RP-5	10-Jun-97	NA	<0.0005	<0.0005	NA	<0.002	NA	<0.0005	NA	NA	NA	NA	NA	NA	
RP-5	18-Aug-97	NA	<0.0005	<0.0005	NA	<0.002	NA	0.0006	NA	NA	NA	NA	NA	NA	
RP-5	19-Dec-97	NA	<0.0005	<0.0005	NA	<0.002	NA	0.0025	NA	NA	NA	NA	NA	0.0025	
MW-1	09-Jan-96	<0.100	0.053	0.002	<0.100	0.006	<0.050	0.003	NA	0.052	NA	<0.005	NA	NA	#9 #10
MW-1	17-Apr-96	NA	0.065	0.006	NA	0.007	NA	0.004	NA	NA	NA	NA	NA	NA	
MW-1	31-Jul-96	NA	0.053	0.012	NA	0.014	NA	0.010	NA	NA	NA	NA	NA	NA	
MW-1	19-Nov-96	NA	0.032	0.002	NA	0.005	NA	0.002	NA	NA	NA	NA	NA	NA	
MW-1	25-Mar-97	NA	0.049	0.002	NA	0.005	NA	0.002	NA	NA	NA	NA	NA	NA	
MW-1	10-Jun-97	NA	0.032	0.001	NA	0.003	NA	0.001	NA	NA	NA	NA	NA	NA	
MW-1	18-Aug-97	NA	0.033	0.0014	NA	0.004	NA	0.0015	NA	NA	NA	NA	NA	NA	
MW-1	19-Dec-97	NA	0.083	0.0038	NA	0.011	NA	0.0078	NA	NA	NA	NA	NA	0.1056	
MW-2	09-Jan-96	<0.100	0.039	0.001	<0.100	0.002	<0.050	0.001	NA	0.007	NA	<0.005	NA	NA	#11
MW-2	17-Apr-96	NA	0.032	0.008	NA	<0.002	NA	0.001	NA	NA	NA	NA	NA	NA	
MW-2	31-Jul-96	NA	0.042	0.001	NA	<0.002	NA	0.002	NA	NA	NA	NA	NA	NA	
MW-2	19-Nov-96	NA	0.018	0.001	NA	0.004	NA	0.002	NA	NA	NA	NA	NA	NA	
MW-2	25-Mar-97	NA	0.024	0.001	NA	<0.002	NA	0.001	NA	NA	NA	NA	NA	NA	
MW-2	10-Jun-97	NA	0.027	<0.0005	NA	0.002	NA	0.001	NA	NA	NA	NA	NA	NA	
MW-2	18-Aug-97	NA	0.033	<0.0005	NA	<0.002	NA	0.0008	NA	NA	NA	NA	NA	NA	
MW-2	19-Dec-97	NA	0.019	0.0021	NA	0.006	NA	0.0019	NA	NA	NA	NA	NA	0.0300	
MW-3	09-Jan-96	<0.100	<0.005	<0.005	<0.100	<0.002	<0.050	<0.005	NA	0.010	NA	0.006	NA	NA	
MW-3	17-Apr-96	NA	<0.005	<0.005	NA	<0.002	NA	<0.005	NA	NA	NA	NA	NA	NA	

TABLE 2
SUMMARY OF HISTORICAL VOLATILE ORGANIC COMPOUNDS (EPA 8240) IN GROUNDWATER MONITORING WELLS
THE SHERWIN-WILLIAMS PLANT
EMERYVILLE, CALIFORNIA
(Results reported in parts per million [ppm])

Well Number	Date Sampled	Acetone	Benzene	Ethyl-Benzene	Methyl Ethyl Ketone	Total Xylenes	2-Hexa-none	Toluene	1,1,1-TCA	1,2-DCA	PCE	TCE	Chloro-benzene	Total Quantified Conc.	Notes
MW-3	31-Jul-96	NA	<0.005	<0.005	NA	<0.002	NA	<0.005	NA	NA	NA	NA	NA	NA	
MW-3	19-Nov-96	NA	<0.005	<0.005	NA	0.004	NA	0.001	NA	NA	NA	NA	NA	NA	
MW-3	25-Mar-97	NA	<0.005	<0.005	NA	<0.002	NA	<0.005	NA	NA	NA	NA	NA	NA	
MW-3	10-Jun-97	NA	<0.0005	<0.0005	NA	<0.002	NA	<0.0005	NA	NA	NA	NA	NA	NA	
MW-3	18-Aug-97	NA	<0.0005	<0.0005	NA	<0.002	NA	<0.0005	NA	NA	NA	NA	NA	NA	#12
MW-3	19-Dec-97	NA	<0.0005	<0.0005	NA	<0.002	NA	<0.0005	NA	NA	NA	NA	NA	0.0000	
MW-4	10-Jan-96	<0.100	0.002	0.002	<0.100	0.012	<0.050	0.027	NA	<0.005	NA	<0.005	NA	NA	
MW-4	19-Nov-96	NA	0.002	0.002	NA	0.010	NA	0.002	NA	NA	NA	NA	NA	NA	
MW-4	18-Aug-97	NA	0.0017	0.0017	NA	0.014	NA	0.0016	NA	NA	NA	NA	NA	NA	
MW-4	19-Dec-97	NA	0.0008	0.0011	NA	0.006	NA	0.001	NA	NA	NA	NA	NA	0.0089	
MW-5	10-Jan-96	130.000	0.950	3.000	<100	15.000	<50	100.000	NA	<5	NA	<5	NA	NA	
MW-5	19-Nov-96	NA	0.700	2.100	NA	10.000	NA	120.000	NA	NA	NA	NA	NA	NA	
MW-5	18-Aug-97	NA	0.4	1.6	NA	8.1	NA	84	NA	NA	NA	NA	NA	NA	
MW-5	19-Dec-97	NA	<0.5	2.5	NA	11	NA	120	NA	NA	NA	NA	NA	133.5	
						FIELD BLANKS & TRIP BLANKS									
LF-1-FB	01-Jun-86	0.012	<0.001	<0.001	<0.020	0.004	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.016	
LF-13-FB	06-Dec-89	<0.010	<0.001	<0.001	<0.020	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.000	
LF-1-FB	07-Dec-89	<0.010	<0.001	<0.001	<0.020	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.000	
LF-B1-FB	07-Dec-89	<0.010	<0.001	<0.001	<0.020	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.000	
Trip Blank	07-Dec-89	<0.010	<0.001	<0.001	<0.020	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.000	
LF-B4-BB	18-Jul-90	<0.010	<0.001	<0.001	<0.020	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.000	
LF-B4-TB	18-Jul-90	<0.010	<0.001	<0.001	<0.020	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.000	
LF-11-BB	19-Jul-90	<0.010	<0.001	<0.001	<0.020	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.000	
LF-11-TB	19-Jul-90	<0.010	<0.001	<0.001	<0.020	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.000	
LF-B4-BR	19-Dec-90	<0.010	<0.001	<0.001	<0.020	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.000	
LF-B3-BR	20-Dec-90	<0.010	<0.001	<0.001	<0.020	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.000	
LF-8-BR	21-Dec-90	<0.010	<0.001	<0.001	<0.020	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.000	
LF-8-TB	21-Dec-90	<0.010	<0.001	<0.001	<0.020	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.000	
LF-B3-BR	19-Jun-91	<0.020	<0.005	<0.005	<0.020	<0.005	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
LF-11-BR	20-Jun-91	<0.020	<0.005	<0.005	<0.020	<0.005	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
LF-4-TB	24-Jun-91	<0.020	<0.005	<0.005	<0.020	<0.005	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
Trip Blank	06-Aug-91	<0.020	<0.005	<0.005	<0.020	<0.005	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
LF-B3-BR	08-Jul-92	<0.020	<0.005	<0.005	<0.020	<0.005	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
LF-B3-TB	08-Jul-92	<0.020	<0.005	<0.005	<0.020	<0.005	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
LF-7-TB	09-Jul-92	<0.020	<0.005	<0.005	<0.020	<0.005	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
LF-9-BR	09-Jul-92	<0.020	<0.005	<0.005	<0.020	<0.005	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
LF-B4-BR	30-Dec-92	<0.020	<0.005	<0.005	<0.020	<0.005	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
LF-B4-TB	30-Dec-92	<0.020	<0.005	<0.005	<0.020	<0.005	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
DUP	31-Dec-92	<0.020	<0.005	<0.005	<0.020	<0.005	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
LF-11-BR	31-Dec-92	<0.020	<0.005	<0.005	<0.020	<0.005	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
LF-B3-BR	08-Jun-93	<0.020	<0.005	<0.005	<0.020	<0.005	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
TRIP08	08-Jun-93	<0.020	<0.005	<0.005	<0.020	<0.005	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
LF-10-TB	09-Jun-93	<0.020	<0.005	<0.005	<0.020	<0.005	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
LF-7-BR	09-Jun-93	<0.020	<0.005	<0.005	<0.020	<0.005	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
LF-7-TB	09-Jun-93	<0.020	<0.005	<0.005	<0.020	<0.005	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	

TABLE 2
SUMMARY OF HISTORICAL VOLATILE ORGANIC COMPOUNDS (EPA 8240) IN GROUNDWATER MONITORING WELLS
THE SHERWIN-WILLIAMS PLANT
EMERYVILLE, CALIFORNIA
(Results reported in parts per million [ppm])

Well Number	Date Sampled	Acetone	Benzene	Ethyl-Benzene	Methyl Ethyl Ketone	Total Xylenes	2-Hexa-none	Toluene	1,1,1-TCA	1,2-DCA	PCE	TCE	Chloro-benzene	Total Quantified Conc.	Notes
Trip Blank	03-Jan-94	<0.050	<0.003	<0.005	<0.050	<0.005	<0.030	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	0.000	
LF-10-FB	06-Jan-94	<0.050	<0.003	<0.005	<0.050	<0.005	<0.030	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	0.000	
RP-3-FB	28-Feb-95	NA	<0.0005	<0.0005	NA	<0.002	NA	<0.0005	NA	NA	NA	NA	NA	0.000	
RP-3-FB	10-May-95	NA	<0.0005	<0.0005	NA	<0.002	NA	<0.0005	NA	NA	NA	NA	NA	0.000	
RP-3-FB	09-Aug-95	NA	<0.0005	<0.0005	NA	<0.002	NA	<0.0005	NA	NA	NA	NA	NA	0.000	
RP-3-FB	17-Nov-95	NA	<0.0005	<0.0005	NA	<0.002	NA	<0.0005	NA	NA	NA	NA	NA	0.000	
Trip Blank	17-Nov-95	NA	<0.0005	<0.0005	NA	<0.002	NA	<0.0005	NA	NA	NA	NA	NA	0.000	
RP-5-FB	09-Jan-96	<0.100	<0.0005	<0.0005	<0.100	<0.002	<0.050	<0.0005	NA	<0.005	NA	<0.005	NA	0.000	
LF-18-FB	11-Apr-96	<0.100	<0.005	<0.005	<0.100	<0.010	<0.050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
RP-4-FB	17-Apr-96	NA	<0.0005	<0.0005	NA	<0.002	NA	<0.0005	NA	NA	NA	NA	NA	0.000	
RP-1-FB	31-Jul-96	NA	<0.0005	<0.0005	NA	<0.002	NA	<0.0005	NA	NA	NA	NA	NA	0.000	
LF-24-FB	02-Aug-96	<0.100	<0.005	<0.005	<0.100	<0.010	<0.050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
Trip Blank	19-Nov-96	NA	<0.0005	<0.0005	NA	<0.002	NA	<0.0005	NA	NA	NA	NA	NA	0.000	
LF-B3-FB	21-Nov-96	<0.100	<0.005	<0.005	<0.100	<0.010	<0.050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
LF-B4-FB	22-Nov-96	<0.100	<0.005	<0.005	<0.100	<0.010	<0.050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
LF-B6-FB	25-Nov-96	<0.100	<0.005	<0.005	<0.100	<0.010	<0.050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
LF-13-FB	17-Mar-97	<0.010	<0.005	<0.005	<0.100	<0.010	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.000	
LF-11-FB	18-Mar-97	<0.010	<0.005	<0.005	<0.100	<0.010	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.000	
MW-1-FB	25-Mar-97	NA	<0.0005	<0.0005	NA	<0.002	NA	<0.0005	NA	NA	NA	NA	NA	0.000	
Trip Blank	25-Mar-97	NA	<0.0005	<0.0005	NA	<0.002	NA	<0.0005	NA	NA	NA	NA	NA	0.000	
RP-5-FB	10-Jun-97	NA	<0.0005	<0.0005	NA	<0.002	NA	<0.0005	NA	NA	NA	NA	NA	0.000	
LF-18-FB	11-Jun-97	<0.100	<0.005	<0.005	<0.100	<0.010	<0.050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
LF-12-FB	01-Jul-97	<0.100	<0.005	<0.005	NA	<0.010	<0.050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
TripBlank	01-Jul-97	<0.100	<0.005	<0.005	NA	<0.010	<0.050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
RP-1-FB	18-Aug-97	NA	<0.0005	<0.0005	NA	<0.002	NA	<0.0005	NA	NA	NA	NA	NA	0.000	
LF-21-FB	19-Aug-97	<0.1	<0.005	<0.005	<0.1	<0.01	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
MCLS	——	——	0.005	0.700	——	10.000	——	1.000	NA	0.001	NA	0.005	NA	NA	
LF-18-FB	17-Dec-97	<0.1	<0.005	<0.005	<0.1	<0.01	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	
RP-5-FB	19-Dec-97	NA	<0.0005	<0.0005	NA	<0.002	NA	<0.0005	NA	NA	NA	NA	NA	0.000	
TripBlank	19-Dec-97	NA	<0.0005	<0.0005	NA	<0.002	NA	<0.0005	NA	NA	NA	NA	NA	0.000	
TripBlank	30-Dec-97	<0.1	<0.005	<0.005	<0.1	<0.01	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.000	

Data entered by TGL. Data proofed by LG QA/QC by _____

Notes:
DUP = Duplicate Sample
1,1,1-TCA = 1,1,1-Trichloroethane
1,2-DCA = 1,2-Dichloroethane
PCE = Tetrachloroethene
TCE = Trichloroethene

#1 LF-B3 6/02/89 - Vinyl Acetate reported at 0.001 ppm, Styrene reported at 0.001 ppm, and Methyl Isobutyl Ketone reported at 0.001 ppm.
#2 LF-1 7/20/90 - cis-Dichloroethene reported at 0.001 ppm.
#3 LF-13 12/19/90 - 1,1-Dichloroethane reported at 0.002 ppm.
#4 LF-4 DUP 06/21/91 - cis-1,2-Dichloroethene reported at 0.020 ppm.
#5 LF-11 6/11/97 -Carbon Disulfide at 0.016 ppm
#6 LF-B1 Concentrations of chemicals detected in LF-B1 may not be representative of B-Zone groundwater quality since LF-B1 is only screened within the aquitard between the A-Zone and B-Zone.
#7 LF-B5 Concentrations of chemicals detected in LF-B5 may not be representative of B-Zone groundwater quality since LF-B5 is only screened within the aquitard between the A-Zone and B-Zone.

TABLE 2
SUMMARY OF HISTORICAL VOLATILE ORGANIC COMPOUNDS (EPA 8240) IN GROUNDWATER MONITORING WELLS
THE SHERWIN-WILLIAMS PLANT
EMERYVILLE, CALIFORNIA
(Results reported in parts per million (ppm))

Well Number	Date Sampled	Acetone	Benzene	Ethyl-Benzene	Methyl Ethyl Ketone	Total Xylenes	2-Hexa-none	Toluene	1,1,1-TCA	1,2-DCA	PCE	TCE	Chloro-benzene	Total Quantified Conc.	Notes

#8 RP-2 3/29/95 Carbon Disulfide detected at 0.015 mg/L
#9 MW-1 1/9/96 1,2-Dichloropropane at 0.13 ppm.
#10 MW-1 1/9/96 Vinyl chloride detected at 0.015 ppm.
#11 MW-2 1/9/96 1,2-Dichloropropane detected at 0.020 ppm.
#12 MW-3 8/18/97 Chloroform detected at 0.009 mg/L
#13 LF-28 12/29/97 Cis-1,2 Dichloroethene detected at 0.029 mg/l, and Trans 1,2-Dichloroethene detected at 0.011 mg/l
#14 LF-29 12/29/97 1,2-Dichloropropane detected at 0.21 mg/L
#15 LF-30 12/29/97 1,2-Dichloropropane detected at 0.099 mg/L, and cis-1,2-Dichloroethene detected at 0.01 mg/L.

