Weiss Associates Environmental and Geologic Services

5500 Shellmound Street, Emeryville, CA 94608-2411 Fax: 510-547-5043 Phone: **510-450-6000**

Oct 1996 removal

June 5, 1996

STID 367

Susan Hugo
Alameda County Department of
Environmental Health
1131 Harbor Bay Parkway, Second Floor
Alameda, CA 94502-6577

Re: **Soil Characterization Workplan**
Shell Service Station
WIC #204-0079-0109
999 San Pablo Avenue
Albany, California
WA Job #81-0699-04

Dear Ms. Hugo:

On behalf of Shell Oil Products Company (Shell), Weiss Associates (WA) has prepared this workplan to pre-characterize soil scheduled to be excavated around an underground fuel tank and associated piping at the Shell service station referenced above (Figure 1). The purpose of the in situ soil characterization is to obtain pre-approval from an appropriate landfill facility to accept the excavated soil associated with the tank removal. Shell has scheduled to replace the existing tank shortly and due to space limitations at the site, Shell has opted to characterize the soil for offsite disposal prior to excavating the tank. WA's proposed sampling plan and scope of work are presented below.

Proposed Sampling Plan

WA estimates up to 500 cubic yards of soil will be excavated during the tank removal and replacement. Currently, there are three tanks: two 10,000-gallon fiberglass tanks and one 8,000-gallon steel tank. Only 8,000-gallon steel tank is to be removed. WA proposes drilling three (3) soil borings to about 18 ft below ground surface (bgs) at the locations shown on Figure 2. To obtain a density of approximately one composite sample for every 200 cubic yards of soil, WA will collect 1 sample every 5 feet beginning at 3 ft depth from each of the three borings for a total of 12 samples. WA will direct the analytical laboratory to composite the four samples collected from each boring for a total of 3 composite samples. The 3 four-point composite soil samples will be analyzed according to Shell's minimum required testing for disposal of soil which may contain gasoline and/or diesel (Attachment A). The potential offsite disposal facility has already approved this soil sampling plan as satisfying their soil characterization requirements for disposal at their facility (Attachment B). Our standard field procedures for soil boring and soil sampling are included as Attachment C.

Proposed Scope of Work

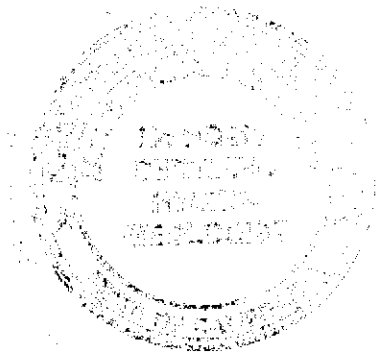
The specific tasks we will perform for this project include:

- Preparing a site specific health and safety plan and locating underground and overhead utilities;
- Obtaining all necessary drilling permits.
- Drilling 3 soil borings and collecting 4 soil samples from each boring for laboratory analyses;
- Screening soil samples in the field for volatile hydrocarbons with a portable photo-ionization detector (PID);
- Analyzing selected soil samples as outlined in Attachment A;
- Backfilling the borings with cement grout; and
- Tabulating the analytic data and submitting the data to a landfill for their review.

The soil analytic results, quantity of soil excavated, name of the hauler, and final destination of the soil will be reported in the tank removal report.

WA will proceed with the boring program as soon as we receive permits from Zone 7 Water Agency. We trust that this submittal meets your needs. Please call either of the undersigned at (510) 450-6000 if you have any questions or comments.

