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5/11/89

ALAMEDA COUNTY
 DEPT. OF ENVIRONMENTAL HEALTH
 HAZARDOUS MATERIALS

WORKPLAN FOR SITE REMEDIATION

Abandoned Chevron Asphalt Plant and Terminal Emeryville, California

Site Description

The site is an abandoned fueling terminal and asphalt testing laboratory. It is located at 1520 Powell Street in Emeryville, California (Figure 1). The site is located less than 1 mile east of San Francisco Bay in a heavily industrialized area. The elevation of the site is approximately 10 feet above mean sea level (msl) and the local topography slopes gently to the west, toward San Francisco Bay. Groundwater has been found between 1 and 5 feet below grade at the site and appears to be under a tidal influence, but the degree of influence has yet to be determined. The aboveground fuel storage tanks have been removed and the asphalt laboratory and other associated buildings are abandoned (Figure 2).

Site Background

- | | |
|--------------|--|
| March 1985 | Nine groundwater monitoring wells were installed by Harding Lawson Associates (HLA). Low level hydrocarbons were found in groundwater samples (Figure 2). |
| October 1987 | The above-ground fuel storage tanks and associated piping were removed. |
| In July 1988 | Three additional wells were installed by HLA. Trichloroethylene (TCE) and fuel hydrocarbons were found in soil. Fuel hydrocarbons and other regulated compounds were found in the groundwater (Figure 2). Soil borings were also installed at 18 locations (Figure 2). Soil samples from borings 1 through 6 were composited prior to analysis, soil samples from borings 7 through 10 were composited prior to analysis and soil samples from borings 11 through 14 were composited prior to analysis. Soil samples from borings 15, 17, and 18 were not composited prior to analysis. Soil from boring 16 does not appear to have been analyzed. All composites and individual soil samples were analyzed for gasoline, kerosene, diesel and other hydrocarbons. Soil samples from borings 17 and 18 were also analyzed for purgeable priority pollutants. Samples were all below detection for gasoline, kerosene and diesel hydrocarbons. Other hydrocarbons were found at concentrations from non-detectable (ND) to 7,500 parts-per-million (ppm) (Figure 2). The samples from borings 17 and 18 revealed the presence of TCE at 1.4 ppm and 1.5 ppm, respectively (Figure 2). |



Aug/Sept 1988

The loading dock and barrel storage area were removed to allow for additional subsurface investigation. (Figure 2).

September 1988

Western Geologic Resources, Inc. (WGR) drilled 42 soil borings onsite, near the old barrel storage area, and offsite to determine the vertical and horizontal extent of fuel hydrocarbons at and adjacent to the facility (Figures 3 & 4).

From the first set of soil borings B-1 through B-20, which were drilled in the barrel storage area (Figure 3), eight soil composite samples were made, four from 3 feet below grade and four from 5 feet below grade. Composites were made from borings B-1 through B-5, B-6 through B-10, B-11 through B-15 and B-16 through B-20 at these two depths. Results of the analyses of the composites are shown on Figure 3 and indicate the presence of fuel hydrocarbons characterized as diesel or gasoline and diesel. Results from the 3 foot interval range in concentration from 490 ppm to 1,900 ppm, while results from the 5 foot interval range from 640 ppm to 2,100 ppm.

The second set of borings B-21 through B-41 were installed on the periphery of the barrel storage area and in areas adjacent to this area to establish the horizontal extent of fuel hydrocarbons that were identified during the first set of soil borings. Their locations and analytic results are shown on Figure 4. Composite samples were not made during this boring event, samples were collected at two depths in each boring at approximately 3 feet and 5 feet below grade for analysis. The analytic results indicated a similar condition as seen in the first boring event composite samples. In the shallow zone, between 3 and 4 feet below grade, fuel hydrocarbons, which were found, were characterized as diesel, gasoline and diesel, diesel and oil, gasoline, and oil. Concentrations in this sampling interval ranged from below detection (less than 10 ppm) to 2,000 ppm. In the deeper zone, between 4.5 and 6 feet below grade, fuel hydrocarbons which were found were characterized as the same components as in the shallow zone. Analytic results from this sampling interval ranged from below detection to 2,700 ppm.



December 1988

Groundwater Technology, Inc. (GTI) drilled 33 additional soil borings to further investigate the vertical and horizontal extent of fuel hydrocarbons and halocarbons in the unsaturated zone and to perform a preliminary feasibility study for bioreclamation. The sampling locations and the type of analysis performed on the samples collected are shown on Figure 5. The analytic results are shown on Figures 6 (fuel hydrocarbons) and 7 (halocarbons). The sampling depths ranged from 1.5 feet to 10 feet below grade. Samples were collected in the saturated zone to determine bacteria population size and moisture/dry weight analysis.

Twenty-seven soil samples were analyzed for fuel hydrocarbons (gasoline, diesel and "waste oil"), 31 were analyzed for halocarbons, 2 were analyzed for purgeable priority pollutants (fuels, halocarbons plus other regulated purgeable compounds), 5 were tested for moisture/dry weight analysis and 9 were tested for bacterial population count. Gasoline was detected in one of the samples analyzed for fuel hydrocarbons, while diesel compounds were detected in 9 of these samples and "waste oil" was identified in 3 of these samples. The term "waste oil" refers to heavier hydrocarbons or degraded gasolines, diesel fuels or fuel oils (Figure 6). Halocarbons were detected in three of the 27 samples analyzed for these compounds (Figure 7).

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

Hydrocarbons have been identified at the site in concentrations ranging from below detection to 2,700 ppm. These have been characterized as gasoline, diesel, oil and different combinations of these. Sampling locations and concentrations are shown on Figures 2, 3, 4, 5 & 6. In addition, TCE was identified in two samples collected by HLA and in three samples collected by GTI. TCE was identified, in the same area by both consultants, in the vicinity of the asphalt laboratory. Sampling locations and concentrations are shown on Figures 2, 5 & 7.

Recommendations

Since these compounds (hydrocarbons and halocarbons) have been identified in the subsurface sediments and the groundwater beneath and adjacent to the site, a remediation program that deals with both the unsaturated and saturated zones should be designed. Below is our remediation approach to dealing with the contamination that has been identified at the subject site.

APPROACH TO REMEDIATION DESIGN

This section describes the different zones that will be dealt with during site remediation and identifies the different contaminants of concern, within the zones, that site remediation will remove.

Zones of Concern

Vadose Zone

Most of the hydrocarbons found at the site are in the vadose zone. The zone thickness changes according to tidal influence, at times it is as shallow as 1 foot below grade while at other times it is as deep as 3 feet below grade. For design purposes, the vadose zone will be assumed to extend from ground surface down to 3 feet below grade.

Saturated Zone

The saturated zone extends below the vadose zone and contains two components: 1) the soil in the zone; and 2) the groundwater that exists in the zone. The soil and groundwater will be treated using different remedial activities.

Contaminants of Concern

Fuel Hydrocarbons vs Halocarbons

Since two different types of contaminants (hydrocarbons and halocarbons) have been identified at the site and their impact on the environment and their remediation implications are different, they will be dealt with as separate contamination areas, with separate cleanup objectives and goals. Areas where both hydrocarbons and halocarbons have been identified will be dealt with according to the most stringent regulatory guidelines.

SITE REMEDIATION

Site remediation will proceed in three phases. These are:

1. Halocarbon contaminated soil Remediation;
2. Vadose zone and saturated zone hydrocarbon contaminated soil remediation; and
3. Groundwater remediation.

Halocarbon Contaminated Soil Remediation

The soil identified by both HLA and GTI will be remediated by excavation, transport and disposal to an appropriate landfill. Figure 7 indicates the area where halocarbons were identified in these two independent studies. The halocarbons extend under the asphalt laboratory from both the east and the west. The concentrations that have been found indicate very low ppm level contamination, the highest concentration being 3.8 ppm. Given this, we plan only to remove the halocarbon contaminated soil from either side of the building and not remove the soil from directly within the building foundation. Concentrations found directly beneath the building, in HLA soil samples #17 and #18, were 1.4 and 1.5 ppm, which are well below both the total threshold limit concentrations (TTLC) and soluble threshold limit concentrations (STLC) for TCE that are listed in California Administrative Code; *Title 22: Social Security; Division 4: Environmental Health; Chapter 30: Minimum Standards for Management of Hazardous and Extremely Hazardous Wastes; Article 11: Criteria for the Identification of Hazardous and Extremely Hazardous Wastes; Section 66699; Persistent and Bioaccumulative Toxic Substance (Title 22)*. The table from Title 22 is included as Attachment A. The volume of halogenated soil that will be removed during site remediation is approximately 100 cubic yards (cy). This soil will be excavated and loaded directly into hazardous material regulated transport vehicles (end-dumps). The soil will be manifested and hauled to Casmalia Resources, Inc. in Casmalia, California, a Class I landfill, for proper disposal.

The soil that is left within the building foundation will be isolated from future occupants of the property by placing a concrete floor over the soil, thus creating a barrier. We do not feel that the concentration of the soils left behind will pose any health risk if not capped, but to add further protection from the remote possibility of exposure this floor will be laid.


Vadose and Saturated Zone Fuel Hydrocarbon Contaminated Soil Remediation

A review of the California Health and Safety Code; Sections 25142 through 25250.1 (CHSC) indicated that there are exemptions for the handling and ultimate fate of fuel contaminated soils. This program is a self implementing program with Agency Review at their discretion.

The CHSC allows for this type of material to be transported as a non-hazardous material provided one or more of the following conditions are met: 1) "the product contains no hazardous constituents, other than those for which the material is being recycled" (CHSC; 25143.2d; paragraph A; part i); 2) "The material is either managed at the site where it was generated or managed at another site owned or operated by the generator, a corporate subsidiary of the generator, a subsidiary of the same entity of which the generator is a subsidiary, or the corporate parent of the generator" (CHSC; 25143.2d; paragraph C; part ii).


The CHSC also allows for these soils to be treated as non-hazardous materials if they are: 1) "used or reused as an ingredient in an industrial process to make a product, if the material is not being reclaimed" (CHSC; section 25143.2; subpart 1); or 2) "used or reused as a safe and effective substitute for commercial products, if the material is not being reclaimed" (25143.2; subpart 2). A requirement to use these exemptions is that the material that is created during the alternative technology process must be resalable to the general public and that the added material must contribute to the final product. The Sections of the CHSC that are quoted above are included in Attachment B for review.

