REMEDIAL ACTION PLAN/
INTERIM MEASURES WORK PLAN IMPLEMENTATION
BALLFIELDS AREA
CHEVRON REFINERY
PHILADELPHIA, PENNSYLVANIA

SEPTEMBER 28, 1993

DAMES & MOORE

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1.0 INTRODUCTION

This report presents the results of the evaluation of potential remedial alternatives to address contaminated soil within the Ballfields Area at the Chevron Refinery in Philadelphia, Pennsylvania. The evaluation was implemented by Dames & Moore on behalf of Chevron in accordance with the Remedial Action Plan/Interim Measures Work Plan (RAP/IMWP) for the Chevron Refinery and Ballfields Area that was prepared by Dames & Moore, dated March 15, 1993. The RAP/IMWP was developed in response to a letter forwarded to Chevron from the Pennsylvania Department of Environmental Resources (PADER), dated September 4, 1992, in which PADER concurred with Dames & Moore's recommendations for the remediation of soil within the Ballfields Area that were presented in previous reports

The September 4, 1992, letter also requested that Chevron investigate the extent and potential remedial measures to address the removal of free-phase hydrocarbon from the water table surface at 17 separate areas within the Refinery. Details regarding the evaluation of free-phase hydrocarbon within the Refinery are discussed in a separate Dames & Moore report entitled: *Remedial Action Plan Implementation, Chevron Refinery, Philadelphia, Pennsylvania,* dated September 30, 1993.

During a December 9, 1992, meeting that was attended by representative of PADER, the United States Environmental Protection Agency (USEPA), Chevron, and Dames & Moore, two areas within the Ballfields were identified as requiring soil remediation:

- Area B
- Soil Gas Anomaly

Approximately 25,000 cubic yards of material containing hydrocarbon are present at these two locations. The Soil Gas Anomaly contains discrete waste pits situated throughout the area of concern. The "pockets" contain an organic waste material that contains elevated levels of volatile organic compounds (VOCs), hydrocarbon, and, to a lesser extent, metals. Based on existing data, this area contains an estimated 10,000 cubic yards of material requiring treatment. Area B contains approximately 15,000 cubic yards of soil containing VOCs and semivolatile organic compounds (SVOCs), heavy petroleum-based material, inorganic constituents, and debris from refinery operations.

The remainder of this report is presented in the following six chapters. Chapter 2.0 provides background information. Chapter 3.0 provides a technical overview of the RAP/IMWP. Chapters 4.0 and 5.0 discuss the procedures and results of soil sampling and analysis and treatability testing, respectively. Conclusions and recommendations are discussed in Chapters 6.0 and 7.0, respectively.

2.0 BACKGROUND

2.1 SITE LOCATION

The Chevron Refinery and Ballfields Area are located in a heavily industrialized area (primarily petrochemical) approximately five miles southwest of the center of Philadelphia, Pennsylvania. The Refinery is situated adjacent to the eastern bank of the Schuylkill River. The Ballfields Area is located further east across Lanier Avenue. Figure 1 shows the locations of both the Refinery and Ballfields Area.

2.2 SITE DESCRIPTION

Immediately adjacent to, and east of, the Refinery is an area designated as the Ballfields. This area, shown on Figure 1, is presently occupied by a parking lot, several large mounds of soil, and vacant land. This area formerly contained two baseball diamonds which were removed to facilitate a parking lot expansion in early 1992. From the 1940s to the 1970s, the Ballfields Area was owned by the Union Tank Car Company and contained nearly 100 sidings where tank cars were cleaned. The property was sold to Philadelphia Electric and then to Arco Oil Company, which traded property with Gulf Oil Company. In the mid-1980s, Chevron Oil Company purchased the entire Refinery from the Gulf Oil Company, including the Ballfields Area.

2.3 PREVIOUS INVESTIGATIONS

Multiple investigations of soil and ground water have been conducted by Dames & Moore at the Ballfields since 1987. The results of these investigations are presented in reports entitled:

- *Site Assessment Investigation, Chevron-Gulf Refinery, Philadelphia, Pennsylvania,* dated May 18, 1987
- *Investigation of Area A, Ballfields, Chevron Refinery, Philadelphia, Pennsylvania,* dated June 10, 1988
- *Investigation of Area B, Ballfields, Chevron Refinery, Philadelphia, Pennsylvania,* dated August 30, 1988
- *Pilot Geophysical Study, Ballfields, Chevron Refinery, Philadelphia, Pennsylvania,* dated July 8, 1988
- *Soil Gas Survey, Ballfields, Chevron Refinery, Philadelphia, Pennsylvania,* dated July 28, 1989
- *Results of Ground Water Sampling and Analyses, Chevron Refinery, Philadelphia, Pennsylvania,* dated March 21, 1991

- *Environmental Investigation - Ballfields, Chevron Refinery, Philadelphia, Pennsylvania*, dated May 24, 1991

- *Evaluation of Remedial Process Options and Alternatives for Soil, Ballfields Area, Chevron Refinery, Philadelphia, Pennsylvania*, dated June 3, 1991.

- *Addendum, Environmental Investigation - Ballfields Area, Chevron Refinery, Philadelphia, Pennsylvania*, November 13, 1991

- *Addendum II, Environmental Investigation - Ballfields Area, Chevron Refinery, Philadelphia, Pennsylvania*, May 7, 1992

A comprehensive summary of the results of each of these investigations was previously provided in the March 15, 1993, RAP/IMWP prepared by Dames & Moore. This summary included individual discussions of the activities and results of investigations conducted at Area B and the Soil Gas Anomaly. The RAP/IMWP also included a discussion of the June 3, 1991, matrix evaluation of remedial process options and alternatives for addressing Ballfields Area soil remediation.

3.0 TECHNICAL OVERVIEW

Based on the results of Dames & Moore's previous evaluations of remedial process options and alternatives to address Ballfields Area soil, the RAP/IMWP was developed to conduct treatability testing to evaluate the most appropriate alternative or combination of alternatives to address impacted soil at Area B and the Soil Gas Anomaly. Because the results of the remedial process option and alternative evaluation indicated that recycling represented the most viable option for soil within the Soil Gas Anomaly and Area B, the scope of work detailed in the RAP/IMWP involved a phased approach of treatability studies. The phased approach consisted of a treatability evaluation of recycling, and a subsequent phase of treatability studies to evaluate the feasibility of other remedial process options if the results of the initial treatability study indicated that recycling is not a viable option.

The scope of work detailed in the RAP/IMWP consisted of two primary tasks:

- Collecting appropriate samples and analyzing them for RCRA characteristics and TCLP constituents to classify the material as hazardous or non-hazardous.

- Submitting representative samples of the Area B and the Soil Gas Anomaly waste material to a recycler for approval and brick testing.

Representative samples of waste materials present within Area B and the Soil Gas Anomaly were collected for laboratory analyses and preliminary treatability testing from test trenches excavated at each area of concern. To provide a direct correlation between waste characterization analyses and treatability evaluation, these samples were collected from the same location.

During implementation of the RAP/IMWP at the Ballfields Area, additional samples were collected for treatability testing during field sampling/test trenching and submitted to various vendors to evaluate remedial treatment technologies other than recycling. Additional remedial technologies evaluated during the RAP/IMWP include:

- Ex-situ soil washing
- Ex-situ soil complexing
- Ex-situ fluid bed steam stripping

The rationale for evaluating these technologies during the initial phase of treatability testing was to help focus any subsequent phases of treatability studies and remedial technology evaluation that may be required if recycling is not a viable remedial option. The preliminary evaluation of these treatment technologies was conducted to assess the potential feasible application of additional remedial alternatives or combinations of alternatives for treatment of Ballfields Area soil that were not included in the RAP/IMWP. Although the June 3, 1991, matrix evaluation indicated that these technologies were not to be considered further, this matrix evaluates these technologies individually and does not consider their potential application in combination with other alternatives.

The procedures and results of soil sampling and analyses as a means of determining the classification of the waste material present within Area B and the Soil Gas Anomaly is presented in Chapter 4.0. The results of the preliminary treatability studies conducted to evaluate the potential application of selected remedial technologies to address soil at Area B and the Soil Gas Anomaly are discussed in Chapter 5.0.

4.0 SOIL CHARACTERIZATION

In accordance with the RAP/IMWP scope of work, test trenches were excavated within the Ballfields Area and soil samples were collected from excavated soil and waste materials. The samples collected were submitted for laboratory analyses and treatment technology evaluation. This chapter of the RAP/IMWP report discusses the procedures and results of soil sampling and laboratory analyses conducted to characterize the Ballfields soil. Characterization of excavated soil was performed to evaluate whether the waste material present in Area B and the Soil Gas Anomaly is classified as hazardous or non-hazardous waste.

Soil samples were collected for the purpose of waste characterization from material excavated from a series of test trenches. The trenches were excavated on June 21 and 22, 1993, by Environmental Equipment & Services, Inc. (EE&S) of Swedesboro, New Jersey. Figure 3 is a site map of the Ballfields Area that shows the locations of the test trenches. Material excavated from each test trench was stockpiled immediately adjacent to the excavation. Excavated soil was described and logged by Dames & Moore personnel based on the Unified Soil Classification System of lithologic identification. Soil excavated and stockpiled and, to the extent possible, soil present within the sidewalls of each excavation were screened for the presence of organic vapors using a photoionization detector (PID). At the completion of excavation, detailed test trench logs were completed to record the soil types and waste materials encountered at each location. Test trench diagrams are provided in Appendix A.

Soil samples were collected directly from trenches or excavated soil stockpiled for chemical and waste characterization based on visual observations and PID field monitoring readings. Composite or discrete samples were collected from each test trench excavation, with the exception of B-TP4 (Figure 3), where only large concrete masses were observed in the excavated material and positive PID headspace readings were not recorded. Each sample collected was submitted to New England Testing Laboratory, Inc. (NET) of North Providence, Rhode Island for the following laboratory analyses:

- Volatile Organic Compounds (VOCs) - Method 8240
- Semi-Volatile Base/Neutral and Acid Extractable Organic Compounds (SVOCs) - Method 8270
- Polychlorinated biphenyls (PCBs) - Method 8080
- Total Petroleum Hydrocarbons (TPH) - Method 418.1
- Total Organic Halogens (TOX) - Method 450.1
- Total Moisture
- Total Solids
- RCRA Hazardous Waste Characteristics, including corrosivity, ignitability, and reactivity

- TCLP extract analysis for VOCs, SVOCs, metals, and extractable pesticides and herbicides

The results of analyses were evaluated to determine whether the material sampled in Area B and the Soil Gas Anomaly exhibits hazardous or non-hazardous waste characteristics. The characterization and constituent concentrations of soil present in each of these two areas of concern impacts the types of remedial technologies that can be applied to remediate the Ballfields Area.

Sections 4.1 and 4.2 present the results of soil characterization conducted for waste material present in Area B and the Soil Gas Anomaly, respectively. The results of treatment technology evaluation is discussed in Chapter 5.0.

4.1 AREA B

4.1.1 Trenching and Sample Collection

Five test trenches, designated B-TP1 through B-TP5, were excavated at Area B on June 21, 1993, at the locations shown on Figure 3. This figure includes symbols adjacent to each test trench excavation to denote approximate locations from which samples were collected. Test trenches ranged from approximately 15 to 200 feet in length and consisted of variable soil and waste material types. The predominant soil type encountered was a sandy silt with clay. Although the depth of trenches was based on field observations and conditions encountered, the average depth of the base of the test trenches was approximately 7 feet below ground surface.

Soil encountered in each of the trenches excavated consisted primarily of silt with varying amounts of sand and clay present in the silt matrix. The soil ranged from light brown to dark brown, and was stained black in the presence of substantial volumes of hydrocarbon material deposited in Area B. The majority of the soil mound designated as Area B is vegetated. However, several areas exist where vegetation is absent.

Each trench excavated within Area B contained black-stained soil with hydrocarbon odors and positive indications of organic vapors were recorded during field monitoring at each trench location, with the exception of trench B-TP4 where only large concretions and topsoil were encountered. The majority of black-stained materials encountered were present in the western half of the Area B soil mound. This observation is consistent with those made during previous investigations of Area B involving trench and test pit excavations and associated sample collection and analysis. The most substantial volume of impacted soil appears to be situated near trenches B-TP2 and B-TP3, where nearly the entire length of these trenches exhibited black-stained deposits, emitted hydrocarbon odors, and registered PID readings greater than 100 parts per million (ppm). Lesser volumes of hydrocarbon deposits were observed in trenches B-TP1 and B-TP5 (Figure 3).

Other materials encountered in Area B trench excavations included a moist, gray, granular material that was mixed with a mildly stained soil that emitted hydrocarbon odors in trench B-TP1 and a brown, medium-grained deposit in trench B-TP3, that was situated beneath

the hydrocarbon stained soil there. Debris, including bricks, portions of terra cotta piping, large concretions, and metal strips and wire, was encountered in several of the test trench excavations. Appendix A provides test trench diagrams that show the material encountered in each trench. Due to the limited depth of excavation and occurrence of waste materials, a trench diagram was not prepared for test trench B-TP4.

Composite soil samples were collected from test trench excavations B-TP2, B-TP3, and B-TP5. The composites were collected from various locations within these trenches to characterize the hydrocarbon deposits encountered. Composite sampling was selected based on the consistency of the material throughout the trenches. At test trench B-TP1, the gray granular material and black-stained hydrocarbon deposits could not be segregated. Therefore, a composite sample was collected for analysis.

4.1.2 Results of Laboratory Analysis

A summary of laboratory analytical data for waste characterization soil samples collected from test trenches excavated within Area B is presented in Table 1 and discussed in the following paragraphs. Table 1 provides a summary of concentration data for detected constituents only. A complete copy of the laboratory analytical data package for the Ballfields waste characterization sampling is provided as Appendix B.

4.1.2.1 Chemical Characterization

The suite of VOCs and SVOCs constituents detected in Area B soil samples is typically associated with petroleum based products. Samples B-TP2A and B-TP3A contained the greatest VOC and SVOC concentrations. The presence of these compounds in samples collected at the indicated trenching locations is consistent with field observations recorded and monitoring conducted during trench excavation. No PCBs were detected at concentrations greater than the laboratory method detection limit (MDL) in any of the samples collected.

TPH concentrations detected in Area B soil samples ranged from 4,100 to 57,500 mg/kg. The minimum TPH concentration detected was present in sample B-TP1A which contained only limited occurrences of hydrocarbon stained soil. Total organic halogens (TOX) concentrations ranged from less than MDL to 199 mg/kg.

4.1.2.2 Waste Classification

The results of analysis for waste characterization parameters indicate that TCLP benzene concentrations detected in two samples, B-TP2A and B-TP3A, exceed the established regulatory limit for TCLP benzene of 0.5 milligrams per liter (mg/l). TCLP benzene concentrations detected in these samples were 0.99 mg/l and 0.86 mg/l, respectively. No TCLP SVOCs or pesticides/herbicides were detected in any of the Area B soil samples. Although TCLP metals concentrations were detected in three of the four samples collected, the only metals detected were barium, chromium, and lead, and the concentrations detected were well below the corresponding regulatory criteria for TCLP metals. Analysis for corrosivity, ignitability, and reactivity indicate that none of the soil samples collected to characterize Area B soil exceed

RCRA criteria for a characteristic hazardous waste for these parameters. The results of analyses and applicable regulatory criteria are provided in Table 1.

The results of laboratory analyses indicate that a limited volume of the material present in the northern portion of Area B may exhibit the characteristics of a hazardous waste based on TCLP benzene data. The eastern and southern portion of Area B do not contain as great a level of contamination, relative to the northern portion of the soil pile, and do not exhibit RCRA hazardous waste characteristics.