TABLE 3
SUMMARY OF HISTORICAL TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND GASOLINE IN GROUNDWATER MONITORING WELLS
THE SHERWIN-WILLIAMS PLANT, EMERYVILLE, CALIFORNIA
(Results reported in parts per million [ppm])

Well Number	Date Sampled	Total Petroleum Hydrocarbons As Diesel	Total Petroleum Hydrocarbons As Gasoline	Notes
LF-1	21-Jun-91	<0.050		
LF-1	09-Jul-92	0.110	<0.050	
LF-1	09-Jun-93	0.083		
LF-1	10-Jun-93		<0.050	
LF-1	Destroyed under permit			
LF-3	21-Jun-91	2.000		
LF-3	09-Jul-92	3.000	190.000	
DUP	09-Jul-92	3.300	180.000	
LF-3	10-Jun-93	100	150	#2
DUP	10-Jun-93	110	150	#2
LF-3	16-Apr-96	2.6	87	
LF-3	31-Jul-96	0.64	90	
LF-3	20-Nov-96	9.3	75	
LF-3	19-Mar-97	0.65	61	
LF-3	12-Jun-97	1.1	130	
LF-3	19-Aug-97	0.97	200	
LF-3	17-Dec-97	1.1	30	
DUP	17-Dec-97	1.6	43	
LF-4	21-Jun-91	0.780		
DUP	21-Jun-91	0.510		
LF-4	09-Jul-92	1.200	14.000	
LF-4	09-Jun-93	1.200	2.200	#2
LF-5	06-Aug-91	4.700		
LF-5	09-Jul-92	0.830	69.000	
LF-5	09-Jun-93	2.000	95.000	#2
LF-5	Destroyed or lost during slurry wall and cap construction activities			
LF-7	20-Jun-91	<0.050		
LF-7	09-Jul-92	0.300	0.140	
DUP	09-Jul-92	0.480	0.130	
LF-7	09-Jun-93	0.340	0.110	
DUP	09-Jun-93	0.320	0.100	
LF-7	06-Jan-94	0.540	0.500	
LF-8	20-Jun-91	<0.050		
LF-8	09-Jul-92	0.250	<0.050	
LF-8	30-Dec-92	0.150	0.120	#4
LF-8	09-Jun-93	0.330	<0.050	#4
LF-8	06-Jan-94	1.700	<0.050	
LF-9	21-Jun-91	0.200		
LF-9	09-Jul-92	0.300	0.620	
LF-9	30-Dec-92	0.300	0.510	#4
LF-9	09-Jun-93	0.560	0.430	#4
LF-9	Destroyed or lost during slurry wall and cap construction activities			
LF-10	21-Jun-91	0.270		
LF-10	09-Jul-92	0.420	0.700	
LF-10	31-Dec-92	0.330	0.190	#1

TABLE 3
SUMMARY OF HISTORICAL TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND GASOLINE
IN GROUNDWATER MONITORING WELLS
THE SHERWIN-WILLIAMS PLANT, EMERYVILLE, CALIFORNIA
(Results reported in parts per million [ppm])

Well Number	Date Sampled	Total Petroleum Hydrocarbons As Diesel	Total Petroleum Hydrocarbons As Gasoline	Notes
DUP	31-Dec-92	0.370	0.180	#1
LF-10	10-Jun-93	0.470	0.180	
LF-10	06-Jan-94	1.500	0.200	
DUP	06-Jan-94	1.200	0.200	#4
LF-11	19-Jul-90			
LF-11	20-Jun-91	0.130		
DUP	20-Jun-91	0.120		
LF-11	09-Jul-92	0.260	<0.050	
LF-11	31-Dec-92	0.310	0.058	#1
LF-11	09-Jun-93	0.270	<0.050	
LF-11	05-Jan-94	0.800	0.060	
LF-11	16-Apr-96	0.930	<0.05	
LF-11	31-Jul-96	0.580	<0.050	
LF-11	20-Nov-96	1.5	<0.05	
LF-11	18-Mar-97	1.9	0.190	
DUP	18-Mar-97	1.8	<0.05	
LF-11	11-Jun-97	0.41	0.17	
LF-11	19-Aug-97	0.47	0.16	
LF-11	19-Aug-97	0.41	0.15	
LF-11	17-Dec-97	<0.05	0.22	
LF-12	19-Jun-91	<0.050		
LF-12	08-Jul-92	<0.050	<0.050	
LF-12	30-Dec-92	<0.050	<0.050	
LF-12	08-Jun-93	0.099	<0.050	
LF-12	06-Jan-94	<0.050	<0.050	
LF-12	16-Apr-96	<0.05	<0.05	
LF-12	30-Jul-96	<0.050	<0.050	
LF-12	20-Nov-96	<0.05	<0.05	
LF-12	17-Mar-97	<0.05	<0.05	
LF-12	01-Jul-97	<0.05	<0.05	
LF-12	01-Jul-97	<0.05	<0.05	
LF-12	20-Aug-97	<0.05	<0.05	
LF-12	18-Dec-97	<0.05	<0.05	
LF-13	19-Jun-91	<0.050		
LF-13	08-Jul-92	<0.050	<0.050	
LF-13	30-Dec-92	<0.050	<0.050	
LF-13	08-Jun-93	0.052	<0.050	
LF-13	05-Jan-94	<0.050	<0.050	
LF-13	16-Apr-96	<0.05	<0.05	
LF-13	30-Jul-96	<0.05	<0.05	
DUP	30-Jul-96	<0.05	<0.05	
LF-13	20-Nov-96	<0.05	<0.05	
LF-13	17-Mar-97	<0.05	<0.05	
DUP	17-Mar-97	<0.05	<0.05	
LF-13	12-Jun-97	<0.05	<0.05	
LF-13	19-Aug-97	<0.05	<0.05	
LF-13	18-Dec-97	<0.05	<0.05	
LF-14	20-Jun-91	<0.050		

TABLE 3
SUMMARY OF HISTORICAL TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND GASOLINE IN GROUNDWATER MONITORING WELLS
THE SHERWIN-WILLIAMS PLANT, EMERYVILLE, CALIFORNIA
(Results reported in parts per million [ppm])

Well Number	Date Sampled	Total Petroleum Hydrocarbons As Diesel	Total Petroleum Hydrocarbons As Gasoline	Notes
LF-14	09-Jul-92	0.180	<0.050	
LF-14	31-Dec-92	0.190	0.068	#1
LF-14	09-Jun-93	0.240	<0.050	
LF-14	Destroyed during railway expansion activities			
LF-15	20-Jun-91	<0.050		
LF-15	08-Jul-92	<0.050	<0.050	
LF-15	30-Dec-92	<0.050	<0.050	
LF-15	09-Jun-93	0.098	<0.050	
LF-15	Destroyed during railway expansion activies			
LF-16	20-Jun-91	<0.050		
LF-16	09-Jul-92	0.075	<0.050	
LF-16	30-Dec-92	<0.050	0.050	
LF-16	09-Jun-93	0.083	<0.050	
LF-16	Destroyed under permit			
LF-18	11-Apr-96	0.320	<0.05	
LF-18	30-Jul-96	0.320	<0.05	
LF-18	20-Nov-96	0.50	<0.05	
LF-18	19-Mar-97	0.26	<0.05	
LF-18	11-Jun-97	0.18	<0.05	
Dup	11-Jun-97	0.18	<0.05	
LF-18	19-Aug-97	0.31	<0.05	
LF-18	17-Dec-97	0.21	<0.05	
LF-19	13-Jun-97	0.60	0.07	
LF-19	19-Aug-97	0.78	0.15	
LF-20	11-Apr-96	0.960	0.230	
LF-20	30-Jul-96	0.560	0.200	
LF-20	21-Nov-96	3.2	0.250	
LF-20	18-Mar-97	0.61	0.200	
LF-20	11-Jun-97	0.54	0.200	
LF-20	19-Aug-97	0.67	0.22	
LF-20	18-Dec-97	0.79	<0.05	
LF-21	10-Apr-96	2.800	<0.05	
LF-21	31-Jul-96	1.400	0.060	
LF-21	21-Nov-96	2.4	0.060	
LF-21	18-Mar-97	1.7	<0.05	
LF-21	11-Jun-97	0.83	<0.05	
LF-21	19-Aug-97	0.78	<0.05	
LF-21	17-Dec-97	1.0	<0.05	
LF-23	10-Apr-96	1.700	<0.05	
DUP	10-Apr-96	1.300	<0.05	
LF-23	2-Aug-96	5.600	<0.05	
LF-23	21-Nov-96	1.3	<0.05	
LF-23	18-Mar-97	1.5	<0.05	
LF-23	11-Jun-97	0.41	<0.05	
LF-23	20-Aug-97	0.29	<0.05	

TABLE 3
SUMMARY OF HISTORICAL TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND GASOLINE IN GROUNDWATER MONITORING WELLS
THE SHERWIN-WILLIAMS PLANT, EMERYVILLE, CALIFORNIA
(Results reported in parts per million [ppm])

Well Number	Date Sampled	Total Petroleum Hydrocarbons As Diesel	Total Petroleum Hydrocarbons As Gasoline	Notes
LF-23	18-Dec-97	0.30	<0.05	
LF-24	11-Apr-96	0.090	<0.05	
LF-24	2-Aug-96	0.160	<0.05	
LF-24	21-Nov-96	0.14	<0.05	
LF-24	18-Mar-97	<0.05	<0.05	
LF-24	11-Jun-97	0.06	<0.05	
LF-24	20-Aug-97	0.06	<0.05	
LF-24	18-Dec-97	0.06	<0.05	
LF-25	11-Apr-95	0.180	<0.05	
LF-25	2-Aug-96	0.300	<0.05	
LF-25	21-Nov-96	0.31	<0.05	
LF-25	18-Mar-97	0.11	<0.05	
LF-25	11-Jun-97	0.11	<0.05	
LF-25	20-Aug-97	0.13	<0.05	
LF-25	18-Dec-97	0.15	<0.05	
LF-27	29-Dec-97	<0.05	<0.05	
LF-28	29-Dec-97	0.13	0.08	
LF-29	29-Dec-97	1.1	0.8	
LF-30	30-Dec-97	0.24	0.53	
LF-B1	20-Jun-91	<0.050		#5
LF-B1	08-Jul-92	<0.050	0.180	#5
LF-B1	30-Dec-92	<0.050	0.200	#3,#5
LF-B1	08-Jun-93	0.061	0.180	#3,#5
LF-B1	Destroyed under permit			
LF-B2	21-Jun-91	<0.050		
LF-B2	08-Jul-92	<0.050	<0.050	
LF-B2	08-Jun-93	<0.050	<0.050	
LF-B2	Destroyed or lost during slurry wall and cap construction activities			
LF-B3	19-Jun-91	<0.050		
LF-B3	08-Jul-92	<0.050	0.140	
LF-B3	30-Dec-92	<0.050	0.150	#3
LF-B3	08-Jun-93	0.060	0.090	#3
LF-B3	05-Jan-94	<0.050	<0.050	
LF-B3	16-Apr-96	2.700	<0.050	
LF-B3	01-Aug-96	0.60	<0.050	
LF-B3	21-Nov-96	0.44	<0.05	
DUP	21-Nov-96	0.53	<0.05	
LF-B3	17-Mar-97	0.85	<0.05	
LF-B3	12-Jun-97	0.93	0.06	
LF-B3	20-Aug-97	0.2	0.06	
LF-B3	17-Dec-97	0.70	<0.05	

TABLE 3
SUMMARY OF HISTORICAL TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND GASOLINE IN GROUNDWATER MONITORING WELLS
THE SHERWIN-WILLIAMS PLANT, EMERYVILLE, CALIFORNIA
(Results reported in parts per million [ppm])

Well Number	Date Sampled	Total Petroleum Hydrocarbons As Diesel	Total Petroleum Hydrocarbons As Gasoline	Notes
LF-B4	19-Jun-91	<0.050		
LF-B4	08-Jul-92	<0.050	<0.050	
LF-B4	30-Dec-92	<0.050	0.160	#3
LF-B4	08-Jun-93	0.066	<0.050	#3
LF-B4	05-Jan-94	<0.050	<0.050	
LF-B4	16-Apr-96	<0.05	<0.05	
LF-B4	22-Nov-96	0.16	<0.05	
DUP	22-Nov-96	<0.05	<0.05	
LF-B4	17-Mar-97	<0.05	<0.05	
LF-B4	01-Jul-97	<0.05	<0.05	
LF-B4	20-Aug-97	<0.05	<0.05	
LF-B4	18-Dec-97	<0.05	<0.05	
LF-B5	09-Apr-96	0.100	<0.05	#6
LF-B5	01-Aug-96	<0.050	0.150	#6
LF-B5	22-Nov-96	<0.05	0.06	#6
LF-B5	17-Mar-97	<0.05	0.12	#6
LF-B5	12-Jun-97	<0.05	0.09	#6
LF-B5	20-Aug-97	<0.05	0.12	#6
LF-B5	17-Dec-97	0.64	0.12	#6
LF-B6	09-Apr-96	1.000	2.700	
LF-B6	01-Aug-96	0.080	0.380	
LF-B6	25-Nov-96	0.34	0.21	
DUP	25-Nov-96	0.34	0.18	
LF-B6	17-Mar-97	0.14	0.10	
LF-B6	12-Jun-97	0.21	0.2	
LF-B6	19-Aug-97	0.19	0.16	
LF-B6	18-Dec-97	<0.05	0.14	
EX-1	18-Apr-96	4.300	0.420	
EX-1	01-Aug-96	4.100	0.220	
EX-1	18-Dec-96	2.4	3.1	
EX-1	15-Apr-97	0.99	7.1	
EX-1	01-Jul-97	0.94	4.7	
EX-1	22-Sep-97	1.4	0.32	
EX-1	18-Dec-97	1.7	1.6	
EX-2	18-Apr-96	1.300	41.000	
EX-2	01-Aug-96	3.700	34.0	
EX-2	18-Dec-96	0.69	45.0	
EX-2	15-Apr-97	0.72	47.0	
EX-2	01-Jul-97	0.64	70.0	
EX-2	22-Sep-97	0.64	39	
EX-2	22-Dec-97	0.55	10	
EX-3	18-Apr-96	0.430	<0.05	
EX-3	01-Aug-96	0.820	<0.050	
EX-3	18-Dec-96	0.210	<0.050	
EX-3	15-Apr-97	0.090	<0.050	
EX-3	01-Jul-97	0.13	<0.05	

TABLE 3
SUMMARY OF HISTORICAL TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND GASOLINE
IN GROUNDWATER MONITORING WELLS
THE SHERWIN-WILLIAMS PLANT, EMERYVILLE, CALIFORNIA
(Results reported in parts per million [ppm])

Well Number	Date Sampled	Total Petroleum Hydrocarbons As Diesel	Total Petroleum Hydrocarbons As Gasoline	Notes
EX-3	22-Sep-97	0.08	<0.05	
EX-3	19-Dec-97	0.18	0.22	
RP-1	28-Jul-94	NA	NA	
RP-1	08-Sep-94	1.900	4.400	
RP-1	28-Feb-95	0.300	1.800	
RP-1	29-Mar-95	<0.05	0.780	
RP-1	10-May-95	2.600	1.400	
RP-1	09-Aug-95	1.400	1.400	
RP-1	17-Nov-95	1.200	0.960	
RP-1	10-Jan-96	0.800	0.550	
RP-1	17-Apr-96	0.120	0.590	
dup	17-Apr-96	0.150	0.720	
RP-1	31-Jul-96	1.400	1.100	
RP-1	19-Nov-96	0.600	2.300	
RP-1	25-Mar-97	0.680	1.200	
RP-1	10-Jun-97	0.550	0.90	
RP-1	18-Aug-97	1.2	1.4	
RP-1	19-Dec-97	0.86	0.70	
dup	19-Dec-97	0.79	0.46	
RP-2	28-Jul-94	NA	NA	
RP-2	08-Sep-94	0.090	0.400	
dup	08-Sep-94	0.090	0.300	
RP-2	28-Feb-95	0.090	<0.05	
RP-2	29-Mar-95	0.070	0.400	
RP-2	10-May-95	<0.05	0.300	
RP-2	09-Aug-95	<0.05	0.200	
RP-2	17-Nov-95	0.100	0.200	
RP-2	10-Jan-96	0.050	0.100	
RP-2	17-Apr-96	<0.05	0.170	
RP-2	31-Jul-96	<0.05	<0.05	
RP-2	19-Nov-96	<0.05	0.180	
RP-2	25-Mar-97	<0.05	0.200	
RP-2	10-Jun-97	<0.05	0.130	
RP-2	18-Aug-97	<0.05	0.17	
dup	18-Aug-97	<0.05	0.16	
RP-2	19-Dec-97	0.16	<0.05	
RP-3	28-Jul-94	NA	NA	
RP-3	08-Sep-94	0.100	0.700	
RP-3	28-Feb-95	0.200	1.200	
RP-3	29-Mar-95	0.300	1.900	

TABLE 3
SUMMARY OF HISTORICAL TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND GASOLINE IN GROUNDWATER MONITORING WELLS
THE SHERWIN-WILLIAMS PLANT, EMERYVILLE, CALIFORNIA
(Results reported in parts per million [ppm])

Well Number	Date Sampled	Total Petroleum Hydrocarbons As Diesel	Total Petroleum Hydrocarbons As Gasoline	Notes
RP-3	10-May-95	0.100	1.700	
RP-3	09-Aug-95	0.200	1.200	
RP-3	17-Nov-95	0.100	1.100	
RP-3	10-Jan-96	0.100	0.560	
RP-3	17-Apr-96	0.130	0.420	
RP-3	31-Jul-96	0.100	0.390	
RP-3	19-Nov-96	0.070	1.200	
RP-3	25-Mar-97	0.090	0.470	
RP-3	10-Jun-97	0.100	0.530	
RP-3	18-Aug-97	0.09	0.5	
RP-3	19-Dec-97	0.48	0.08	
RP-4	28-Jul-94	NA	NA	
RP-4	08-Sep-94	0.100	0.200	
RP-4	28-Feb-95	0.080	0.070	
dup	28-Feb-95	0.070	0.070	
RP-4	29-Mar-95	0.070	0.300	
RP-4	10-May-95	<0.05	0.200	
dup	10-May-95	<0.05	0.200	
RP-4	09-Aug-95	<0.05	0.200	
dup	09-Aug-95	<0.05	0.200	
RP-4	17-Nov-95	<0.05	0.100	
dup	17-Nov-95	<0.05	0.300	
RP-4	09-Jan-96	0.050	0.100	
RP-4	17-Apr-96	<0.05	0.140	
RP-4	31-Jul-96	<0.05	0.240	
dup	31-Jul-96	<0.05	0.210	
RP-4	19-Nov-96	<0.05	0.120	
RP-4	25-Mar-97	<0.05	0.190	
RP-4	10-Jun-97	<0.05	0.190	
RP-4	10-Jun-97	<0.05	0.120	
RP-4	18-Aug-97	<0.05	0.07	
RP-4	19-Dec-97	0.07	<0.05	
RP-5	28-Jul-94	NA	NA	
RP-5	08-Sep-94	0.090	0.600	
RP-5	28-Feb-95	0.060	0.200	
RP-5	29-Mar-95	<0.05	0.800	
RP-5	10-May-95	<0.05	1.100	
RP-5	09-Aug-95	<0.05	0.690	
RP-5	17-Nov-95	<0.05	0.500	
RP-5	09-Jan-96	<0.05	0.200	
dup	09-Jan-96	<0.05	0.200	