In order to use this alternative technology, we have to apply for a permit from the Bay Area Air Quality Management District (BAAQMD) to operate the ARA facility in this manner. We have received a variance from the BAAQMD to perform a pilot test program for the period of 1 April 1989 to 1 October 1989. The variance is included in Attachment C for review and documentation. One requirement of the variance is that we contact the local health departments, inform them of our proposed activities and obtain their permission to proceed. Teleconferences with the Alameda County Health Department (ACHD), the Contra Costa County Health Department (CCCHD), the Regional Water Quality Control Board-San Francisco Bay region (WQCB) and the California Department of Health Services-Alternative Technologies Group (DHS-ATG) have explained our approach to remediation at this site, the technology, the safeguards and the value of the approach. This workplan is intended to fulfill the BAAQMD requirements as well as the other obligations that need to be met to move ahead on this project.



We plan to transport the soil from the facility in Emeryville to American Rock and Asphalt, Inc. (ARA), located on Chevron refinery property at 961 Western Drive in Richmond, California. ARA has agreed to accept this material and to incorporate it into the asphalt manufacturing process. The specifications for making industry standard asphalt using this soil as a component have been determined by the Chevron Research Company (CRC) also located in Richmond. The percentage mixture can vary from 3% to 10% and still maintain the standards required for sale and use in the public domain. A complete description of the process, including flow diagrams and testing protocol are included in Attachment D.

The area of hydrocarbon contaminated soil that is to be remediated during this project is shown on Figure 6. There are approximately 7,500 cy of soil that will be excavated and removed from the site. Of the 7,500 cy, about half are in the vadose zone, the rest in the saturated zone. The soil will be excavated in two phases, the first being the vadose zone (down to 3 ft) and the second being the saturated zone down to 6 ft below grade. The soil in the vadose zone will be excavated and loaded directly into transport vehicles (end-dumps) and hauled directly to ARA. Soil excavated from the saturated zone will be excavated and also loaded directly into transport vehicles for delivery to ARA. Unlike the vadose zone excavation, the saturated zone excavation will require a dewatering program. The program is simple and will consist of a dewatering trench, pumping equipment and a minimum storage capacity of 20,000 gallons. A full description of the dewatering program is included in Attachment E. There are two ways to deal with the extracted groundwater from the dewatering program. These are: 1) National Pollution Discharge Elimination System (NPDES) discharge permitting to the stormwater sewer system; or 2) disposal of the water at an appropriate recycling facility. Either of the options is viable while using the same removal process. All extracted water will be passed through activated carbon and analyzed for the compounds of interest prior to discharge or disposal. An application for NPDES discharge will be filed so that this option can be used, but if the process of permitting cannot be performed within the client's time frame then our second alternative will be used, either permanently or until the NPDES permit is issued. Once excavated, the soil will be transported directly to the ARA, where it will be stored prior to encapsulation. We anticipate that the entire 7,500 cy can be encapsulated during the variance time frame, but if this is not the case then the material will be stored onsite until a final permit is obtained. Storing the soil onsite during the entire process will be done so that no adverse affects to the environment will occur. A pad, approximately 100 ft by 200 ft, will be constructed of asphalt. The pad will have berms and collection trenches to ensure the complete containment of the material on the pad. During storage the soil pile will be covered by visqueen plastic to prevent rainfall or other forms of



moisture from falling on the pile and creating a leachate problem. The plastic cover will also prevent improper venting of the soil while the pile is inactive. Covering the pile also has a beneficial affect in that the pile will become a closed chamber where biologic activity can increase helping to breakdown the fuel hydrocarbons in the soil naturally. While we do not plan to actively stimulate this activity, it will nevertheless occur on its own. Regular testing of the soil being incorporated into the mix and stack monitoring are required by the BAAQMD variance. This information will be compiled and presented in a report at the end of the variance program, when the final permit application is submitted. The testing and monitoring procedures are included in the process description included in Attachment C.

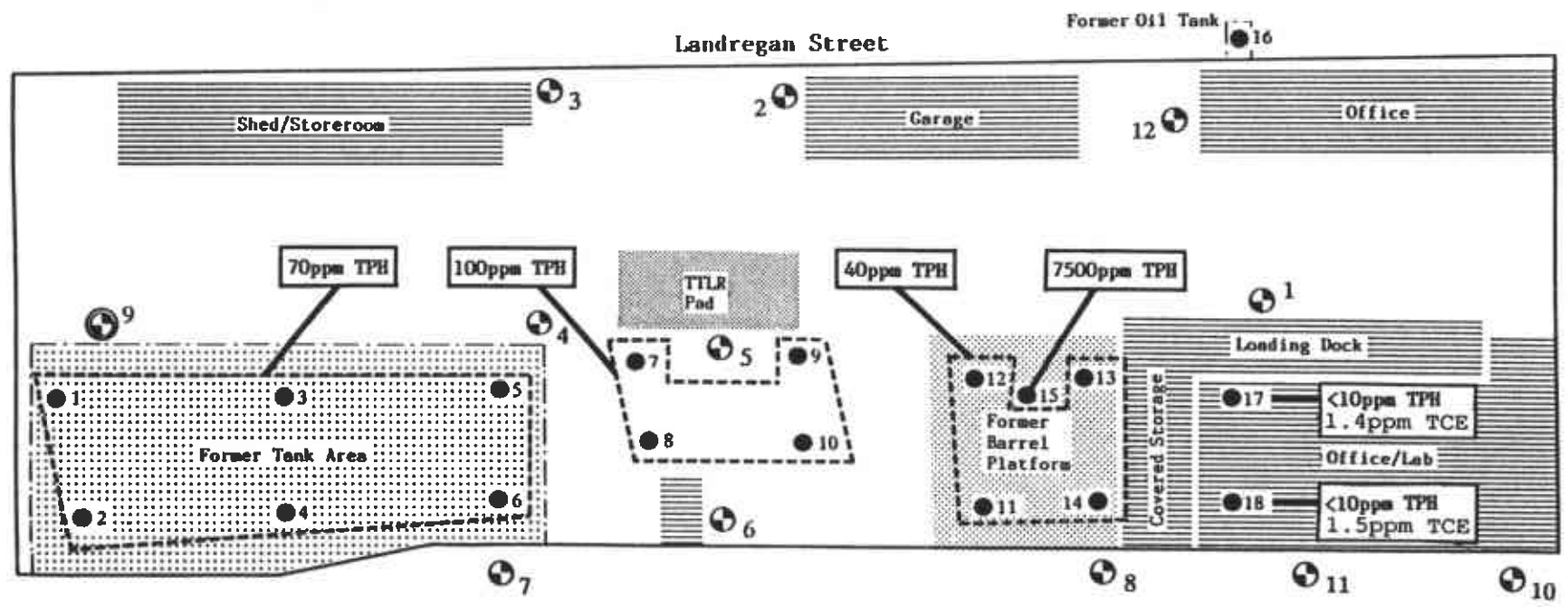
Groundwater Remediation

Once all the soil has been removed and the site is restored to present surface condition, the groundwater issue at the site will be addressed. The most prudent approach, now, to the groundwater issue is to monitor the site on a quarterly basis for a year. While groundwater contaminants have been identified in the past, a determination of whether they come mostly from the soil that is to be removed needs to be made. Monitoring for one year will allow us to build a database for the site after the contaminated soil has been removed. We will analyze the water samples for all the compounds that have been found at the site, in the groundwater. Quarterly monitoring reports will be prepared describing the work performed, the laboratory results, chemical trends and groundwater fluctuation trends. At the end of one year of sampling, a comprehensive report describing the site will be issued. Chevron will then make recommendations for future monitoring or other tasks that need to be performed. These reports will be issued to all appropriate agencies and concerned parties for their review and comments.



Figure 1. Site Location Map,
 Former Chevron Asphalt Plant
 1520 Powell Street, Emeryville, California.

Reference: GTI Site Investigation
 Emeryville Terminal, Emeryville, California.



LEGEND

- Soil Sample Location
- ⊕ Monitoring Well
- ⊕ Monitoring Well Not Found
- ⊔ Samples Composited

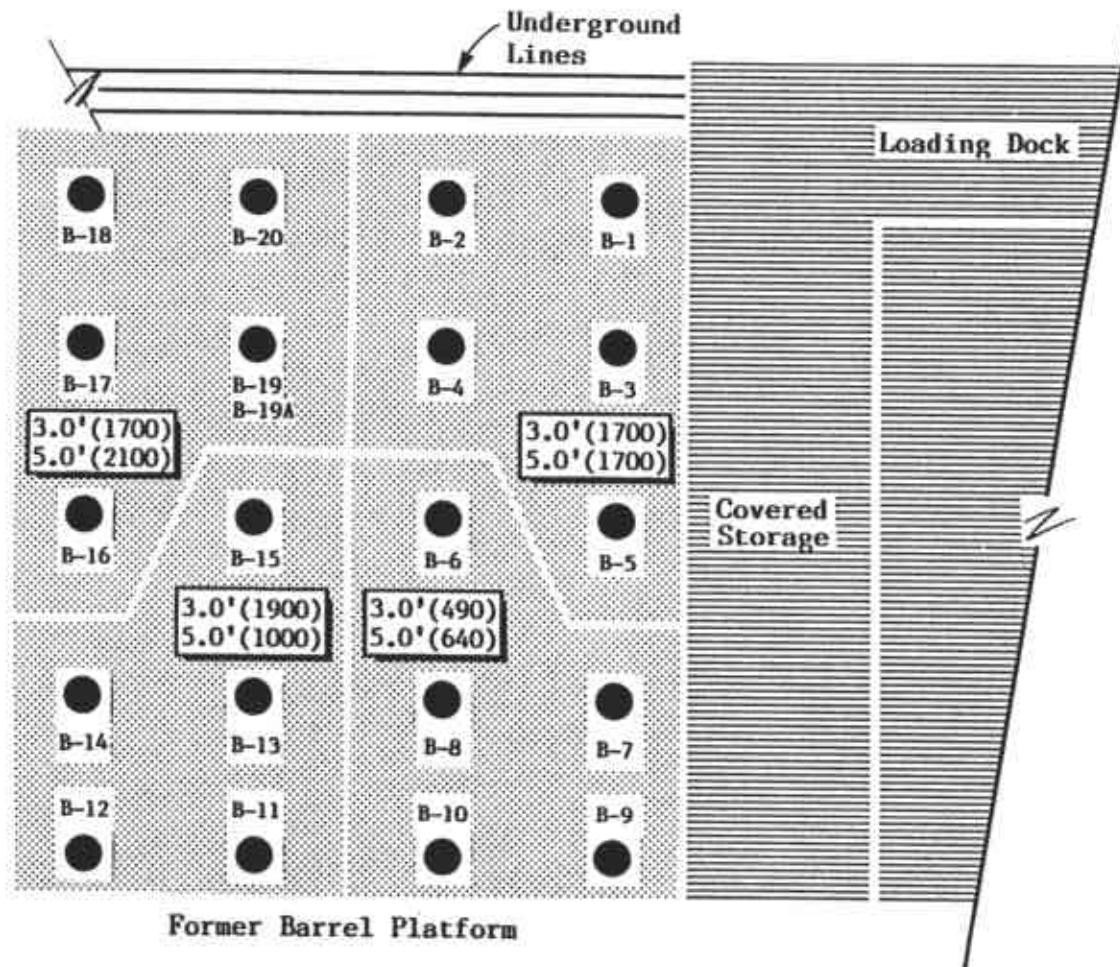
TPH Total Petroleum Hydrocarbons, concentrations in parts per million (ppm)

TCE Trichloroethylene in ppm



SCALE: 1"=65'

Figure 2. Monitoring Well and Soil Sample Locations from HLA Investigations Emeryville Terminal, Emeryville, California.