Sincerely,
Weiss Associates



Yi-Ran Wu
Staff Engineer

James W. Carmody, C.H.G.
Senior Project Hydrogeologist

Attachments: Figures
A - Hazardous Waste Procedures
B - Landfill Approval of Sampling Plan
C - Standard Field Procedures

cc: Jeff Granberry, Shell Oil Products Company, P.O. Box 4023, Concord, California 94524
Wyman Hong, Zone 7 Water Agency, 5997 Parkside Drive, Pleasanton, California, 94588
Lynette Smith, Forward Inc., P.O. Box 6336, 1145 W. Charter Way, Stockton, California, 95206

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FIGURES

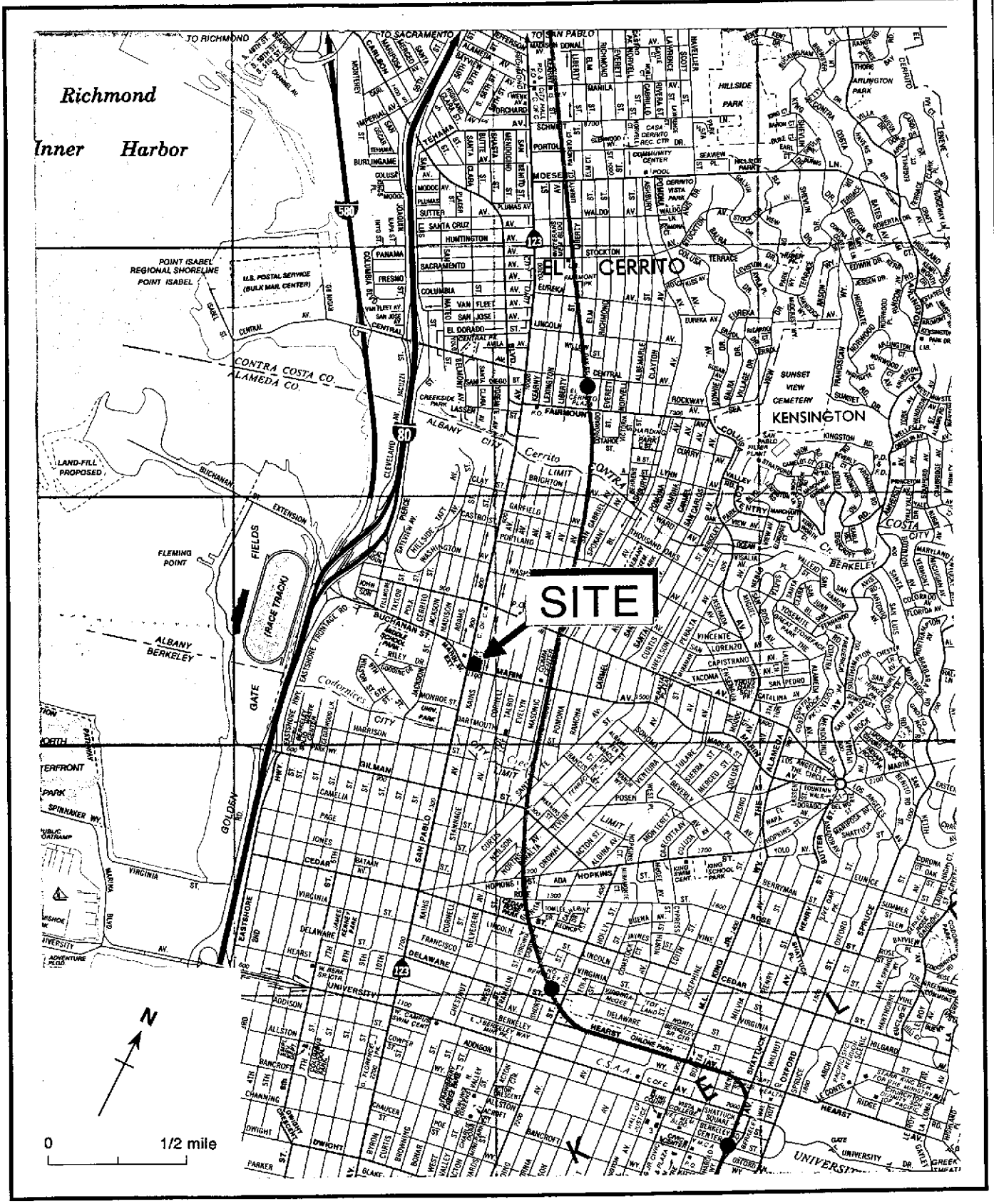

Figure 1. Site Location Map - Shell Service Station WIC #204-0079-0109, 999 San Pablo Avenue, Albany, California