TABLE 3
SUMMARY OF HISTORICAL TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND GASOLINE IN GROUNDWATER MONITORING WELLS THE SHERWIN-WILLIAMS PLANT, EMERYVILLE, CALIFORNIA
(Results reported in parts per million [ppm])

Well Number	Date Sampled	Total Petroleum Hydrocarbons As Diesel	Total Petroleum Hydrocarbons As Gasoline	Notes
RP-5	17-Apr-96	<0.05	0.640	
RP-5	31-Jul-96	<0.05	0.790	
RP-5	19-Nov-96	<0.05	0.410	
dup	19-Nov-96	<0.05	0.530	
RP-5	25-Mar-97	<0.05	0.540	
dup	25-Mar-97	<0.05	0.590	
RP-5	10-Jun-97	<0.05	0.590	
RP-5	18-Aug-97	<0.05	0.67	
RP-5	19-Dec-97	0.65	<0.05	
MW-1	09-Jan-96	1.300	4.000	
MW-1	17-Apr-96	1.700	1.100	
MW-1	31-Jul-96	2.400	12.000	
MW-1	19-Nov-96	0.850	1.500	
MW-1	25-Mar-97	0.990	1.800	
MW-1	10-Jun-97	0.940	1.300	
MW-1	18-Aug-97	0.88	1.6	
MW-1	19-Dec-97	1.2	1.1	
MW-2	09-Jan-96	0.900	2.500	
MW-2	17-Apr-96	0.620	4.600	
MW-2	31-Jul-96	0.710	3.200	
MW-2	19-Nov-96	0.370	3.200	
MW-2	25-Mar-97	0.520	3.300	
MW-2	10-Jun-97	0.500	1.500	
MW-2	18-Aug-97	0.73	1.8	
MW-2	19-Dec-97	1.5	0.4	
MW-3	09-Jan-96	0.200	0.300	
MW-3	17-Apr-96	0.160	0.180	
MW-3	31-Jul-96	9.400	0.420	
MW-3	19-Nov-96	0.470	0.460	
MW-3	25-Mar-97	0.310	<0.05	
MW-3	10-Jun-97	0.070	<0.05	
MW-3	18-Aug-97	0.1	<0.05	
MW-3	19-Dec-97	0.06	0.07	
MW-4	10-Jan-96	0.700	6.300	
MW-4	19-Nov-96	0.700	6.900	
MW-4	18-Aug-97	1.1	9.9	
MW-4	19-Dec-97	12	0.18	
MW-5	10-Jan-96	160.000	5.400	

TABLE 3
SUMMARY OF HISTORICAL TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND GASOLINE
IN GROUNDWATER MONITORING WELLS
THE SHERWIN-WILLIAMS PLANT, EMERYVILLE, CALIFORNIA
(Results reported in parts per million [ppm])

Well Number	Date Sampled	Total Petroleum Hydrocarbons As Diesel	Total Petroleum Hydrocarbons As Gasoline	Notes
MW-5	19-Nov-96	180.000	3.700	
MW-5	18-Aug-97	120	15	
MW-5	19-Dec-97	6.0	160	
		Field Blanks and Trip Blanks		
LF-24-FB	02-Aug-96	<0.05	<0.05	
TRIP BLANK	20-Nov-96	NA	<0.05	
LF-B3-FB	21-Nov-96	NA	<0.05	
TRIP BLANK	21-Nov-96	NA	<0.05	
LF-B4-FB	22-Nov-96	NA	<0.05	
TRIP BLANK	22-Nov-96	NA	<0.05	
LF-B6-FB	25-Nov-96	NA	<0.05	
LF-B5-FB	17-Mar-97	NA	<0.05	
TRIP BLANK	17-Mar-97	NA	<0.05	
TRIP BLANK	18-Mar-97	NA	<0.05	
LF-13-FB	18-Mar-97	NA	<0.05	
LF-18-FB	11-Jun-97	NA	<0.05	
TRIP BLANK	12-Jun-97	NA	<0.05	
LF-12-FB	01-Jul-97	<0.05	<0.05	
LF-21-FB	19-Aug-97	<0.05	<0.05	
TRIP BLANK	20-Aug-97	NA	<0.05	
RP-3-FB	28-Feb-95	<0.05	<0.05	
RP-3-FB	10-May-95	<0.05	<0.05	
RP-3-FB	09-Aug-95	<0.05	<0.05	
RP-3-FB	17-Nov-95	<0.05	<0.05	
Trip Blank	17-Nov-95	<0.05	NA	
RP-5-FB	09-Jan-96	<0.05	NA	
RP-4-FB	17-Apr-96	<0.05	NA	
RP-1-FB	31-Jul-96	<0.05	<0.05	
Trip Blank	19-Nov-96	<0.05	NA	
Trip Blank	25-Mar-97	<0.05	NA	
MW-1-FB	25-Mar-97	<0.05	NA	
RP-5-FB	10-Jun-97	<0.05	NA	
MCLS	-------	-------	-------	
RP-1-FB	18-Aug-97	<0.05	NA	
LF-18-FB	17-Dec-97	<0.05	<0.05	
RP-5-FB	19-Dec-97	<0.05	<0.05	
Trip Blank	17-Dec-97	NA	<0.05	
Trip Blank	19-Dec-97	NA	<0.05	

Data entered by TGL. Data proofed by LG QA/QC by _____

Notes:

Samples analyzed by B&C using Modified EPA Method 8015 for total fuel hydrocarbons.
Samples analyzed by ANA and AEN using EPA Method 3510 for total petroleum hydrocarbons as diesel.
Samples analyzed using EPA Method 5030 for total petroleum hydrocarbons

TABLE 3
SUMMARY OF HISTORICAL TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND GASOLINE IN GROUNDWATER MONITORING WELLS
THE SHERWIN-WILLIAMS PLANT, EMERYVILLE, CALIFORNIA
(Results reported in parts per million [ppm])

Well Number	Date Sampled	Total Petroleum Hydrocarbons As Diesel	Total Petroleum Hydrocarbons As Gasoline	Notes

as gasoline

#1 - The concentrations reported as diesel by Anametrix for samples LF-10, LF-10DUP, LF-11, and LF-14 are primarily caused by the presence of a heavier petroleum product, possibly motor oil.

#2 - The concentrations reported as diesel by Anametrix for samples LF-3, LF-3DUP, LF-4, and LF-5 are primarily due to the presence of a lighter petroleum product of hydrocarbon range C6-C12, possibly gasoline.

#3 - The concentrations reported as gasoline by Anametrix for samples LF-B1, LF-B2 and LF-B4 are primarily caused by the presence of discrete hydrocarbon peak not indicative of gasoline.

#4 - The concentration reported by Anametrix as gasoline for samples LF-8 and LF-9 are primarily caused by the presence of a heavier petroleum hydrocarbon peak not indicative of gasoline.

#5 - Concentrations of chemicals detected in LF-B1 may not be representative of B-Zone groundwater quality since LF-B1 is only screened within the aquitard between the A-Zone and B-Zone.

#6 - Concentrations of chemicals detected in LF-B5 may not be representative of B-Zone groundwater quality since LF-B5 is only screened within the aquitard between the A-Zone and B-Zone.

TABLE 4
SUMMARY OF HISTORICAL INORGANIC COMPOUNDS IN GROUNDWATER MONITORING WELLS
THE SHERWIN-WILLIAMS PLANT
EMERYVILLE, CALIFORNIA

(Results reported in parts per million [ppm])

Well Number	Notes	Date Sampled	Arsenic	Barium	Cadmium	Lead	Total Chromium	Mercury	Selenium	Silver
LF-1		01-Jun-89	200.000	NA	<0.0400	<0.300				
LF-1		07-Dec-89	190.000	NA	<0.0400	<0.300				
LF-1		20-Jul-90	120.000	0.060	<0.0500	<0.200				
LF-1		20-Jun-91	58.000	NA	<0.005	<0.004				
LF-1		09-Jul-92	53.200	<0.100	0.058	<0.040	<0.010	<0.00027	<0.005	<0.010
LF-1		10-Jun-93	39.800	<0.100	<0.030	0.0039	<0.010	<0.0002	<0.050	<0.010
LF-1		Destroyed under permit								
LF-3		02-Jun-89	27.000	NA	<0.0400	<0.300				
LF-3		07-Dec-89	30.000	NA	<0.0400	<0.300				
LF-3		20-Jul-90	21.000	0.420	<0.0500	<0.200				
LF-3		20-Jun-91	60.400	NA	<0.005	<0.004				
LF-3		09-Jul-92	70.800	0.473	0.0205	<0.040	<0.010	<0.00027	<0.005	<0.010
DUP		09-Jul-92	66.600	0.452	0.0361	<0.040	<0.010	<0.00027	<0.005	<0.010
LF-3		10-Jun-93	142.000	0.625	<0.100	<0.003	<0.010	<0.0002	<0.050	<0.010
DUP		10-Jun-93	141.000	0.635	<0.100	<0.003	<0.010	<0.0002	<0.050	<0.010
LF-3		16-Apr-96	58.000	NA	NA	<0.002	NA	NA	NA	NA
LF-3		31-Jul-96	72.000	NA	NA	NA	NA	NA	NA	NA
LF-3		20-Nov-96	72.000	NA	NA	NA	NA	NA	NA	NA
LF-3		19-Mar-87	110.000	NA	NA	NA	NA	NA	NA	NA
LF-3		12-Jun-97	180.000	NA	NA	NA	NA	NA	NA	NA
LF-3		19-Aug-97	120	NA	NA	NA	NA	NA	NA	NA
LF-3		17-Dec-97	60	NA	NA	NA	NA	NA	NA	NA
DUP		17-Dec-97	67	NA	NA	NA	NA	NA	NA	NA
LF-4		02-Jun-89	0.530	NA	<0.0400	<0.300				
DUP		02-Jun-89	0.580	NA	<0.0400	<0.300				
LF-4		06-Dec-89	0.420	NA	<0.0400	<0.300				
DUP		06-Dec-89	0.550	NA	<0.0400	<0.300				
LF-4		20-Jul-90	0.190	0.160	<0.0500	<0.200				
LF-4		20-Jun-91	0.510	NA	<0.005	0.015				
DUP		20-Jun-91	0.493	NA	<0.005	0.010				
LF-4		09-Jul-92	0.367	0.119	<0.005	<0.040	<0.010	<0.00027	<0.025	<0.010
LF-4		09-Jun-93	1.520	0.250	<0.015	<0.003	<0.010	<0.0002	<0.025	<0.010
LF-5		01-Jun-89	0.017	NA	<0.0400	<0.300				
LF-5		06-Dec-89	*<0.070	NA	<0.0400	<0.300				
LF-5		20-Jul-90	0.020	0.170	<0.0500	<0.200				

TABLE 4
SUMMARY OF HISTORICAL INORGANIC COMPOUNDS IN GROUNDWATER MONITORING WELLS
THE SHERWIN-WILLIAMS PLANT
EMERYVILLE, CALIFORNIA

(Results reported in parts per million [ppm])

Well Number	Notes	Date Sampled	Arsenic	Barium	Cadmium	Lead	Total Chromium	Mercury	Selenium	Silver
LF-5		20-Jun-91	0.038	NA	<0.005	0.003				
LF-5		09-Jul-92	<0.010	0.111	<0.005	<0.040	<0.010	<0.00027	<0.005	<0.010
LF-5		09-Jun-93	0.0283	0.257	<0.005	<0.003	<0.010	<0.00027	<0.005	<0.010
LF-5		Destroyed or lost during slurry wall and cap construction activities								
LF-6		01-Jun-89	13.000	NA	0.0900	<0.300				
LF-6		05-Dec-89	16.000	NA	0.0600	<0.300				
LF-6		20-Jul-90	14.000	0.210	<0.0500	<0.200				
LF-6		Sealed August 2, 1990								
LF-7		01-Jun-89	0.008	NA	<0.0400	<0.300				
LF-7		06-Dec-89	*<0.070	NA	<0.0400	<0.300				
LF-7		19-Jul-90	<0.002	0.060	<0.0500	<0.200				
LF-7		20-Jun-91	0.012	NA	<0.005	<0.004				
LF-7		09-Jul-92	<0.010	<0.100	<0.005	<0.040	<0.010	<0.00027	<0.005	<0.010
DUP		09-Jul-92	<0.010	<0.100	<0.005	<0.040	<0.010	<0.00027	<0.005	<0.010
LF-7		09-Jun-93	<0.010	0.191	<0.005	<0.003	<0.010	<0.0002	<0.005	<0.010
DUP		09-Jun-93	<0.010	0.201	<0.005	<0.003	<0.010	<0.0002	<0.005	<0.010
LF-7		06-Jan-94	<0.002	0.07	<0.001	0.001	<0.002	<0.0002	<0.004	<0.001
LF-8		05-Dec-89	*<0.070	NA	<0.0400	<0.300				
LF-8		19-Jul-90	<0.002	0.120	<0.0500	<0.200				
LF-8		21-Dec-90	0.020	0.590	0.0015	<0.200				
LF-8		20-Jun-91	0.021	NA	<0.005	<0.004				
LF-8		09-Jul-92	<0.010	<0.100	<0.005	<0.040	<0.010	<0.00027	<0.005	<0.010
LF-8		30-Dec-92	0.029	0.177	<0.005	<0.040	<0.010	<0.0002	<0.005	<0.010
LF-8		09-Jun-93	0.0384	0.121	<0.005	<0.003	<0.010	<0.0002	<0.005	<0.010
LF-8		06-Jan-94	0.055	0.10	<0.001	<0.001	<0.002	<0.0002	0.005	<0.001
LF-9		05-Dec-89	0.067	NA	<0.0400	<0.300				
LF-9		19-Jul-90	0.008	0.110	<0.0500	<0.200				
LF-9		21-Dec-90	0.120	0.270	0.0029	<0.200				
LF-9		20-Jun-91	0.075	NA	<0.005	0.012				
LF-9		06-Aug-91	0.131	NA	NA	NA				
LF-9		09-Jul-92	<0.010	<0.100	<0.005	<0.040	<0.010	<0.00027	<0.005	<0.010
LF-9		30-Dec-92	0.106	<0.100	<0.005	<0.040	<0.010	<0.0002	<0.005	<0.010
LF-9		09-Jun-93	0.158	0.169	<0.005	<0.003	<0.010	<0.0002	<0.005	<0.010
LF-9		Destroyed or lost during slurry wall and cap construction activities								

TABLE 4
SUMMARY OF HISTORICAL INORGANIC COMPOUNDS IN GROUNDWATER MONITORING WELLS
THE SHERWIN-WILLIAMS PLANT
EMERYVILLE, CALIFORNIA

(Results reported in parts per million [ppm])

Well Number	Notes	Date Sampled	Arsenic	Barium	Cadmium	Lead	Total Chromium	Mercury	Selenium	Silver
LF-10		07-Dec-89	0.650	NA	<0.0400	<0.300				
LF-10		19-Jul-90	0.012	0.110	<0.0500	<0.200				
DUP		19-Jul-90	0.008	0.140	<0.0500	<0.300				
LF-10		21-Dec-90	1.000	0.330	0.0009	<0.200				
DUP		21-Dec-90	1.100	0.350	0.0007	<0.300				
LF-10		20-Jun-91	0.657	NA	<0.005	0.013				
LF-10		06-Aug-91	1.090	NA	NA	NA				
LF-10		09-Jul-92	0.328	<0.100	<0.005	<0.040	<0.010	<0.00027	<0.025	<0.010
LF-10		31-Dec-92	0.550	<0.100	<0.005	<0.040	<0.010	<0.0002	<0.005	<0.010
DUP		31-Dec-92	0.552	<0.100	<0.005	<0.040	<0.010	<0.0002	<0.005	<0.010
LF-10		10-Jun-93	0.958	0.249	<0.005	<0.003	<0.010	<0.0002	<0.050	<0.010
LF-10		06-Jan-94	0.940	0.190	<0.001	<0.001	<0.002	<0.0002	<0.004	0.002
DUP		06-Jan-94	0.820	0.180	<0.001	0.001	<0.002	<0.0002	<0.004	0.002
LF-11		05-Dec-89	*<0.070	NA	<0.0400	<0.300				
LF-11		19-Jul-90	0.007	0.120	<0.0500	<0.200				
LF-11		21-Dec-90	0.011	0.180	0.0006	<0.200				
LF-11		20-Jun-91	0.023	NA	<0.005	0.007				
LF-11		20-Jun-91	0.024	NA	<0.005	0.006				
LF-11		06-Aug-91	0.021	NA	NA	NA				
LF-11		09-Jul-92	<0.010	0.169	<0.005	<0.040	<0.010	<0.00027	<0.005	<0.010
LF-11		31-Dec-92	<0.010	<0.100	<0.005	<0.040	<0.010	<0.0002	<0.005	<0.010
LF-11		09-Jun-93	0.0116	0.152	<0.005	<0.003	<0.010	<0.0002	<0.005	<0.010
LF-11		05-Jan-94	0.019	0.130	<0.001	<0.001	<0.002	<0.0002	<0.004	0.001
LF-11		16-Apr-96	0.048	NA	NA	<0.002	NA	NA	NA	NA
LF-11		31-Jul-96	0.110	NA	NA	NA	NA	NA	NA	NA
LF-11		20-Nov-96	0.45	NA	NA	NA	NA	NA	NA	NA
LF-11		17-Mar-97	1.200	NA	NA	NA	NA	NA	NA	NA
DUP		17-Mar-97	1.200	NA	NA	NA	NA	NA	NA	NA
LF-11		11-Jun-97	0.62	NA	NA	NA	NA	NA	NA	NA
LF-11		19-Aug-97	1.3	NA	NA	NA	NA	NA	NA	NA
DUP		19-Aug-97	1.1	NA	NA	NA	NA	NA	NA	NA
LF-11		17-Dec-97	2.1	NA	NA	NA	NA	NA	NA	NA
LF-12		06-Dec-89	*<0.070	NA	<0.0400	<0.300				
LF-12		18-Jul-90	0.004	0.060	<0.0500	<0.300				
LF-12		19-Jun-91	<0.010	NA	<0.005	<0.004				