SCALE: 1" = 20'

LEGEND

- Boring Location
- () Total Fuel Hydrocarbons in ppm

Figure 3. Boring Locations for B-1 through B-20; Total Fuel Hydrocarbons at Depths in Feet. Former Chevron Asphalt Plant 1520 Powell Street, Emeryville, California

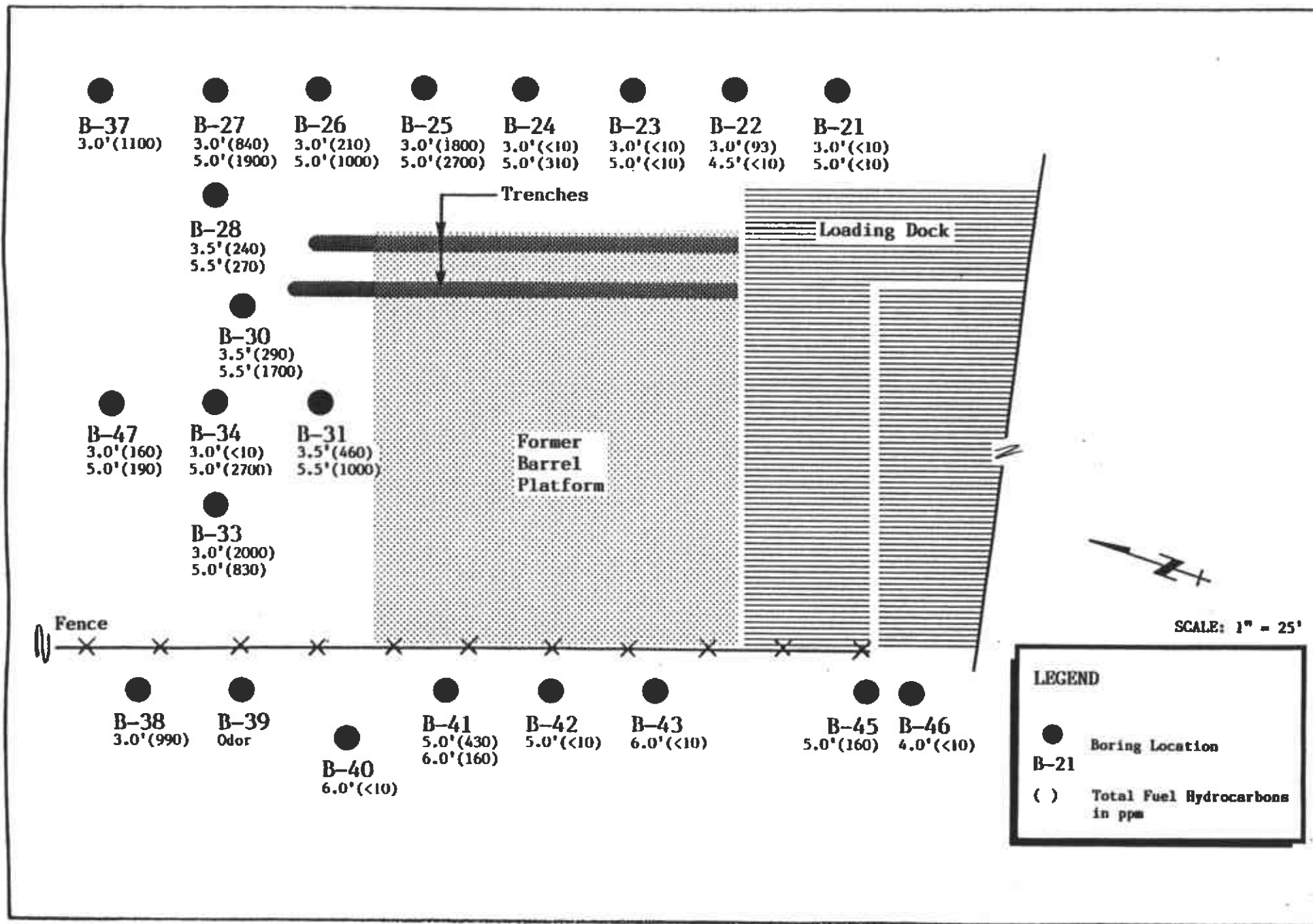
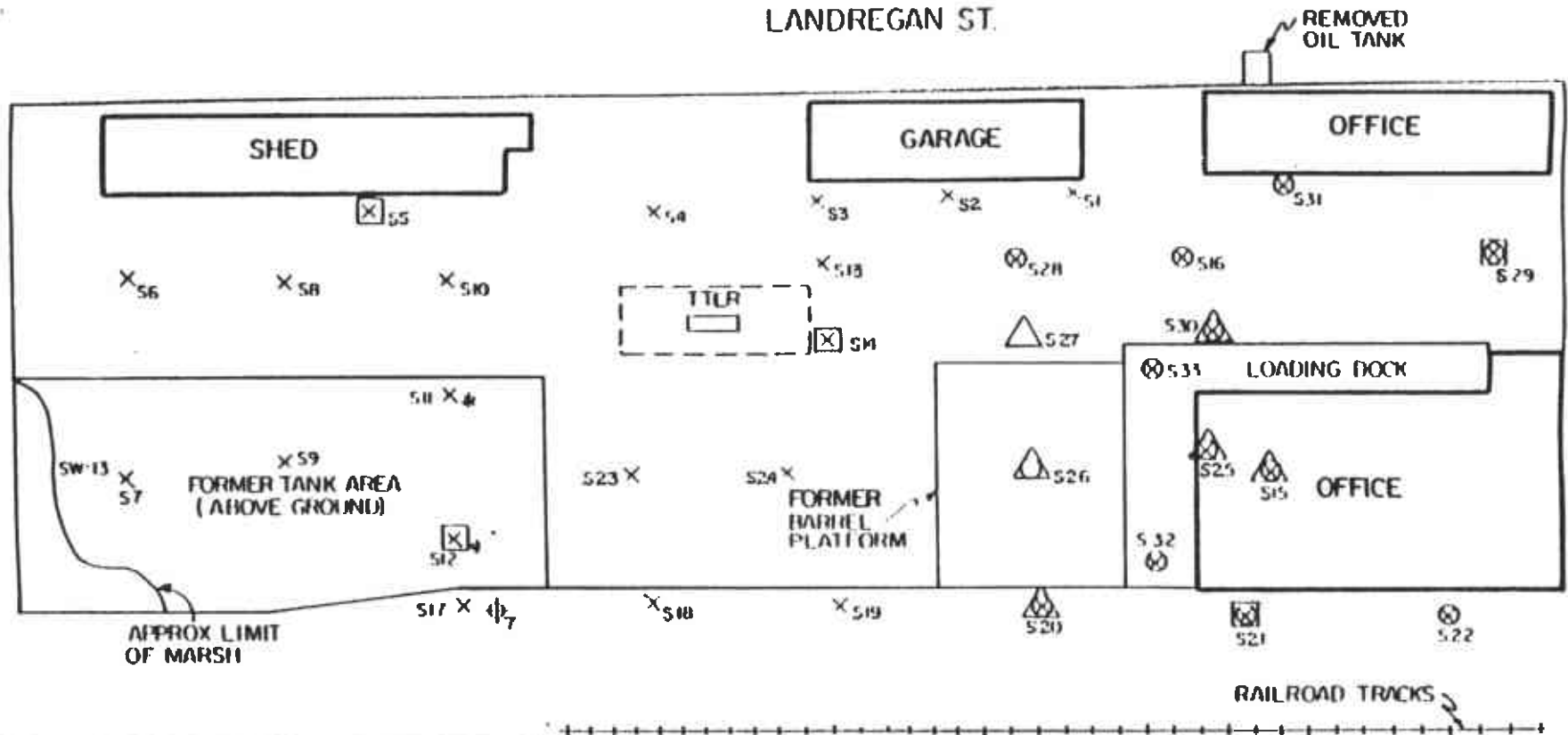


Figure 4. Boring Locations for B-21 through B-47; Total Fuel Hydrocarbons at Depths in Feet. Former Chevron Asphalt Plant 1520 Powell Street, Emeryville, California.

Reference: GTI Soil Investigation 12/88
 Emeryville Terminal, Emeryville, California



LEGEND

- SS SOIL SAMPLE LOCATION
- SAMPLED FOR EPA 8010
- × SAMPLED FOR EPA 8015 EXTENDED RUN
- △ SAMPLED FOR EPA 8240
- SAMPLED FOR DRY WEIGHT/MOISTURE
- △ SAMPLED FOR BIORGANISMS

Figure 5. Soil Sample Locations S-1 through S-33
 Installed by Groundwater Technology 12/88.
 Emeryville Terminal, Emeryville, California.

Scale: 1" = 65'

Reference: GTI Site Investigations
 Emeryville Terminal, Emeryville, California.