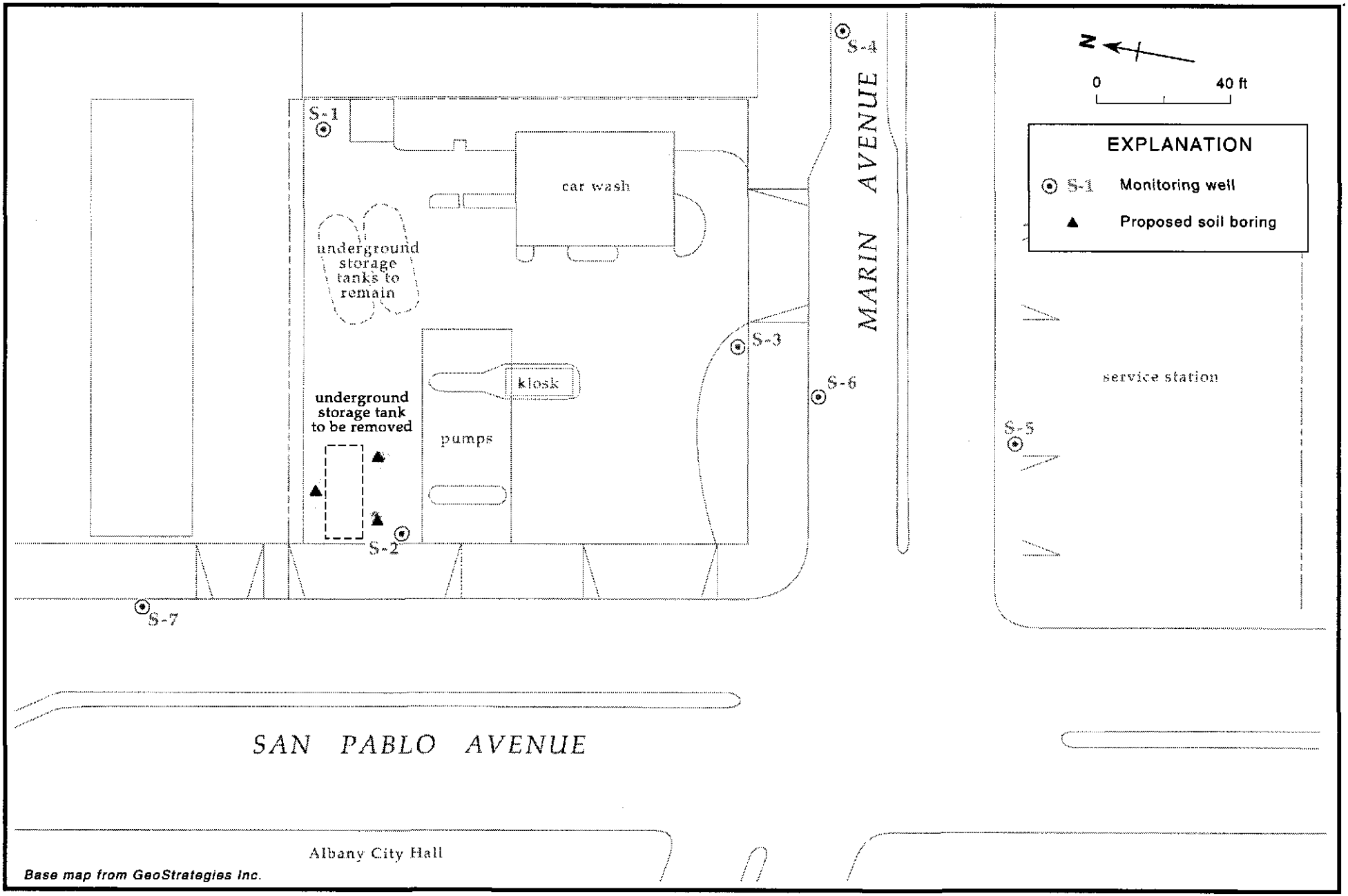

Figure 2. Proposed Soil Boring Locations - Shell Service Station WIC #204-0079-0109, 999 San Pablo Avenue, Albany, California

ATTACHMENT A

HAZARDOUS WASTE PROCEDURES

ISSUED DATE: 02/17/95
CANCELS ISSUE: 11/01/92
ISSUED BY: RLG

MATERIAL: CALIFORNIA **UNDERGROUND STORAGE TANK (UST)**
SOIL CONTAMINATED WITH GASOLINE/DIESEL

MINIMUM REQUIRED TESTING

TPH = TOTAL PETROLEUM HYDROCARBONS, DHS GC-FID MOD 8015
GASOLINE OR DIESEL AS REQUIRED.
BTXE = EPA 8020
CAM METALS = TTLC ALL:
STLC ON ALL TTLC METALS 10 X STLC MAXIMUM,
TTLC LEAD =>13 MG/KG REQUIRES ORGANIC ANALYSIS,
EP TOX METALS FOR STLC METALS AT OR ABOVE
STLC REGULATORY LEVEL.

AQUATIC BIOASSAY (FISH TOX) IS ONLY TO BE RUN ON SAMPLES WITH GREATER THAN 5000 PPM TPH. COMPOSITE A MAXIMUM OF 4 SAMPLES.
AQUATIC BIOASSAY (FISH TOX) = PART 800 OF "STANDARD METHODS FOR THE EXAMINATION OF WATER AND WASTEWATER (15TH EDITION)"

LABORATORY INSTRUCTIONS (MINIMUM GUIDELINES ONLY)

- 8015/8020 TO BE BILLED AS "COMBO" WITHOUT EXCEPTION
- TPH REQUIRED ON ALL SAMPLES.