4.2 SOIL GAS ANOMALY

4.2.1 Trenching and Sample Collection

Six test trenches were excavated on June 22, 1993, within the Soil Gas Anomaly at the Ballfields Area. The trenches were designated SGA-TP1 through SGA-TP6 and were oriented as shown on Figure 3. The trench location map includes symbols to indicate the locations where soil samples were collected. Trench excavations ranged from approximately 25 to 170 feet in length, with depths ranging from 5 to 10 feet below ground surface. Material types encountered in the Soil Gas Anomaly test trench excavations exhibited greater variability than those present within the Area B soil mound. A surficial layer of topsoil, consisting of brown to light-brown, silty sand with plant roots and fragments, was present throughout most of the Soil Gas Anomaly. Indigenous soil at the Soil Gas Anomaly appears to consist of clayey silt with variable amounts of sand, with the sand particles increasing to gravel size with increasing depth. Where the indigenous deposits had not been disturbed by historic waste material disposal at the Ballfields, some oxidation staining and mottling was observed at depth.

Test trenches SGA-TP1 through SGA-TP4 each exhibited deposits that indicated the presence of the former railroad yard. Gravel ballast was observed in trenches SGA-TP1 and SGA-TP2, and the other two trenches contained distinct layers of coarse grained, black-stained material resembling coal and ash which is likely the base of the former railroad that was situated beneath the ballast. Each of these layers of coarse material was consistent across the trenches, which were all excavated with an east-west orientation. This orientation is the same as the general orientation of the former railroad, as indicated by historical aerial photographs. A review of historical aerial photographs was conducted during previous investigations of the Ballfields Area.

Waste material deposits were encountered in each trench excavation, with the exception of trench SGA-TP1 which was excavated at the north end of the Soil Gas Anomaly. Although there were no visual indications of waste deposits in this trench excavation, very mild hydrocarbon odors were noticed during excavation and PID readings of 8 ppm were recorded. These odors and organic vapors are likely the influence of waste material deposits in adjacent trench SGA-TP2, located approximately 60 feet south. Substantial volumes of hydrocarbon impacted soil and deposits were encountered in trenches SGA-TP2, SGA-TP3, and SGA-TP6. At each of these locations, hydrocarbon material appeared to be deposited in discrete pockets or lenses. Trench SGA-TP6 was excavated at a location of the Soil Gas Anomaly where free-phase hydrocarbon was observed at ground surface. Excavation at this location revealed that this material was associated with rags, wood, and other general debris. The extent of this

material was limited. The hydrocarbon observed was highly viscous, with a consistency similar to crude oil or motor oil. The occurrence of black-stained soil or hydrocarbon deposits was less evident in trench SGA-TP4 and absent in SGA-TP5. The limited presence of hydrocarbon deposits in SGA-TP4 correlates with observations made during previous investigations that involved trench excavation. These previous studies suggested that the most substantial volumes of hydrocarbon deposits are present near the north and northeast portions of the Soil Gas Anomaly. Observations made during implementation of the RAP/IMWP confirmed these results.

In addition to black-stained soil and hydrocarbon deposits, a very fine purple to blue-gray deposit with a powder-like consistency was observed in several test trench excavations, including SGA-TP2, SGA-TP3, and SGA-TP5. This material emitted no odor and no PID readings were registered, suggesting the absence of organic compounds. Similar to the hydrocarbon deposits, this material was present primarily in discrete subsurface pockets. However, material present in test trench SGA-TP5, which was oriented perpendicular to each of the remaining Soil Gas Anomaly trenches, included a continuous thin lens of this material across most of the length of the trench.

Based on field observations and the results of field screening for organic vapors, sampling locations were selected for waste characterization and treatability evaluation screening. Nine soil samples were collected from the Soil Gas Anomaly test trench excavations and submitted for laboratory analysis to evaluate if the waste exhibited the characteristics of a hazardous waste. Due to the absence of any visual indication of hydrocarbon deposition and limited PID readings, no samples were collected from trench SGA-TP1. A composite sample designated SGA-TP2A was collected at test trench SGA-TP2 that consisted of a worst-case representation of the hydrocarbon material encountered in this trench. A replicate sample was also collected and was designated SGA-TP2B. Three discrete samples were collected from trench SGA-TP3 at the approximate locations shown on Figure 3. These samples, designated SGA-TP3A through SGA-TP3C, were collected to characterize the various types of material encountered. Discrete samples were also collected from trenches SGA-TP4, SGA-TP5, and SGA-TP6 to characterize variable types of materials encountered that were deposited in the Ballfields Area at each of these locations. Samples collected from trenches SGA-TP4 and SGA-TP6 were obtained to characterize hydrocarbon deposits encountered, and the purple-gray material encountered in trench SGA-TP5 was also sampled and submitted for laboratory analysis. A second sample collected from SGA-TP5, designated SGA-SOIL, consisted of soil that did not appear to have been affected by past disposal at the Ballfields Area. This sample was collected to evaluate contaminant concentrations and characteristics of material that appeared to be unaffected by deposition in the Soil Gas Anomaly.

4.2.2 Results of Laboratory Analysis

A summary of laboratory analytical data for waste characterization soil samples collected from Soil Gas Anomaly test trenches is provided in Table 2. This table provides a summary of concentration data for only constituents that were detected above laboratory MDL in at least one of the samples collected. A complete copy of the laboratory analytical data package for the Ballfields waste characterization sampling is provided in Appendix B.

4.2.2.1 Chemical Characterization

The organic compounds detected in Soil Gas Anomaly waste characterization samples, including VOCs and SVOCs, are those typically associated with petroleum hydrocarbon based materials. Concentrations of VOCs and SVOCs are greatest for those samples that were collected to characterize the hydrocarbon and black-stained soil deposits. VOC and SVOC concentrations decrease for those samples collected to characterize deposits encountered other than hydrocarbon. PCBs were not detected above laboratory MDL in any of the Soil Gas Anomaly soil samples collected.

TPH concentrations detected ranged from 235 mg/kg to 234,000 mg/kg. The minimum TPH concentration detected was present in sample SGA-SOIL, which was collected to characterize soil that did not appear to be impacted by historic deposition of waste material at the Soil Gas Anomaly. TOX concentrations ranged from below MDL for the sample of non-impacted soil to a maximum of 328 mg/kg.

4.2.2.2 Waste Characterization

Laboratory analyses for RCRA hazardous waste characteristic parameters for soil samples collected from the Soil Gas Anomaly are summarized in Table 2. The TCLP benzene concentrations detected in sample SGA-TP3C exceeded the regulation criterion of 0.5 mg/l, indicating that this sample exhibits the characteristics of a hazardous waste. TCLP benzene was detected in this sample at a concentration of 1.1 mg/l. None of the remaining Soil Gas Anomaly samples collected exceeded TCLP criteria. Analyses for TCLP metals indicated that no metal concentrations in the TCLP extract were present at levels characteristic of a hazardous waste. No pesticide/herbicides or SVOCs were detected in the TCLP extract samples.

Analyses for the RCRA hazardous waste characteristic parameters of corrosivity, ignitability, and reactivity indicate that none of the samples exhibit hazardous waste characteristics. Reactive cyanide and sulfide values reported were well below their corresponding RCRA criteria for characteristic hazardous waste. Corrosivity values for all Soil Gas Anomaly samples were within a range that indicates that the material does not exhibit the corrosive characteristic of a hazardous waste (Table 2).

Based on the results of laboratory analysis, only a limited portion of the soil and waste material present within the Soil Gas Anomaly exhibit the characteristics of a hazardous waste. Samples exhibiting hazardous waste characteristics were collected from the north portion of the Soil Gas Anomaly, in the vicinity of test trenches SGA-TP2 and SGA-TP3.

5.0 TREATABILITY EVALUATIONS

As discussed in Chapter 3.0, soil samples were collected from test trenches excavated at the Ballfields Area and submitted to various vendors for preliminary bench-scale treatability studies to evaluate the potential application of several remedial treatment technologies. Sections 5.1 through 5.4 present the results of treatability testing and evaluation for recycling, soil washing, soil complexing, and fluid bed steam stripping, respectively. Section 5.5 provides a comparative evaluation of treatment technologies based on the results of waste characterization analyses and the treatability studies.

5.1 RECYCLING

Samples collected for treatability studies were submitted to two separate vendors for evaluating the feasibility of recycling as a remedial option for soil within Area B and the Soil Gas Anomaly. Each of the recycling treatability studies involved thermal treatment of soil samples. One vendor performs thermal treatment using brick kilns. The other vendor utilizes thermal desorption to generate clean fill material.

5.1.1 Recycling for Bricks

Treatability studies involving recycling of Ballfields Area soil for making bricks was conducted by Cherokee Environmental Group (Cherokee) in Sanford, North Carolina. Cherokee uses a brick kiln that operates at temperatures of approximately 2,000°F to thermally process soil containing organic compounds and petroleum hydrocarbons. Typical retention times within the kiln area between 12 to 17 hours. Gases generated during thermal treatment are controlled and destroyed as part of the brick-making process.

A total of ten samples were submitted to Cherokee for treatability evaluation. The results of the study indicated that the material present in Area B and the Soil Gas Anomaly is acceptable for the brick-making process. Each of the ten samples was processed into an innocuous brick that did not contain detectable levels of TPH. Thermal treatment using a brick kiln will destroy organic contaminants present in the waste materials. Although the manufacturing of bricks will not destroy inorganic contaminants present in the processed material, the inorganics will be bound in the brick matrix.

5.1.2 Recycling for Clean Fill

Ten soil samples collected from test trenches excavated during the RAP/IMWP were also submitted for treatability study evaluation to Clean Earth of New Castle, Inc. (Clean Earth) in New Castle, Delaware. Clean Earth's recycling treatment process involves the thermal desorption of contaminants using a counterflow rotary dryer. The moisture and contaminants are removed by heating the soil at temperatures as great as 1,000°F by a direct fired burner. Heat transfer is maximized by the interior design and operation of the rotary dryer. The exhaust gas, which contains particulate in suspension as well as desorbed contaminants, are directed to a baghouse where the dust is removed. The remaining gases are then directed into a thermal oxidizer operating at temperatures above 1,500°F which effectively destroys the contaminants.

The results of Clean Earth's treatability study indicated that the material tested is acceptable for treatment. The material tested had an average boiling point of approximately 600°F, despite the relatively high TPH concentrations present in the samples submitted. The thermal desorption treatment process generates aggregate fill material. The TPH concentrations subsequent to treatment do not exceed 10 mg/kg. Based on the average operating temperature, organic compounds present in Ballfields Area soil will be effectively removed by this process. Although inorganic constituents present in remediated waste material and soil will not be destroyed, thermal treatment typically changes the valence state of metals and forms metal oxides and metal salts that exhibit decreased leachability and mobility in the treated matrix. Therefore, this process will permanently remove sources of ground water contamination for organic compounds and reduce potential impact to ground water for metals.

5.2 SOIL WASHING

Soil washing is an ex-situ toxicity reduction remedial technology that involves the leaching of waste constituents from contaminated soil for treatment and recovery. Soil washing treatment may be applied to remediate soil contaminated with organic and inorganic constituents. Recovered waste streams can be recycled or destroyed through additional treatment processes. Washing solutions may include water, acidic or basic aqueous solutions, or aqueous solutions containing complexants, chelating agents, reducing or oxidizing agents, or surfactants. Solvents may also be used (commonly referred to as solvent extraction), but must be recovered completely from the treated soil. Contaminated soil is excavated, screened, and mixed with the selected washing solution. Typically, excavated soil is placed back into the ground following treatment and subsequent drying. The spent washing solutions may be treated and recycled back to the washing system, treated using various technologies, or discharged to a water treatment facility.

The feasible application of addressing the remediation of Ballfields Area impacted soil using the soil washing treatment process was evaluated through two separate treatability studies. Samples collected during test trenching were submitted to LMC Environmental, Inc. (LMC) in Deerfield Beach, Florida, and GLIC Environmental, Inc. (GLIC) in Toledo, Ohio, for soil washing treatability evaluation. Bench-scale treatability tests consisting of column tests were conducted to evaluate the type of surfactant required to effectively reduce contaminant concentrations and to determine the required residence time required for contact between contaminant and soil washing solution. After determining the appropriate surfactant and residence time, the samples were subjected to simulated soil washing treatment processes.

The results of treatability testing for each of these vendors indicated that soil washing is effective for reducing the concentrations of organic compounds present in the representative Ballfields Area waste material samples submitted for analysis. Treatability tests indicated that samples with the concentrations of approximately 50,000 mg/kg could be remediated to concentrations ranging from approximately 500 to 1,000 mg/kg. These results represent concentration reductions that may be achieved after processing the contaminated material through the soil washing apparatus once. Additional contaminant concentration reductions may be attained through the use of different soil washing solutions, increasing the retention time for contaminated material in the treatment system, or by passing contaminated material through the process more than once.

Although the treatability study results for soil washing indicate that this remedial technology will reduce contaminant concentrations present in Area B and Soil Gas Anomaly soil, a further evaluation to accurately determine performance standards using this technology is required. Further evaluation would involve a field or remote pilot test study that would use a full-scale soil washing system. The pilot study will provide data that are used to select the appropriate surfactant solution and retention times necessary to achieve the required levels of soil remediation.

5.3 SOIL COMPLEXING

Several samples collected from test trench excavations were submitted to Talucci & Associates of Wayne, Pennsylvania, for preliminary bench-scale treatability testing to evaluate the potential applicability of soil complexing as a remedial technology to address Ballfields soil. Soil complexing involves mixing contaminated soil with a reagent solution that is comprised, in-part, of surfactants and other proprietary compounds. The surfactants promote the formation of complex materials that inhibit the leachability of contaminants from the soil matrix. Complexing is unique from solidification/stabilization in that the contaminant is bound internally to the surfactant, whereas solidification/stabilization involves the capture of contaminants on the external face of the binding agent. Additionally, the complexing surfactants do not react with contaminated soil to form porous matrices that are commonly formed when stabilizing agents are utilized.

The results of previous treatability studies conducted by Talucci & Associates have indicated that soil complexing is a viable remedial process option for addressing soil contaminated with organic compounds and hydrocarbons. However, this technology is typically restricted to soil that is contaminated with petroleum hydrocarbons at levels much less than those present in Area B and the Soil Gas Anomaly samples collected. Based on the presence of TPH in several soil samples at concentrations greater that 100,000 mg/kg, complexing bench-scale treatability tests were not conducted. Based on the concentrations present at some areas within the Ballfields, this treatment technology would not wholly achieve desired remedial cleanup concentrations. Therefore, soil complexing is not applicable for soil remediation at the Ballfields Area.

5.4 FLUID BED STEAM STRIPPING

Fluid-bed stream stripping (FBSS) is a remedial process that uses an indirectly heated fluidized bed to treat contaminated soil. FBSS heats soil to temperatures ranging from 500°F to 1,500°F. The bed is fluidized using superheated steam. Heat is generated through the combustion of a fuel source, which may include natural gas, propane, or other fuel sources. The heated combustion gases flow through heat transfer tubes which are immersed in the bed of solids, and do not contact the contaminated soil. Treated soil is removed from the bottom of the fluidized bed and cooled with water at a temperature of approximately 100°F. The residual moisture content is approximately 3 percent, which helps to reduce particulate dusting in the treated material.

Vapors generated as a result of the treatment process are cooled and condensed in a water scrubbing system. The mixture of condensed oil and water is fed to a decanting

system and forms three phases: a light oil fraction, a water phase, and a heavy oil fraction. The phases are separated and each phase is fed to a separate tank for further processing and treatment. Depending on the nature of the recovered material, phases can either be used to fuel the treatment system or be recycled to the refinery.