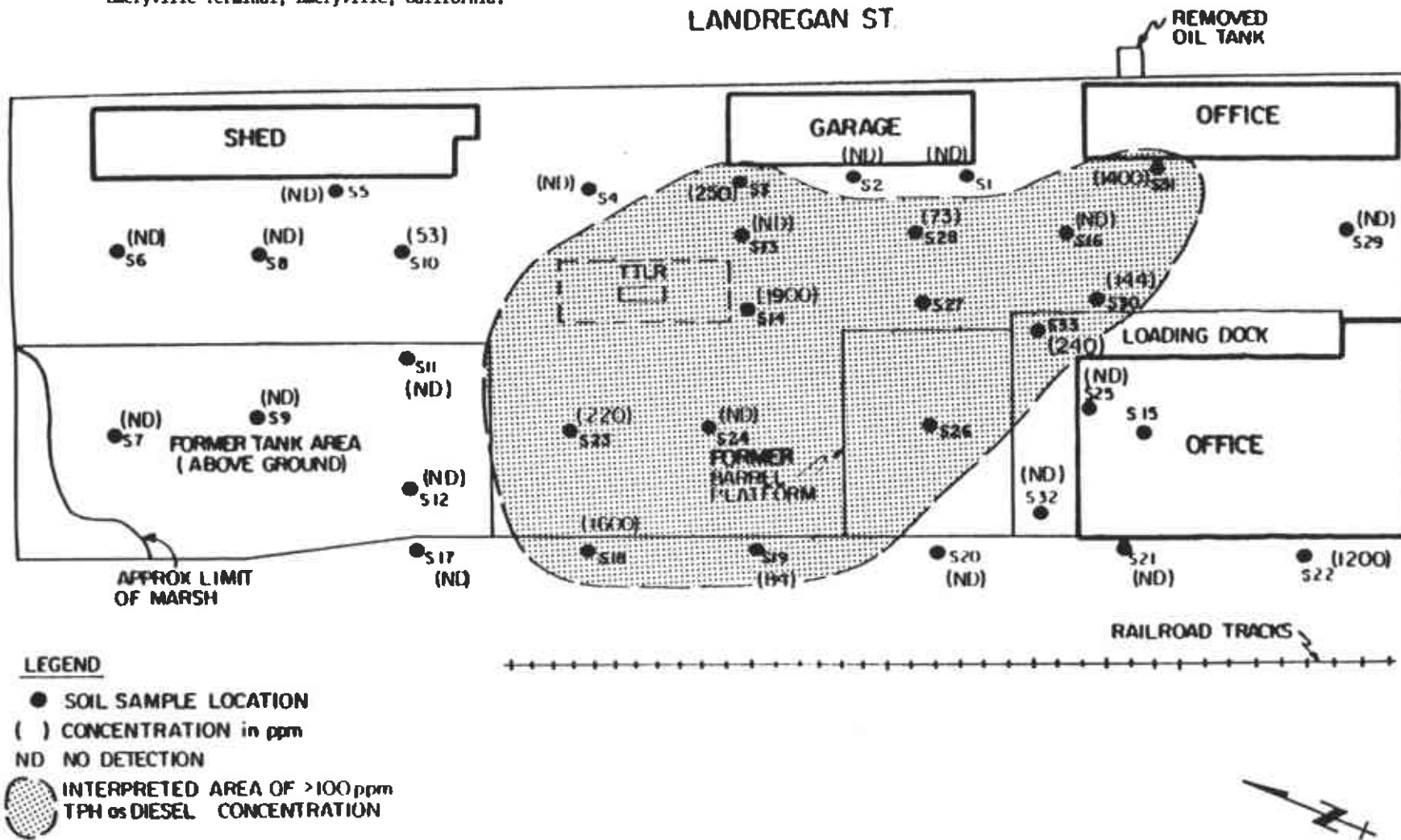


Figure 6. Distribution of Total Petroleum Hydrocarbons as Diesel in the Vadose Zone
 Emeryville Terminal, Emeryville, California.

Scale: 1" = 65'

Reference: GTI Site Investigations
Emeryville Terminal, Emeryville, California.

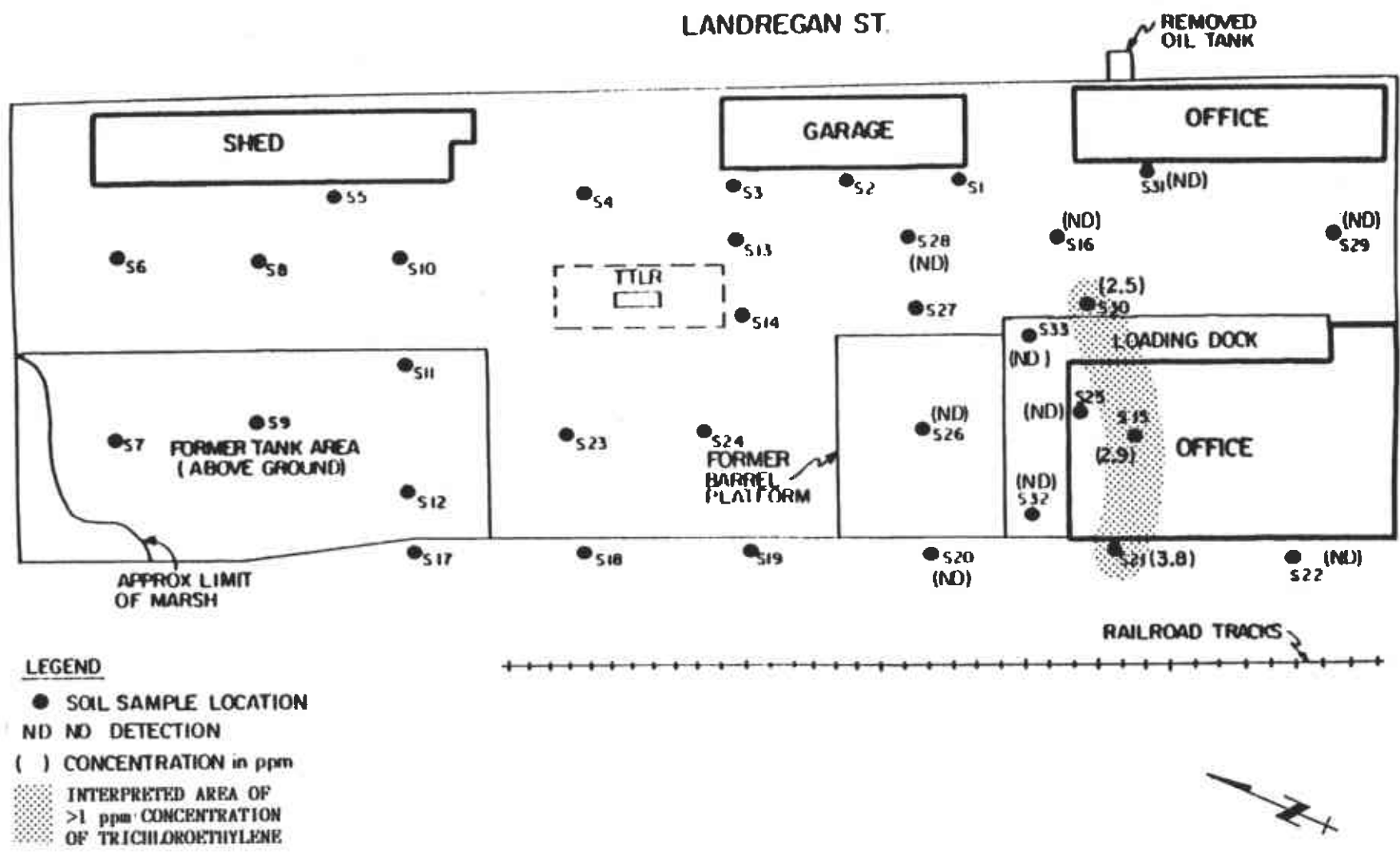


Figure 7. Distribution of Trichloroethylene in the Vadose Zone
Emeryville Terminal, Emeryville, California.

Scale: 1" = 65'



ATTACHMENT A

California Administrative Code
Title 22; Section 66699 Table

(c) List of Organic Persistent and Bioaccumulative Toxic Substances and Their Soluble Threshold Limit Concentration (STLC) and Total Threshold Limit Concentration (TTLC) Values.

<i>Substance</i>	<i>STLC</i> <i>mg/l</i>	<i>TTLC</i> <i>Wet Weight</i> <i>mg/kg</i>
Aldrin	0.14	1.4
Chlordan	0.25	2.5
DDT, DDE, DDD	0.1	1.0
2,4-Dichlorophenoxyacetic acid	10	100
Dieldrin	0.8	8.0
Dioxin (2,3,7,8-TCDD)	0.001	0.01
Endrin	0.02	0.2
Heptachlor	0.47	4.7
Kepon	2.1	21
Lead compounds, organic	-	13
Lindane	0.4	4.0
Methoxychlor	10	100
Mirex	2.1	21
Pentachlorophenol	1.7	17
Polychlorinated biphenyls (PCBs)	5.0	50
Toxaphene	0.5	5
Trichloroethylene	204	2,040
2,4,5-Trichlorophenoxypropionic acid	1.0	10

NOTE: Authority cited: Sections 208, 25141 and 25150, Health and Safety Code. Reference: Section 25141, Health and Safety Code.

HISTORY:

1. Editorial correction filed 10-5-84; designated effective 10-27-84 (Register 84, No. 41).

66700. Waste Extraction Test (WET).

(a) The WET described in this section shall be used to determine the amount of extractable substance in a waste or other material as set forth in Section 66699(a).

(b) Except as provided in Section 66700(d), the WET shall be carried out if the total concentration in the waste, or other material, of any substance listed in Section 66699 equals or exceeds the STLC value, but does not exceed the TTLC value, given for that substance. The total concentrations of substances listed in Section 66699 shall be determined by analysis of samples of wastes, or other materials, which have been prepared, or meet the conditions, for analysis as set forth in subsections (c) and (d) of this section. Methods used for analysis for total concentrations of substances listed in Section 66699 shall be those given in the following documents or alternate methods that have been approved by the Department pursuant to Section 66310(e):

(1) For metal elements and their compounds, the waste shall be digested according to the indicated methods described in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW-846, 2nd edition, U.S. Environmental Protection Agency, 1982:



ATTACHMENT B

California Health and Safety Code
Section 25142 through 25201

Cross References:

"Department": § 25111.

"Extremely hazardous waste": § 25115.

"Hazardous waste": § 25117.

"Waste": § 25124.

Criteria: § 25141.

Waiver of provisions: § 25143

Uniform Hazardous Waste Manifest: § 25160.

Regulation declaring substance to be hazardous under California Hazardous Substances Act: § 28775.1.

Collateral References:

Cal Jur 3d Pollution and Conservation Laws § 148.

§ 25141. Criteria and guidelines for identification of wastes

The department shall develop and adopt by regulation criteria and guidelines for the identification of hazardous wastes and extremely hazardous wastes.

Added Stats 1977 ch 1039 § 13.

Cross References:

"Department": § 25111.

"Extremely hazardous waste": § 25115.

"Hazardous waste": § 25117.

Waiver of provisions: § 25143

"Used oil": § 25250.1.

Collateral References:

Cal Jur 3d Pollution and Conservation Laws § 149.

§ 25142. Handling, processing and disposal

Any waste which conforms to a criterion adopted pursuant to Section 25141 shall be handled, stored, used, processed, and disposed of in accordance with permits, orders, and regulations issued or promulgated by the department pursuant to this chapter and building standards published in the State Building Standards Code relating to hazardous waste facilities, or recycled consistent with the list of hazardous wastes which the department, pursuant to Section 25175, finds are economically and technologically feasible to recycle, until such waste is cited in a list adopted by the department pursuant to Section 25140.

Added Stats 1977 ch 1039 § 14. Amended Stats 1979 ch 1152 § 189; Stats 1982 ch 89 § 7, effective March 2, 1982.

Amendments:

1979 Amendment: (1) Deleted "of this chapter" after "Section 25141"; and (2) added "and building standards published in the State Building Standards Code relating to hazardous waste facilities".