TABLE 4
SUMMARY OF HISTORICAL INORGANIC COMPOUNDS IN GROUNDWATER MONITORING WELLS
THE SHERWIN-WILLIAMS PLANT
EMERYVILLE, CALIFORNIA

(Results reported in parts per million [ppm])

Well Number	Notes	Date Sampled	Arsenic	Barium	Cadmium	Lead	Total Chromium	Mercury	Selenium	Silver
LF-12		08-Jul-92	<0.010	<0.100	<0.005	<0.040	<0.010	<0.00027	<0.005	<0.010
LF-12		30-Dec-92	0.014	<0.100	<0.005	<0.040	<0.010	<0.0002	<0.005	<0.010
LF-12		08-Jun-93	0.0152	<0.100	<0.005	<0.003	<0.010	<0.0002	<0.005	<0.010
LF-12		06-Jan-94	0.013	0.060	<0.001	<0.001	0.006	<0.0002	0.005	<0.001
LF-12		16-Apr-96	0.043	NA	NA	<0.002	NA	NA	NA	NA
LF-12		30-Jul-93	0.006	NA	NA	NA	NA	NA	NA	NA
LF-12		20-Nov-96	0.022	NA	NA	NA	NA	NA	NA	NA
LF-12		17-Mar-97	0.014	NA	NA	NA	NA	NA	NA	NA
LF-12		01-Jul-97	0.014	NA	NA	NA	NA	NA	NA	NA
LF-12		01-Jul-97	0.014	NA	NA	NA	NA	NA	NA	NA
LF-12		20-Aug-97	0.018	NA	NA	NA	NA	NA	NA	NA
LF-12		18-Dec-97	0.013	NA	NA	NA	NA	NA	NA	NA
LF-13		06-Dec-89	*<0.070	NA	<0.0400	<0.300				
LF-13		18-Jul-90	<0.002	<0.050	<0.0500	<0.200				
LF-13		19-Dec-90	<0.002	0.100	<0.0005	<0.200				
LF-13		19-Jun-91	<0.010	NA	<0.005	<0.004				
LF-13		08-Jul-92	<0.010	<0.100	<0.005	<0.040	<0.010	<0.00027	<0.005	<0.010
LF-13		30-Dec-92	<0.010	<0.100	<0.005	<0.040	<0.010	<0.0002	<0.005	<0.010
LF-13		08-Jun-93	<0.010	<0.100	<0.005	<0.003	<0.010	<0.0002	<0.005	<0.010
LF-13		05-Jan-94	0.003	0.040	<0.005	<0.001	<0.002	<0.0002	<0.004	<0.001
LF-13		16-Apr-96	<0.002	NA	NA	<0.002	NA	NA	NA	NA
LF-13		30-Jul-96	<0.002	NA	NA	NA	NA	NA	NA	NA
DUP		30-Jul-96	<0.002	NA	NA	NA	NA	NA	NA	NA
LF-13		20-Nov-96	<0.002	NA	NA	NA	NA	NA	NA	NA
LF-13		17-Mar-97	<0.002	NA	NA	NA	NA	NA	NA	NA
DUP		17-Mar-97	<0.002	NA	NA	NA	NA	NA	NA	NA
LF-13		12-Jun-97	<0.002	NA	NA	NA	NA	NA	NA	NA
LF-13		19-Aug-97	<0.002	NA	NA	NA	NA	NA	NA	NA
LF-13		18-Dec-97	<0.002	NA	NA	NA	NA	NA	NA	NA
LF-14		04-Sep-90	0.092	0.060	<0.0005	0.007				
LF-14		02-Oct-90	0.077	NA	NA	NA				
LF-14		20-Dec-90	0.150	0.470	0.0036	<0.200				
LF-14		20-Jun-91	0.095	NA	<0.005	<0.004				
LF-14		09-Jul-92	0.039	<0.100	<0.005	<0.040	<0.010	<0.00027	<0.005	<0.010
LF-14		31-Dec-92	0.121	<0.100	<0.005	<0.040	<0.010	<0.0002	<0.005	<0.010
LF-14		09-Jun-93	0.102	<0.100	<0.005	<0.003	<0.010	<0.0002	<0.005	<0.010

TABLE 4
SUMMARY OF HISTORICAL INORGANIC COMPOUNDS IN GROUNDWATER MONITORING WELLS
THE SHERWIN-WILLIAMS PLANT
EMERYVILLE, CALIFORNIA

(Results reported in parts per million [ppm])

Well Number	Notes	Date Sampled	Arsenic	Barium	Cadmium	Lead	Total Chromium	Mercury	Selenium	Silver
LF-14		Destroyed during railway expansion activities								
LF-15		04-Sep-90	0.002	0.060	<0.0005	0.043				
LF-15		20-Dec-90	0.007	0.230	0.0007	<0.200				
LF-15		20-Jun-91	<0.010	NA	<0.005	<0.004				
LF-15		08-Jul-92	<0.010	0.105	<0.005	<0.040	<0.010	<0.00027	<0.005	<0.010
LF-15		30-Dec-92	<0.010	<0.100	<0.005	<0.040	<0.010	<0.0002	<0.005	<0.010
LF-15		09-Jun-93	<0.010	<0.100	<0.005	<0.003	<0.010	<0.0002	<0.005	<0.010
LF-15		Destroyed during railway expansion activities								
LF-16		04-Sep-90	0.003	0.060	<0.0005	<0.002				
LF-16		20-Dec-90	0.003	0.170	0.0007	<0.200				
LF-16		20-Jun-91	0.010	NA	<0.005	<0.004				
LF-16		09-Jul-92	<0.010	<0.100	<0.005	<0.040	<0.010	<0.00027	<0.005	<0.010
LF-16		30-Dec-92	<0.010	<0.100	<0.005	<0.040	<0.010	<0.0002	<0.005	<0.010
LF-16		09-Jun-93	<0.010	<0.100	<0.005	<0.003	<0.010	<0.0002	<0.050	<0.010
LF-16		Destroyed under permit								
LF-18		11-Apr-96	0.012	NA	NA	<0.002	NA	NA	NA	NA
LF-18		30-Jul-96	0.037	NA	NA	NA	NA	NA	NA	NA
LF-18		20-Nov-96	0.043	NA	NA	NA	NA	NA	NA	NA
LF-18		19-Mar-97	0.023	NA	NA	NA	NA	NA	NA	NA
LF-18		11-Jun-97	0.026	NA	NA	NA	NA	NA	NA	NA
Dup		11-Jun-97	0.032	NA	NA	NA	NA	NA	NA	NA
LF-18		19-Aug-97	0.048	NA	NA	NA	NA	NA	NA	NA
LF-18		17-Dec-97	0.008	NA	NA	NA	NA	NA	NA	NA
LF-19		13-Jun-97	<0.002	NA	NA	NA	NA	NA	NA	NA
LF-19		19-Aug-97	0.007	NA	NA	NA	NA	NA	NA	NA
LF-20		11-Apr-96	<0.002	NA	NA	<0.002	NA	NA	NA	NA
LF-20		30-Jul-96	0.085	NA	NA	NA	NA	NA	NA	NA
LF-20		21-Nov-96	0.120	NA	NA	NA	NA	NA	NA	NA
LF-20		18-Mar-97	0.110	NA	NA	NA	NA	NA	NA	NA
LF-20		11-Jun-97	0.180	NA	NA	NA	NA	NA	NA	NA
LF-20		19-Aug-97	0.18	NA	NA	NA	NA	NA	NA	NA
LF-20		18-Dec-97	0.15	NA	NA	NA	NA	NA	NA	NA
LF-21		10-Apr-96	<0.002	NA	NA	<0.002	NA	NA	NA	NA

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THE SHERWIN-WILLIAMS PLANT
EMERYVILLE, CALIFORNIA

(Results reported in parts per million [ppm])

Well Number	Notes	Date Sampled	Arsenic	Barium	Cadmium	Lead	Total Chromium	Mercury	Selenium	Silver
LF-21		31-Jul-96	0.43	NA	NA	NA	NA	NA	NA	NA
LF-21		21-Nov-96	0.38	NA	NA	NA	NA	NA	NA	NA
LF-21		18-Mar-97	0.40	NA	NA	NA	NA	NA	NA	NA
LF-21		11-Jun-97	0.43	NA	NA	NA	NA	NA	NA	NA
LF-21		19-Aug-97	0.53	NA	NA	NA	NA	NA	NA	NA
LF-21		17-Dec-97	0.48	NA	NA	NA	NA	NA	NA	NA
LF-23		10-Apr-96	<0.002	NA	NA	<0.002	NA	NA	NA	NA
DUP		10-Apr-96	0.004	NA	NA	<0.002	NA	NA	NA	NA
LF-23		02-Aug-96	**0.009	NA	NA	NA	NA	NA	NA	NA
LF-23		21-Nov-96	0.027	NA	NA	NA	NA	NA	NA	NA
LF-23		18-Mar-97	0.010	NA	NA	NA	NA	NA	NA	NA
LF-23		11-Jun-97	0.009	NA	NA	NA	NA	NA	NA	NA
LF-23		20-Aug-97	0.009	NA	NA	NA	NA	NA	NA	NA
LF-23		18-Dec-97	0.006	NA	NA	NA	NA	NA	NA	NA
LF-24		11-Apr-96	0.005	NA	NA	<0.002	NA	NA	NA	NA
LF-24		02-Aug-96	**0.010	NA	NA	NA	NA	NA	NA	NA
LF-24		21-Nov-96	0.010	NA	NA	NA	NA	NA	NA	NA
LF-24		18-Mar-97	0.006	NA	NA	NA	NA	NA	NA	NA
LF-24		11-Jun-97	0.005	NA	NA	NA	NA	NA	NA	NA
LF-24		20-Aug-97	0.008	NA	NA	NA	NA	NA	NA	NA
LF-24		18-Dec-97	0.004	NA	NA	NA	NA	NA	NA	NA
LF-25		11-Apr-96	<0.002	NA	NA	<0.002	NA	NA	NA	NA
LF-25		02-Aug-96	0.070	NA	NA	NA	NA	NA	NA	NA
LF-25		21-Nov-96	0.14	NA	NA	NA	NA	NA	NA	NA
LF-25		18-Mar-97	0.13	NA	NA	NA	NA	NA	NA	NA
LF-25		11-Jun-97	0.16	NA	NA	NA	NA	NA	NA	NA
LF-25		20-Aug-97	0.16	NA	NA	NA	NA	NA	NA	NA
LF-25		18-Dec-97	0.12	NA	NA	NA	NA	NA	NA	NA
LF-27		29-Dec-97	0.011	NA	NA	NA	NA	NA	NA	NA
LF-28		29-Dec-97	0.66	NA	NA	NA	NA	NA	NA	NA
LF-29		29-Dec-97	0.006	NA	NA	NA	NA	NA	NA	NA

TABLE 4
SUMMARY OF HISTORICAL INORGANIC COMPOUNDS IN GROUNDWATER MONITORING WELLS
THE SHERWIN-WILLIAMS PLANT
EMERYVILLE, CALIFORNIA

(Results reported in parts per million [ppm])

Well Number	Notes	Date Sampled	Arsenic	Barium	Cadmium	Lead	Total Chromium	Mercury	Selenium	Silver
LF-30		30-Dec-97	<0.002	NA	NA	NA	NA	NA	NA	NA
LF-B1	(1)	07-Dec-89	*<0.070	NA	<0.0400	<0.300				
LF-B1	(1)	18-Jul-90	0.007	0.08	<0.0500	<0.2				
LF-B1	(1)	20-Dec-90	0.005	0.100	0.0010	<0.200				
LF-B1	(1)	20-Jun-91	<0.010	NA	<0.005	0.004				
LF-B1	(1)	08-Jul-92	<0.010	0.122	<0.005	<0.040	<0.010	<0.00027	<0.005	<0.010
LF-B1	(1)	30-Dec-92	<0.010	<0.100	<0.005	<0.040	<0.010	<0.0002	<0.005	<0.010
LF-B1	(1)	08-Jun-93	<0.010	<0.100	<0.005	<0.003	<0.010	<0.0002	<0.005	<0.010
LF-B1	(1)	Destroyed under permit								
LF-B2		06-Dec-89	*<0.070	NA	<0.0400	<0.300				
LF-B2		18-Jul-90	0.005	0.140	<0.0500	<0.200				
DUP		18-Jul-90	0.004	0.150	<0.0500	<0.200				
LF-B2		19-Dec-90	0.008	0.320	0.0026	<0.200				
LF-B2		20-Jun-91	<0.010	NA	<0.005	0.005				
LF-B2		08-Jul-92	<0.010	0.245	<0.005	<0.040	<0.010	<0.00027	<0.005	<0.010
LF-B2		08-Jun-93	<0.010	0.233	<0.005	<0.003	<0.010	<0.0002	<0.005	<0.010
LF-B2		Destroyed or lost during slurry wall and cap construction activities								
LF-B3		07-Dec-89	*<0.070	NA	<0.0400	<0.300				
LF-B3		18-Jul-90	0.003	0.100	<0.0500	<0.200				
LF-B3		20-Dec-90	0.002	0.160	<0.0005	<0.200				
LF-B3		19-Jun-91	<0.010	NA	<0.005	<0.004				
LF-B3		08-Jul-92	<0.010	0.133	<0.005	<0.040	<0.010	<0.00027	<0.005	<0.010
LF-B3		30-Dec-92	<0.010	0.112	<0.005	<0.040	<0.010	<0.0002	<0.005	<0.010
LF-B3		08-Jun-93	<0.010	<0.100	<0.005	<0.003	<0.010	<0.0002	<0.005	<0.010
LF-B3		05-Jan-94	0.004	0.110	0.0060	<0.001	<0.002	<0.0002	<0.004	<0.001
LF-B3		16-Apr-96	0.036	NA	NA	<0.002	NA	NA	NA	NA
LF-B3		01-Aug-96	0.004	NA	NA	NA	NA	NA	NA	NA
LF-B3		21-Nov-96	0.006	NA	NA	NA	NA	NA	NA	NA
DUP		21-Nov-96	0.004	NA	NA	NA	NA	NA	NA	NA
LF-B3		17-Mar-97	<0.002	NA	NA	NA	NA	NA	NA	NA
LF-B3		12-Jun-97	<0.002	NA	NA	NA	NA	NA	NA	NA
LF-B3		20-Aug-97	0.005	NA	NA	NA	NA	NA	NA	NA
LF-B3		17-Dec-97	0.017	NA	NA	NA	NA	NA	NA	NA
LF-B4		17-Jul-90	0.003	0.080	<0.0500	<0.200				

TABLE 4
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THE SHERWIN-WILLIAMS PLANT
EMERYVILLE, CALIFORNIA

(Results reported in parts per million [ppm])