Two samples collected during test trench excavation were submitted to Earth Treatment Technologies, Inc. (ETT) in Aston, Pennsylvania for preliminary bench-scale treatability testing to evaluate the potential application of the FBSS treatment process to remediate Ballfields Area soil. The results of the bench-scale study indicated that soil containing 0.5 to 30 weight percent of organic contaminants and moisture contents ranging from 5 to 40 percent can be treated using the FBSS process to reduce contaminant concentrations. Organic contaminants detected in soil samples subjected to FBSS treatability testing have boiling points ranging from approximately 180°F to 650°F; thus, all organic compounds would be volatilized and exit the fluidized bed with the steam and vaporized aqueous material from the soil. The treated soil can be placed back into the ground as backfill. Recovered hydrocarbons will be recycled as fuel or transported to the Refinery for storage or processing.

The treatability test results for FBSS indicate that this treatment process will provide a reduction in contaminant concentrations present within soil at Area B and the Soil Gas Anomaly. However, a detailed evaluation of this treatment technology relative to contaminant concentrations and volumes present at the Ballfields Area would be necessary to determine performance standards. This detailed evaluation would consist of a pilot-scale treatability study, which may involve a field test of the proposed treatment system.

5.5 COMPARATIVE EVALUATION OF TREATMENT TECHNOLOGIES

Recycling provides complete destruction of organic constituents present in contaminated soil and generates an innocuous material. The mobility and leachability of inorganic constituents in the remediated matrix are typically reduced. Recycling is a proven technology with established performance standards that is easily implemented and provides source control. No specialized permits or equipment are required as the recycling vendors currently operate under permits and no on-site treatment would be conducted. The absence of on-site treatment precludes utility and water-supply considerations. The results of the treatability studies were conclusive and pilot testing of this remedial technology would not be required.

The application of recycling is restricted to soil that does not exhibit the characteristics of a hazardous waste. Based on laboratory analytical data for several samples collected during the RAP/IMWP that indicate that some samples exceed TCLP benzene limits for hazardous waste classification, those limited portions of soil in Area B and the Soil Gas Anomaly where TCLP benzene regulatory criterion are exceeded will require minimal pretreatment to reduce TCLP benzene concentrations to non-hazardous levels prior to recycling. According to RCRA regulations (40 CFR 268.45), material classified as hazardous waste based on toxicity characteristics (TCLP analyses) that is treated using either extraction or destruction technologies and does not exhibit hazardous waste characteristics following treatment may be managed as non-hazardous material.

Treatment of contaminated soil within the Ballfields using recycling processes will result in the remediation of organic contaminant concentrations to levels that are below concentrations specified by PADER to be classified as clean fill material. As detailed in the PADER document *Protective Levels and Criteria for the Excavation, Treatment, Cleanup and Disposal of Virgin Fuel Contaminated Soil,* (October 1991) soil that has been excavated and treated to less than the following concentrations is considered clean fill (Level A) for the purposes of subsequent use and disposal (all concentrations in mg/kg):

- Benzene - 0.01
- Toluene - 0.02
- Ethylbenzene - 0.02
- Xylenes - 0.07
- TPH - 10.0

As stated in the above referenced PADER document, soil treated and classified as Level A may be placed in direct contact with groundwater, and treatment of soil to attain Level A criteria will result in a release of liability for those soils. Recycling, either through brick manufacture or thermal desorption would achieve concentrations less than PADER's Level A criteria.

Soil washing can also provide a reduction in organic and petroleum hydrocarbon concentrations in soil through extraction. The extracted contaminants in the aqueous wash solution waste streams could be disposed at Chevron's wastewater treatment plant at the Refinery, pending approval of permit modifications. Treated soil placed back in the ground would eliminate the need for clean backfill material. Because soil washing is an on-site treatment process, off-site transport of contaminated material would not be required.

The results of treatability studies indicate that the use of soil washing to remediate contaminated soil within the Ballfields Area will not reduce contaminant concentrations to the extent that the treated soil is classified as clean fill. Because the treated soil would not likely meet the analytical requirements to be classified as clean fill material by PADER, complete source control is not provided. Therefore, material placed back into the ground following treatment would be subjected to restrictions regarding proximity to ground water and surface water as specified under PADER's October 1991 document pertaining to soil remediation.

Prior to initiating soil washing remediation, performance standards would need to be established through performance of a pilot-test study. Permits would likely need to be obtained to implement on-site remediation and utility and water-supply lines would be required. Operations and maintenance of the soil washing apparatus and routine sampling and analysis of treated soil to verify performance levels would be required.

Soil complexing is also an on-site treatment process that involves using treated soil as backfill following treatment thereby eliminating off-site transport of contaminated material. Aqueous solutions generated during remediation may be further treated at Chevron's wastewater treatment plant at the Refinery, pending permit modification approval. The contaminants are immobilized in the complexing matrix, thereby providing source control by inhibiting the leaching of contaminants to ground water.

Soil complexing cannot achieve the same reductions in contaminant concentrations that are provided using the other remedial process evaluated, and, based on available information, remediation of Ballfields Area soil using soil complexing will not attain levels less than those required for treated material to be classified as clean fill material. Although contaminants are immobilized in the matrix of the treated material, the long-term stability of the treated material is not known. Soil complexing does not reduce contaminant concentrations through destruction or extraction that is achieved using recycling, soil washing, and FBSS treatment processes. Therefore, as detailed in Section 5.3, soil complexing is not applicable for soil remediation at the Ballfields Area.

Fluid-bed stream stripping (FBSS) provides a reduction in organic contaminant concentrations and can also be designed to effectively address metals in soil through additional treatment processes. The aqueous and hydrocarbon waste streams generated as a result of remediation would be handled or disposed at Chevron's wastewater treatment plant at the Refinery (pending permit modification approval) or recycled and used as a fuel source to power the burners. The FBSS treatment system is transportable and all remedial activities would be conducted on-site, precluding the need for off-site material transport. Treated soil could be used as backfill following treatment.

The results of the treatability study indicate that FBSS treatment may reduce contaminant concentrations to levels that attain the PADER Level A classification for clean fill. A detailed pilot-scale treatability evaluation will be required to accurately determine performance standards and the potential application of this technology with regard to achieving remedial goals less than Level A criteria.

On-site treatment will likely require permits, and sources of electricity, fuel, and water would need to be supplied to operate the FBSS system. Operation and maintenance of the system apparatus and routine sampling and analysis to verify levels of remediation would be required.

6.0 CONCLUSIONS

This chapter provides conclusions pertaining to the remediation of Ballfields Area soil present within Area B and the Soil Gas Anomaly. These conclusions are based on the results of laboratory analyses and treatability studies conducted on soil samples collected from test trenches excavated during the RAP/IMWP and information and data obtained during previous studies conducted at the Ballfields.

Visual observations recorded during test trench excavation of Area B and the Soil Gas Anomaly and the results of laboratory analyses for samples collected from each trench excavated substantiated those obtained during previous investigations conducted at the Ballfields Area. Soil and waste material present within Area B and the Soil Gas Anomaly consist primarily of material that would be classified as non-hazardous. The presence of benzene in TCLP extracts for several samples indicated that limited portions of the Ballfields Area contain soil and waste material that would be classified as hazardous waste for disposal purposes based on waste characterization analyses. However, the TCLP benzene concentrations detected in soil that exhibits the characteristics of hazardous waste only marginally exceed the established hazardous waste classification limit of 0.5 mg/l, with the maximum TCLP benzene concentration limit detected at 1.1 mg/l. No other contaminants were detected at concentrations greater than corresponding hazardous waste characterization criteria in any of the TCLP extracts for any of the samples collected during the RAP/IMWP.

The results of treatability studies conclusively indicate that recycling of contaminated soil and waste material within Area B and the Soil Gas Anomaly is a viable remedial option for the Ballfields Area. The recycling treatment process, involving thermal desorption and destruction of organic soil contaminants, provides source control by permanently removing contaminated soil and generating an innocuous residual material. Recycling can be conducted only on material classified as non-hazardous. Remediation of Ballfields Area soil through recycling is not applicable to contaminated soil and waste material that is a characteristic hazardous waste.

Treatability studies conducted as part of the RAP/IMWP to evaluate the potential application of remedial process options indicate that contaminants present in subsurface soil within Area B and the Soil Gas Anomaly can be reduced using methods of remediation other than recycling that involve extraction and destruction. These additional remedial process options consist of on-site treatment techniques that would involve placement of treated soil back in the ground following treatment. Applicable technologies include:

- Soil washing
- Fluid bed steam stripping

Each of these methods of remediation can address both hazardous and non-hazardous soil. Because the results of the preliminary bench-scale treatability tests were designed only to evaluate the potential application of these treatment processes, additional pilot-scale treatment testing is necessary to further evaluate the performance of these processes with regard to contaminant concentrations present at the site. The feasible application of these remedial processes will be determined by performance standards developed on the basis of the pilot-scale

studies. Additionally, the potential use of these processes will be dependent upon the levels of remediation for TPH concentrations required by PADER. Pilot-scale treatment testing is discussed further in Chapter 7.0, which provides recommendations for future action pertaining to remediation of Ballfields soil.

Remediation of contaminated material may involve a combination of remedial processes. The combination may involve the use of these treatment processes to remediate contaminated soil that is classified as a characteristic hazardous waste to non-hazardous levels, followed by subsequent treatment using recycling processes. As previously discussed, RCRA regulations allow for characteristic hazardous waste to be treated to reclassify the material non-hazardous if the treatment involves extraction or destruction of contaminants to reduce concentrations to below specified hazardous waste criteria.

Due to the limited information available regarding the results of treatability tests conducted to evaluate soil complexing, additional testing to further evaluate this option is not proposed. This treatment process does not include extraction or removal of contaminants and provides source control only through immobilization. Because this technology does not involve treatment consisting of extraction or destruction, it could not be utilized to reduce contaminant concentrations of characteristic hazardous waste for treatment as non-hazardous material in combination with recycling. Previously referenced RCRA regulations (40 CFR 268.45) state that characteristic hazardous material may not be managed as non-hazardous material if contaminant concentrations are reduced to non-hazardous levels through immobilization.

7.0 RECOMMENDATIONS

This chapter presents recommendations regarding remediation of soil within the Ballfields Area at Area B and the Soil Gas Anomaly. These recommendations are based on the conclusions presented in Chapter 6.0 of this report and the conclusions and recommendations of previous Dames & Moore reports detailing the results of investigations performed at the Ballfields Area. Section 7.1 presents the recommended remedial processes for treatment of soil at Area B and the Soil Gas Anomaly, including characterization of soil in each of these areas. Section 7.2 discusses the performance of pilot-scale treatability studies of selected remedial processes/technologies that may be conducted prior to initiating remediation using the recommended remedial process detailed in Section 7.1.

7.1 RECOMMENDED REMEDIAL PROCESSES

Based upon the results of contaminant characterization sampling and analyses and treatability studies and evaluations conducted during the RAP/IMWP and previous investigations, remediation of contaminants in soil at the Ballfields Area will involve two phases of work:

- Characterization of Ballfields Area Soil
- Treatment of Contaminated Soil

Each of these phases of work is discussed in detail in subsections 7.1.1 and 7.1.2.

7.1.1 Characterization of Ballfields Area Soil

Prior to implementing the selected remedial options, a complete characterization of soil within Area B and the Soil Gas Anomaly will be conducted. The characterization will involve sample collection and laboratory analysis to determine contaminant concentrations and the limits of the areas that require remediation. These data will determine the type and level of remediation that is required. Soil characterization for Area B and the Soil Gas Anomaly are discussed in the subsections 7.1.1.1 and 7.1.1.2, and recommended remedial processes are discussed in subsections 7.1.2.

7.1.1.1 Area B

Characterization of soil within the Area B soil mound will involve segregating material that appears to be unaffected by hydrocarbons contamination (based on visual observation and field monitoring with an instrument capable of detecting the presence of organic vapors) from material that exhibits positive indications of soil contamination. Based on observations made and information recorded during excavating conducted for the RAP/IMWP and previous investigations, portions of Area B are likely not contaminated to the degree that soil remediation is required. These areas primarily consist of the southern and eastern quarters of the soil mound. However, additional areas that do not appear to be adversely impacted by contaminants will also be segregated from the contaminated deposits.

Following segregation of soil present within Area B, each type of material segregated will be individually sampled to assess contaminant concentrations. A representative

composite sample from each segregated pile will be submitted for laboratory analyses. The soil pile that is believed to be unaffected by waste deposition in this area will be analyzed for only TPH to assess whether contaminant levels require remediation. Material that contains visual or instrument indications of hydrocarbon contamination will be analyzed for TCLP benzene and TPH to determine the waste characteristics and the appropriate treatment process or combination of processes to address this material.

7.1.1.2 Soil Gas Anomaly

As discussed in this report, the results of previous investigations indicate that contaminated material present in the Soil Gas Anomaly exists primarily as discrete pockets of black-stained hydrocarbon material. The pockets of contaminated soil and waste material occur intermittently across the Soil Gas Anomaly, typically present at approximately 2 feet below ground surface and extending to various depths. Soil characterization for the Soil Gas Anomaly will focus on determining contaminant concentrations for each individual pocket of material requiring remediation.

The initial phase of soil characterization will involve the removal of surficial topsoil and vegetation from the Soil Gas Anomaly to expose the contaminated soil areas (pockets). The removal of this surficial material will likely be conducted using a bulldozer. Soil will be removed in successive six-inch intervals until the pockets of contaminated material are exposed. Any material removed during surficial bulldozing that appears to be contaminated should be separated from the clean topsoil and characterized. A composite sample of this material will be collected and laboratory analyzed to confirm that contaminants are not present at levels that require remediation.

After exposing the areas of contaminated soil and waste materials, a representative composite sample will be collected and submitted for laboratory analyses to determine the waste characteristics (hazardous versus non-hazardous) of each individual waste material area and the appropriate method of remediation. Each sample collected will be analyzed for only TCLP benzene and TPH concentrations. The results of sampling and laboratory analyses conducted during the RAP/IMWP and several previous investigations indicate that the necessity, degree, and type of soil and waste material remediation required is controlled by the TPH concentrations and the presence or absence of benzene in TCLP extracts at concentrations above 0.5 mg/l.

7.1.2 Treatment of Contaminated Soil

The recommended remedial actions involve the treatment of contaminated soil and waste material on the basis of the results of the characterization of Ballfields Area soil, as discussed in subsection 7.1.1. The type of treatment required will be based on the characteristics of the waste material within Area B and the Soil Gas Anomaly, and will be primarily controlled by the results of laboratory analyses for TCLP benzene concentrations. Subsections 7.1.2.1 and 7.1.2.2 discuss the recommended remedial action for material that exhibits non-hazardous and hazardous waste characteristics, respectively,

7.1.2.1 Non-Hazardous Waste Material

The recommended remedial action for soil and waste material that exhibits the characteristics of a non-hazardous waste is recycling. Recycling will likely involve the excavation of material and the transport of excavated materials to a recycler for thermal destruction of organic contaminants. Thermal destruction will reduce organic constituent and TPH concentrations to levels less than those specified by PADER to be classified as clean fill material (Level A), thereby providing source control and inhibiting future liability. Following excavation and treatment, remediated areas will be backfilled with certified clean fill material. Clean fill will consist of either treated soil following remediation or, in the case of the brick making recycling process, the use of off-site sources of fill material.

Although the recycling treatment process does not reduce or destroy inorganic constituents, the residual material generated as a result of recycling (bricks or fill material) binds the inorganic constituents in the treated matrix, reducing the leachability and mobility of the metals. The results of ground water sampling and analysis conducted at the Ballfields Area indicate that metals present in soil and waste material in this area have not adversely impacted ground water quality. Therefore, remediation to further address metals is not a concern.