- ALL OTHER TESTS REQUIRED TO BE RUN ON COMPOSITE(S). MAX. 4 SAMPLES PER COMPOSITE.
- ORGANIC ANALYSIS REQUIRED FOR TTLC LEAD OF 13 MG/KG OR GREATER.
- STLC REQUIRED FOR METALS WITH TTLC VALUE 10 X STLC MAXIMUM.
- LABORATORY IS TO SUPPLY QA/QC INFORMATION WITH ALL ANALYTICAL REPORTS.
- MAIL OR FAX ALL ANALYSIS TO PERSON REQUESTING ANALYSIS. DO NOT FAX OR MAIL ANALYSES TO RON GEMEINHARDT OR THE WASTE DISPOSAL COORDINATOR UNLESS SPECIFICALLY REQUESTED.
- QUESTIONS REGARDING ANALYSIS CONTACT RON GEMEINHARDT AT (714) 520-3385.

ATTACHMENT B

LANDFILL APPROVAL

FORWARD
INCORPORATED

P.O. Box 6336
1145 W. Charter Way • Stockton, CA 92506
(209) 466-4482 • (800) 204-4242 • FAX (209) 466-1067

May 23, 1996

Weiss Associates
5500 Shellmound Street
Emeryville, California 94608-2411

Attention: Mr.Yi-Ran Wu

RE: Soil Characterization Workplan
Shell Service Station
999 San Pablo Avenue
Albany, California
WA Job # 81-0699-04

Dear Mr. Wu:

This letter is written in response to your request for pre-approval of a sampling plan for Shell Oil Products Company.