Well Number	Notes	Date Sampled	Arsenic	Barium	Cadmium	Lead	Total Chromium	Mercury	Selenium	Silver
LF-B4		19-Dec-90	<0.002	0.080	0.0014	<0.200				
LF-B4		19-Jun-91	<0.010	NA	<0.005	<0.004				
LF-B4		08-Jul-92	<0.010	0.140	<0.005	<0.040	<0.010	<0.00027	<0.005	<0.010
LF-B4		30-Dec-92	<0.010	0.110	<0.005	<0.040	<0.010	<0.0002	<0.005	<0.010
LF-B4		08-Jun-93	<0.010	<0.100	<0.005	<0.003	<0.010	<0.0002	<0.005	<0.010
LF-B4		05-Jan-94	0.003	0.070	<0.001	0.001	<0.002	<0.0002	<0.004	<0.001
LF-B4		16-Apr-96	<0.002	NA	NA	<0.002	NA	NA	NA	NA
LF-B4		30-Jul-96	<0.002	NA	NA	NA	NA	NA	NA	NA
LF-B4		22-Nov-96	<0.002	NA	NA	NA	NA	NA	NA	NA
DUP		22-Nov-96	<0.002	NA	NA	NA	NA	NA	NA	NA
LF-B4		17-Mar-97	<0.002	NA	NA	NA	NA	NA	NA	NA
LF-B4		01-Jul-97	<0.002	NA	NA	NA	NA	NA	NA	NA
LF-B4		20-Aug-97	0.005	NA	NA	NA	NA	NA	NA	NA
LF-B4		18-Dec-97	<0.002	NA	NA	NA	NA	NA	NA	NA
LF-B5	(2)	09-Apr-96	0.320	NA	NA	<0.002	NA	NA	NA	NA
LF-B5	(2)	01-Aug-96	0.097	NA	NA	NA	NA	NA	NA	NA
LF-B5	(2)	22-Nov-96	0.11	NA	NA	NA	NA	NA	NA	NA
LF-B5	(2)	17-Mar-97	0.11	NA	NA	NA	NA	NA	NA	NA
LF-B5	(2)	12-Jun-97	0.18	NA	NA	NA	NA	NA	NA	NA
LF-B5	(2)	20-Aug-97	0.14	NA	NA	NA	NA	NA	NA	NA
LF-B5	(2)	17-Dec-97	0.20	NA	NA	NA	NA	NA	NA	NA
LF-B6		09-Apr-96	0.080	NA	NA	<0.002	NA	NA	NA	NA
LF-B6		01-Aug-96	0.033	NA	NA	NA	NA	NA	NA	NA
LF-B6		25-Nov-96	0.027	NA	NA	NA	NA	NA	NA	NA
DUP		25-Nov-96	0.030	NA	NA	NA	NA	NA	NA	NA
LF-B6		17-Mar-97	0.021	NA	NA	NA	NA	NA	NA	NA
LF-B6		12-Jun-97	0.035	NA	NA	NA	NA	NA	NA	NA
LF-B6		19-Aug-97	0.01	NA	NA	NA	NA	NA	NA	NA
LF-B6		18-Dec-97	0.010	NA	NA	NA	NA	NA	NA	NA
EX-1		18-Apr-96	0.002	NA	NA	<0.002	NA	NA	NA	NA
EX-1		01-Aug-96	0.022	NA	NA	NA	NA	NA	NA	NA
EX-1		18-Dec-96	0.015	NA	NA	NA	NA	NA	NA	NA
EX-1		15-Apr-97	0.072	NA	NA	NA	NA	NA	NA	NA
EX-1		01-Jul-97	0.013	NA	NA	NA	NA	NA	NA	NA
EX-1		22-Sep-97	0.028	NA	NA	NA	NA	NA	NA	NA

TABLE 4
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THE SHERWIN-WILLIAMS PLANT
EMERYVILLE, CALIFORNIA

(Results reported in parts per million [ppm])

Well Number	Notes	Date Sampled	Arsenic	Barium	Cadmium	Lead	Total Chromium	Mercury	Selenium	Silver
EX-1		18-Dec-97	0.31	NA	NA	NA	NA	NA	NA	NA
EX-2		18-Apr-96	9.3	NA	NA	<0.002	NA	NA	NA	NA
EX-2		01-Aug-96	57.0	NA	NA	NA	NA	NA	NA	NA
EX-2		18-Dec-96	34.0	NA	NA	NA	NA	NA	NA	NA
EX-2		15-Apr-97	44.0	NA	NA	NA	NA	NA	NA	NA
EX-2		22-Sep-97	42	NA	NA	NA	NA	NA	NA	NA
EX-2		22-Dec-97	36	NA	NA	NA	NA	NA	NA	NA
EX-3		18-Apr-96	200	NA	NA	<0.002	NA	NA	NA	NA
EX-3		01-Aug-96	170	NA	NA	NA	NA	NA	NA	NA
EX-3		18-Dec-96	270	NA	NA	NA	NA	NA	NA	NA
EX-3		15-Apr-97	220	NA	NA	NA	NA	NA	NA	NA
EX-3		01-Jul-97	0.190	NA	NA	NA	NA	NA	NA	NA
EX-3		22-Sep-97	150	NA	NA	NA	NA	NA	NA	NA
EX-3		19-Dec-97	180	NA	NA	NA	NA	NA	NA	NA
RP-1		28-Jul-94	0.070	NA	NA	NA	NA	NA	NA	NA
RP-1		08-Sep-94	0.080	NA	NA	NA	NA	NA	NA	NA
RP-1		28-Feb-95	0.046	NA	NA	NA	NA	NA	NA	NA
RP-1	(4)	29-Mar-95	0.035	0.04	<0.005	<0.04	<0.01	<0.0002	<0.004	<0.005
RP-1		10-May-95	0.095	NA	NA	NA	NA	NA	NA	NA
RP-1		09-Aug-95	0.059	NA	NA	NA	NA	NA	NA	NA
RP-1		17-Nov-95	0.086	NA	NA	NA	NA	NA	NA	NA
RP-1		10-Jan-96	0.061	NA	NA	NA	NA	NA	NA	NA
RP-1		17-Apr-96	0.058	NA	NA	NA	NA	NA	NA	NA
DUP		17-Apr-96	0.069	NA	NA	NA	NA	NA	NA	NA
RP-1		31-Jul-96	0.068	NA	NA	NA	NA	NA	NA	NA
RP-1		19-Nov-96	0.041	NA	NA	NA	NA	NA	NA	NA
RP-1		25-Mar-97	0.054	NA	NA	NA	NA	NA	NA	NA
RP-1		10-Jun-97	0.077	NA	NA	NA	NA	NA	NA	NA
RP-1		18-Aug-97	0.047	NA	NA	NA	NA	NA	NA	NA
RP-1		19-Dec-97	0.022	NA	NA	NA	NA	NA	NA	NA
DUP		19-Dec-97	0.010	NA	NA	NA	NA	NA	NA	NA

TABLE 4
SUMMARY OF HISTORICAL INORGANIC COMPOUNDS IN GROUNDWATER MONITORING WELLS
THE SHERWIN-WILLIAMS PLANT
EMERYVILLE, CALIFORNIA

(Results reported in parts per million [ppm])

Well Number	Notes	Date Sampled	Arsenic	Barium	Cadmium	Lead	Total Chromium	Mercury	Selenium	Silver
RP-2		28-Jul-94	0.010	NA	NA	NA	NA	NA	NA	NA
RP-2		08-Sep-94	0.024	NA	NA	NA	NA	NA	NA	NA
DUP		08-Sep-94	0.020	NA	NA	NA	NA	NA	NA	NA
RP-2		28-Feb-95	0.013	NA	NA	NA	NA	NA	NA	NA
RP-2	(3)	29-Mar-95	0.010	0.08	<0.005	<0.04	<0.01	<0.0002	<0.004	<0.005
RP-2		10-May-95	0.029	NA	NA	NA	NA	NA	NA	NA
RP-2		09-Aug-95	0.010	NA	NA	NA	NA	NA	NA	NA
RP-2		17-Nov-95	0.011	NA	NA	NA	NA	NA	NA	NA
RP-2		10-Jan-96	0.031	NA	NA	NA	NA	NA	NA	NA
RP-2		17-Apr-96	0.010	NA	NA	NA	NA	NA	NA	NA
RP-2		31-Jul-96	0.007	NA	NA	NA	NA	NA	NA	NA
RP-2		19-Nov-96	0.016	NA	NA	NA	NA	NA	NA	NA
RP-2		25-Mar-97	0.012	NA	NA	NA	NA	NA	NA	NA
RP-2		10-Jun-97	0.014	NA	NA	NA	NA	NA	NA	NA
RP-2		18-Aug-97	0.017	NA	NA	NA	NA	NA	NA	NA
DUP		18-Aug-97	0.018	NA	NA	NA	NA	NA	NA	NA
RP-2		19-Dec-97	0.011	NA	NA	NA	NA	NA	NA	NA
RP-3		28-Jul-94	ND	NA	NA	NA	NA	NA	NA	NA
RP-3		08-Sep-94	0.004	NA	NA	NA	NA	NA	NA	NA
RP-3		28-Feb-95	0.004	NA	NA	NA	NA	NA	NA	NA
RP-3	(5)	29-Mar-95	0.004	0.18	<0.005	<0.04	<0.01	<0.0002	<0.004	<0.005
RP-3		10-May-95	0.013	NA	NA	NA	NA	NA	NA	NA
RP-3		09-Aug-95	0.003	NA	NA	NA	NA	NA	NA	NA
RP-3		17-Nov-95	0.006	NA	NA	NA	NA	NA	NA	NA
RP-3		10-Jan-96	0.014	NA	NA	NA	NA	NA	NA	NA
RP-3		17-Apr-96	0.006	NA	NA	NA	NA	NA	NA	NA
RP-3		31-Jul-96	0.009	NA	NA	NA	NA	NA	NA	NA
RP-3		19-Nov-96	0.005	NA	NA	NA	NA	NA	NA	NA
RP-3		25-Mar-97	0.004	NA	NA	NA	NA	NA	NA	NA

TABLE 4
SUMMARY OF HISTORICAL INORGANIC COMPOUNDS IN GROUNDWATER MONITORING WELLS
THE SHERWIN-WILLIAMS PLANT
EMERYVILLE, CALIFORNIA

(Results reported in parts per million [ppm])

Well Number	Notes	Date Sampled	Arsenic	Barium	Cadmium	Lead	Total Chromium	Mercury	Selenium	Silver
RP-3		10-Jun-97	0.008	NA	NA	NA	NA	NA	NA	NA
RP-3		18-Aug-97	0.008	NA	NA	NA	NA	NA	NA	NA
RP-3		19-Dec-97	0.003	NA	NA	NA	NA	NA	NA	NA
RP-4		28-Jul-94	ND	NA	NA	NA	NA	NA	NA	NA
RP-4		08-Sep-94	0.009	NA	NA	NA	NA	NA	NA	NA
RP-4		28-Feb-95	0.007	NA	NA	NA	NA	NA	NA	NA
DUP		28-Feb-95	0.006	NA	NA	NA	NA	NA	NA	NA
RP-4	(6)	29-Mar-95	0.008	0.06	<0.005	0.15	<0.01	<0.0002	<0.004	<0.005
RP-4		10-May-95	0.013	NA	NA	NA	NA	NA	NA	NA
DUP		10-May-95	0.011	NA	NA	NA	NA	NA	NA	NA
RP-4		09-Aug-95	0.007	NA	NA	NA	NA	NA	NA	NA
DUP		09-Aug-95	0.007	NA	NA	NA	NA	NA	NA	NA
RP-4		17-Nov-95	0.011	NA	NA	NA	NA	NA	NA	NA
DUP		17-Nov-95	0.011	NA	NA	NA	NA	NA	NA	NA
RP-4		09-Jan-96	0.004	NA	NA	NA	NA	NA	NA	NA
RP-4		17-Apr-96	0.009	NA	NA	NA	NA	NA	NA	NA
RP-4		31-Jul-96	0.005	NA	NA	NA	NA	NA	NA	NA
DUP		31-Jul-96	0.003	NA	NA	NA	NA	NA	NA	NA
RP-4		19-Nov-96	0.009	NA	NA	NA	NA	NA	NA	NA
RP-4		25-Mar-97	0.009	NA	NA	NA	NA	NA	NA	NA
RP-4		10-Jun-97	0.011	NA	NA	NA	NA	NA	NA	NA
RP-4		10-Jun-97	0.009	NA	NA	NA	NA	NA	NA	NA
RP-4		18-Aug-97	0.014	NA	NA	NA	NA	NA	NA	NA
RP-4		19-Dec-97	0.006	NA	NA	NA	NA	NA	NA	NA
RP-5		28-Jul-94	ND	NA	NA	NA	NA	NA	NA	NA
RP-5		08-Sep-94	0.003	NA	NA	NA	NA	NA	NA	NA
RP-5		28-Feb-95	0.007	NA	NA	NA	NA	NA	NA	NA
RP-5	(7)	29-Mar-95	0.006	0.040	<0.005	<0.04	<0.01	<0.0002	<0.004	<0.005
RP-5		10-May-95	0.018	NA	NA	NA	NA	NA	NA	NA

TABLE 4
SUMMARY OF HISTORICAL INORGANIC COMPOUNDS IN GROUNDWATER MONITORING WELLS
THE SHERWIN-WILLIAMS PLANT
EMERYVILLE, CALIFORNIA

(Results reported in parts per million [ppm])

Well Number	Notes	Date Sampled	Arsenic	Barium	Cadmium	Lead	Total Chromium	Mercury	Selenium	Silver
RP-5		09-Aug-95	0.003	NA	NA	NA	NA	NA	NA	NA
RP-5		17-Nov-95	0.008	NA	NA	NA	NA	NA	NA	NA
RP-5		09-Jan-96	0.005	NA	NA	NA	NA	NA	NA	NA
DUP		09-Jan-96	0.004	NA	NA	NA	NA	NA	NA	NA
RP-5		17-Apr-96	0.008	NA	NA	NA	NA	NA	NA	NA
RP-5		31-Jul-96	<0.002	NA	NA	NA	NA	NA	NA	NA
RP-5		19-Nov-96	0.007	NA	NA	NA	NA	NA	NA	NA
DUP		19-Nov-96	0.008	NA	NA	NA	NA	NA	NA	NA
RP-5		25-Mar-97	0.006	NA	NA	NA	NA	NA	NA	NA
DUP		25-Mar-97	0.004	NA	NA	NA	NA	NA	NA	NA
RP-5		10-Jun-97	0.006	NA	NA	NA	NA	NA	NA	NA
RP-5		18-Aug-97	0.011	NA	NA	NA	NA	NA	NA	NA
RP-5		19-Dec-97	0.038	NA	NA	NA	NA	NA	NA	NA
MW-1		09-Jan-96	0.022	NA	NA	NA	NA	NA	NA	NA
MW-1		17-Apr-96	0.034	NA	NA	NA	NA	NA	NA	NA
MW-1		31-Jul-96	0.037	NA	NA	NA	NA	NA	NA	NA
MW-1		19-Nov-96	0.071	NA	NA	NA	NA	NA	NA	NA
MW-1		25-Mar-97	0.042	NA	NA	NA	NA	NA	NA	NA
MW-1		10-Jun-97	0.050	NA	NA	NA	NA	NA	NA	NA
MW-1		18-Aug-97	0.077	NA	NA	NA	NA	NA	NA	NA
MW-1		19-Dec-97	0.010	NA	NA	NA	NA	NA	NA	NA
MW-2		09-Jan-96	0.016	NA	NA	NA	NA	NA	NA	NA
MW-2		17-Apr-96	0.028	NA	NA	NA	NA	NA	NA	NA
MW-2		31-Jul-96	0.037	NA	NA	NA	NA	NA	NA	NA
MW-2		19-Nov-96	0.041	NA	NA	NA	NA	NA	NA	NA
MW-2		25-Mar-97	0.038	NA	NA	NA	NA	NA	NA	NA
MW-2		10-Jun-97	0.039	NA	NA	NA	NA	NA	NA	NA
MW-2		18-Aug-97	0.038	NA	NA	NA	NA	NA	NA	NA
MW-2		19-Dec-97	0.050	NA	NA	NA	NA	NA	NA	NA

TABLE 4
SUMMARY OF HISTORICAL INORGANIC COMPOUNDS IN GROUNDWATER MONITORING WELLS
THE SHERWIN-WILLIAMS PLANT
EMERYVILLE, CALIFORNIA

(Results reported in parts per million (ppm))

Well Number	Notes	Date Sampled	Arsenic	Barium	Cadmium	Lead	Total Chromium	Mercury	Selenium	Silver
MW-3		09-Jan-96	0.015	NA	NA	NA	NA	NA	NA	NA
MW-3		17-Apr-96	0.018	NA	NA	NA	NA	NA	NA	NA
MW-3		31-Jul-96	0.059	NA	NA	NA	NA	NA	NA	NA
MW-3		19-Nov-96	0.048	NA	NA	NA	NA	NA	NA	NA
MW-3		25-Mar-97	0.019	NA	NA	NA	NA	NA	NA	NA
MW-3		10-Jun-97	0.027	NA	NA	NA	NA	NA	NA	NA
MW-3		18-Aug-97	0.027	NA	NA	NA	NA	NA	NA	NA
MW-3		19-Dec-97	0.011	NA	NA	NA	NA	NA	NA	NA
MW-4		10-Jan-96	15.000	NA	NA	NA	NA	NA	NA	NA
MW-4	(8)	19-Nov-96	3.100	NA	NA	<0.04	NA	NA	NA	NA
MW-4		18-Aug-97	120.00	NA	NA	NA	NA	NA	NA	NA
MW-4		19-Dec-97	42	NA	NA	NA	NA	NA	NA	NA
MW-5		10-Jan-96	79.000	NA	NA	NA	NA	NA	NA	NA
MW-5	(5)	19-Nov-96	192.000	NA	NA	0.07	NA	NA	NA	NA
MW-5		18-Aug-97	310.00	NA	NA	NA	NA	NA	NA	NA
MW-5		19-Dec-97	380	NA	NA	NA	NA	NA	NA	NA
FIELD & TRIP BLANKS										
LF-1-FB		01-Jun-89	0.012	NA	<0.0400	<0.300				
LF-1-FB		07-Dec-89	0.003	NA	<0.0400	<0.300				
LF-B1-FB		07-Dec-89	0.014	NA	<0.0400	<0.300				
Trip Blank		07-Dec-89	0.013	NA	<0.0400	<0.300				
LF-B4-TB		18-Jul-90	<0.002	NA	<0.0500	<0.200				
LF-B4-BB		18-Jul-90	<0.002	NA	<0.0500	<0.200				
LF-11-TB		19-Jul-90	<0.002	NA	<0.0500	0.200				
LF-11-BB		19-Jul-90	<0.002	NA	<0.0500	<0.200				
LF-5- TB		20-Jul-90	0.002	NA	<0.0500	<0.200				
LF-16-TB		04-Sep-90	<0.002	NA	<0.0005	0.005				
LF-B4-TB		19-Dec-90	<0.002	<0.050	<0.0005	<0.200				

TABLE 4
SUMMARY OF HISTORICAL INORGANIC COMPOUNDS IN GROUNDWATER MONITORING WELLS
THE SHERWIN-WILLIAMS PLANT
EMERYVILLE, CALIFORNIA

(Results reported in parts per million [ppm])