1982 Amendment: (1) Substituted "regulations" for "requirements" after "and"; and (2) added "or recycled consistent with the list of hazardous wastes which the department, pursuant to Section 25175, finds are economically and technologically feasible to recycle."

Cross References:

- "Department": § 25111.
- "Disposal": § 25113.
- "Extremely hazardous waste": § 25115.
- "Handling": § 25116.
- "Hazardous waste": § 25117.
- "Processing": § 25119.
- "Storage": § 25123.
- "Waste": § 25124.
- Waiver of provisions: § 25143

Collateral References:

- Cal Jur 3d Pollution and Conservation Laws § 149.

§ 25143. Waiver of chapter's provisions

Pursuant to regulations adopted by the department, the provisions of this chapter may be waived by the department for any waste which the department determines is insignificant or unimportant as a potential hazard to human health, domestic livestock, or wildlife or the handling, processing, or disposal of which is adequately regulated by another governmental agency. Any drilling for geothermal resources shall be exempt from the requirements of this chapter because the disposal of geothermal wastes is regulated by the regional water quality control boards.

Added Stats 1977 ch 1039 § 14.1. Amended Stats 1978 ch 1270 § 2.

Amendments:

- 1978 Amendment: Added the second sentence.

Cross References:

- "Department": § 25111.
- "Waste": § 25124.

Collateral References:

- Cal Jur 3d Pollution and Conservation Laws § 149.

§ 25143.2. Recyclable material

(a) A recyclable material is subject to the requirements of this chapter which apply to hazardous waste unless the department waives the provision of this chapter pursuant to Section 25143, or except as provided otherwise in subdivision (b) or the regulations adopted by the department pursuant to Sections 25150 and 25151.

(b) Except as otherwise provided in subdivision (c), recyclable material is exempt from regulation under this chapter if the material meets any of the following conditions:

- (1) Is recycled and used at the site where the material was generated.
- (2) Has been handled by a facility authorized by the department pursuant to Article 9 (commencing with Section 25200) if the mate-

rial resulting from the facility's handling process meets both of the following requirements:

(A) Contains no hazardous constituents, other than those for which the material is being recycled.

(B) Is used, or distributed or sold for use, in a manner for which that material is commonly used.

(3) No longer conforms to a criterion adopted by the department pursuant to Section 25141.

* (4) Is transferred between two or more facilities operated by the same person, if the material is being transferred for purposes of recycling.

(5) Is both transported and used, or reused, as an ingredient in an industrial process to make a product, provided the material is not being treated before that use or reuse.

(6) Is both transported and used, or reused, as a safe and effective substitute for a commercial product.

(7) Is returned to the original process from which it was generated, without first being treated. The material shall be returned as a substitute for raw material feedstock, and the process shall use raw materials as principal feedstocks.

(8) Is a petroleum refinery waste containing oil which is converted into petroleum coke at the same facility at which the waste was generated, unless the resulting coke product would be identified as a hazardous waste under this chapter or Public Law 94-580, as amended (the Resource Conservation and Recovery Act of 1976, 42 U.S.C. Sec. 6901 et seq.). This waste is exempt under this chapter to the same extent that this waste is exempt under subsections (q), (r), and (s) of Section 6924 of Title 42 of the United States Code.

(9) Is an oily waste, used oil, or spent nonhalogenated solvent which is managed by the owner or operator of a refinery which is processing primarily crude oil and which is not subject to permit requirements for recycling of used oil, or a public utility, or a corporate subsidiary, corporate parent, or subsidiary of the same corporate parent of the refinery or public utility, and which meets all of the following requirements:

(A) The material is either burned in an industrial boiler, an industrial furnace, an incinerator, or a utility boiler which complies with all applicable federal and state laws, or is recombined with normal process streams to produce a fuel.

(B) The material is either of the following:

(i) Managed at the site where it was generated.

(ii) Managed at another site owned or operated by the generator, a corporate subsidiary of the generator, a subsidiary of the same entity of which the generator is a subsidiary, or the corporate parent of the generator.

(C) The material contains no hazardous constituents other than those for which the material is being recycled.

(c) Notwithstanding subdivision (b), all of the following recyclable materials are subject to the requirements of this chapter which apply to hazardous waste.

(1) Any material used in a manner constituting disposal of the material, or any material used to produce a product that is applied to the land as a fertilizer, soil amendment, agricultural mineral, or an auxiliary soil and plant substance.

(2) Any material burned for energy recovery, used to produce a fuel, or is contained in a fuel, except a material exempted under paragraph (9) of subdivision (b).

(3) Any material accumulated speculatively.

(4) Any materials that have been determined by the Environmental Protection Agency to be inherently waste-like pursuant to Subtitle C of Public Law 94-580, as amended (the Resource Conservation and Recovery Act of 1976, 42 U.S.C. Sec. 6901 et seq.).

(5) Used or spent etchants, stripping solutions, and plating solutions, which are transported to an offsite facility operated by a person other than the generator and which conform to either of the following:

(A) Meet a characteristic or a criterion of a hazardous waste established by the Environmental Protection Agency or the department.

(B) Are listed by the Environmental Protection Agency or the department as a hazardous waste.

(6) Any materials which, if it is to be recycled, is regulated by the Environmental Protection Agency pursuant to Subtitle C of Public Law 94-580, as amended (the Resource Conservation and Recovery Act of 1976, 42 U.S.C. Sec. 6901 et seq.).

(d) This section does not limit, abridge, or supersede any authority granted to the department pursuant to Section 25143.

(e) If the department brings an action to enforce this chapter, any person subject to the action who claims that a certain recyclable material is excluded, exempt, or conditionally exempt, from regulation under this chapter, shall demonstrate that there is a known market or disposition for the material, and that the material meets the requirements of any exemption, exclusion, or conditional exemption from this chapter, by providing appropriate documentation to demonstrate that the material is excluded, exempt, or conditionally exempt, from regulation. Any person subject to such an enforcement action and making such a claim who is a generator of hazardous waste shall provide to the department, upon request, the name, street and mailing address, and telephone number of the owner or operator of the facility that uses or reuses the generator's hazardous waste and a copy of the contract showing that the facility owner or operator uses or

§ 25143.2

MISCELLANEOUS PROVISIONS

reuses that waste as an ingredient in a production process without prior treatment of the waste. Any owner or operator of a facility subject to an action to enforce this chapter who claims to be recycling materials shall show that the facility has the necessary equipment to recycle the material.

Added Stats 1985 ch 1594 § 6.

Cross References:

"Department": § 25111.

"Disposal": § 25113.

"Handling": § 25116.

"Hazardous waste": § 25117.

"Natural resources": § 25117.8.

"Processing": § 25119.

"Producer": § 25120.

"Recyclable material": § 25120.5.

"Recycle": § 25121.

"Treatment": § 25123.5.

"Waste": § 25124.

Used or spent etchants and solutions: § 25122.55

Waiver of provisions: § 25143

Spent sulphuric acid: § 25143.3

§ 25143.3. Spent sulfuric acid

The Environmental Protection Agency regulations regarding spent sulfuric acid as set forth in Section 261.4(a)(7) of Title 40 of the Code of Federal Regulations (50 Fed. Reg. 665) are the regulations of the department and shall remain in effect until the department adopts regulations regarding this subject. It is the intent of the Legislature that the regulations adopted by the department be at least equivalent to, and in substantial conformance with that Section 261.4(a)(7). Further, it is the intent of the Legislature that the department may define in the regulations the term "spent sulfuric acid" as it deems necessary to avoid sham recycling, as described on page 638 of Volume 50 of the Federal Register by the Environmental Protection Agency.

Added Stats 1985 ch 1594 § 7.

Cross References:

"Recycle": § 25121.

Used or spent etchants and solutions: § 25122.55

Identification of recyclable material: § 25143.2

§ 25143.5. Nonhazardous waste

(a) Except as provided in subdivision (d), the department shall classify as nonhazardous waste any fly ash, bottom ash, and flue gas emission control residues, generated from the combustion of solid waste or biomass material, if these wastes do not contain significant quantities of industrial sludge or hazardous waste, and if the combus-

tion of the solid waste or biomass material will be adequately monitored and controlled so as to prevent the handling or the disposal of any waste in a manner prohibited by law, unless the department determines that the ash or residue is hazardous, by testing a representative sample of the ash or residue pursuant to criteria adopted by the department. If the department determines that the ash or residue is nonhazardous, the department shall not repeal or modify that determination unless the department subsequently determines that, since the original testing, there has been a significant change in the fly ash, bottom ash, or flue gas emissions control residues, based upon data obtained from a representative sample of the ash or residue.

(b) The fly ash, bottom ash, and flue gas emission control residues which are classified as nonhazardous by the department are exempt from this chapter.

(c) An operator of a solid waste facility which converts solid waste into energy shall notify the department whenever there has been a significant change in the waste entering the combustion process, the combustion process itself, or in the management of the ash or residues generated by the facility.

(d) The classifications of fly ash, bottom ash, and flue gas emission control residues as nonhazardous, made by the department before January 1, 1985, for the ash or residue generated by an individual solid waste facility which will convert solid waste into energy shall not be modified or repealed by the department unless the department determines all of the following:

(1) New data reveals that there has been a significant change in the solid waste entering the combustion process, in the combustion process itself, or in the management of the ash or residue.

(2) The change specified in paragraph (1) causes the facility to produce waste which is hazardous waste, as defined in Section 25117, as determined by the testing of a representative sample of the ash or residue pursuant to criteria adopted by the department.

(3) The hazard caused by the change specified in paragraph (1) or the hazardous waste produced by the facility is not adequately regulated by any other state or local agency with jurisdiction over the facility which generates the ash or residue.

This subdivision applies to determinations made by the department for individual solid waste conversion facilities, including, but not limited to, those projects which will be constructed or will serve the Counties of San Diego, Humboldt, San Joaquin, Butte, Trinity, Sacramento, and Alameda, and the Cities of San Francisco, Long Beach, Fresno, Modesto, Sanger, and Commerce.

§ 25143.5

MISCELLANEOUS PROVISIONS

Cross References:

"Department": § 25111.

"Hazardous waste": § 25117.

§ 25143.6. Land fills

On or before February 15, 1988, the following California regional water quality control boards shall prepare a list of class III landfills, as specified in Section 2533 of Title 23 of the California Administrative Code, including at least one landfill in each specified water quality control region which is authorized to accept and dispose of shredder waste in accordance with State Water Resources Control Board Resolution No. 87-22: San Francisco Bay Region, Central Valley Region, Los Angeles Region, Santa Ana Region, and San Diego Region.

Added Stats 1985 ch 1395 § 1, effective October 1, 1985. Amended Stats 1986 ch 520 § 1; Stats 1987 ch 1483 § 1.