The proposed sampling plan submitted by Weiss Associates for the approximately 500 cubic yards of soil from the referenced site is acceptable at ***FORWARD, INC.*** The purpose of the in situ soil characterization is to obtain pre-approval due to limited space at the site. Final acceptance will be contingent upon receipt of a ***FORWARD, INC.*** Waste Profile Form along with the analytical data and chain of custody form. ***FORWARD, INC's*** minimum testing requirements for gasoline and diesel contamination are as follows: *TPH as gasoline (EPA 5030/8015)*, *TPH as diesel (EPA 3550/8015), BTEX (EPA 8020)* and *TTLC Lead* (an STLC will be required should the level exceed ten times its soluble threshold limit concentration).

FORWARD, INC. requires a representative sampling[1] of the soil prior to its acceptance for disposal. The sampling of the soil can be conducted while the soil is in place as long as the samples are representative of the waste as a whole. The analytical testing performed on these samples should include any constituents of concern based on generators knowledge, past uses of the site, known spills, or leaks of potential contaminants. If any unknown hydrocarbon is encountered ***FORWARD, INC.*** requires the following analytical testing be performed: total petroleum hydrocarbons (TPH) as gasoline by EPA method 5030/Modified 8015, TPH as diesel by EPA method 3550/Modified 8015, total oil and grease by standard method 418.1 or 5520, volatile organics by EPA Method 8260, semi-volatile organics by EPA method 8270, and total threshold limit concentrations (TTLC) for the metals cadmium, chromium, lead, nickel, and zinc. If any metal exceeds ten times its soluble threshold limit concentration (STLC), an STLC extraction analyses will be required.

Our Class II unit does not have an upper limit for petroleum hydrocarbons, however above 5,900 ppm for TPH as gasoline, 10,000 ppm for oil and grease, and 20,000 ppm for diesel we do require a 96-Hour Acute Hazardous Waste Bioassay be performed.

The ***FORWARD, INC.*** landfill is located in Manteca, San Joaquin County, California. The landfill was permitted in 1973 and has been operated by ***FORWARD, INC.*** since that time. It is a privately owned and operated facility

[1] In accordance with EPA Guidance Document SW-846, "Testing Methods for Evaluating Solid Waste", 3rd Edition, U.S. Environmental Protection Agency, 1986.

FORWARD, INC. is a Class II/III landfill and treatment facility. ***FORWARD, INC.*** can accept non-hazardous waste as defined by the California Code of Regulations, Title 22, Section 66261.24, and in accordance with the Waste Discharge Requirements issued by the California Regional Water Quality Control Board, Central Valley Region dated March 2, 1994, Order No. 94-014. Class II units have the full protection of Subtitle D composite liner with a leachate collection system.

The landfill meets and complies with all regulatory requirements as issued by the State, County, and Federal Environmental agencies. To assist in your liability protection ***FORWARD, INC.*** contributes to a closure fund on an annual basis. The actual amount paid into this fund per year is calculated on an annual basis based on inflation. The fund is maintained by the California Environmental Protection Agency

The landfill's operation hours for soil delivery are from 7:00 a.m. to 5:00 p.m. Monday through Friday. All other waste types are accepted from 7:00 a.m. to 3:00 p.m. Monday through Friday . Arrangements can be made to extend the landfill's hours for your convenience.

We would like to thank you for the opportunity and look forward to discussing this project further. Should you have any questions, please do not hesitate to contact me at (800) 204-4242.

Sincerely,

FORWARD, INC.

Lynette M. Smith
Technical Service Representative

ATTACHMENT C

STANDARD FIELD PROCEDURES

STANDARD FIELD PROCEDURES

Weiss Associates (WA) has developed standard procedures for drilling and sampling soil borings and installing, developing and sampling ground water monitoring wells. These procedures comply with Federal, State and local regulatory guidelines. Specific procedures are summarized below.