Well Number	Notes	Date Sampled	Arsenic	Barium	Cadmium	Lead	Total Chromium	Mercury	Selenium	Silver
LF-B4-BB		19-Dec-90	<0.002	<0.050	<0.0005	<0.200				
LF-B3-TB		20-Dec-90	<0.002	<0.050	<0.0005	<0.200				
LF-B3-BR		20-Dec-90	<0.002	<0.050	<0.0005	<0.200				
LF-8-TB		21-Dec-90	<0.002	<0.050	<0.0005	<0.200				
LF-8-BR		21-Dec-90	<0.002	<0.050	<0.0005	<0.200				
LF-B3-BR		19-Jun-91	<0.010	NA	<0.005	<0.004				
LF-B4-TB		19-Jun-91	<0.010	NA	<0.005	<0.004				
LF-4-TB		20-Jun-91	<0.010	NA	<0.005	<0.004				
LF-11-TB		20-Jun-91	<0.010	NA	<0.005	<0.004				
LF-11-BR		20-Jun-91	<0.010	NA	<0.005	<0.004				
Trip Blank		06-Aug-91	<0.010	NA	NA	<0.003				
LF-B3-TB		08-Jul-92	<0.010	<0.100	<0.005	<0.040	<0.010	<0.00027	<0.005	<0.010
LF-7-TB		09-Jul-92	<0.010	<0.100	<0.005	<0.040	<0.010	<0.00027	<0.005	<0.010
LF-3-TB		09-Jul-92	<0.010	<0.100	<0.005	<0.040	<0.010	<0.00027	<0.005	<0.010
LF-B4-TB		30-Dec-92	<0.010	<0.100	<0.005	<0.040	<0.010	<0.0002	<0.005	<0.010
LF-B4-BR		30-Dec-92	<0.010	<0.100	<0.005	<0.040	<0.010	<0.0002	<0.005	<0.010
LF-7-TB		09-Jun-93	<0.010	<0.100	<0.005	<0.003	<0.010	<0.0002	<0.005	<0.010
LF-10-FB		10-Jun-93	<0.100	<0.100	<0.005	<0.003	<0.010	<0.0002	<0.005	<0.010
Trip Blank		08-Jun-93	<0.010	<0.100	<0.005	<0.003	<0.010	<0.0002	<0.005	<0.010
LF-10-FB		06-Jan-94	<0.002	<0.01	<0.001	<0.001	<0.01	<0.0002	<0.004	<0.001
LF-24-FB		02-Aug-96	0.004	NA	NA	NA	NA	NA	NA	NA
LF-B3-FB		21-Nov-96	<0.002	NA	NA	NA	NA	NA	NA	NA
Trip Blank		21-Nov-96	<0.05	NA	NA	NA	NA	NA	NA	NA
LF-B4-FB		22-Nov-96	<0.002	NA	NA	NA	NA	NA	NA	NA
LF-B6-FB		25-Nov-96	<0.002	NA	NA	NA	NA	NA	NA	NA
LF-13-FB		17-Mar-97	<0.002	NA	NA	NA	NA	NA	NA	NA
LF-11-FB		18-Mar-97	<0.002	NA	NA	NA	NA	NA	NA	NA
LF-18-FB		11-Jun-97	<0.002	NA	NA	NA	NA	NA	NA	NA
LF-12-FB		01-Jul-97	<0.002	NA	NA	NA	NA	NA	NA	NA
LF-21-FB		19-Aug-97	<0.002	NA	NA	NA	NA	NA	NA	NA
RP-3-FB		28-Feb-95	<0.002	NA	NA	NA	NA	NA	NA	NA
RP-3-FB		10-May-95	<0.002	NA	NA	NA	NA	NA	NA	NA
RP-3-FB		09-Aug-95	<0.002	NA	NA	NA	NA	NA	NA	NA
RP-3-FB		17-Nov-95	<0.002	NA	NA	NA	NA	NA	NA	NA
Trip Blank		17-Nov-95	NA	NA	NA	NA	NA	NA	NA	NA
RP-5-FB		09-Jan-96	<0.002	NA	NA	NA	NA	NA	NA	NA
RP-4-FB		17-Apr-96	NA	NA	NA	NA	NA	NA	NA	NA
RP-1-FB		31-Jul-96	<0.002	NA	NA	NA	NA	NA	NA	NA

TABLE 4
SUMMARY OF HISTORICAL INORGANIC COMPOUNDS IN GROUNDWATER MONITORING WELLS
THE SHERWIN-WILLIAMS PLANT
EMERYVILLE, CALIFORNIA

(Results reported in parts per million [ppm])

Well Number	Notes	Date Sampled	Arsenic	Barium	Cadmium	Lead	Total Chromium	Mercury	Selenium	Silver
Trip Blank		19-Nov-96	NA	NA	NA	NA	NA	NA	NA	NA
Trip Blank		25-Mar-97	NA	NA	NA	NA	NA	NA	NA	NA
MW-1-FB		25-Mar-97	<0.002	NA	NA	NA	NA	NA	NA	NA
RP-5-FB		10-Jun-97	0.003	NA	NA	NA	NA	NA	NA	NA
MCLS		——	0.050	NA	NA	NA	NA	NA	NA	NA
RP-1-FB		18-Aug-97	<0.002	NA	NA	NA	NA	NA	NA	NA
LF-18-FB		17-Dec-97	<0.005	NA	NA	NA	NA	NA	NA	NA
RP-5-FB		19-Dec-97	<0.002	NA	NA	NA	NA	NA	NA	NA

Data entered by TGL. Proofed by LG.

Notes :

* = Data not validated based on positive results of trip blank (0.014 ppm) or bailer rinsate blank (0.013 ppm) of submitted samples. Detection Limit for arsenic for December 1989 sampling period set at 0.070 or 5 times the reported value of 0.014 ppm for trip blank sample.

** = Data not validatd based on positive results of bailer rinstate blank (0.004 ppm) of submitted samples.

#1 Concentrations of chemicals detected in LF-B1 may not be representative of B-Zone groundwater quality since LF-B1 is only screened within the aquitard between the A-Zone and B-Zone.

#2 Concentrations of chemicals detected in LF-B5 may not be representative of B-Zone groundwater quality since LF-B5 is only screened within the aquitard between the A-Zone and B-Zone.

#3 Zinc detected at 0.03 mg/L.

#4 Zinc detected at 0.01 mg/L.

#5 Zinc detected at 0.01 mg/L., Vanadium at 0.015 mg/L

#6 Zinc detected at 0.16 mg/L.

#7 Zinc detected at 0.003 mg/L.

#8 Zinc detected at 21 mg/L.

#9 Zinc detected at 230 mg/L.

NA = Not Analyzed

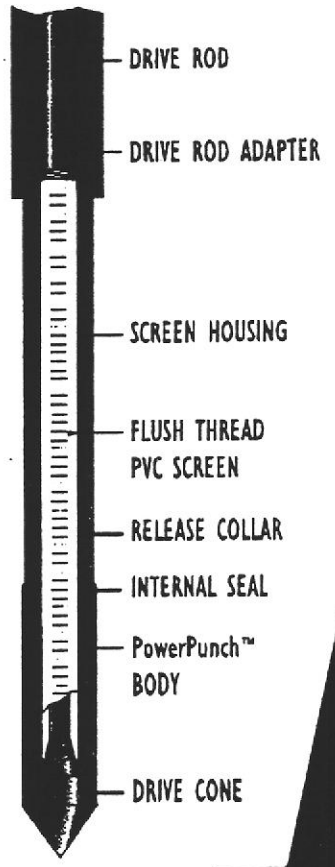
200/7000 = EPA Method 200/6000/7000 Series for selected metals.

Results of analyses for other inorganic compounds as metals that are not part of the annual and semiannual self-monitoring program for 1992 and 1993 are reported in Levine*Fricke, April 4, 1990, Table 10 and Levine*Fricke, December 20, 1991, Table 5.

APPENDIX B
Description of PowerPunch

How To Use The PowerPunch™

(patent pending)



ASSEMBLY

Hand tighten the PowerPunch to the release collar using the left hand thread.

Push the PVC screen through the release collar, past the internal seal in the PowerPunch and thread on the self tapping cone (patent pending).

Insert the exposed end of the screen into the screen housing and thread the release collar and PowerPunch onto the housing. Make sure the left hand thread remains hand tight.

Connect the screen housing to the drive rod using an appropriate adapter. If EnviroRod™ is used no adapter is required. The drive rod must have an I.D. large enough to allow the PVC riser (inserted later) to connect to the screen.

If lowering the PowerPunch down an open borehole (i.e. hollow stem auger) stretch the rubber cone retainer over the cone and body to hold the cone in place.

OPERATION

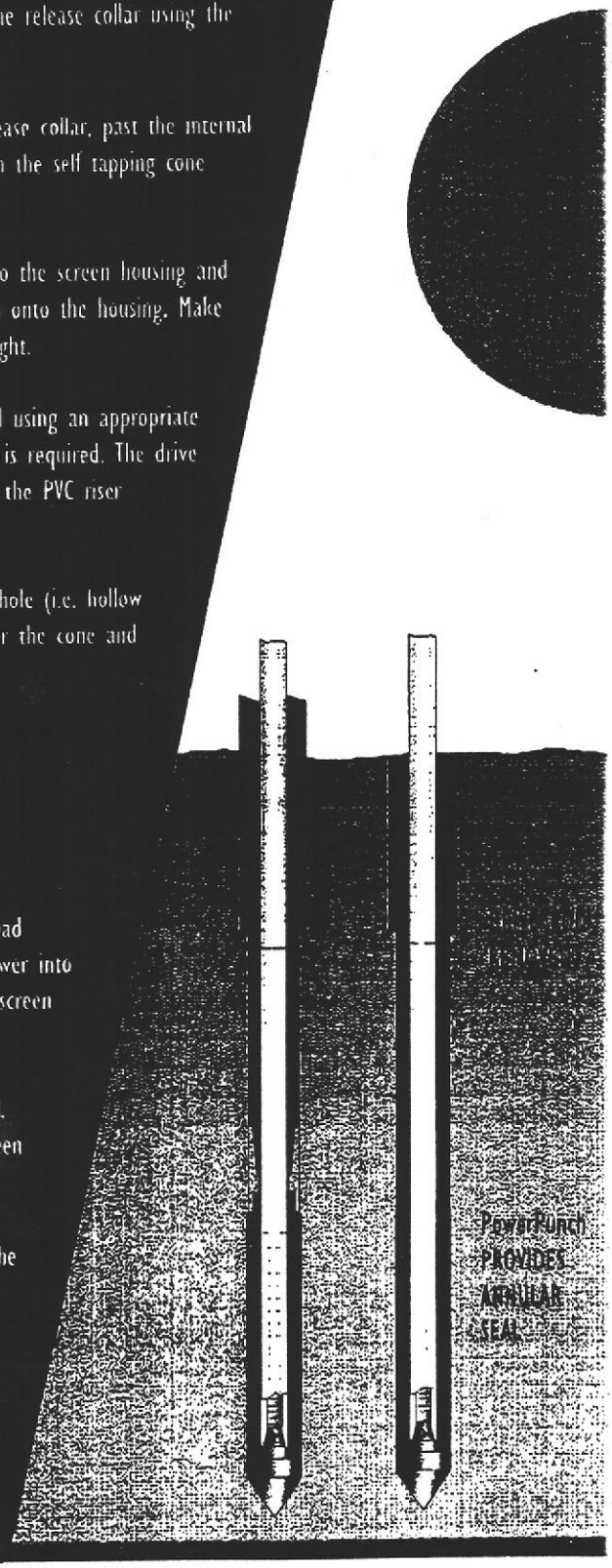
Drive or push the PowerPunch to the desired depth.

Determine the length of the screen to be exposed. Thread together additional screen (if needed) and casing and lower into drive rod. Thread the assembled screen and riser to the screen attached to the drive cone.

Pull the PowerPunch back until all of the screen is exposed. The sliding seal must be around solid casing to seal the screen in place properly.

Rotate drive rods clockwise a minimum of 2 turns to release the PowerPunch from the release collar.

Pull the rods and release collar from the hole. The PowerPunch body seals the screen in place. Access to the screen is provided by the PVC casing.



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1.0 PROJECT DESCRIPTION

1.1 Purpose

This Quality Assurance Project Plan (QAPP) is submitted to support the Arsenic Investigation Work Plan (the Work Plan) for the former Shell Research Facility located on the South BGR property (the Site), in Emeryville, California. The Site is located on Horton Street between 45th and 53rd Streets. The purpose of the QAPP is to summarize the standard procedures and methods of sample handling and analysis to be used during the implementation of the investigation so that results are of sufficient quality that they can reliably indicate the presence or absence of chemicals in soil and ground water at the site.

1.2 Site Background

The Site occupies approximately 7.5 acres of land, much of which is covered by buildings, concrete or asphalt paving (currently used for vehicle parking). The Shell Research Facility, formerly located on the Site, consisted of approximately 61 activity areas, including office buildings, pilot plant structures, above- and below-ground storage tanks, reaction testing equipment, and related infrastructure. A range of crude and refined petroleum compounds, as well as chlorinated and non-chlorinated organic compounds, were stored, used, and produced by the facility. Currently, all aboveground portions of the facility have been removed, with the exceptions of Buildings N, Q, R and V, and a electrical substation located in the middle of the site.

1.3 Investigation Objectives

The investigation will be conducted in the areas identified in the Work Plan. The sampling locations and the specifics of the investigation are presented in the main text of the Work Plan. The field investigation will include the collection and testing of ground water grab samples and ground water well samples. The data will be used to characterize the extent of arsenic in ground water from past site use. The results of the investigation will be evaluated with respect to potential on-site and off-site sources.

1.4 QAPP Updating Process

Modifications to the QAPP may be required if an applicable portion of the Work Plan is modified. The primary procedures for making modifications will be through the use of a Technical Memorandum (TM). In the event that a QAPP modification is required, a TM will be prepared describing the proposed modification and the associated rationale.

2.0 PROJECT ORGANIZATION AND RESPONSIBILITIES

This section provides the approach taken by the project to meet regulatory and client requirements; provides the requirements for organizational structure, functional responsibilities, levels of authority, and lines of communication; describes requirements for indoctrination and training of personnel responsible for performance of work activities affecting quality; provides the requirements for procurement activities; and addresses requirements for reporting of project status to appropriate management.

2.1 Organization and Responsibilities

The organizational structure of the project team, functional responsibilities, levels of authority, and lines of communication are described below.

Principal
Reports to Shell Oil Company (Shell). The principal will serve as project director and overall technical reviewer of project deliverables. The principal's responsibilities include review of work plans, schedules, costs, technical performance, and coordination of project activities with the project manager to direct resources to achieve the objectives of the investigation.

Project Manager
Reports to Shell. The project manager will be responsible for effective day-to-day management of the project staff, direction and control of technical project activities, and communication with Shell and regulatory agency personnel. The project manager oversees the management and implementation of the total project, including project scope, contracts, budgets, schedules, study activities, and the quality of deliverables. The project manager will assure that all activities are conducted in accordance with project policy and procedures, and will be responsible for implementation of the QAPP and all matters relating to the quality assurance/quality control (QA/QC) needs of the study. Conducts audits to ensure that work activities comply with this QAPP.

Field Staff
Reports directly to the project manager. Responsible for assisting the project manager with the organization, coordination and supervision of the various field tasks, including oversight of subcontractors.

Site Safety Officer
Reports to the project manager. Responsible for the implementation of Site Health and Safety Plan (HSP).

Field Subcontractors
Report to the project manager. Field subcontractors will consist primarily of drilling companies and surveyors. Responsible for sampling activities as outlined in the Work Plan.

Laboratory
Reports directly to the project manager. The laboratory will be responsible for implementation of appropriate sections of the QAPP and achieving the data quality objectives for analytical work in this investigation.

The organizational structure and the responsibility assignments are such that quality is achieved and maintained by those who have been assigned responsibility for performing work, and quality achievement is audited and verified by persons or organizations not directly responsible for performing the work. The organizational responsibilities reflect an integration of the technical, administrative, quality control, and quality assurance functions such that the QA program elements are disseminated throughout the entire organizational structure and are an integral part of day-to-day operations. In situations where organizations such as subcontractors, suppliers, consultants, and laboratories are involved in the execution of activities governed by the requirements of this QAPP, the responsibility and authority of such organizations shall be clearly established and documented.

2.2 Indoctrination and Training

Field staff and office personnel performing quality control activities shall be indoctrinated on the following:

- Objectives of the project;
- The contents of this QAPP;
- The procedures described in the Work Plan; and
- Individual job responsibilities and authority.

2.3 Procurement Requirements

Procurement of equipment and services shall be made in accordance with project standards outlined in the Work Plan, QAPP, and HSP to assure that each prospective supplier or subcontractor understands the requirements. Applicable regulatory requirements, design basis, and other requirements that may be necessary to assure adequate quality will be included or referenced in the documents for procurement of material, equipment, and services.

3.0 QUALITY ASSURANCE OBJECTIVES FOR MEASUREMENT OF DATA

This section provides requirements for the development of data quality objectives (DQOs) for the investigation. Objectives of data management in terms of type and quality of data required to implement the study are defined. The scope, level of detail, and verification may vary from task to task, depending on the specific conditions, and based on the nature and complexity of activities. DQOs are the full set of constraints needed to design the sampling and analysis program. DQOs are prepared in the planning stage of the field work and are designed to ensure that the study provides data needed for appropriate decisions at acceptable levels of confidence.