Amendments:

1986 Amendment: (1) Added "or" after "policies," in the second paragraph of subd (a); (2) deleted "Within 90 days after the effective date of this section," at the beginning of subd (b); (3) added subds (f) and (g); and (4) redesignated former subd (f) to be (h).

1987 Amendment: Substituted the section for the former section which read:

"(a) The department shall not classify as a hazardous waste, for purposes of disposal, any waste which results from the shredding of automobile bodies, household appliances, and sheet metal, if the producer of that waste demonstrates, and the department determines, that the waste will not pose a threat to human health or water quality if disposed of in a qualified Class III landfill, as specified in Section 2533 of Title 23 of the California Administrative Code, which is listed by a California regional water quality control board pursuant to subdivision (b). In making its determination that a producer's waste will not pose a threat to human health or water quality, the department shall use, as its standards, the criteria and procedures specified in Chapter 30 (commencing with Section 60001) of Division 4 of Title 22 of the California Administrative Code, for the identification of hazardous waste.

"The department shall also, in making this determination, incorporate any relevant waste discharge requirements or other orders issued by the State Water Resources Control Board or a California regional water quality control board implementing applicable water quality plans, policies, or rules and regulations adopted or approved by the State Water Resources Control Board pursuant to Division 7 (commencing with Section 13000) of the Water Code.

"The department shall make its determination within 105 days of receipt of the information which is the basis of the demonstration from the producers.

"The waste producer whose waste is so classified by the department shall provide the information which was the basis of the demonstration once a year and whenever a substantial change occurs in the mix of materials constituting the shredder feed. The producer shall also certify, in writing, to the department, that the producer has in place an ongoing program for inspection and removal of all automobile batteries, mufflers, and tailpipes from the shredder feed.

"(b) The following California regional water quality control boards shall prepare a list of Class III landfills, as specified in Section 2533 of Title 23 of the California Administrative Code, including at least one landfill in each specified water quality control region which is authorized to accept and dispose of the waste specified in subdivision (a): San Francisco Bay Region, Central Valley Region, Los Angeles Region, Santa Ana Region, and San Diego Region.

"(c) Nothing in this section limits or abridges the powers or duties of the State Water Resources Control Board and any California regional water quality control board pursuant to Division 7 (commencing with Section 13000) of the Water Code.

"(d) The classification of the waste specified in subdivision (a) as nonhazardous for the purposes of disposal shall not affect the status of that waste as a hazardous waste pursuant to any other statute and regulation, including those governing storage, transportation, manifests, and the payment of any hazardous waste disposal fees and taxes.

"(e) This section does not authorize the disposal of hazardous waste in a Class III landfill if the waste was produced as the result of a remedial action at a site listed pursuant to Section 25356, unless the department determines that the waste is substantially the same as the waste specified in subdivision (a).

"(f) This section does not require an operator of a Class III landfill to accept, for disposal, any waste classified by the department as nonhazardous pursuant to subdivision (a).

"(g) This section does not prohibit any operator of a Class III landfill from charging a disposal rate for any waste classified as nonhazardous by the department pursuant to subdivision (a) which is proportionate to the costs necessary to modify the landfill to meet applicable water quality standards.

"(h) This section shall remain in effect until January 1, 1988, and as of that date is repealed, unless a later enacted statute, which is enacted before January 1, 1988, deletes or extends that date."

§ 25143.7. Disposal of asbestos at landfill sites

Waste containing asbestos may be disposed of at any landfill which has waste discharge requirements issued by the regional water quality control board which allow the disposal of such waste, provided that the wastes are handled and disposed of in accordance with the Toxic Substances Control Act (P.L. 94-469) and all applicable laws and regulations.

Added Stats 1986 ch 1451 § 8, effective September 30, 1986.

§ 25143.8. (Operative until January 1, 1989) Disposal of shredder waste in landfill

(a) The department shall not prohibit any person from disposing of shredder waste in an appropriate class III landfill designated by a California regional water quality control board pursuant to Section 25143.6, if the requirements of subdivision (b) are met and the producer of the waste complies with all of the following requirements:

(1) The producer carries out an ongoing shredder waste testing program which includes all of the following:

(A) Once during each hour the facility is in operation, the facility operator shall take a grab sample of the waste from the process line. The facility operator shall collect samples of sufficient size so that a five-gallon container is filled at the end of eight hours of operation.

(B) At the end of every 16 hours of operation, the facility operator shall thoroughly mix all samples collected to that point to form a composite sample from which a single 16-ounce representative sample shall be collected for analysis.

ATTACHMENT C

**Bay Area Air Quality Management District
Variance**





BAY AREA AIR QUALITY MANAGEMENT DISTRICT

March 31, 1989

ALAMEDA COUNTY
Edward R. Campbell
Shirley J. Campbell
(Vice-Chairperson)
Chuck Corica
Frank H. Ogawa

CONTRA COSTA COUNTY
Paul L. Cooper
Sunne Wright McPeak

MARIN COUNTY
Al Aramburu

NAPA COUNTY
Bob White

SAN FRANCISCO COUNTY
Harry G. Britt
Jim Gonzalez

SAN MATEO COUNTY
Gus J. Nicolopoulos
Anna Eshoo

SANTA CLARA COUNTY
Martha Clevenger
Rod Diridon
Roberta H. Hughan
Susanne Wilson
(Chairperson)

SOLANO COUNTY
Osby Davis
(Secretary)

SONOMA COUNTY
Jim Harberson

Rudolph Millan, P.E.
Senior Engineer
Western Geologic Resources, Inc.
553 Headlands Court
Sausalito, CA 94965

Dear Mr. Millan:

This is in response to your letter of 2/13/89 requesting an Experimental Exemption pursuant to Regulation 1-111 to conduct testing on processing contaminated soil into asphalt concrete at American Rock and Asphalt in Richmond.

This letter is our approval to conduct such testing which is subject to the following conditions:

1. The test period will be from 4/1/89 through 10/1/89.
2. Prior written approval shall be obtained from the local health officer.
3. Testing will be terminated immediately upon the declaration of an air pollution episode/alert.
4. All operations covered by this exemption will be terminated immediately should the District, at any time, determine the emissions cause a public nuisance.
5. The emissions from the testing do not interfere with the attainment or maintenance of any California or Federal ambient air quality standard.
6. All hydrocarbon emission testing shall be done in accordance with BAAQMD source test procedures. The applicant shall contact the District's Source Test Section for prior approval of testing procedures and method used to demonstrate reduction of organic compounds by at least 90% by weight. (Regulation 8, Rule 40, Section 302)
7. The applicant shall inform the District's Source Test Section of the date, time and location of any testing to be performed so that the District has the option to observe or conduct parallel tests.
8. At the time of each emission test, the applicant shall record the concentration (ppm) of contaminants in the aggregate, the feed rate (lb/hr or ton/hr) of contaminated soil to the dryer and the feed rate of "clean" aggregate to the dryer.

9. All contaminated aggregate that is kept on site shall be covered to prevent fugitive emissions.
10. Soil samples and level of soil contamination shall be calculated in accordance with Regulation 8, Rule 40.
11. Sample ports shall be provided at the asphalt still and baghouse exhaust stack or and at the baghouse recycle exhaust line to the loading hoppers for source testing purposes.
12. During and at the completion of each test run, samples of the baghouse dust and the recycled dust to the loading hoppers must be taken and analyzed for diesel contamination.
13. The asphalt still shall be purged with clean air and aggregate prior to and between test runs of contaminated soil.
14. The District will be provided a full report of the test results upon completion of the project.
15. That a fee of \$930.00 as required by Regulation 3, Section 313, be received by the District. The check should be made payable to the Bay Area Air Quality Management District and should reference Invoice #28644.
16. The applicant will comply with all other rules and regulations of the BAAQMD, as well as Federal, state and local agencies.

If you have any questions regarding this matter, please contact Christine Schaufelberger, Senior Enforcement Specialist, at (415) 771-6000, extension 319.

Sincerely,



Milton Feldstein
Air Pollution Control Officer

CS:blg

Encl: Regulation 8, Rule 40

cc: Ken Axe, Hazardous Materials Specialist
Contra Costa County Health Services Dept.
20 Allen Street
Martinez, CA 94553

**REGULATION 8
ORGANIC COMPOUNDS
RULE 40
AERATION OF CONTAMINATED SOIL
AND
REMOVAL OF UNDERGROUND STORAGE TANKS
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**REGULATION 8
ORGANIC COMPOUNDS
RULE 40
AERATION OF CONTAMINATED SOIL
AND
REMOVAL OF UNDERGROUND STORAGE TANKS
(Adopted July 16, 1986)**

8-40-100 GENERAL

- 8-40-101 Description:** The purpose of this Rule is to limit the emission of organic compounds from soil that has been contaminated by organic chemical or petroleum chemical leaks or spills; to describe an acceptable soil aeration procedure; and to describe an acceptable procedure for controlling emissions from underground storage tanks during removal or replacement. (Amended February 15, 1989)
- 8-40-110 Exemption, Storage Piles:** Calculations of aeration volume under Section 8-40-204 shall not include storage piles that are covered per Section 8-40-303; nor shall they include active storage piles.
- 8-40-111 Exemption, Excavated Hole:** The exposed surfaces of an excavated hole shall not be included in calculations of aerated volume under Section 8-40-204.
- 8-40-112 Exemption, Sampling:** Contaminated soil exposed for the sole purpose of sampling shall not be considered to be aerated. Removal of soil for sampling shall not qualify a pile as "active."
- 8-40-113 Exemption, Non-volatile Hydrocarbons:** The requirements of all sections of this Rule shall not apply if the soil is contaminated solely by a known organic chemical or petroleum liquid, and that chemical or liquid has an initial boiling point of 302°F or higher, provided that the soil is not heated. (Amended February 15, 1989)
- 8-40-114 Exemption, Soil Excavation During Pipeline Leak Repairs:** The requirements of Section 8-40-402 shall not apply if soil is being excavated in order to repair leaking pipelines and if no more than 5 cubic yards are generated, and provided the requirements in Section 8-40-404 are satisfied. (Adopted February 15, 1989)
- 8-40-115 Exemption, Soil Excavation Unrelated to Underground Storage Tank Activities:** The requirements of Section 8-40-402 shall not apply where contaminated soil is discovered during excavations unrelated to underground storage tank activities, and provided the requirements in Section 8-40-405 are satisfied. (Adopted February 15, 1989)

8-40-200 DEFINITIONS

- 8-40-201 Active Storage Pile:** A pile of contaminated soil to which soil is currently being added or from which soil is currently being removed. Activity must have occurred or be anticipated to occur within one hour to be current.
- 8-40-202 Aeration:** Exposure of excavated contaminated soil to the air.
- 8-40-203 Aeration Depth:** The smaller of the following: the actual average depth of contaminated soil; or 0.15 meters (0.5 feet) multiplied by the daily frequency with which soil is turned. (Amended February 15, 1989)
- 8-40-204 Aeration Volume:** The volume of soil being aerated shall be calculated as follows: the exposed surface area (in square feet or square meters) shall be multiplied by the aeration depth. The exposed surface area includes the pile of excavated soil unless the pile is covered per Section 8-40-303. (Amended February 15, 1989)
- 8-40-205 Contaminated Soil:** Soil which has an organic content, as measured using the procedure in Section 8-40-602, exceeding 50 ppm(wt).