SOIL BORING AND SAMPLING

Objectives/Supervision

Soil sampling objectives include characterizing subsurface lithology, assessing whether the soils exhibit obvious hydrocarbon or other compound vapor or staining, and collecting samples for analysis at a State-certified laboratory. All borings are logged using the Unified Soil Classification System by a trained geologist working under the supervision of a California Registered Geologist (RG) or a Certified Engineering Geologist (CEG).

Soil Boring and Sampling

Soil borings are typically drilled using hollow-stem augers. Split-barrel samplers lined with steam-cleaned brass or stainless steel tubes are driven through the hollow auger stem into undisturbed sediments at the bottom of the borehole using a 140 pound hammer dropped 30 inches. Soil samples can also be collected without using hollow-stem augers by progressively driving split-barrel soil samplers to depths of up to 20 ft.

Soil samples are normally collected at least every five ft to characterize the subsurface sediments and for possible chemical analysis. Near the water table and at lithologic changes, the sampling interval may be less than five ft.

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

Sample Analysis

After noting the lithology at each end of the sampling tubes, the tube chosen for analysis is immediately trimmed of excess soil and capped with teflon tape and plastic end caps. The sample is labelled, stored at or below 4°C, and transported under chain-of-custody to a State-certified analytic laboratory.

Screening

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

Grouting

If the borings are not completed as wells, the borings are filled to the ground surface with cement grout poured or pumped through a tremie pipe. If wells are completed in the borings, the well installation, development and sampling procedures summarized below are followed.

MONITORING WELL INSTALLATION, DEVELOPMENT AND SAMPLING

Well Construction and Surveying

Wells are installed to monitor ground water quality and determine the ground water elevation, flow direction and gradient. Well depths and screen lengths are based on ground water depth, occurrence of hydrocarbons or other compounds in the borehole, stratigraphy and state and local regulatory guidelines. Well screens typically extend 15 ft below and 5 ft above the static water level at the time of drilling. However, the well screen will generally not extend into or through a clay layer that is at least three to five ft thick.

Well casing and screen are flush-threaded, Schedule 40 PVC. Screen slot size varies according to the sediments screened, but slots are generally 0.010 or 0.020 inches wide. A rinsed and graded sand occupies the annular space between the boring and the well screen to about one to two ft above the well screen. A two ft thick hydrated bentonite seal separates the sand from the overlying sanitary surface seal composed of cement with 3-5% bentonite.

Well-heads are secured by locking well-caps inside traffic-rated vaults finished flush with the ground surface. A stovepipe may be installed between the well-head and the vault cap for additional security. The well top-of-casing elevation is surveyed with respect to mean sea level and the well is surveyed for horizontal location with respect to an onsite or nearby offsite landmark.

Well Development

After 24 hours, the wells are developed using a combination of ground water surging and extraction. Surging agitates the ground water and dislodges fine sediments from the sand pack. After about ten minutes of surging, ground water is extracted from the well using bailing, pumping and/or reverse air-lifting through an eductor pipe to remove the sediments from the well. Surging and extraction continue until at least ten well-casing volumes of ground water are extracted and the sediment volume in the ground water is negligible. All equipment is steam-cleaned prior to use

and air used for air-lifting is filtered to prevent oil entrained in the compressed air from entering the well. Wells that are developed using air-lift evacuation are not sampled until at least 24 hours after they are developed.

Ground Water Sampling

Depending on local regulatory guidelines, three to four well-casing volumes of ground water are purged prior to sampling. Purging continues until ground water pH, conductivity, and temperature have stabilized. Ground water samples are collected using bailers or pumps and are decanted into the appropriate containers supplied by the analytic laboratory. Samples are labelled, placed in protective foam sleeves, stored at 4°C, and transported under chain-of-custody to the laboratory. Laboratory-supplied trip blanks accompany the samples and are analyzed to check for cross-contamination. An equipment blank may be analyzed if non-dedicated sampling equipment is used.