3.1 General Field and Laboratory Procedures for Achieving Data Quality Objectives

The overall objective of the QAPP is to ensure that proper and correct procedures are followed during all field investigations and that data generated during the investigations are of known and acceptable quality as established herein. To achieve this objective, procedures for the collection and evaluation of both field and laboratory data will be implemented, including:

- Standardization of all field procedures, including sample collection;
- Proper handling and documentation of samples;
- Calibration of field equipment;
- Standard methods for laboratory analyses;
- Internal laboratory quality control checks;
- Data review and validation;
- Performance and system audits; and
- Corrective action for beyond-control limit situations.

The general procedures used by analytical laboratories to achieve quality objectives shall include:

- Proper handling of samples, including all documentation of sample receipt and analysis;
- Regular equipment maintenance and service;
- Regularly scheduled instrument calibration via standard analytical reference materials;
- Sample preparation and analytical methods in accordance with EPA requirements;
- Internal laboratory quality control checks;

- Statistical evaluation of data to confirm attainment of acceptance limits for precision and accuracy; and
- Corrective action for beyond-control limit situations.

The analytical quality control objectives for this project are shown in Table A-1.

3.2 Data Quality Assurance

A summary of the traditional indicators of data quality (precision, accuracy, representativeness, completeness, and comparability parameters) is presented below:

Precision is the measure of the repeatability of measurements. Precision is measured by the agreement between laboratory and field duplicates and replicate sample analyses. The measure of precision is determined by the relative percent difference between two values. The laboratory objective for precision will equal or exceed the established control limits for the prescribed EPA Test Method.

Accuracy is the representation of the closeness of a measurement to the true value. The accuracy of a measurement is judged by comparison of matrix spikes and surrogate analyses to their true values. These comparisons are expressed in terms of percent recovery. The laboratory objectives for accuracy will be equal to or exceed the control limits for the prescribed EPA Test Method. Accuracy objectives for field measurements will equal equipment manufacturer's specifications.

Representativeness expresses the degree to which sample data accurately and precisely represent the population being sampled. Representativeness is a qualitative parameter and is best achieved by careful design and implementation of the sampling plan. For this Work Plan, representativeness has been incorporated by the sampling techniques chosen and the rationale used to select sampling locations. EPA- and American Society of Testing and Materials (ASTM)-approved and standardized sampling procedures will be used to assure representativeness of sample data.

Completeness requirements state that the minimum quantity of acceptable quality data needed to answer the program's questions or to generate correct recommendations will be obtained. Each field investigation will be designed to meet this goal. Analytical results will be reviewed to determine if the percentage of acceptable data is adequate for project needs (i.e., greater than or equal to 90%). This determination will be made by reviewing laboratory QA reports, considering details of the particular sampling (e.g., location, purpose, and parameters), and following data management protocols.

Comparability expresses the confidence with which one data set can be compared to another. The sample collection, sample handling, and analytical procedures will be performed in a uniform manner to provide comparable data. In addition, data will be reported in consistent units.

The sensitivity and detection limits for each analytical method will be equal to or lower than those prescribed by the specified EPA method.

3.3 Data Quality Control

The field and laboratory aspects of the data measurements are assessed separately for impact upon the data quality components of sensitivity, accuracy, precision, completeness, representativeness, and comparability. These elements are addressed in detail in the following sections.

4.0 SAMPLING PROCEDURES

The details of the sampling plan, objectives, equipment, and procedures are presented in the Work Plan. Details of sample handling and documentation are outlined below.

4.1 Sample Collection

Sampling procedures will be conducted so that samples are representative of the media sampled, and the resultant data can be compared to other data sets. If a statistical analysis of data is planned, the location and number of samples to be collected will be adequate to permit statistical treatment of the data generated.

4.2 Sample Designation

Field sampling personnel are responsible for the description, documentation, labeling, packaging, storage, handling, and shipping of samples obtained in the field so that all samples can be readily identified. These practices are necessary to ensure the integrity of the sample from collection through laboratory analysis and data reporting.

4.2.1 Sample Labels

Sample labels and identity are of critical importance in the collection of samples. All data for a sample are keyed to its unique sample designation. This sample designation on all sample containers and associated field data forms is utilized for data recall from the data base system.

Field personnel will attach a sample label to each sample container either before or immediately after filling each container. The sample label must contain all of the following:

- The project name and number;
- A unique sample designation;
- The date and time;
- Name of sampler;
- Designation of the sample as a composite, if appropriate;
- Identification of preservatives used; and
- Any remarks as needed.

The sample labels will be placed on the sample containers so as not to obscure markings on the containers; sample information must be printed in a legible manner using waterproof ink. The label must contain sufficient information so the sample can be identified on the sampling information form or sample collection log.

4.2.2 Sample Identification

To ensure correct identification of all samples collected, a unique alphanumeric code will be assigned to each sample.

- Letter codes will identify the sample type, for example, B - Boring soil sample; and
- The sample code shall be followed by a unique location number and depth number as appropriate.

4.2.3 Quality Assurance/Quality Control Sample Type and Number

Field QC samples may include equipment rinsate blank, trip blank, and duplicate samples. QC samples will be submitted with information indicating the same information as regular samples, but identified in a way that does not readily identify them as QC samples. This information will be recorded in the sample collection log.

4.3 Sample Preservatives, Containers, and Holding Times

Samples for chemical analysis will be containerized and preserved in accordance with appropriate EPA or ASTM specifications. For each parameter, the required type of container, volume of sample, sample temperature, type and concentration of preservative, and allowable holding times must be determined. All samples will be placed in individual pre-cleaned containers for shipment to the laboratory. The sample preservative, containerization and holding times for the various chemical analyses are shown in Table A-2. The containers will be obtained

from the laboratory designated to perform the analyses. Water samples will be bottled, labeled, and placed in coolers immediately after sample collection.

Sample holding times stated in the table must be met unless otherwise specified in the analytical method. The samples will be shipped by surface or overnight courier to minimize the time between collection and laboratory processing.

4.4 Sample Packaging and Shipping

The following procedures shall be followed for packing samples for shipment to the laboratory:

- Make sure all sample container caps are tight;
- Place the sample containers in the cooler, allowing sufficient space for the addition of packing material between the sample containers;
- Place ice, blue ice packs or equivalent on top of and between the samples;
- Place a copy of the Chain-of-Custody form in a sealed clear plastic envelope and place in the cooler; and
- Tape the shipping coolers shut if being transported by courier.

Samples shall be shipped at the end of each sampling event to the laboratory via surface or overnight courier.

4.5 Documentation Procedures

Color photographs may be taken of representative sampling locations and the surrounding site to show the area, sampling equipment, and related site activities. Frame and roll numbers will be logged on the appropriate field documentation form to identify photographs with the correct sampling location.

4.5.1 Daily Field Reports

A field activity daily log shall be used as a record of daily field activities showing the sequence of events. At a minimum, the log will include the following information:

- Project name and number;
- Date;
- Starting/ending time and nature of each field activity;
- Names of all contractor personnel on the site, including visitors;

- Weather conditions;
- References to appropriate field logs for details of each activity performed;
- Identification of any photographs taken;
- A list of rented, leased, or subcontracted equipment; and
- Signature of project manager or designee.

The project manager is responsible for ensuring that all activities are documented in the field activity daily log and that the details of each activity are recorded on the appropriate field documentation form. Regular field reports will be submitted to the principal.

4.5.2 Variance Log

Significant variances from approved operating procedures in the QAPP or the HSP shall be documented on a variance log. Under the supervision of the project manager, the field staff will be responsible for initiating and chronologically maintaining the variance log. Variances affecting project scope and/or schedule must be approved by the project manager. The variance log will be permanently documented in the project file.

4.5.3 Document Maintenance

Field personnel are responsible for recording field activities on the appropriate field documentation form in sufficient detail to allow the significant aspects of the event to be reconstructed without relying on memory. It is the responsibility of the project manager to ensure that all documents are complete and legible. At the end of each day, all documents completed that day shall be reviewed by the project manager for accuracy, completeness, and legibility.

The field documentation forms or equivalent records that shall be used during this investigation are listed below:

- Sample Chain-of-Custody record (Exhibit C-1);
- Sample number code record;
- Daily field report (Exhibit C-2);
- Variance log form;
- Boring log form (Exhibit C-3);
- Water level monitoring record (Exhibit C-4);

- Monitoring well sampling record (Exhibit C-5); and
- Equipment calibration log.

Each completed form (a copy or original depending on the type of form) will be maintained on-site in chronological order with other completed forms of the same type until the completion of the field activity. Upon completion of the field investigation, all original field records and copies will be transferred to the project manager for review. File and working copies will be retained by project personnel for data evaluation and report preparation, as necessary.

5.0 SAMPLE CUSTODY

All samples that are collected at the site will be accompanied by a Chain-of-Custody record. The following information will be recorded on the indicated spaces to complete the Chain-of-Custody record:

- Project name and number;
- Name of sampler;
- The sample number, location, date and time collected, and sample type;
- Analyses requested;
- Any special instructions and/or sample hazards;
- Signature of sampler in the designated blocks, indicating his/her company, date, and time; and
- The condition of the sample on receipt will be completed and reported by the analytical laboratory.

The following chain-of-custody procedures will be followed for all samples submitted to the laboratory for chemical or physical properties analysis:

- Each individual field sampler is responsible for the care and custody of samples he or she collects until the samples are properly transferred to temporary storage or for shipping.
- A Chain-of-Custody record will be completed by the sampler for all samples collected and submitted to the laboratory.
- Each time responsibility for custody of a sample changes, the new sample custodian will sign the Chain-of-Custody form, date, and note the date and time that the change occurred.

- A copy of the carrier airbill shall be retained as part of the permanent Chain-of-Custody documentation.
- The laboratory will record the condition of the sample containers upon receipt.
- The original Chain-of-Custody form will be returned from the laboratory as part of the final analytical report to the project manager. This record will be used to document sample custody transfer from the sampler to the laboratory and will become a permanent part of the project file.

6.0 CALIBRATION PROCEDURES

This section provides the requirements for calibration of measuring and test equipment and instruments used in field sampling. This program is designed to ensure that all field equipment and instrumentation is calibrated to operate within manufacturers' specifications and that the required traceability, sensitivity, and precision of the equipment/instruments are maintained. Measurements that affect the quality of an item or activity shall be taken only with instruments, tools, gauges, or other measuring devices that are accurate, controlled, calibrated, adjusted, and maintained at predetermined intervals to assure the specified level of precision and accuracy.

6.1 Calibration and Control

Measuring and test equipment shall be calibrated against certified equipment having known valid relationships to nationally recognized standards and shall be calibrated, adjusted, and maintained at prescribed intervals or prior to use. Documented procedures shall be used for calibrating or performing field checks on equipment. Whenever possible, widely accepted procedures such as those published by the American National Standards Institute (ANSI), ASTM, or procedures provided by the manufacturers, shall be adopted.

Calibration and maintenance of field equipment and instrumentation shall be in accordance with manufacturer's specifications or applicable test specifications, and shall be documented. Table A-3 presents a calibration and maintenance frequency schedule for field equipment. The method and interval of calibration for each item shall be defined based on the type of equipment, stability characteristics, required accuracy, intended use, and other conditions that affect measurement control. When measuring and test equipment are found to be out-of-calibration, an evaluation shall be made and documented of the validity of previous results obtained. Devices that are out-of-calibration shall be tagged and segregated and shall not be used until they have been recalibrated. If equipment is found consistently to be out-of-calibration, it shall be replaced or repaired. A calibration shall also be performed when the accuracy is suspect. Equipment shall be handled and stored properly to maintain accuracy.

6.2 Records

Records shall be maintained as evidence of required calibration frequencies and equipment shall be marked suitably to indicate calibration status. If marking on the equipment is not possible, records traceable to the equipment will be readily available for reference.

7.0 ANALYTICAL PROCEDURES

7.1 Sample Preparation

Water used in the laboratory for organic analyses (dilutions, standard samples, etc.) will conform to ASTM Type II grade.

7.2 Analytical Methods

The arsenic analyses will be performed using EPA Method 7060.

8.0 DATA VALIDATION, REDUCTION AND REPORTING

8.1 Data Validation

Data validation is the process of reviewing quality-related field data, and laboratory records of analytical data and supporting QA/QC data, to assess field and laboratory performance as compared to QC criteria, data quality objectives, and documented procedural requirements. The purpose of validation is to document the quality and usefulness of both the analytical data and the documentation developed during the sample collection and analysis. Data validation is divided into the following tasks: (1) identification of data to be validated, (2) technical review, and (3) documentation of the validation effort.

8.1.1 Field Data

Field data collected during the field activities will be validated by checking the procedures used and comparing the data to previous measurements. Field QC samples will be evaluated to verify that field measurements and sampling protocols have been observed and followed. These checks will include:

- Use of standard operating procedures;
- Calibration method and frequency;
- QC lot number;

- Date and time stamps;
- Preservation;
- Samplers;
- Laboratory;
- Chain-of-Custody forms; and
- Date shipped.

The field data will be reported as follows:

- pH digital readings will be rounded to 0.1 pH units;
- Organic Vapor Analyzer (OVA) or equivalent measurements will be rounded to 1 part per million;
- Ground surfaces will be surveyed to 0.01 foot; horizontal coordinates to the nearest 0.1 foot; and
- Sampler blow counts will be rounded to the nearest blow per 6-inch sampling interval.

Validation of data obtained from field measurements will be performed by the field staff. Validity of all data will be determined by checking calibration procedures utilized in the field, and by comparing the data to previous measurements, if any, at the specific site. Large variations (greater than 50 percent) will be examined for possible recollection of data or assignment to a lower level of validity.

8.1.2 Chemical Analytical Data

The analytical data verification program is primarily designed to ensure that documentation and data are reported in compliance with established reporting requirements and to ensure that all requested analyses are performed. This process is completed in accordance with approved procedures. The data verification program consists of the following: data delivery tracking, review of sample identification, signed Chain-of-Custody forms, analytical holding times, requested turnaround time, and data review information.

Delivery of analytical data will be tracked to ensure that the requested laboratory services are performed in an accurate and timely manner. Data delivery is logged manually on the Chain-of-Custody form. After receiving the data reports, they are to be reviewed to determine if all contractual format requirements have been met. In addition, data are reviewed to confirm that all requested parameters are received. All analytical data will be reviewed by technical personnel

familiar with the investigation. Sample data are also to be compared with the QA/QC samples collected or analyzed within the same sample lot. The data review is used to report inconsistencies in concentrations, sampling procedures, and sample identification.

Calculations that interpret and analyze data shall be performed in a planned, controlled, and documented manner. Calculation documentation for interpretation and analysis shall include purpose, method, assumptions, inputs, references, and units, such that a technically qualified person may review, understand, verify, and duplicate the calculations without recourse to the originator. Calculations shall be legible, complete, and in a form suitable for reproduction, filing, and retrieval. Calculations shall be identifiable by subject, originator, reviewer, and date. Calculation documentation shall include the following:

- Definition of the objective of the interpretation/analysis;
- Definition of inputs and their source;
- A listing of applicable references;
- Results of literature searches or other background data;
- Identification of assumptions;
- Identification of any computer calculations, including computer type, program name, revision, input, output, evidence of program verification, and the basis of application to the specific problem; and
- Signature and dates of the review and approval by appropriate qualified personnel.

The data validation process consists of reviewing and evaluating the analytical documentation supporting the data resulting from laboratory analyses. The analytical process itself is first evaluated by reviewing the laboratory analytical records to ensure compliance with the procedures governing the analyses. These records may include, but are not limited to, sample custody records, sample preservation logs, instrument printouts, calibration checks, and initial calibration data. Secondly, the data validation process evaluates the data for precision, accuracy, and completeness by comparing the data to the field blank and duplicate sample analysis results and the corresponding laboratory QA/QC data.

8.2 Reduction

The data will be formatted into a useable medium, such as a computer data base program. The data base will allow the generation of summary tables, graphs and figures while maintaining the integrity and accountability of the original data.

8.3 Data Reporting

All data resulting from the investigation will be presented in written reports. The reports will consist of a presentation of the field measurements and the laboratory analytical data reports, summaries of the validation and verification effort, as well as interpretative efforts relative to the data.

9.0 INTERNAL QUALITY CONTROL

The evaluation of data will involve the collection of QC samples in accordance with the sampling and analysis protocols. QC procedures for measurements not involving the collection of samples (e.g., water level readings) are limited to checking the reproducibility of the measurement in the field by obtaining multiple readings.

Internal quality control includes contamination control samples (equipment, method, and trip blanks), precision control samples (field and laboratory duplicates), and accuracy control samples (spiked samples). A detailed listing of the types of quality assurance samples and the frequency of sampling is presented in Table A-4.

9.1 Field Quality Controls

9.1.1 Contamination Control Samples (Equipment and Trip Blanks)

Equipment rinsate blanks are used to confirm that the sample container and the sampling procedure are not contaminating the sample. Contaminant-free water will be used to prepare this sample. This blank is used to test for residual contamination on non-dedicated sampling equipment.

A trip blank for VOC analysis consists of a contaminant-free matrix in the appropriate sample container with preservative, if required. This sample is generated by the container preparer transported to the field (staying with the sample containers continually), and returned without being opened. The trip blank provides a measure of potential positive interferences introduced by the sample preservation, transportation, storage, and analysis.

9.1.2 Precision Control Samples (Field Replicate Samples)

Analyses of replicate or duplicate samples provide information concerning the precision of the sampling and analytical processes. Two or more samples are taken in the field so that they represent the sample matrix as closely as possible. The results obtained from the measurement of field replicate samples reflects the total precision of the sampling and analytical procedures and the variability in obtaining samples that supposedly represent one sampling point.

9.1.3 Accuracy Control (Field Spiked Samples)

A field spiking program will not be implemented unless a specific need arises that cannot be rectified by laboratory quality control or blind QA/QC samples.