7.1.2.2 Hazardous Waste Material

Soil and waste material that exhibits the characteristics of a hazardous waste based on the results of soil characterization sampling and analysis will be pretreated to reduce contaminant concentrations to non-hazardous levels. Following pretreatment and verification of material classification as non-hazardous, remediation will involve recycling, which provides the most effective means of source control and reduction in contaminant concentrations. Recycling will involve the process described in the previous subsection.

Based on available data and information, the levels of pretreatment required and the volume of soil requiring pretreatment are minimal. Only benzene concentrations in TCLP extracts of a limited number of samples collected during the RAP/IMWP exceed corresponding hazardous waste classification criteria, and concentrations detected only marginally exceeded the criteria. Therefore, pretreatment will likely involve in-situ VE. Ex-situ versus in-situ treatment using VE will be dependent upon permitting requirements. Following pretreatment, the material would be remediated by recycling to achieve the PADER cleanup criteria for classification of treated soil as clean fill material.

7.2 PILOT-SCALE EVALUATION OF SELECTED REMEDIAL PROCESSES

Based on the results of the treatability studies conducted during the RAP/IMWP and the results of the June 3, 1991, matrix evaluation, the following other remedial processes may be potentially viable options for remediating soil at the Ballfields:

- Ex-situ vacuum extraction/bioventing
- Low Temperature Thermal Desorption
- Fluid Bed Steam Stripping
- Soil Washing

The ex-situ vacuum extraction/bioventing and low temperature thermal desorption treatment processes were determined to be potentially applicable process options through bench-scale treatability tests (VE/bioventing only) and the June 3, 1991, matrix evaluation that were conducted prior to the RAP/IMWP. The remaining process options were evaluated during the RAP/IMWP treatability studies.

The results of preliminary evaluations indicate that treatment of Ballfields Area soil using each of these remedial processes will provide a reduction in contaminant concentrations. However, none of the treatability tests or evaluations conducted provide sufficient data and information to conclusively indicate that these remedial processes are viable options for addressing soil contamination at source areas in the Ballfields. Therefore, detailed pilot-scale evaluations of these remedial processes and technologies may be considered to further evaluate potential remedial alternatives. Because the results of treatability evaluations conducted for the recycling remediation processes were conclusive, this process will not be evaluated further.

Each treatability test conducted will focus on determining the ability of a particular remedial process to reduce benzene levels in TCLP extracts to less than hazardous waste classification criteria and to remediate TPH concentrations in treated soil to less than 100 mg/kg (Level B) or 10 mg/kg (Level A). These concentrations represent criteria established by PADER for the classification of soil following treatment to reduce organic and hydrocarbon contaminant concentrations. The pilot-scale treatability data obtained will be used to determine:

- The duration of time required to remediate soil within Area B and the Soil Gas Anomaly to the specified levels
- The volume of additional waste material generated, if any, that will require further treatment as a result of this remedial process and how that material will be handled
- Performance standards for soil remediation
- The contaminant concentration reductions that can be achieved
- Costs

In addition to the above-referenced factors, each remedial process and treatment technology evaluated will be screened to assess other factors associated with implementation including permitting and regulatory issues. In particular, with regard to VE/bioventing, the permitting requirements for ex-situ treatment of characteristic hazardous waste will be evaluated versus the permitting requirements for the recommended in-situ VE treatment.

8.0 CLOSURE

The selection of recycling and in-situ VE followed by recycling as the recommended remedial actions for contaminants in soil at the Ballfields Area is based on the results of numerous investigations and treatment technology evaluations. Pending PADER/EPA approval of recycling as the selected remedial action to address the Ballfields Area, a detailed work plan will be prepared that presents the scope of work, schedule, and costs associated with implementing the recommended remedial actions, including the complete characterization of soil within Area B and the Soil Gas Anomaly.

During PADER/USEPA review of this report, pilot-scale studies to further evaluate the other remedial processes may be initiated. If the results of any pilot-scale studies that may be conducted indicate that a remedial process or combination of processes other than those recommended provides an increased level of environmental protection, the results of these studies will be provided to PADER/USEPA.

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TABLE 1

ANALYTICAL DATA SUMMARY - DETECTED COMPOUNDS
AREA B - BALLFIELDS

CHEVRON REFINERY
PHILADELPHIA, PENNSYLVANIA

	B-TP1A	B-TP2A	B-TP3A	B-TB5A	Hazardous Waste Threshold Concentrations
RCRA CHARACTERISTICS					
Reactivity (mg/kg)					
Sulfide	4.3	117	29	2.1	500[1]
Cyanide	ND	ND	ND	ND	250[1]
Corrosivity (pH)	6.8	7.8	8.6	8.2	2>pH>12
Ignitability (°F)	>200	145	142	>200	-[2]
TPH (mg/kg)	4,100	34,900	57,500	39,800	
PCB (mg/kg)	ND	ND	ND	ND	
Total Organic Halides (mg/kg)	85	199	ND	29	
TOTAL VOCS (mg/kg)					
n-Butylbenzene	1.0	2.0	13	ND	--
sec-Butylbenzene	1.5	ND	8.1	ND	--
tert-Butylbenzene	2.9	ND	8.4	ND	--
Isopropylbenzene	5.3	17	39	ND	--
p-Isopropyltoluene	3.5	ND	6.9	ND	--
n-Propylbenzene	1.2	3.9	22	ND	--
Benzene	ND	21	21	ND	--
Ethylbenzene	ND	7.4	27	ND	--
1,2,4-Trimethylbenzene	ND	1.5	45	ND	--
Xylene, Total	ND	1.7	41	ND	--
Toluene	ND	ND	2.9	ND	--
1,3,5-Trimethylbenzene	ND	ND	26	ND	--
TCLP VOC (mg/l)					
Benzene	ND	0.99	0.86	ND	0.5[3]
SEMIVOLATILE ORGANIC COMPOUNDS (B/N EXTRACTABLE COMPOUNDS) (mg/kg)					
Acenaphthene	3.2	25	52	4.3	--
Anthracene	2.5	51	52	6.7	--
2-Methylnaphthalene	34.0	268	1,250	11	--
Phenanthrene	11.0	214	363	6.8	--
Pyrene	3.3	197	11	9.2	--

TABLE 1
(Continued)

ANALYTICAL DATA SUMMARY - DETECTED COMPOUNDS
AREA B - BALLFIELDS

CHEVRON REFINERY
PHILADELPHIA, PENNSYLVANIA

	B-TP1A	B-TP2A	B-TP3A	B-TB5A	Hazardous Waste Threshold Concentrations
Benzo(a)anthracene	ND	73	8.6	3.5	--
Benzo(b)fluoranthene	ND	37	ND	ND	--
Benzo(g,h,i)perylene	ND	61	ND	ND	--
Benzo(a)pyrene	ND	81	ND	ND	--
Chrysene	ND	174	25	ND	--
Dibenz(a,h)anthracene	ND	27	ND	ND	--
7,12-Dimethylbenz(a)anthracene	ND	54	ND		--
Fluoranthene	ND	24	11	4.8	--
Fluorene	ND	84	239	3.2	--
Indeno(1,2,3-cd)pyrene	ND	23	ND	ND	--
Naphthalene	ND	97	242	3.8	--
TCLP EXTRACTABLE METALS (mg/l)					
Barium	0.94	ND	0.82	0.75	100.0[3]
Lead	0.24	ND	ND	ND	5.0[3]

Explanation:

ND - Not detected at a concentration greater than the laboratory method detection limit
mg/kg - Milligrams per kilogram
mg/l - Milligrams per liter
-- - No limit available

Notes:

1. Interim threshold value for toxic gas generation reactivity based on April 1990 USEPA memo.

2. The RCRA characteristic of ignitability is applicable to only liquid matrices.

3. Represents maximum concentration of contaminants for Toxicity Characteristic.

TABLE 2

ANALYTICAL DATA SUMMARY - DETECTED COMPOUNDS
SOIL GAS ANOMALY-BALLFIELDS

CHEVRON REFINERY
PHILADELPHIA, PENNSYLVANIA

	SGA-TP2A	SGA-TP2B	SGA-TP3A	SGA-TP3B	HAZARDOUS WASTE THRESHOLD CONCENTRATIONS
RCRA CHARACTERISTICS					
Reactivity (mg/kg)					
Sulfide	15	200	26	6.1	500[1]
Cyanide	ND	ND	ND	ND	250[1]
Corrosivity (pH)	8.4	6.9	8.3	8.0	2>pH>12
Ignitability (°F)	143	115	145	>200	-[2]
TPH (mg/kg)	92,800	156,000	234,000	44,600	--
PCB (mg/kg)	ND	ND	ND	ND	--
Total Organic Halides (mg/kg)	328	35	39	158	--
TOTAL VOCS (mg/kg)					
Benzene	9.3	0.75	11	3.1	--
n-Butylbenzene	10	8.7	15	7.1	--
tert-Butylbenzene	3.4	1.1	1.7	0.66	--
Ethylbenzene	1.8	1.3	28	ND	--
Isopropylbenzene	13	11	26	4.5	--
n-Propylbenzene	19	13	26	10	--
Toluene	0.79	0.68	1.3	0.54	--
1,2,4-Trimethylbenzene	1.3	3.9	1.1	2.2	--
Xylene, Total	2.4	3.2	2.0	1.9	--
sec-Butylbenzene	ND	3.1	5.9	2.2	--
1,3,5-Trimethylbenzene	ND	1.1	ND	0.79	--
Chlorobenzene	ND	ND	ND	0.50	--
p-Isopropyltoluene	ND	ND	ND	0.65	--
TCLP VOC (mg/l)					
Benzene	0.46	0.04	0.32	0.12	0.5[3]
SEMIVOLATILE ORGANIC COMPOUNDS (B/N EXTRACTABLE COMPOUNDS) (mg/kg)					
Acenaphthene	142	57	210	31	--
Anthracene	86	39	104	32	--

TABLE 2
(Continued)

ANALYTICAL DATA SUMMARY - DETECTED COMPOUNDS
SOIL GAS ANOMALY-BALLFIELDS

CHEVRON REFINERY
PHILADELPHIA, PENNSYLVANIA

	SGA-TP2A	SGA-TP2B	SGA-TP3A	SGA-TP3B	HAZARDOUS WASTE THRESHOLD CONCENTRATIONS
Benzo(a)anthracene	15	7.6	15	5.9	--
Benzo(a)pyrene	16	ND	16	ND	--
Chrysene	37	21	53	15	--
Fluoranthene	19	7.7	25	4.2	--
Fluorene	427	142	936	39	--
2-Methylnapthalene	2,090	899	2,820	670	--
Naphthalene	53	77	450	131	--
Phenanthrene	675	290	917	198	--
Pyrene	65	35	74	25	--
Benzo(b)fluoranthene	ND	ND	16	ND	--
TCLP EXTRACTABLE METALS (mg/l)					
Barium	1.3	0.62	0.88	1.1	100.0[3]
Lead	ND	0.62	ND	ND	5.0[3]
Chromium	ND	ND	ND	0.21	5.0[3]
Mercury	ND	ND	ND	ND	0.2[3]

TABLE 2

ANALYTICAL DATA SUMMARY - DETECTED COMPOUNDS
SOIL GAS ANOMALY-BALLFIELDS

CHEVRON REFINERY
PHILADELPHIA, PENNSYLVANIA

	SGA-TP3C	SGA-TP4A	SGA-TP5A	SGA-TP6A	SGA-SOIL	HAZARDOUS WASTE THRESHOLD CONCENTRATIONS
RCRA CHARACTERISTICS						
Reactivity (mg/kg)						
Sulfide	22	ND	ND	4.8	ND	500[1]
Cyanide	ND	ND	ND	ND	ND	250[1]
Corrosivity (pH)	7.0	8.6	7.9	7.5	5.5	2>pH>12
Ignitability (°F)	>200	>200	>200	>200	>200	-[2]
TPH (mg/kg)	30,000	43,100	4,830	114,000	235	--
PCB (mg/kg)	ND	ND	ND	ND	ND	--
Total Organic Halides (mg/kg)	59	28	46	71	ND	--
TOTAL VOCS (mg/kg)						
Benzene	40	ND	0.53	8.8	ND	--
n-Butylbenzene	8.4	ND	1.3	3.4	ND	--
tert-Butylbenzene	5.0	ND	ND	ND	ND	--
Ethylbenzene	15	ND	2.6	7.9	ND	--
Isopropylbenzene	8.9	ND	0.81	8.8	ND	--
n-Propylbenzene	12	ND	1.8	5.1	ND	--
Toluene	1.5	ND	ND	1.3	ND	--
1,2,4-Trimethylbenzene	30	ND	2.5	15	ND	--
Xylene, Total	6.7	ND	1.9	26	ND	--
sec-Butylbenzene	2.6	ND	ND	1.5	ND	--
1,3,5-Trimethylbenzene	9.1	ND	1.4	7.8	ND	--
Chlorobenzene	ND	ND	ND	ND	ND	--
p-Isopropyltoluene	1.6	ND	ND	1.4	ND	--
TCLP VOC (mg/l)						
Benzene	1.1	ND	0.03	0.24	ND	0.5[3]
SEMIVOLATILE ORGANIC COMPOUNDS (B/N EXTRACTABLE COMPOUNDS) (mg/kg)						
Acenaphthene	7.6	3.9	ND	45	ND	--
Anthracene	12	6.5	6.6	63	ND	--
Benzo(a)anthracene	ND	ND	ND	35	ND	--

TABLE 2
(Continued)
ANALYTICAL DATA SUMMARY - DETECTED COMPOUNDS
SOIL GAS ANOMALY-BALLFIELDS

CHEVRON REFINERY
PHILADELPHIA, PENNSYLVANIA

	SGA-TP3C	SGA-TP4A	SGA-TP5A	SGA-TP6A	SGA-SOIL	HAZARDOUS WASTE THRESHOLD CONCENTRATIONS
Benzo(a)pyrene	ND	ND	ND	ND	ND	--
Chrysene	ND	ND	ND	72	ND	--
Fluoranthene	ND	ND	ND	11	ND	--
Fluorene	83	4.0	13	39	ND	--
2-Methylnapthalene	28	15	80	311	ND	--
Naphthalene	15	ND	23	97	ND	--
Phenanthrene	49	22	23	212	ND	--
Pyrene	4.4	10	3.2	23	ND	--
Benzo(b)fluoranthene	ND	ND	ND	ND	ND	--
TCLP EXTRACTABLE METALS (mg/l)						
Barium	1.1	ND	0.55	ND	ND	100.0[3]
Lead	ND	ND	0.24	0.44	ND	5.0[3]
Chromium	ND	ND	0.05	ND	ND	5.0[3]
Mercury	ND	ND	ND	0.008	ND	0.2[3]

Explanation:

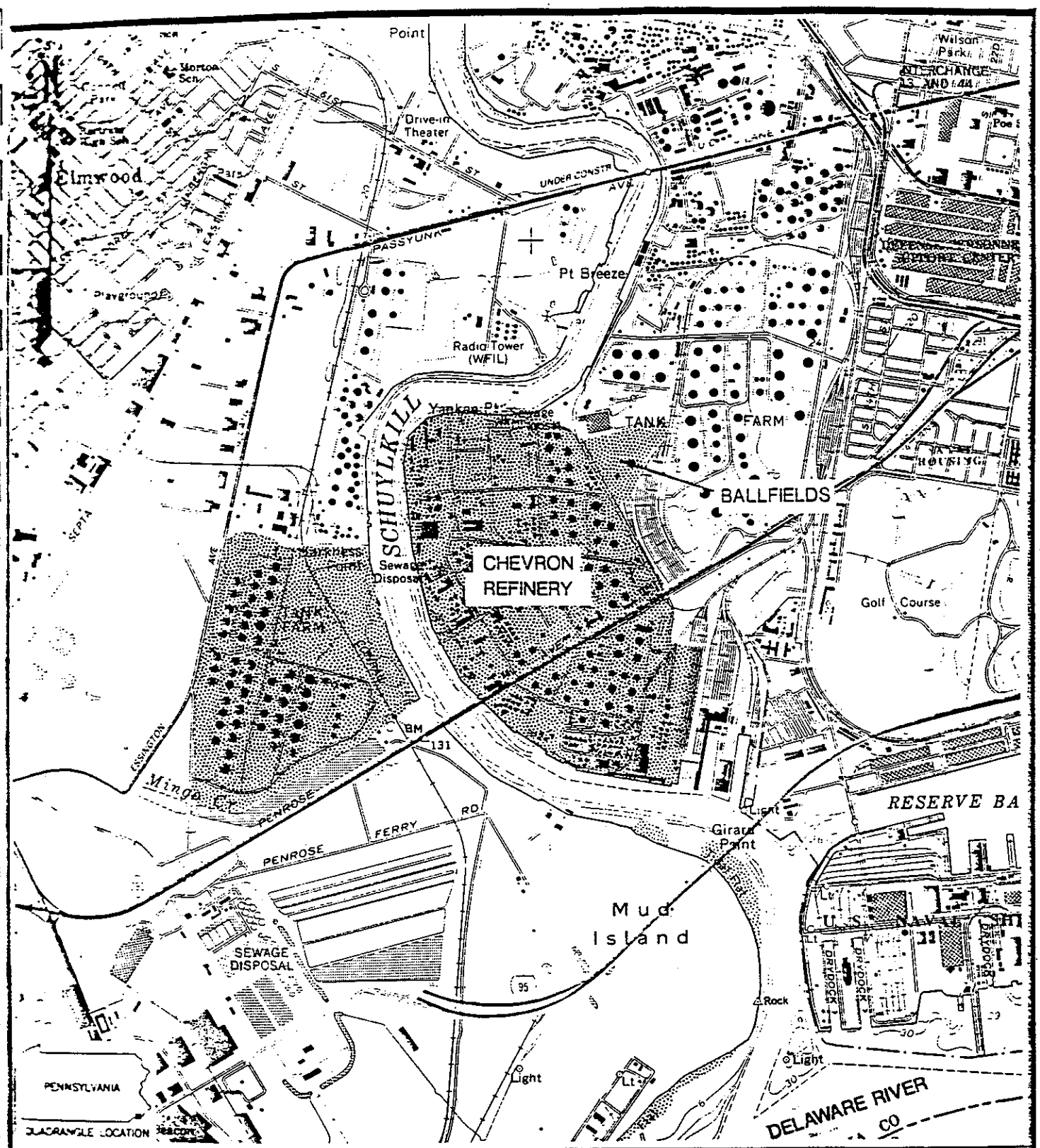
ND - Not detected at a concentration greater than the laboratory method detection limit
mg/kg - Milligrams per kilogram
mg/l - Milligrams per liter
-- - No limit available

Notes:

1. Interim threshold value for toxic gas generation reactivity based on April 1990 USEPA memo.

2. The RCRA characteristic of ignitability is applicable to only liquid matrices.

3. Represents maximum concentration of contaminants for Toxicity Characteristic.



TITLE

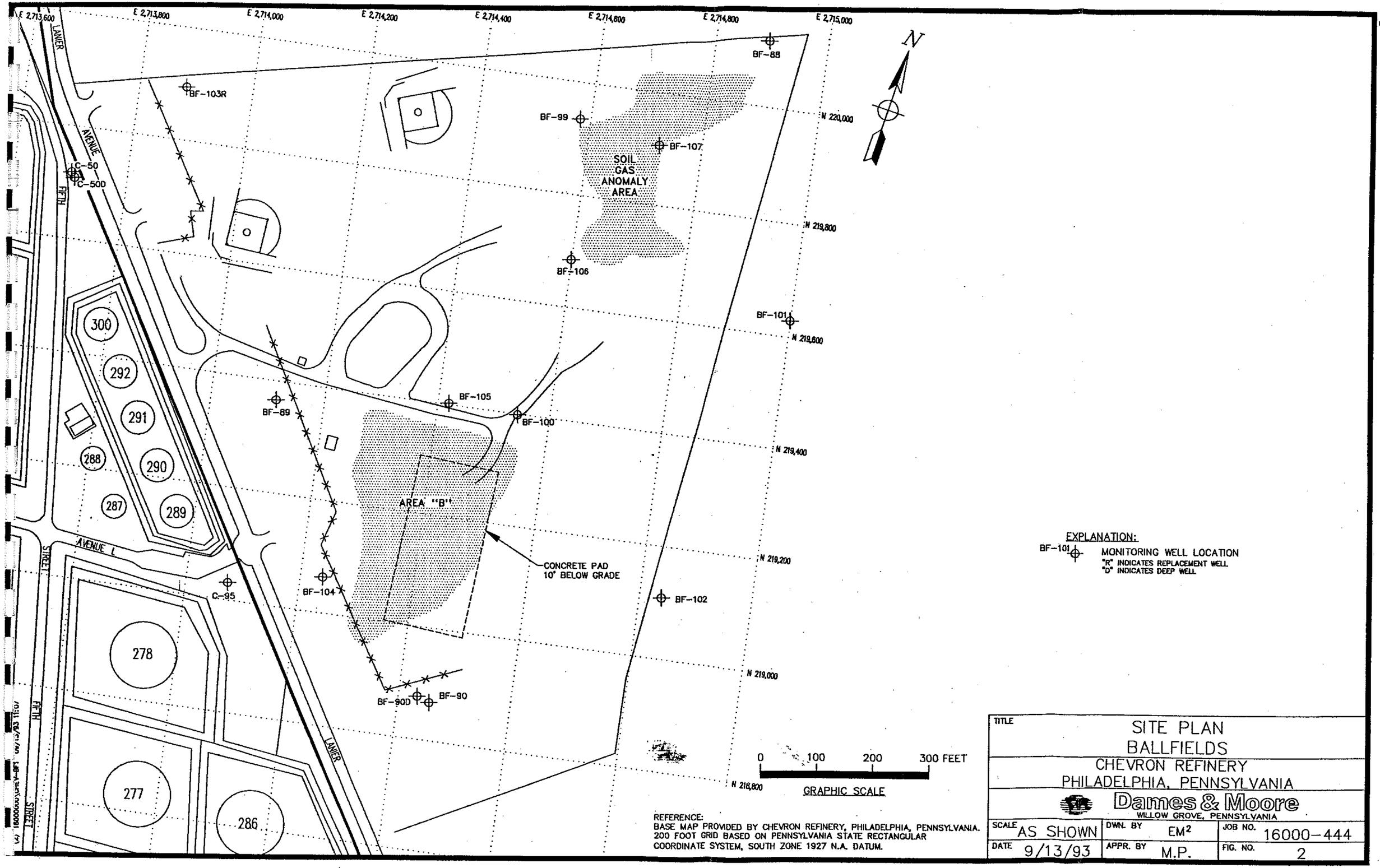
SITE VICINITY MAP

PROJECT

CHEVRON REFINERY
PHILADELPHIA, PENNSYLVANIA

Dames & Moore
WILLOW GROVE, PENNSYLVANIA

SCALE	AS SHOWN	DWN. BY	EM²	JOB NO.	16000-422
DATE	2/17/92	APPR. BY	TJG	FIG. NO.	1

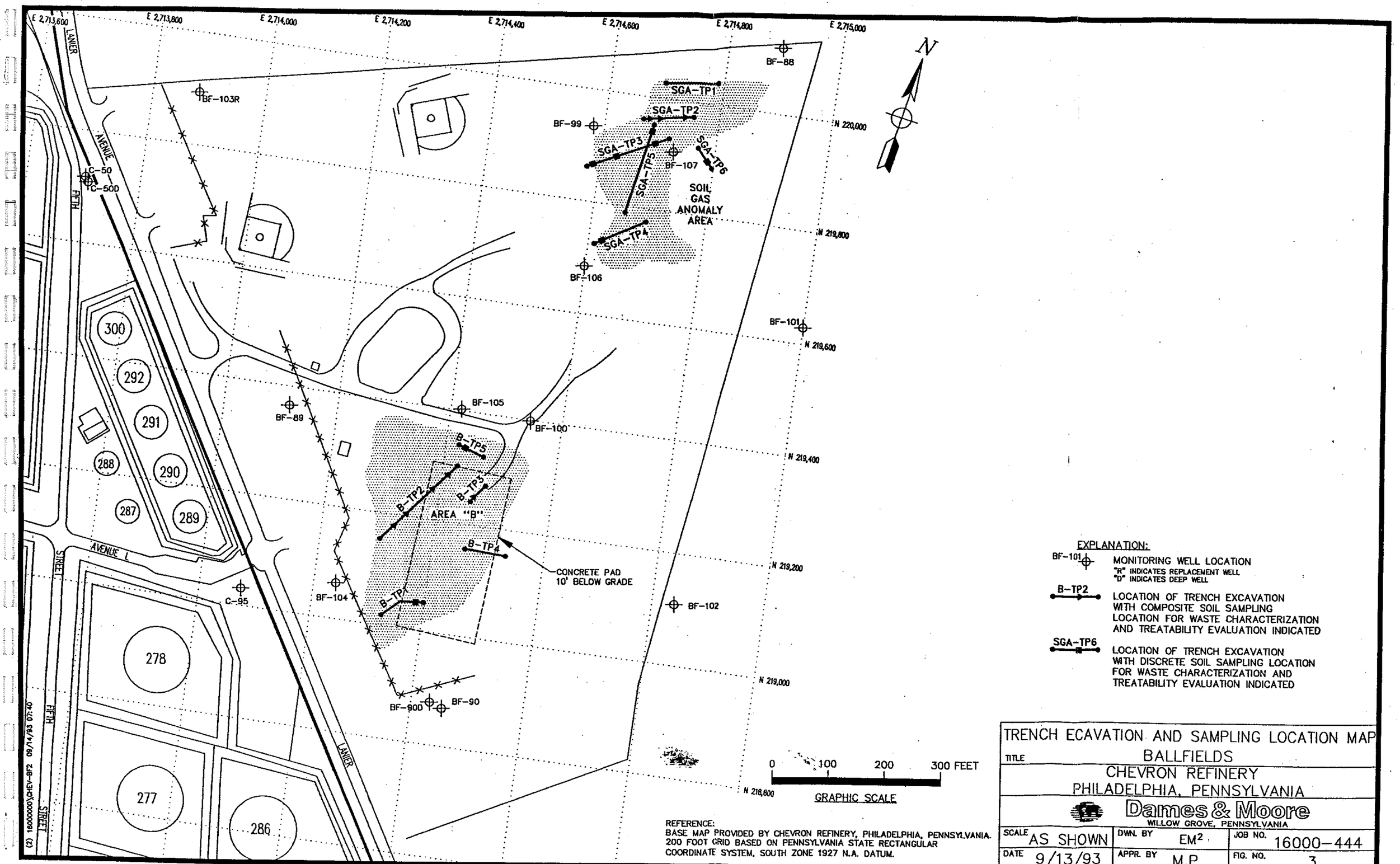


EXPLANATION:

BF-101 MONITORING WELL LOCATION
"R" INDICATES REPLACEMENT WELL
"D" INDICATES DEEP WELL

REFERENCE:
BASE MAP PROVIDED BY CHEVRON REFINERY, PHILADELPHIA, PENNSYLVANIA.
200 FOOT GRID BASED ON PENNSYLVANIA STATE RECTANGULAR COORDINATE SYSTEM, SOUTH ZONE 1927 N.A. DATUM.

TITLE	SITE PLAN BALLFIELDS CHEVRON REFINERY PHILADELPHIA, PENNSYLVANIA		
	Dames & Moore WILLOW GROVE, PENNSYLVANIA		
SCALE AS SHOWN	DWN. BY EM²	JOB NO. 16000-444	
DATE 9/13/93	APPR. BY M.P.	FIG. NO. 2	



EXPLANATION:

- BF-101 — MONITORING WELL LOCATION
  "R" INDICATES REPLACEMENT WELL
  "D" INDICATES DEEP WELL
- B-TP2 — LOCATION OF TRENCH EXCAVATION WITH COMPOSITE SOIL SAMPLING LOCATION FOR WASTE CHARACTERIZATION AND TREATABILITY EVALUATION INDICATED
- SGA-TP6 — LOCATION OF TRENCH EXCAVATION WITH DISCRETE SOIL SAMPLING LOCATION FOR WASTE CHARACTERIZATION AND TREATABILITY EVALUATION INDICATED

REFERENCE:
BASE MAP PROVIDED BY CHEVRON REFINERY, PHILADELPHIA, PENNSYLVANIA.
200 FOOT GRID BASED ON PENNSYLVANIA STATE RECTANGULAR COORDINATE SYSTEM, SOUTH ZONE 1927 N.A. DATUM.

TRENCH ECAVATION AND SAMPLING LOCATION MAP

TITLE: BALLFIELDS
CHEVRON REFINERY
PHILADELPHIA, PENNSYLVANIA

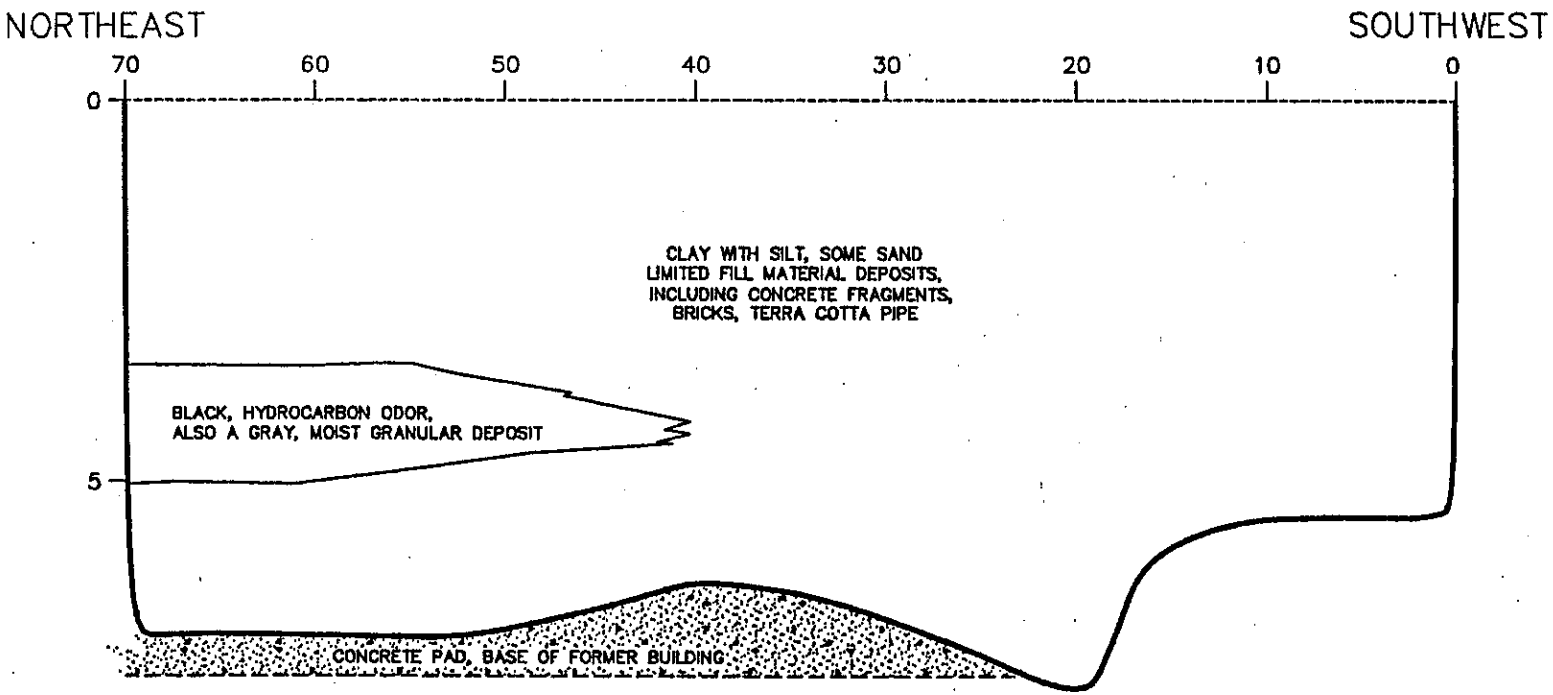
Dames & Moore
WILLOW GROVE, PENNSYLVANIA