- 8-40-206 **Organic Compound:** Any compound of carbon, excluding methane, carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates and ammonium carbonate.
- 8-40-207 **Organic Content:** The concentration of organic compounds measured in the composite sample collected and analyzed using the procedures in Sections 8-40-601 and 8-40-602.
- 8-40-208 **Vapor Free:** The process of purging gases from a tank using dry ice to replace organic vapors with an inert atmosphere.
- 8-40-209 **Ventilation:** The process of purging gases from a tank by blowing or drawing another gas through the tank.
- 8-40-210 **Emergency Removal or Replacement or Excavation:** A removal or replacement of a tank or an excavation of soil carried out pursuant to an order of a state or local government agency issued because the contaminated soil poses an imminent threat to public health and safety. (Adopted February 15, 1989)

8-40-300 **STANDARDS**

- 8-40-301 **Uncontrolled Aeration:** A person shall not aerate contaminated soil at a rate in excess of that specified in Table 1 for the degree of organic content. The limitations in Table 1 apply to the entire facility, and indicate the volume of contaminated soil that may be added, on any one day, to soil that is already aerating.

Table 1
Allowable Rate of Uncontrolled Aeration

ORGANIC CONTENT ppm(weight)	RATE OF UNCONTROLLED AERATION	
	Cubic meters/day	Cubic yards/day
<50	Exempt	Exempt
50 - 99	459.0	600
100 - 499	91.8	120
500 - 999	45.9	60
1000 - 1999	22.9	30
2000 - 2999	11.5	15
3000 - 3999	7.6	10
4000 - 4999	5.7	8
> 5000	0.08	0.1

(Amended February 15, 1989)

- 8-40-302 **Controlled Aeration:** Soil may be aerated at rates exceeding the limitations of 8-40-301 provided emissions of organic compounds to the atmosphere are reduced by at least 90% by weight.
- 8-40-303 **Storage Piles:** Contaminated soil which is not being aerated shall be covered except when soil is being added or removed. Any uncovered contaminated soil will be considered to be aerated. The soil may be covered with a layer of uncontaminated soil no less than six inches deep; or it may be covered with a tarp or other covering, provided no head space where vapors may accumulate is formed and provided the covering is in good condition and is secured adequately so as to minimize emissions to the atmosphere. (Amended February 15, 1989)
- 8-40-310 **Underground Storage Tanks - Removal or Replacement:** Any person wishing to permanently remove or replace an underground storage tank which previously contained organic compounds shall follow the following procedure:
310.1 All piping shall be drained or flushed into the tank or other container.

310.2 All liquids and sludges shall be removed, to the extent possible, from the tank. A hand pump shall be used to remove the bottom few inches of product if necessary.

310.3 Vapors shall be removed from the tank using one of the following three methods:

3.1 The tank may be filled with water, displacing vapors and hydrocarbon liquids. Water used for this purpose must be collected and/or disposed of in a manner approved by the APCO.

3.2 Vapor freeing.

3.3 Ventilation.

(Amended February 15, 1989)

8-40-311 **Vapor Freeing:** No person shall vapor free a tank containing more than 0.001 gallons of liquid organic compounds per gallon of tank capacity unless emissions of organic compounds to the atmosphere are reduced by at least 90%.

8-40-312 **Ventilation:** No person shall ventilate a tank containing more than 0.001 gallons of liquid organic compounds per gallon of tank capacity unless emissions of organic compounds to the atmosphere are reduced by at least 90%.

8-40-400 ADMINISTRATIVE REQUIREMENTS

8-40-401 **Reporting, Removal or Replacement of Tanks:** The person responsible for the removal or replacement of tanks which are subject to the provisions of Sections 8-40-310 shall provide written notice to the APCO of intention to remove or replace tanks. The written notice shall be postmarked at least 5 days prior to commencement of such removal or replacement. In the case of emergency removal or replacement of tanks, notice shall be provided as early as possible prior to the commencement of such emergency removal or replacement, to be followed by written verification. The written notice of intention shall include:

401.1 Names and addresses of persons performing and responsible for the tank removal or replacement

401.2 Location of site at which tank removal or replacement will occur

401.3 Scheduled starting date of tank removal or replacement. The scheduled starting date may be delayed for no more than 5 working days, provided the APCO is notified by telephone as early as possible prior to the new starting date.

401.4 Procedures to be employed to meet the requirements of Sections 8-40-310.

401.5 If applicable, name, title and authority of the state or local government representative who has ordered a tank removal or replacement which is subject to emergency procedures.

(Adopted, February 15, 1989)

8-40-402 **Reporting, Excavation of Soil:** The person responsible for the excavation of soil subject to the provisions of Sections 8-40-301 or 302 shall provide written notice to the APCO of intention to excavate. The written notice shall be postmarked at least 5 days prior to commencement of such excavation. In the case of emergency excavations, notice shall be provided as early as possible prior to the commencement of such emergency excavation, to be followed by written verification. Written notice of intention to excavate may be submitted to the APCO at the same time written notice of intention to remove or replace tanks is submitted provided that such notification precedes the commencement of either tank removal or replacement or soil excavation by at least 5 days as indicated by postmark. The written notice of intention shall include:

402.1 Names and addresses of persons performing and responsible for excavation.

402.2 Location of site at which excavation will occur.

- 402.3 Scheduled starting date of excavation. The scheduled starting date may be delayed for no more than 5 working days, provided the APCO is notified by telephone as early as possible prior to the new starting date.
- 402.4 Procedures to be employed to meet the requirements of Sections 8-40-301 or 302.
- 402.5 If applicable, name, title and authority of the state or local government representative who has ordered an excavation which is subject to emergency procedures. (Adopted February 15, 1989)

8-40-403 Reporting, Aeration of Contaminated Soil: The person responsible for aeration of any contaminated soil shall provide the District, by telephone, with the following information. This shall be provided no less than 24 hours prior to the spreading or heating of any contaminated soil. The District shall again be notified within 24 hours of a change in one or more of the following parameters.

- 403.1 Estimated total quantity of soil to be aerated.
- 403.2 Estimated quantity of soil to be aerated per day.
- 403.3 Estimated average degree of contamination, or total organic content of soil.
- 403.4 Chemical composition of contaminating organic compounds (i.e., gasoline, methylene chloride, etc.).
- 403.5 A description of the basis on which these estimates were derived (soil analysis test reports, etc.).

(Amended, Renumbered February 15, 1989)

8-40-404 Reporting, Soil Excavation During Pipeline Leak Repairs: The person responsible for the excavation of no more than 5 cubic yards of soil generated by a pipeline leak repair shall provide written notice to the APCO as early as possible, but not later than 10 working days, after excavation is completed. The written notice shall include:

- 404.1 Names and addresses of persons performing and responsible for excavation.
- 404.2 Location of site at which excavation occurred.
- 404.3 Date of excavation.
- 404.4 Quantity of soil excavated.
- 404.5 Estimated average degree of contamination, or total organic content of soil.

(Adopted February 15, 1989)

8-40-405 Reporting, Soil Excavations Unrelated to Underground Storage Tank Activities: The person responsible for soil excavations unrelated to underground storage tank activities where contaminated soil is discovered shall provide notice as early as possible upon detection of such contaminated soil, to be followed by written verification. The written verification shall include:

- 405.1 Names and addresses of persons performing and responsible for excavation.
- 405.2 Location of site at which excavation occurred.
- 405.3 Date of excavation.
- 405.4 Quantity of soil excavated.
- 405.5 Estimated average degree of contamination, or total organic content of soil.

(Adopted February 15, 1989)

8-40-600 MANUAL OF PROCEDURES

8-40-601 Soil Sampling: One composite sample shall be collected and analyzed for every 50 cubic yards of excavated contaminated soil to be aerated. At least one composite sample shall be collected from each inactive, uncovered storage pile within 24 hours of excavation. Samples are not required if the soil is uncontaminated.

- 601.1 Each composite sample shall consist of four separate soil samples taken using the procedures described below. The soil samples shall remain separate until they are combined in the laboratory just prior to analysis.

601.2 Each 50 cubic yard pile for which a composite sample is required shall be considered to have four equal sectors. One sample shall be taken from the center of each sector. Samples shall be taken from at least three inches below the surface of the pile. Samples shall be taken using one of the following methods:

1.1 Samples shall be taken using a driven-tube type sampler, capped and sealed with inert materials, and extruded in the lab in order to reduce the loss of volatile materials; or

1.2 Samples shall be taken using a clean brass tube (at least three inches long) driven into the soil with a suitable instrument. The ends of the brass tube shall then be covered with aluminum foil, then plastic end caps, and finally wrapped with a suitable tape. The samples shall then be immediately placed on ice, or dry ice, for transport to a laboratory.

(Amended February 15, 1989)

8-40-602 Measurement of Organic Content: Organic content of soil shall be determined by the Regional Water Quality Control Board's Revised Analytical Methods, Attachment 2, 11/8/85, any other method approved by the APCO, or EPA Reference Method 8010 or 8015.

(Amended February 15, 1989)

8-40-603 Determination of Emissions: Emissions of organic compounds as specified in Sections 8-40-302, 8-40-311 and 8-40-312, shall be measured as prescribed in the Manual of Procedures, Volume IV, ST-7.

(Amended February 15, 1989)



ATTACHMENT D

Encapsulation Process

ENCAPSULATION PROCESS

Background


The purpose of this pilot test is to encapsulate soil slightly contaminated with diesel fuel in a useable product that normally contains all the hydrocarbon components of diesel fuel. The purpose of such an encapsulation is twofold: 1) It will reduce raw material costs for the manufacturing plant and 2) It will reduce landfilling of contaminated soil excavated at many fuel handling facilities throughout the state. This encapsulation will be done with minimal impact, if any, to existing air emissions, thus resulting in a net reduction of overall environmental impacts from two ongoing operations.

Asphalt concrete (AC) manufactured at the American Rock and Asphalt, Inc. (ARA) Richmond plant typically consists of 95% aggregate base and 5% asphaltic oil (Chevron AR4000). ARA typically obtains its aggregate by quarrying or purchase from an outside vendor. Chevron Research Company's (CRC) laboratory has, at American's request, determined that up to ten percent of the aggregate used in American's process can be replaced with soils of relatively high fine particle content. The replacement of any portion of the aggregate feed stream will result in significant cost savings and better utilization of finite natural resources.