9.2 Laboratory Quality Controls

9.2.1 Contamination Control Samples (Method Blanks)

For each group of samples processed, method blanks (using ASTM Type I to IV water and reagents) are carried throughout the sample preparation and analytical processes. These blanks are used to assess whether samples are being contaminated in the laboratory. Method blanks are specific for each analytical method.

9.2.2 Accuracy and Precision Control Samples (Matrix Spike, Performance, Laboratory Control, and Surrogate Spiked Samples)

A matrix spike sample is created when the analyst adds a known amount of an analyte of interest into a portion of an environmental sample. The data from a matrix spike provide information on the matrix interference effects of a particular sample. The acceptance criteria for the results of analysis of spiked samples are the limits of recovery defined in EPA SW-846.

Laboratory control samples (LCS) represent laboratory control matrix spikes in which a consistent matrix is spiked with a known analyte level in the normal analytical range. The purpose of the control sample is to check the precision and accuracy of the method and the laboratory procedures. The results of a control sample analysis must fall within ±3 standard deviations (control limits) of the average recovered concentrations. (A control sample must be analyzed and yield results within standard control limits before samples can be analyzed.)

Laboratory control sample duplicate (LCSD) results are compared to the LCS samples to evaluate the precision of the analysis. This is calculated for each batch of samples and reported with sample results.

A surrogate spike sample is created when measured amounts of certain compounds are added before sample preparation or extraction (except for volatile samples, which are spiked prior to analysis). The analyst measures the recovery of the surrogate to determine systematic extraction or analysis problems. Surrogate spike recoveries should fall within the control limits set by procedures specified in the prescribed EPA methods. Dilution of samples to bring the analyte concentration into the linear range of calibration may dilute the surrogates outside of the quantification limit; assessment of the analytical quality in these cases will be based on the quality control results from other spiked samples.

10.0 PERFORMANCE AND SYSTEM AUDITS

This section provides requirements for the planning, scheduling, and conducting of QA audits and surveillance to verify that site activities are being performed efficiently in conformance with approved plans, standards, federal and state regulatory requirements, sound scientific practices, and contract requirements. Planned and scheduled audits shall be performed to verify compliance with aspects of the QA program and to evaluate its effectiveness. Audits shall include an objective examination of work areas, activities, processes, review of documents and records, interviews with project personnel, and review of plans and standards.

Performance and system audits are a key mechanism for assuring technical and procedural compliance with the Work Plan. The purposes of the audits are:

- To verify that the field and laboratory quality assurance procedures called for in the QAPP are properly followed and executed;
- The check that appropriate documents are properly completed and are kept current and orderly;
- To assure that measurement systems are accurate; and
- To identify nonconformance or deficiencies and to initiate necessary corrective actions.

The project manager is responsible for assuring conformance with standard operating procedures. Activities that have been selected for audit will be evaluated against specified requirements which will include an evaluation of the method, procedures, and instructions. Documents and records will be examined as necessary to evaluate whether the QA program is effective and properly implemented. Reports and recommendations must be prepared on all audits and retained in the project files.

10.1 Review of Sampling Program

Internal review of the sampling program is conducted on a regular basis during the investigation phase. The reviewers pay particular attention to the sampling program with respect to representativeness, comparability, and completeness of the specific measurement parameters involved.

Field documentation (e.g., chain-of-custody, field daily sheets, well and boring logs) will be reviewed as generated by the project manager for accuracy, completeness, and compliance with QAPP requirements. Field sampling procedures are audited periodically by the project manager for compliance with QAPP procedures. The auditor checks that:

- Sampling protocols are being followed;
- Field measurements are done correctly;
- Samples are placed in proper containers;
- Samples are stored and transported properly; and
- Field documentation is completed.

10.2 Review of Laboratory Procedures and Analytical Results

The measurement systems used in this investigation employ proven instrumentation and analytical techniques, such as GC, which are required to achieve their respective detection limits. The analytical methods are selected for evaluation of specific parameters, with consideration given to the medium (e.g., soil or water) and matrix effects (e.g., interferences and recovery studies). The method selected is an EPA-approved method. However, if no EPA-approved method exists and unique conditions exist which require other testing, other accepted standard methods may be employed. These include both ASTM and Standard Methods (17th Edition) test procedures.

Laboratory procedures are reviewed by the Laboratory's QA Officer whenever a beyond-control limit situation is found. Analytical results are checked by the laboratory manager or other client services individual prior to distribution.

10.3 Technical Review

Technical review of various disciplines (e.g., hydrogeology, engineering) is provided by the appropriate technical managers through periodic peer reviews. Technical reviews are conducted at various phases of the tasks. These reviews are intended to assure the technical feasibility, accuracy, thoroughness, and soundness of the work performed by the technical staff.

10.4 Management Review

The project manager or designated manager reviews the execution of the quality assurance program on a regular basis. The review may include the following: training of personnel, manpower commitments, and proper coordination of efforts and schedules.

10.5 Reporting

A final audit report, if prepared, will be signed by the project manager and include the following information, as appropriate:

- A description of the audit scope;
- Identification of the auditors;
- Identification of persons contacted during audit activities;
- A summary of audit results, including a statement on the effectiveness of the QA program elements which were audited; and
- A description of each reported adverse finding in sufficient detail to enable corrective action to be taken by the audited organization.

The audit report, if prepared, will be distributed to the audited organization or individuals and will be retained in the project files. Management of the audited organization or activity shall investigate adverse audit findings, determine root cause, schedule corrective action, including provisions to prevent recurrence, and response to the report in writing. The audited organization shall report periodically on the status of corrective action taken, until complete.

Audits will be closed out when all corrective action has been completed, verified, and documented. Audit records, including audit reports, written responses, and closure records will be forwarded to the records file upon completion of the audit package.

11.0 PREVENTATIVE MAINTENANCE

A preventative maintenance program shall, at a minimum, be established for equipment and systems that would otherwise be subject to breakdown, when the breakdown could lead to safety hazards, chemical release, or significant loss of completeness and accuracy in data. The preventative maintenance schedule will be developed based on the appropriate manufacturer's recommendations.

Laboratory analytical instruments will be subject to regular preventive maintenance by laboratory personnel or representatives of the equipment manufacturer. Daily checks of each instrument will be made by the analyst who has been assigned responsibility for that instrument. This will include activities such as changing GC inlet liners, checking operation of data systems, checking for leaks, and other similar procedures recommended by the equipment manufacturer.

Field instruments, such as OVA, OVM, pH-conductivity-temperature meters, and water level measurement instruments, will be checked daily and prior to use by the person responsible for use of each instrument. Instruments will be calibrated in the field on a daily basis during project implementation as described in Section 6.0.

12.0 DATA ASSESSMENT PROCEDURES

The precision, accuracy and completeness of data will be routinely assessed as part of the chemical analytical programs. To assure that reliable data continue to be produced during a testing program, systematic checks must show that test results remain reproducible and that the methodology is actually measuring the quantity in each sample.

Procedures for precision, accuracy, and completeness assessments for the analyses performed by the laboratory are outlined in the EPA functional guidelines for data validation. Precision will be measured using statistical procedures, such as standard deviation. Accuracy will be reported as a percent spike recovery for specific chemical analyses. Regularly scheduled analysis of known duplicates, standards, and spiked samples are a routine aspect of the proposed data reduction, validation and reporting procedures.

Laboratory data assessment consists of the following actions:

- Review and validate the data generated using CLP analytical protocols according to Laboratory Data Validation Functional Guidelines for Evaluating Organic Analyses (EPA 1991) and Laboratory Data Validation Functional Guidelines for Evaluating Inorganic Analyses (EPA 1988).
- Incorporate field QC information in the data review and validation.
- Assess the usability of the data that has been validated. Categories for data usability include no qualification necessary (meets all QC criteria), estimated, and unusable.
- Apply qualifier flags to data.
- Prepare and submit reports for each data package, documenting results that are not within QC acceptance criteria as specified either in the EPA Functional Guidelines or the approved procedures for data not addressed by the Functional Guidelines. Document any other laboratory or field occurrences that affect data quality. Explain all resulting data qualifier flags applied to the data.

13.0 CORRECTIVE ACTION

The need for corrective action may be identified by system or performance audits or by standard QA procedures. In addition, all technical staff shall be responsible for reporting suspected technical or quality control nonconformances to the project manager. When a nonconformance or deficiency is identified, corrective action will be implemented by the project manager. The corrective action process will involve the following:

- Reviewing suspect data with respect to predetermined limits for data acceptability;
- Identifying and defining problems for which corrective action is required;
- Assigning responsibility for investigating the problem;
- Determining disposition or action to be taken (this may include reanalysis, resampling and analysis, or remeasurement of field data);
- Assigning and accepting responsibility for implementing the corrective action;
- Evaluating the disposition or corrective action results; and
- Documenting the corrective action taken.

For each measurement system, the project manager will be responsible for initiating the corrective action. The laboratory supervisor will be responsible for implementing corrective action in the laboratory, and the onsite field personnel will be responsible for implementing corrective action in the field. The corrective action taken will depend on the QA/QC data that did not meet the necessary criteria, and may range from qualifying the data to resampling at the site. The program manager will be responsible for ensuring that the corrective action has indeed been taken and that it adequately addresses the nonconformance.

The project manager is authorized to stop work until an unsatisfactory condition has been corrected. In this case, the project manager is responsible for verifying that the unsatisfactory condition has been resolved and for authorizing work resumptions.

14.0 QUALITY ASSURANCE REPORTS TO MANAGEMENT

The project manager or designee shall review aspects of the implementation of the program following the sampling and at the conclusion of the project. These reviews shall include an evaluation of the data quality assessment activities, the results of audits and surveillance (as appropriate), and an assessment of the status of nonconformances and corrective actions. The final project report will also include a separate QA section that will summarize the overall data assessment and validation in accordance with the data quality objectives outlined in the QAPP.

Significant nonconformances or quality problems shall be reported to the principal for evaluation and possible management action. Examples of significant nonconformances or quality problems include the following:

- Failure of an organization to establish and implement appropriate QA and technical requirements, plans, and procedures.

- Continuing or repetitive program inadequacies, deviations or noncompliances and the failure of appropriate organizations to provide proper direction, overview, or correction.
- Failure of project organizations to take reasonably prompt and effective actions to correct deficiencies.

Records shall be maintained to provide evidence of the quality assurance activities. The project manager will be responsible for ensuring that quality assurance records are properly stored and that they can be retrieved.

TABLE C-1: PROPOSED CHEMICAL ANALYTICAL PROGRAM
Arsenic Investigation Work Plan
South BGR Site, Emeryville, California

Analytes	Water Reporting Limits (µg/L) [1]	QC Limits [2]	
		% Rec.[3]	RPD[4]
Arsenic, by EPA Method 7060	2	75-125	0-20

Notes:

(1) The final reporting limit achievable by the laboratory may be affected by matrix interferences, field blank/method blank contamination, etc.

(2) If no value is stated, the % Rec and RPD will be determined during the laboratory selection process.

(3) %Rec. = Percent Recovery; representative of accuracy. Expressed using the following equation: %Recovery = [(X - T) / K] x 100, where X = analytical result of spike sample, T = analytical result of the unspiked aliquot, and K= known addition of the spiked compound.

(4) RPD = Relative Percent Difference; representative of precision. Expressed using the following equation: RPD = [A - B] / [(A + B) / 2], where A and B are two replicate sample results.

TABLE C-2: SAMPLE PRESERVATION, CONTAINERS, AND HOLDING TIMES
Arsenic Investigation Work Plan
South BGR Property, Emeryville, CA

LABORATORY ANALYSIS	ANALYTICAL METHOD	MATRIX	PRESERVATIVE [1]	CONTAINER [2]	ANALYTICAL HOLD TIME [3]
Arsenic	EPA Method 7060	water	HNO_3, pH<2, chill	1 liter poly. or glass	6 months

Notes:
(1) All samples must be cooled to 4°C; additional preservatives are noted.
(2) Containers for water analysis shall contain a Teflon-lined cap
(3) Analytical holding time is defined as the time elapsed from sample collection to sample analysis.

TABLE C-3: MAINTENANCE SCHEDULE FOR FIELD EQUIPMENT
Arsenic Investigation Work Plan
South BGR Property, Emeryville, California

Instrument	Task	Frequency
HNu-meter (1)	(a) Calibrate	(a) Daily
	(b) Clean lamp crystal	(b) Once a week (or as required)
	(c) Clean ion chamber	(c) Once every 2 weeks (or as required)
	(d) Clean meter window	(d) Once every 2 weeks of use
	(e) Clean fan and dust inside probe	(e) Once every 2 weeks of use
OVA-meter (2)	(a) Calibrate	(a) Daily
	(b) Fuel refilling	(b) When pressure falls below 500 psi
	(c) Battery charging	(c) Each night after operation
OVM (3)	(a) Calibrate	(a) Daily
	(b) Charge batteries	(b) Each night prior to operation
Conductivity and pH meter (4)	(a) Calibrate pH	(a) Daily
	(b) pH zero adjust	(b) Daily
	(c) pH slope adjust	(c) Daily
pH-meter (5)	(a) Calibrate	(a) Daily
Specific Conductance-meter (6)	(a) Check	(a) Daily
Thermometer (7)	(a) Calibrate	(a) Once a year
Turbidity-meter (8)	(a) Check	(a) Daily
	(b) Charge batteries	(b) Each night prior to operation
Water Level Indicator (9)	(a) Calibrate	(a) Annually with steel tape

Notes:
(1) HNu model IS-101
(2) Century Organic Vapor Analyzer Model OVA 128
(3) OVM Model 580
(4) Myron L. Company Model M6/pH conductivity pDS Meter
(5) Orion SA 250 pH Meter
(6) YSI-CST Meter Model 33M
(7) Fluke model 51K/J Thermometer
(8) DRT Turbidity-meter Model DRT-15C
(9) Solinst Water Level Indicator
Equivalent models for equipment are acceptable.

TABLE C-4: FREQUENCY OF ANALYSIS OF QUALITY ASSURANCE SAMPLES
Arsenic Investigation Work Plan
South BGR Property, Emeryville, CA

QA Sample Type	Frequency of Analysis
Contamination Control Samples	
Laboratory Method Blank	One per each analytical method. One in every batch of samples (not to exceed 20 samples).
Field/Equipment Blank	One per 20 samples for each analytical method.
Accuracy Control Samples	
Surrogate Spiked Samples	Surrogate will be spiked and analyzed in all samples.
Matrix Spike Samples	One per 20 samples; performed on designated samples.
Precision Control Samples	
Field Replicate (Duplicate) Sample	One per 20 samples for each analytical method.
Matrix Spike Duplicate Samples	One per 20 samples; performed on designated samples.

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(415) 955-9041 Fax

CHAIN OF CUSTODY RECORD

Project No. | Project Name | Date | Page ___ of ___

Date	Sample Number	Analysis					Number of Containers	Sample Information
			Total Number of Containers					

Relinquished by (Sampler):

Signature

Printed Name

Company

Date Time

Received by:

Signature

Printed Name

Company

Date Time

Relinquished by:

Signature

Printed Name

Company

Date Time

Method of Shipment

Received by (Lab):

Signature

Printed Name

Lab

Date Time

Lab Comments

Remarks:

Exhibit C-1

FIELD REPORT NO. ____

Sheet _1_ of ____

Project _____ Job No. _____

Subject **FIELD INVESTIGATION DAILY REPORT** Date _____

Field Engineer _____

Time from _____ to _____ Weather _____

Reviewed by _____ Date _____

Attachments:

Initial:

Exhibit C-2

TREADWELL & ROLLO, INC.

PROJECT	PROJECT NO.	SHEET __ OF __
LOCATION OF BORING	DRILLING METHOD:	BORING NO.
	HAMMER WEIGHT: / DROP:	LOGGED BY:
	SAMPLER(S):	DRILLING
	BACKFILL MATERIAL:	START / FINISH
DATUM _____ ELEVATION _____	WATER LEVEL / TIME / DATE / CASING DEPTH	TIME / TIME / DATE / DATE

SAMPLER TYPE	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NO. / SAMPLE DEPTH	OVM/PID/FID READING	BLOWS/6" SAMPLER	SPT N-VALUE	DEPTH IN FEET	LITHOLOGY	SURFACE CONDITIONS:
						0		
						1		
						2		
						3		
						4		
						5		
						6		
						7		
						8		
						9		
						0		
						1		
						2		
						3		
						4		
						5		
						6		
						7		
						8		
						9		
						0		

TREADWELL & ROLLO, INC.
Consulting Engineers and Scientists

WATER LEVEL MONITORING RECORD

Project # Project Name: Date: Page___ of___

RECORDED BY:

MP = Measuring Point

WELL NO.	DATE	TIME	WATER LEVEL BELOW MP (feet)	ELEVATION OF MP (feet, MSL)	WATER LEVEL ELEVATION (feet, MSL)	REMARKS
						Exhibit C-4

TREADWELL & ROLLO, INC. Consulting Engineers and Scientists	MONITORING WELL SAMPLING RECORD

WELL ID: _____ DEPTH TO WATER: _____

PROJECT NO.: _____ TOTAL DEPTH OF WELL: _____

PROJECT NAME: _____ WELL DIAMETER: _____

DATE: _____ CASING VOLUME: _____

SAMPLED BY: _____ METHOD OF PURGING: _____

WELL PURGING INFORMATION

TIME	CUMULATIVE VOL REMOVED (GALLONS)	TEMPERATURE (° C)	pH (UNITS)	SPECIFIC CONDUCTANCE (UMHOS/CM)	REMARKS

WELL SAMPLE AND DUPLICATE INFORMATION

TIME	SAMPLE I.D.	SAMPLE VOLUME	PRESERVATION	LABORATORY NAME	REMARKS

Notes _____

Exhibit C-5