SCALE	DWN. BY	JOB NO.
AS SHOWN	EM²	16000-444
DATE 9/13/93	APPR. BY M.P.	FIG. NO. 3

APPENDIX A

TEST TRENCH DIAGRAMS

SOUTH FACE OF TRENCH B-TP1
AREA B
BALLFIELDS RAP/IMWP



EXPLANATION:

---------- GROUND SURFACE

APPROXIMATE LIMITS OF EXCAVATION

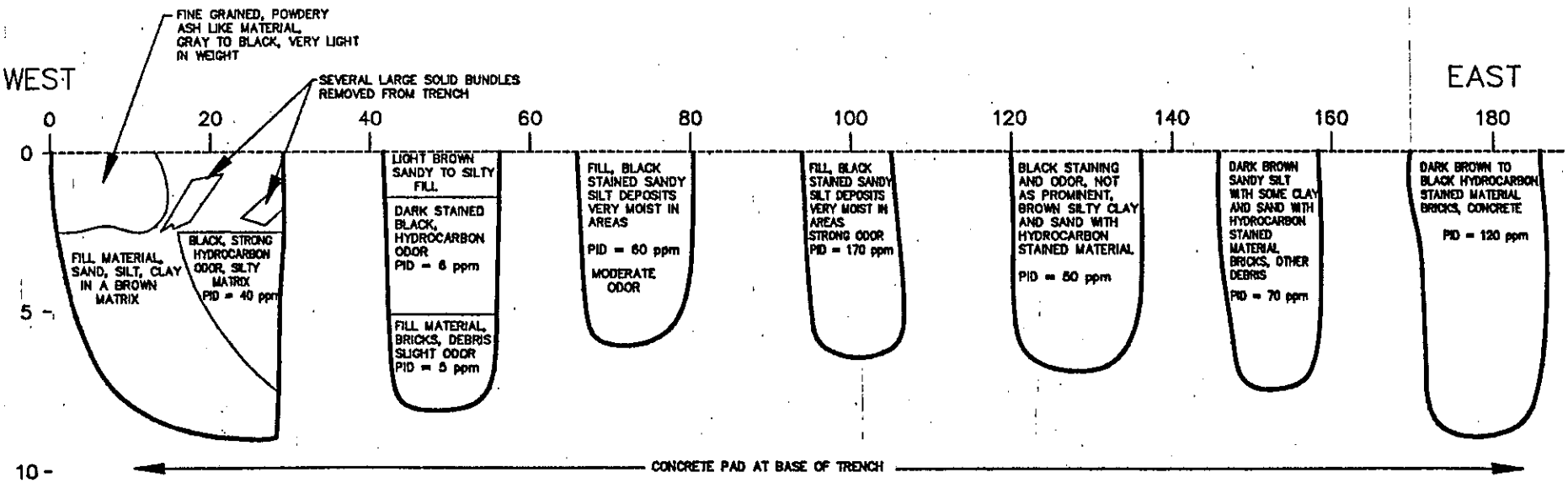
NOTES:

1. SCALE: 1"=10.0'
2. VERTICAL EXAGGERATION: 4X
3. SURFACE CONDITIONS: VEGETATION, VARIABLE TOPOGRAPHY
4. MAXIMUM PID READING: 0 ppm
5. ORIENTATION OF TRENCH EXCAVATION ALTERED AT APPROXIMATELY 37 FEET FROM SOUTHWEST END BY 45° TO A NEARLY WEST TO EAST DIRECTION.

(1) 16000000\B-TP1 09/13/93 08:53

TITLE: SOUTH FACE OF TRENCH B-TP1			
PROJECT: CHEVRON REFINERY PHILADELPHIA, PENNSYLVANIA			
Dames & Moore WILLOW GROVE, PENNSYLVANIA			
SCALE: AS SHOWN	DWN. BY: EM²	JOB NO.: 16000-444	
DATE: 9/9/93	APPR. BY: M.P.	FIG. NO.	

NORTH FACE OF TRENCH B-TP2
AREA B
BALLFIELDS RAP/IMWP



NOTES:

1. SCALE: 1"=10.0'
2. VERTICAL EXAGGERATION: 4X
3. SURFACE CONDITIONS: ALTERNATE VEGETATIVE AND BARE AREAS WHERE VEGETATION IS ABSENT, GENTLY SLOPING
4. MAXIMUM PID READING: 170 ppm

EXPLANATION:

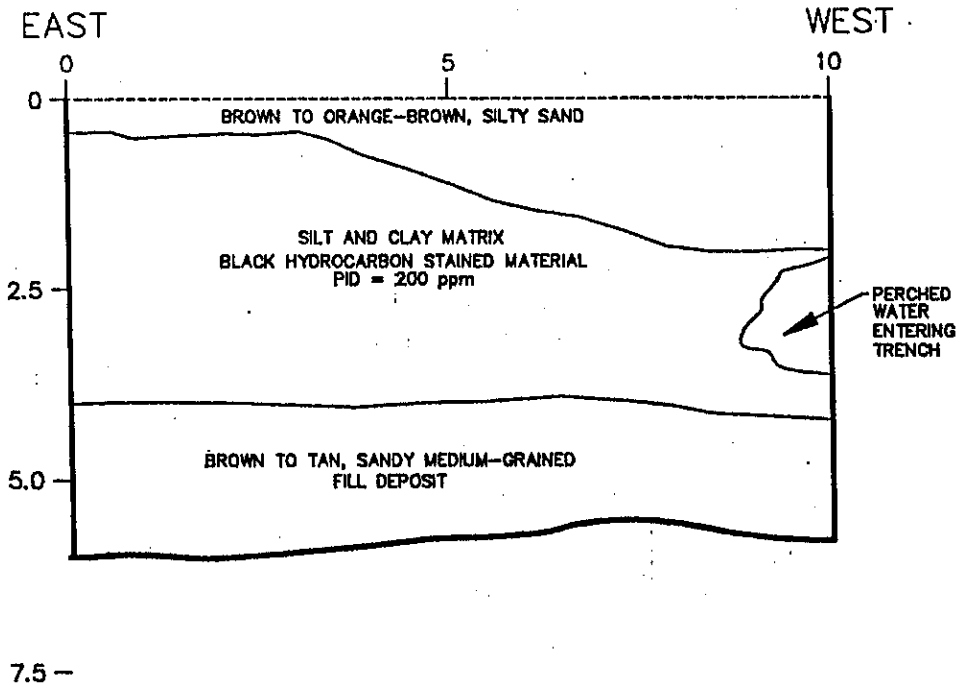
---------- GROUND SURFACE

APPROXIMATE LIMITS OF EXCAVATION

TITLE: NORTH FACE OF TRENCH B-TP2		
PROJECT: CHEVRON REFINERY PHILADELPHIA, PENNSYLVANIA		
Dames & Moore WILLOW GROVE, PENNSYLVANIA		
SCALE: AS SHOWN	DWN. BY: EM²	JOB NO.: 16000-444
DATE: 9/9/93	APPR. BY: M.P.	FIG. NO.

(2) 16000000\B-TP2 09/13/93 08:58

SOUTH FACE OF TRENCH B-TP3
AREA B
BALLFIELDS RAP/IMWP



EXPLANATION:

---------- GROUND SURFACE

APPROXIMATE LIMITS OF EXCAVATION

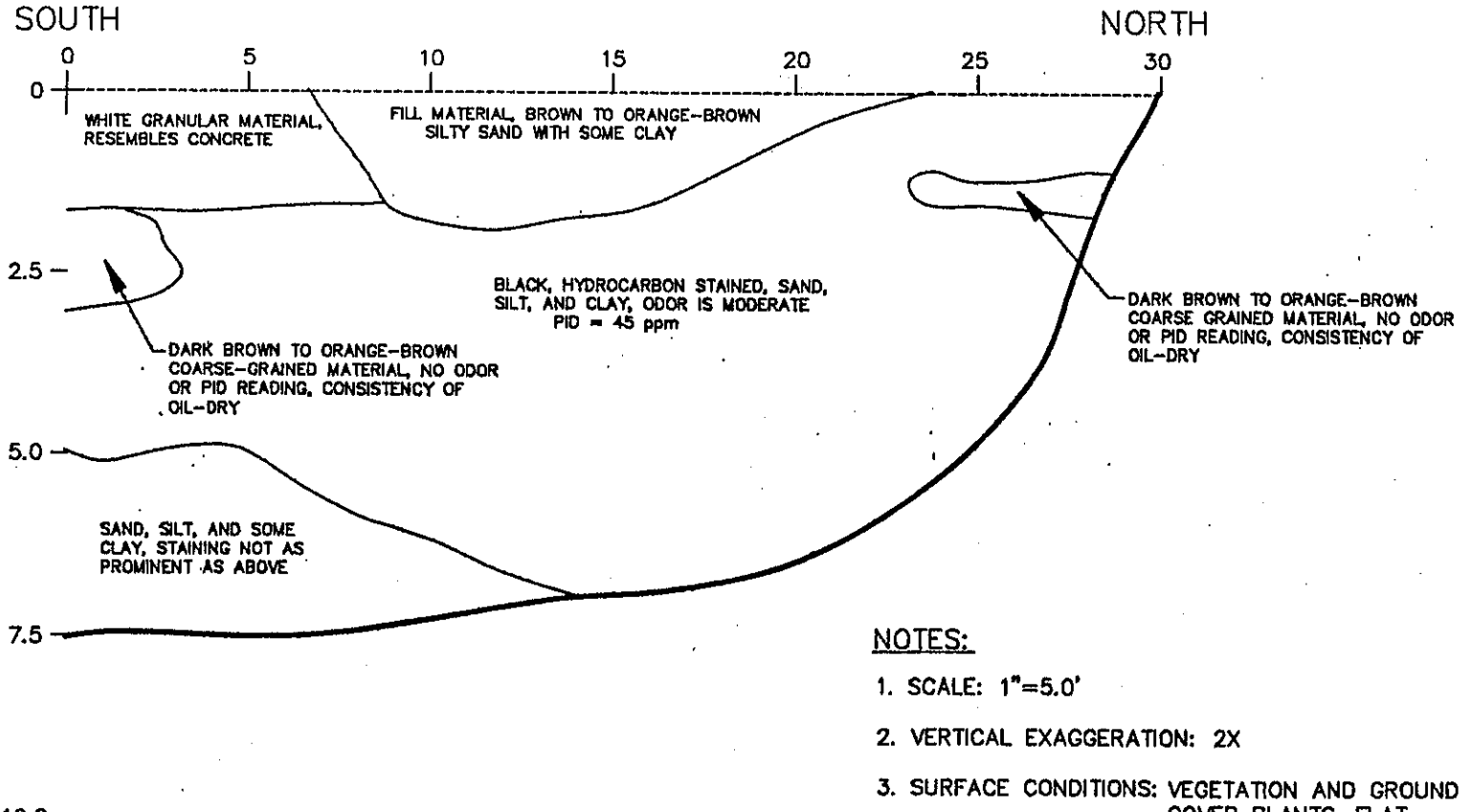
NOTES:

1. SCALE: 1"=5.0'
2. VERTICAL EXAGGERATION: 2X
3. SURFACE CONDITIONS: GRAVEL, VEGETATION ABSENT OR VERY LIMITED, NEAR ACCESS ROADWAY, GENTLY SLOPING EAST
4. MAXIMUM PID READING: 220 ppm

(2) 16000000\B-TP3 09/13/93 10:08

TITLE: SOUTH FACE OF TRENCH B-TP3			
PROJECT: CHEVRON REFINERY PHILADELPHIA, PENNSYLVANIA			
Dames & Moore WILLOW GROVE, PENNSYLVANIA			
SCALE: AS SHOWN	DWN. BY: EM²	JOB NO.: 16000-444	
DATE: 9/9/93	APPR. BY: M.P.	FIG. NO.	

SOUTHWEST FACE OF TRENCH B–TP5
AREA B
BALLFIELDS RAP/IMWP



NOTES:

1. SCALE: 1"=5.0'
2. VERTICAL EXAGGERATION: 2X
3. SURFACE CONDITIONS: VEGETATION AND GROUND COVER PLANTS, FLAT
4. MAXIMUM PID READING: 50 ppm

EXPLANATION:

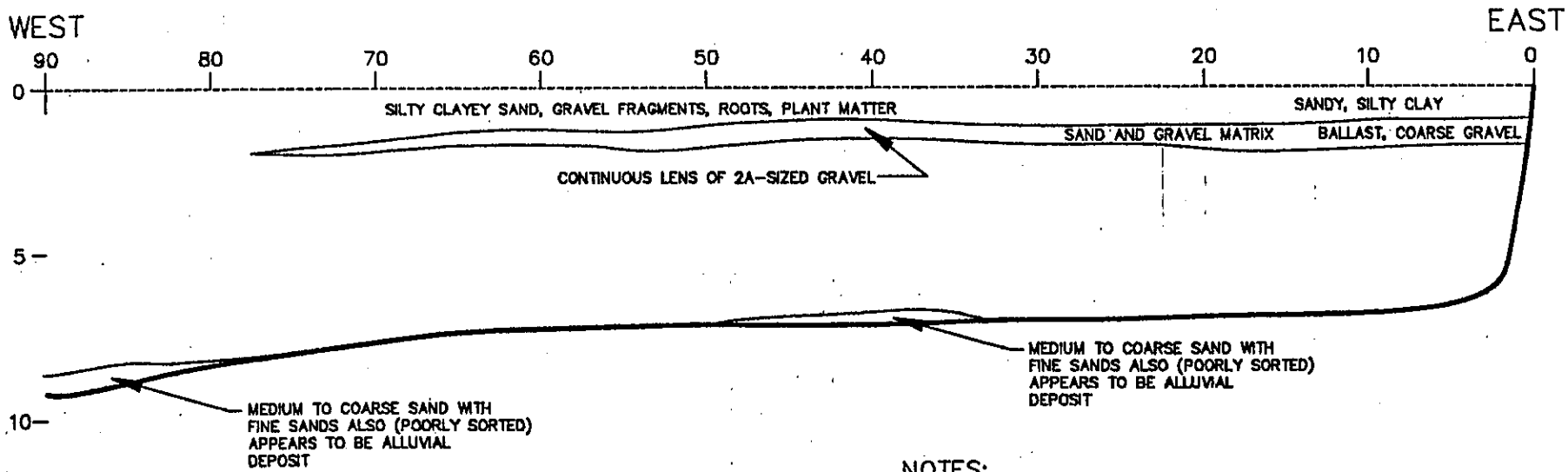
---------- GROUND SURFACE

APPROXIMATE LIMITS OF EXCAVATION

TITLE: SOUTHWEST FACE OF TRENCH B–TP5		
PROJECT: CHEVRON REFINERY PHILADELPHIA, PENNSYLVANIA		
Dames & Moore WILLOW GROVE, PENNSYLVANIA		
SCALE: AS SHOWN	DWN. BY: EM²	JOB NO.: 16000–444
DATE: 9/9/93	APPR. BY: M.P.	FIG. NO.