Many fueling stations throughout the State of California are being excavated to mitigate groundwater and soil contamination from past fuel leaks. A great deal of this soil is disposed of in Class I, II, and III landfills, depending of the concentration of hydrocarbons. This approach relocates the contamination to designated areas, but does not result in the long-term elimination of the problem. This pilot test, when successful, will yield sufficient data to justify the application of soil encapsulation in asphalt on a wide basis. This could result in a significant impact to landfill volume over the next few years.

Process

The plant is currently permitted to operate a Rotary Dryer (otherwise known as a Drum-Mix) that is Diesel-oil fired. The attached figure shows a process schematic. The system heats aggregate (normally crushed rock) up to 350 Degrees Fahrenheit by burning two gallons of Diesel oil per ton of aggregate and allowing the flame to directly contact the aggregate. Once out of the flame, the aggregate passes under a set of spray nozzles. These nozzles spray up to 100 lbs of asphaltic oil per ton of aggregate. The resulting mixture leaves the rotary drum as AC and is separated from the stack gases, which are passed through a baghouse. The baghouse removes suspended solids, which are then recycled into the process feed hopper. A small portion of particulate matter passes through the baghouse and is discharged to atmosphere, along with the stack gases.



We expect that the replacement of a small portion of the aggregate feedstock will not increase process air emissions appreciably. Our proposal is to begin by adding approximately 60 lbs. of contaminated soil per ton of aggregate. We will then slowly increase the proportion of contaminated soil while monitoring air emissions and product quality until an upper limit is reached. This upper limit will be determined by approaching a threshold in either product specs or air emissions limits. This soil will contain, at most, 3000 ppm of fuel hydrocarbons. The hydrocarbon content of the contaminated soils represents less than one percent of the fuel hydrocarbons fed into the burner, and less than 1/10 of one percent of the total hydrocarbons fed into the process. Any volatile components that evaporate from the soil while it is in contact with the flame will burn in the process. Due to the relatively small amount of hydrocarbons we will be adding to the system, and the manner in which it will be added, we expect that any changes in hydrocarbon emissions will be so small as to be undetectable. In fact, we expect fuel savings in the range of 0.5%, although we do not expect to be able to measure this until we get into long-term operation of the proposed process alteration.

Process and emissions monitoring

The pilot project will encompass two phases:

- 1) Establishment of a base line: the stack will be monitored for particulates and total hydrocarbon content for a period of two days of normal operation. Normal operation is defined as operation at various production rates, without the addition of contaminated soil. This phase will last approximately two to four days, and may be repeated during phases 2 and 3 as necessary.
- 2) Monitoring of system at minimal substitution: the system variables will be monitored at normal operating rates, but with only 3% substitution of soil for aggregate. This phase is expected to last approximately two weeks, to insure that a good statistical basis is established for the data obtained.
- 3) Stepwise increase of substituted portion: the system variables will be monitored at normal operating rates, but the proportion of substituted aggregate will be varied to determine the maximum substitution proportions. In order to insure a good statistical basis, each increment will be maintained for approximately ten days of operation.

The following variables will be monitored to characterize the operation and its performance:

Variable	Measurement Method	Use of data	Monitoring Frequency
Aggregate feed rate	Calibrated feed belt	Mass balance	1 hour
Soil feed rate	Calibrated feed belt	Mass balance	1 hour
TFHC in feed soil	Desorb GC/FID	Mass balance	1 hour
A/C quality	Caltrans Sect 39	Product Threshold	TBD-per need
TFHC in stack gas	FID	Emissions Threshold	Continuous
TFHC in baghouse fines	FID	Mass balance	Weekly

The objective of the data acquisition program will be to document the following parameters:

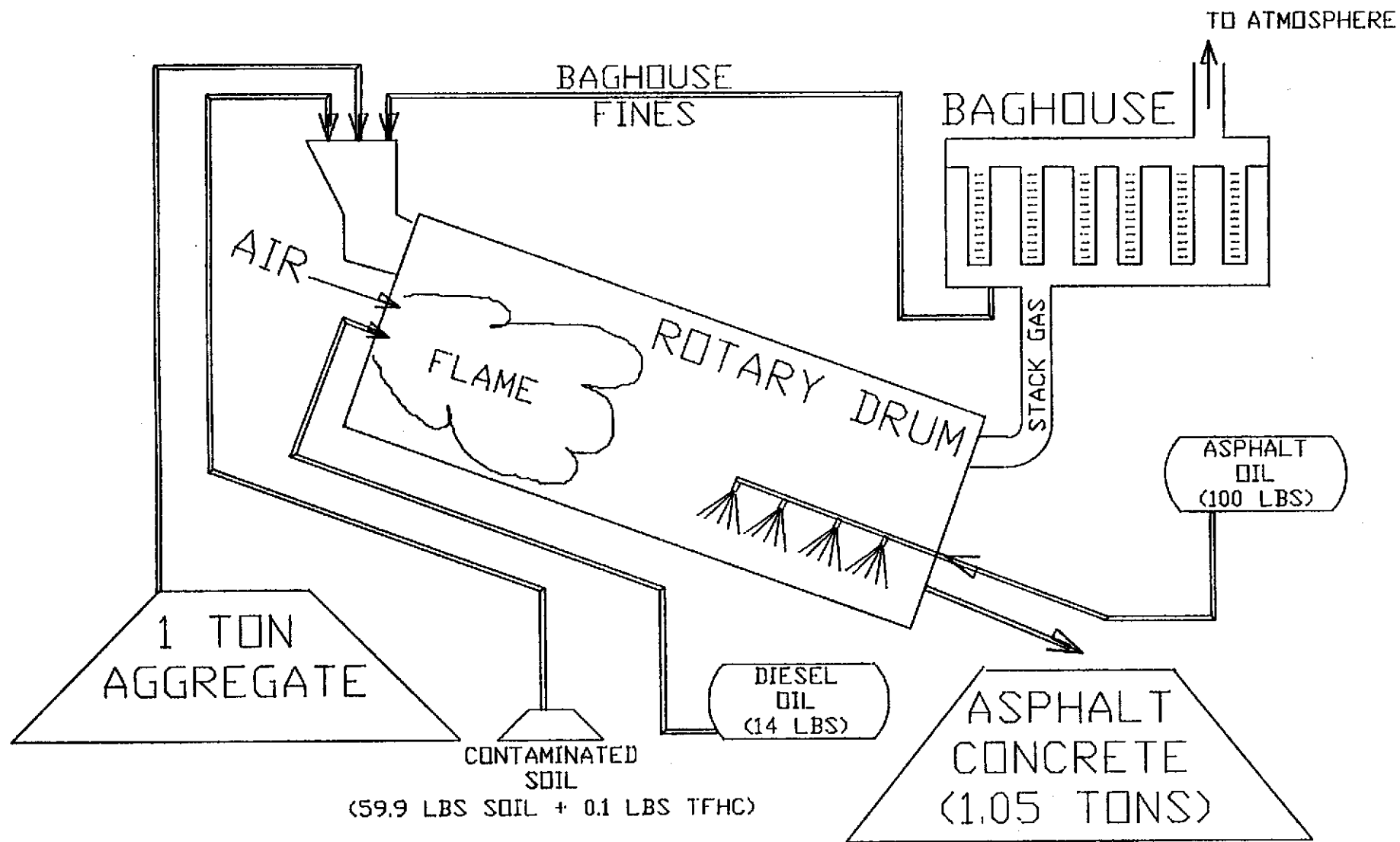
- 1) The relationship between contamination in the feed stream and stack hydrocarbon emissions (if any).
- 2) The relationship between high-fines soil addition in the feed steam and stack particulate emissions (if any).
- 3) The practical threshold limit of soil addition in regard to product quality.

Given the above parameters, we will develop an operating procedure that will insure that at least 90% of the weight of contaminants fed into the process are encapsulated in the product. This goal was established according to guidelines established by the Bay Area Air Quality Management District (BAQMD), pursuant to Regulation 8, Rule 40, Section 302.

The BAAQMD's District Source Test Section (DSTS) will be notified in advance of the exact time of the beginning of each phase of the work. The DSTS will be invited to be present so that the District will have the option to observe or conduct parallel tests.

Any other regulating agencies that request to be notified at any point during the pilot project will be notified as requested and invited to be present on site. To date, however, no agency other than BAAQMD has expressed need for such notification.

PROCESS FLOW DIAGRAM SOIL ENCAPSULATION IN ASPHALT



BASIS: 1 TON OF AGGREGATE



ATTACHMENT E

Dewatering Program

DEWATERING PROGRAM

Purpose

The purpose of this plan is to provide a method of dewatering the excavation area. This will allow economical excavation down to a maximum of six feet in an environmentally sound manner.

Background

Groundwater has been found at this site at various elevations ranging from 1 ft to 5 feet below grade. Soil contamination in the area to be excavated is expected to consist solely of diesel fuel and used motor oil. It is also expected to be confined to the upper five feet of soil. The water to be extracted during the dewatering operation will therefore contain relatively low amounts of contaminants.

Water treatment

The extracted water will be treated by passing it through a pair of granulated activated carbon (GAC) canisters connected in series. The first, or active canister will remove all the contaminants. The second canister will insure that, should the first break through, the discharge water will still meet NPDES discharge criteria. Once breakthrough is observed in the first canister, it will be removed and a new canister will be installed downstream of the second. The second canister will then become the first canister to see the water. This procedure will insure that there will never be a breakthrough in the water treatment system.

Excavation procedure

The work will begin with the excavation of a six foot deep trench that will bisect the excavation zone. The trench will be sloped toward one end, where the de-watering pump will be located. The sides of the trench will be sloped to prevent collapsing of the sides. The water treatment system will then be installed and pumping will begin. The pumped water will initially be held on-site in a portable 20,000 gallon tank. This initial pumping event will allow us to determine the pumping rates that will be needed to keep the excavated area dewatered, and will also corroborate the efficiency of the water treatment system.

Once the pumping/treatment system is in place and its capacity and efficiency have been corroborated or upgraded, an NPDES discharge permit will be obtained for all the water and the dewatering and excavation will proceed in earnest. The excavation will begin at the sides of the far end of the trench. The excavated pit will be made by progressively widening the trench to the width of the area to be

excavated. An open path to allow water flow towards the trench will be maintained at the pit bottom at all times. The excavated area will be backfilled concurrently with excavation, to minimize the size of the open pit, thus minimizing the amount of water pumped.

Dewatering will continue throughout the duration of the excavation and backfilling operation. The efficiency of the water treatment system will be insured by sampling and analyzing the water in the carbon treatment system between the first and second canisters. As soon as breakthrough is observed for the first canister, a new canister will be installed and the second canister will be moved into first place.