(3)16000000\B–TP5 09/13/93 10:12

NORTH FACE OF TRENCH SGA-TP1
SOIL GAS ANOMALY
BALLFIELDS RAP/IMWP



NOTES:

1. SCALE: 1"=10.0'
2. VERTICAL EXAGGERATION: 2X
3. SURFACE CONDITIONS: GRASS AND GROUND COVER VEGETATION, FLAT
4. MAXIMUM PID READING: 8 ppm

EXPLANATION:

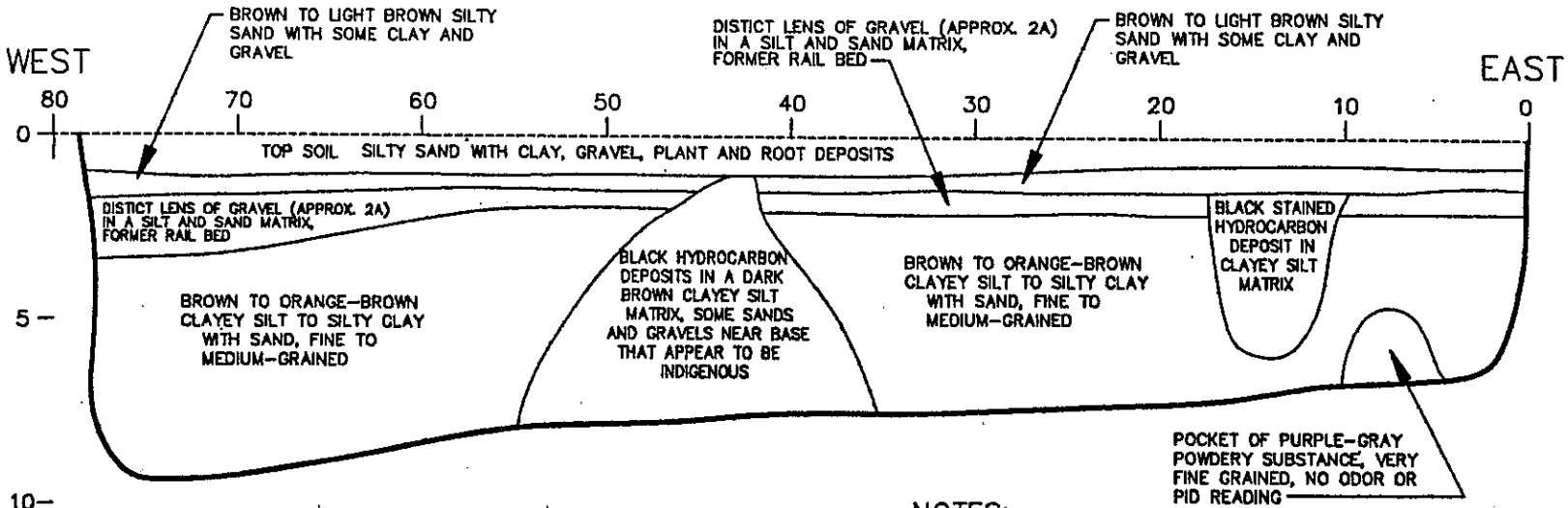
---------- GROUND SURFACE

APPROXIMATE LIMITS OF EXCAVATION

TITLE: NORTH FACE OF TRENCH SGA-TP1		
PROJECT: CHEVRON REFINERY PHILADELPHIA, PENNSYLVANIA		
Dames & Moore WILLOW GROVE, PENNSYLVANIA		
SCALE: AS SHOWN	DWN. BY: EM²	JOB NO.: 16000-444
DATE: 9/9/93	APPR. BY: M.P.	FIG. NO.

(2) 16000000\SGA-TP1. 09/13/93 09:03

NORTH FACE OF TRENCH SGA-TP2
SOIL GAS ANOMALY
BALLFIELDS RAP/IMWP



NOTES:

1. SCALE: 1"=10.0'
2. VERTICAL EXAGGERATION: 2X
3. SURFACE CONDITIONS: GRASS AND GROUND COVER VEGETATION, LOCALIZED AREAS WHERE GROUND COVER IS ABSENT, FLAT
4. MAXIMUM PID READING: 50 ppm

EXPLANATION:

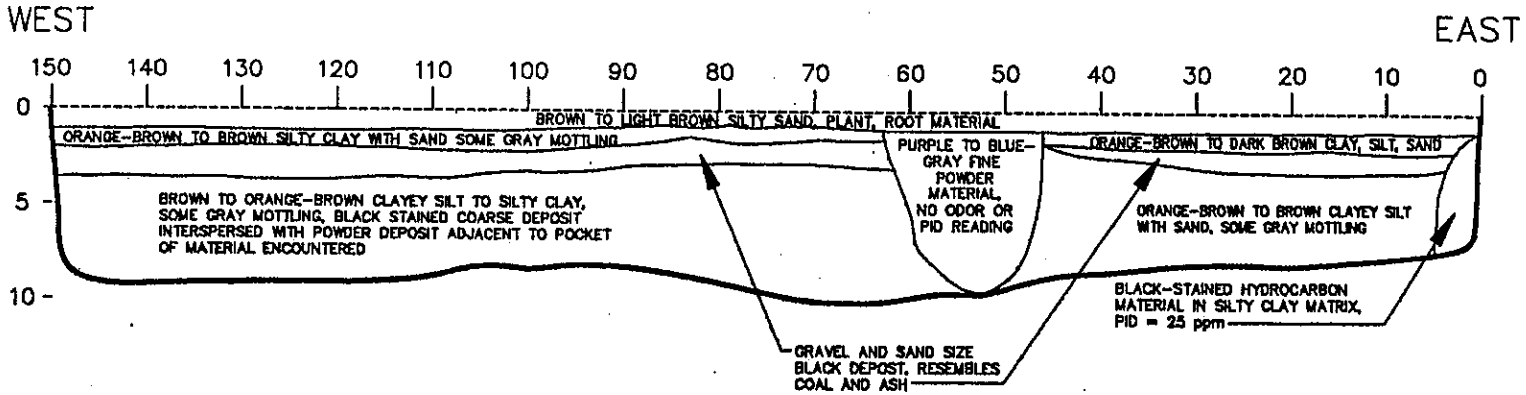
---------- GROUND SURFACE

APPROXIMATE LIMITS OF EXCAVATION

(3)16000000\SGA-TP2 09/13/93 09:14

TITLE: NORTH FACE OF TRENCH SGA-TP2		
PROJECT: CHEVRON REFINERY PHILADELPHIA, PENNSYLVANIA		
Dames & Moore WILLOW GROVE, PENNSYLVANIA		
SCALE: AS SHOWN	DWN. BY: EM²	JOB NO.: 16000-444
DATE: 9/9/93	APPR. BY: M.P.	FIG. NO.

NORTH FACE OF TRENCH SGA-TP3
SOIL GAS ANOMALY
BALLFIELDS RAP/IMWP



NOTES:

1. SCALE: .5"=10.0'
2. VERTICAL EXAGGERATION: 2X
3. SURFACE CONDITIONS: GRASS AND GROUND COVER VEGETATION, LOCALIZED AREAS OF NO VEGETATION COVER, FLAT
4. MAXIMUM PID READING: 40 ppm

EXPLANATION:

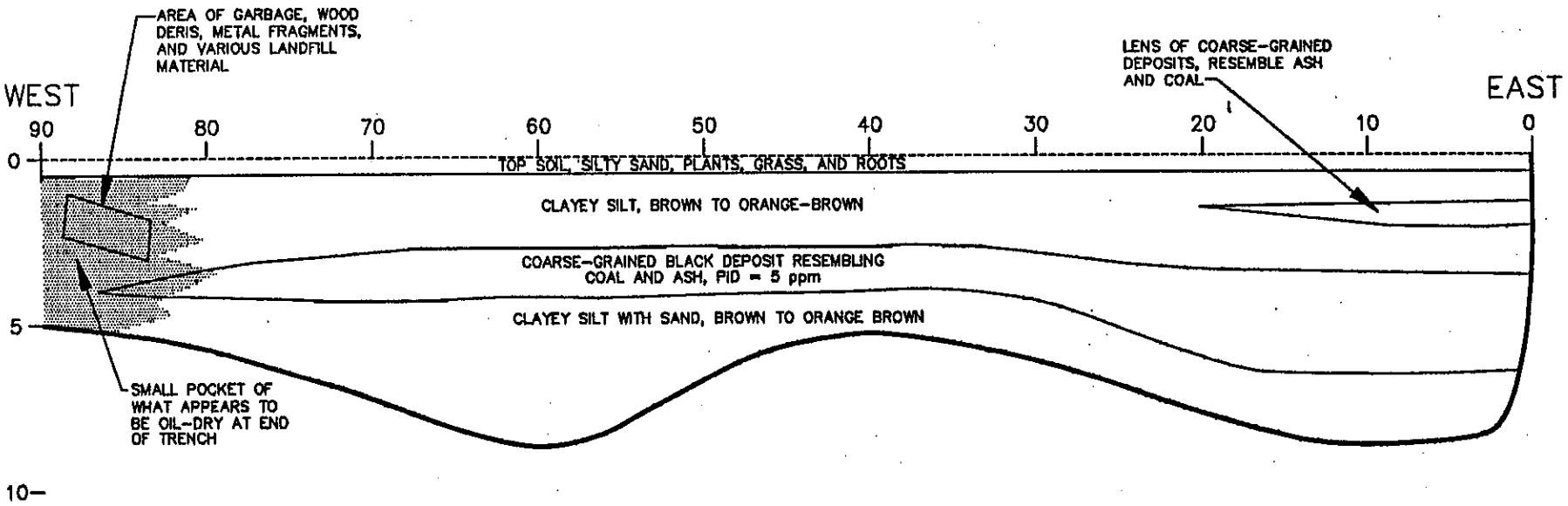
---------- GROUND SURFACE

APPROXIMATE LIMITS OF EXCAVATION

TITLE: NORTH FACE OF TRENCH SGA-TP3		
PROJECT: CHEVRON REFINERY PHILADELPHIA, PENNSYLVANIA		
Dames & Moore WILLOW GROVE, PENNSYLVANIA		
SCALE: AS SHOWN	DWN. BY: EM2	JOB NO.: 16000-444
DATE: 9/9/93	APPR. BY: M.P.	FIG. NO.

(3)16000000\SGA-TP3 09/13/93 09:25

NORTH FACE OF TRENCH SGA-TP4
SOIL GAS ANOMALY
BALLFIELDS RAP/IMWP



NOTES:

1. SCALE: 1"=10.0'
2. VERTICAL EXAGGERATION: 2X
3. SURFACE CONDITIONS: SPARSELY VEGETATED WITH GRASS AND GROUND COVER PLANTS, FLAT

EXPLANATION:

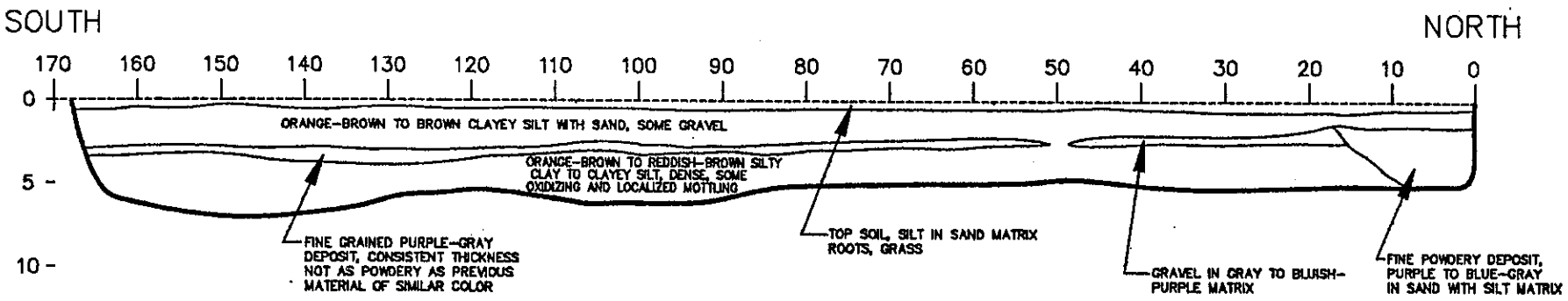
---------- GROUND SURFACE

APPROXIMATE LIMITS OF EXCAVATION

TITLE: NORTH FACE OF TRENCH SGA-TP4			
PROJECT: CHEVRON REFINERY PHILADELPHIA, PENNSYLVANIA			
Dames & Moore WILLOW GROVE, PENNSYLVANIA			
SCALE: AS SHOWN	DWN. BY: EM²	JOB NO.: 16000-444	
DATE: 9/9/93	APPR. BY: M.P.	FIG. NO.	

(2)16000000\SGA-TP4 09/13/93 08:59

WEST FACE OF TRENCH SGA-TP5
SOIL GAS ANOMALY
BALLFIELDS RAP/IMWP



NOTES:

1. SCALE: .5"=10.0'
2. VERTICAL EXAGGERATION: 2X
3. SURFACE CONDITIONS: GRASS AND GROUND COVER VEGETATION, FLAT
4. MAXIMUM PID READING: 20 ppm

EXPLANATION:

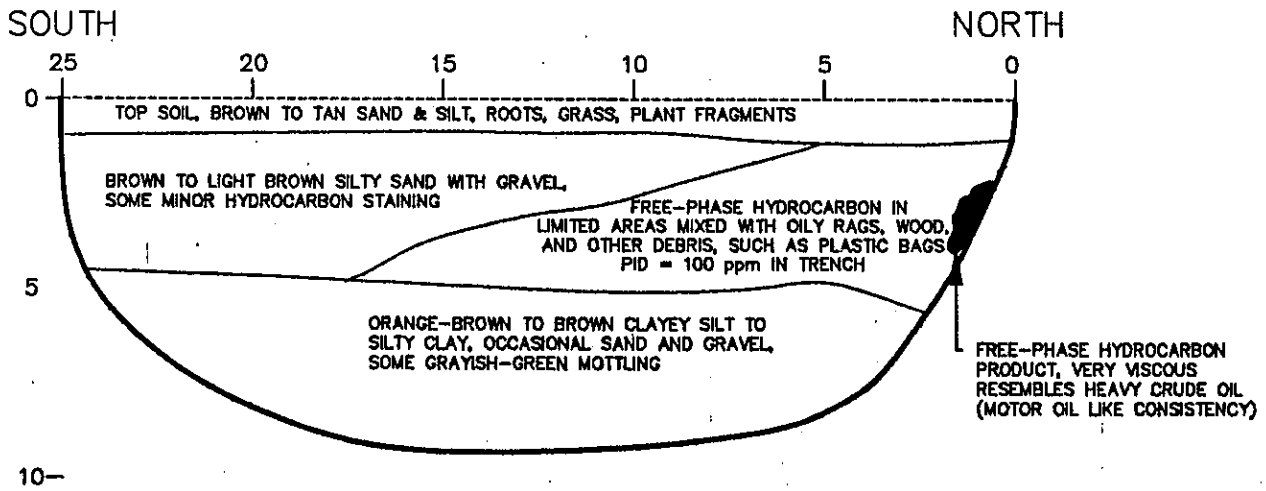
---------- GROUND SURFACE

APPROXIMATE LIMITS OF EXCAVATION

TITLE: WEST FACE OF TRENCH SGA-TP5		
PROJECT: CHEVRON REFINERY PHILADELPHIA, PENNSYLVANIA		
Dames & Moore WILLOW GROVE, PENNSYLVANIA		
SCALE: AS SHOWN	DWN. BY: EM²	JOB NO.: 16000-444
DATE: 9/9/93	APPR. BY: M.P.	FIG. NO.

(3)16000000\SGA-TP5 09/13/93 09:32

WEST FACE OF TRENCH SGA-TP6
SOIL GAS ANOMALY
BALLFIELDS RAP/IMWP



NOTES:

1. SCALE: 1"=5.0'
2. NO VERTICAL EXAGGERATION.
3. SURFACE CONDITIONS: SMALL AREA OF HYDROCARBON ON GROUND SURFACE, VEGETATION ABSENT, FLAT
4. MAXIMUM PID READING: 100 ppm

EXPLANATION:

---------- GROUND SURFACE

APPROXIMATE LIMITS OF EXCAVATION

TITLE: WEST FACE OF TRENCH SGA-TP6		
PROJECT: CHEVRON REFINERY PHILADELPHIA, PENNSYLVANIA		
Dames & Moore, WILLOW GROVE, PENNSYLVANIA		
SCALE: AS SHOWN	DWN. BY: EM²	JOB NO.: 16000-444
DATE: 9/9/93	APPR. BY: M.P.	FIG. NO.

(2)16000000\SGA-TP6 09/13/93 09:45

APPENDIX B

LABORATORY ANALYTICAL DATA

REPORT OF ANALYTICAL RESULTS

Case Number: D0623-02

Prepared for:

Dames & Moore
2325 Maryland Rd.
Willow Grove, PA 19090
Attn: Mark Piazza

Prepared by:

New England Testing Laboratory, Inc.
1254 Douglas Avenue
North Providence, RI 02904

Date Reported: 9 JULY 1993

Reviewed By: Mark H. Bishop
Laboratory Director

Sample Description

The following samples were submitted to New England Testing Laboratory on 23 JUNE 1993:

"Ballfields - Treatability Study Sampling"

1. B-TP1A
2. B-TP2A
3. B-TP3A
4. B-TP5A
5. SGA-TP2A
6. SGA-TP2B
7. SGA-TP3A
8. SGA-TP3B
9. SGA-TP3C
10. SGA-TP4A
11. SGA-TP5A
12. SGA-Soil
13. SGA-TP6A

The Custody record is included in this report. The samples were assigned an internal identification code (case number) for laboratory information management purposes. The case number for this sample submission is as follows:

Case Number: D0623-02

Request for Analysis

The following table details the analyses performed on the samples:

Sample	Analysis	Method*
D0623-02:		
1. B-TP1A	Corrosivity-pH	9040
2. B-TP2A	Reactivity-CN	Section 7.3.3.2
3. B-TP3A	S	Section 7.3.4.1
4. B-TP5A	Ignitability	1010
5. SGA-TP2A	TCLP Extraction	1311
6. SGA-TP2B	TC Volatiles	8240
7. SGA-TP3A	TC Semivolatiles	8270
8. SGA-TP3B	TC Pesticides	8080
9. SGA-TP3C	TC Herbicides	8150
10. SGA-TP4A	Arsenic	7060
11. SGA-TP5A	Barium	6010
12. SGA-Soil	Cadmium	6010
13. SGA-TP6A	Chromium	6010
	Lead	6010
	Mercury	7470
	Selenium	7740
	Silver	6010
	PCB's	8080
	TPH	418.1 mod.
	Total Organic Halogens	9020
	Total Solids/Moisture	EPA/CE 3-58
	VOC's	8240
	Semivolatiles	8270

*Note: These methods are documented in:

Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, USEPA.

Procedure for Handling and Chemical Analysis of Sediment and Water Samples," EPA/CE-81-1, US Army Engineer Waterways Experiment Station.

Quality Assurance/Control Statements

All samples were found to be properly preserved/cooled upon receipt. All analyses were performed within EPA designated holding times. Procedure/calibration checks required by the designated protocols were within control limits.

The following quality control check samples were analyzed in parallel with the submitted samples:

TCLP Matrix Spike Analysis: Sample B-TP2A

TC METALS

	Fortification, mg/l	Result, mg/l	Recovery, %
Arsenic	0.200	0.226	113
Barium	2.00	1.91	96
Cadmium	2.00	1.99	100
Chromium	2.00	1.92	96
Lead	2.00	1.96	98
Mercury	0.005	0.0051	102
Selenium	0.200	0.200	100
Silver	2.00	1.92	96

TC VOLATILE ORGANIC COMPOUNDS

	Fortification, mg/l	Result, mg/l	Recovery, %
1,1-Dichloroethene	0.2	0.130	64
Trichloroethene	0.2	0.170	85
Benzene	0.2	0.120	62
Chlorobenzene	0.2	0.170	85
Carbon Tetrachloride	0.2	0.160	80
Chloroform	0.2	0.230	119
1,2-Dichloroethane	0.2	0.160	80
Methyl Ethyl Ketone	0.4	0.250	61
Tetrachloroethylene	0.2	0.210	105
Vinyl Chloride	0.4	0.240	61
1,4-Dichlorobenzene	0.2	0.160	82

TCLP Matrix Spike Analysis: Sample B-TP2A

TC SEMIVOLATILE ORGANIC COMPOUNDS

	Fortification, mg/l	Result, mg/l	Recovery, %
Hexachlorobenzene	0.156	0.188	121
Hexachloro-1,3-butadiene	0.156	0.185	119
Hexachloroethane	0.156	0.099	63
Nitrobenzene	0.164	0.158	96
Pyridine	0.160	0.005	3.3
2,4-Dinitrotoluene	0.160	0.132	83
1,4-Dichlorobenzene	0.152	0.143	94
o-Cresol	0.164	0.163	99
m-Cresol	0.348	0.250	72
p-Cresol	0.348	0.250	72
Pentachlorophenol	0.200	0.186	93
2,4,5-Trichlorophenol	0.156	0.164	105
2,4,6-Trichlorophenol	0.152	0.180	118

PESTICIDES/HERBICIDES

	Fortification, mg/l	Result, mg/l	Recovery, %
Lindane	1.0	0.871	87
Endrin	1.0	1.03	103
Heptachlor	1.0	0.96	96
Methoxychlor	1.0	1.02	102
2,4-D	2.0	1.68	84
2,4,5-TP Silvex	2.0	1.16	58

Spike/Duplicate Analysis
Sample: B-TP2A

Compound	Actual Conc.	Percent Recovery MS	MSD	Percent RPD	QC Limits RPD	Recovery
1,1-Dichloroethene	12.5	82	77	7	20	59-172
Benzene	12.5	139	133	5	20	66-142
Toluene	12.5	106	98	8	20	59-139
Trichloroethene	12.5	111	107	4	20	62-137
Chlorobenzene	12.5	102	91	11	20	60-133

Spike/Duplicate Analysis
Sample: B-TP2A

Compound	Actual Conc.	Percent Recovery MS	MSD	Percent RPD	QC Limits RPD	Recovery
1,4-Dichlorobenzene	20	100	95	5	20	28-104
N-Nitroso-di-n-propyl.*	20	75	70	7	20	41-126
1,2,4-Trichlorobenzene	20	105	95	10	20	38-107
Acenaphthene	20	115	110	4	20	31-137
2,4-Dinitrotoluene	20	100	95	5	20	28-89
Pyrene	20	120	125	4	20	35-142
2-Chlorophenol	40	85	88	3	20	25-102
Phenol	40	75	78	3	20	26-90
4-Chloro-3-Methylphenol	40	78	83	6	20	26-103
4-Nitrophenol	40	50	58	14	20	11-114
Pentachlorophenol	40	25	28	10	20	17-109

* N-Nitroso-di-n-propylamine

TCLP Matrix Spike Analysis: Sample SGA-TP3B

TC METALS

	Fortification, mg/l	Result, mg/l	Recovery, %
Arsenic	0.200	0.192	96
Barium	2.00	2.95	92
Cadmium	2.00	1.99	100
Chromium	2.00	2.10	95
Lead	2.00	2.04	102
Mercury	0.005	0.005	100
Selenium	0.200	0.234	117
Silver	2.00	1.92	96

TC VOLATILE ORGANIC COMPOUNDS

	Fortification, mg/l	Result, mg/l	Recovery, %
1,1-Dichloroethene	0.2	0.130	64
Trichloroethene	0.2	0.160	84
Benzene	0.2	0.180	91
Chlorobenzene	0.2	0.170	85
Carbon Tetrachloride	0.2	0.200	100
Chloroform	0.2	0.240	120
1,2-Dichloroethane	0.2	0.160	82
Methyl Ethyl Ketone	0.4	0.270	68
Tetrachloroethylene	0.2	0.210	106
Vinyl Chloride	0.4	0.250	64
1,4-Dichlorobenzene	0.2	0.140	72

TCLP Matrix Spike Analysis: Sample SGA-TP3B

TC SEMIVOLATILE ORGANIC COMPOUNDS

	Fortification, mg/l	Result, mg/l	Recovery, %
Hexachlorobenzene	0.156	0.130	83
Hexachloro-1,3-butadiene	0.156	0.126	81
Hexachloroethane	0.156	0.103	66
Nitrobenzene	0.164	0.156	95
Pyridine	0.160	0.0002	0.1
2,4-Dinitrotoluene	0.160	0.166	104
1,4-Dichlorobenzene	0.152	0.118	78
o-Cresol	0.164	0.166	101
m-Cresol	0.348	0.248	71
p-Cresol	0.348	0.248	71
Pentachlorophenol	0.200	0.133	67
2,4,5-Trichlorophenol	0.156	0.188	121
2,4,6-Trichlorophenol	0.152	0.179	118

PESTICIDES/HERBICIDES

	Fortification, mg/l	Result, mg/l	Recovery, %
Lindane	1.0	0.597	60
Endrin	1.0	0.671	67
Heptachlor	1.0	0.660	66
Methoxychlor	1.0	0.683	68
2,4-D	2.0	1.65	82
2,4,5-TP Silvex	2.0	1.15	58

Case No. D0623-02

B-TP1A

Parameter	Result, mg/Kg
Reactivity	
Sulfide	4.3
Cyanide	<0.3
Corrosivity	
pH, S.U.	6.8
Ignitability, Deg. F	>200
Total Petroleum Hydrocarbons	4100
PCB's	<0.5
Total Organic Halides	85
Total Moisture, %	26
Total Solids, %	74

Sample: B-TP1A

Case No. D0623-02
Date Analyzed: 7/1/93

Subject: Volatile Organic Compounds
Method: EPA 8240

Compound	Concentration mg/Kg (ppm)	Reporting Limit
Acetone	N.D.	5
Benzene	N.D.	0.5
Bromochloromethane	N.D.	10
Bromodichloromethane	N.D.	0.5
Bromoform	N.D.	0.5
Bromomethane	N.D.	10
2-Butanone	N.D.	5
n-Butylbenzene	1.0	0.5
sec-Butylbenzene	1.5	0.5
tert-Butylbenzene	2.9	0.5
Carbon disulfide	N.D.	5
Carbon tetrachloride	N.D.	0.5
Chlorobenzene	N.D.	0.5
Chlorodibromomethane	N.D.	0.5
Chloroethane	N.D.	10
Chloroform	N.D.	0.5
Chloromethane	N.D.	10
2-Chlorotoluene	N.D.	0.5
4-Chlorotoluene	N.D.	0.5
Dibromomethane	N.D.	0.5
1,2-Dibromo-3-chloropropane	N.D.	0.5
1,2-Dibromoethane	N.D.	0.5
1,2-Dichlorobenzene	N.D.	0.5
1,3-Dichlorobenzene	N.D.	0.5
1,4-Dichlorobenzene	N.D.	0.5
Dichlorodifluoromethane	N.D.	0.5
1,1-Dichloroethane	N.D.	0.5
1,2-Dichloroethane	N.D.	0.5
1,1-Dichloroethene	N.D.	0.5
trans-1,2-Dichloroethene	N.D.	0.5
1,2-Dichloropropane	N.D.	0.5
cis-1,3-Dichloropropene	N.D.	0.5
trans-1,3-Dichloropropene	N.D.	0.5
1,4-Dioxane	N.D.	10
Ethanol	N.D.	10
Ethylbenzene	N.D.	0.5
Ethyl methacrylate	N.D.	10
2-Hexanone	N.D.	5
Isopropylbenzene	5.3	0.5
p-Isopropyltoluene	3.5	0.5
Methylene chloride	N.D.	2

Sample: B-TP1A

Case No. D0623-02

Compound	Concentration mg/Kg (ppm)	Reporting Limit
4-Methyl-2-pentanone	N.D.	5
n-Propylbenzene	1.2	0.5
Styrene	N.D.	0.5
1,1,1,2-Tetrachloroethane	N.D.	0.5
1,1,2,2-Tetrachloroethane	N.D.	0.5
Tetrachloroethene	N.D.	0.5
Toluene	N.D.	0.5
1,2,3-Trichlorobenzene	N.D.	0.5
1,1,1-Trichloroethane	N.D.	0.5
1,1,2-Trichloroethane	N.D.	0.5
Trichloroethene	N.D.	0.5
Trichlorofluoromethane	N.D.	0.5
1,2,3-Trichloropropane	N.D.	0.5
1,2,4-Trimethylbenzene	N.D.	0.5
1,3,5-Trimethylbenzene	N.D.	0.5
Vinyl acetate	N.D.	10
Vinyl chloride	N.D.	10
Xylene, Total	N.D.	0.5

Surrogates:

Compound	% Recovery	Limits
Toluene d8	97	81-117
1,2-Dichloroethane-d4	103	70-121
4 BFB	89	74-121

Sample: B-TP1A

Case No. D0623-02

Date TCLP Extracted: 6/23/93
Date Analyzed*: 6/29/93

TCLP Extractable Metals:	Result, mg/L	Regulatory Limit, mg/L
Arsenic	<0.1	5.0
Barium	0.94	100.0
Cadmium	<0.05	1.0
Chromium	<0.05	5.0
Lead	0.24	5.0
Mercury	<0.005	0.2
Selenium	<0.1	1.0
Silver	<0.05	5.0

* Date Completed

Sample: B-TP1A

Case No. D0623-02

Date TCLP Extracted: 6/25/93
Date Analyzed: 7/1/93

TCLP Volatile Organic Compounds:

Compound	Concentration mg/L (ppm)	Regulatory Limit, mg/L (ppm)
Benzene	<0.02	0.5
Carbon Tetrachloride	<0.02	0.5
Chlorobenzene	<0.02	100.0
Chloroform	<0.02	6.0
1,4-Dichlorobenzene	<0.02	7.5
1,2-Dichloroethane	<0.02	0.5
1,1-Dichloroethylene	<0.02	0.7
Methyl Ethyl Ketone (MEK)	<0.5	200.0
Tetrachloroethylene	<0.02	0.7
Trichloroethylene	<0.02	0.5
Vinyl Chloride	<0.04	0.2

Surrogates:	% Recovery	Limits
Toluene d8	95	88-110
1,2-Dichloroethane-d4	114	76-114
4-Bromofluorobenzene	103	86-115

Sample: B-TP1A

Case No. D0623-02

Date TCLP Extracted: 6/23/93
Date Prep Extracted: 6/30/93
Date Analyzed: 6/30/93

TCLP Semivolatile Base/Neutral Extractable Compounds:

Compound	Concentration mg/L (ppm)	Regulatory Limit, mg/L (ppm)
1,4-Dichlorobenzene	<0.05	7.5
Hexachlorobenzene	<0.05	0.13
Hexachloro-1,3-butadiene	<0.05	0.5
Hexachloroethane	<0.05	3.0
Nitrobenzene	<0.05	2.0
Pyridine	<0.05	5.0
2,4-Dinitrotoluene	<0.05	0.13

TCLP Semivolatile Acid Extractable Compounds:

Compound	Concentration mg/L (ppm)	Regulatory Limit, mg/L (ppm)
o-Cresol	<0.1	200.0
m-Cresol	<0.1	200.0
p-Cresol	<0.1	200.0
Pentachlorophenol	<0.1	100.0
2,4,5-Trichlorophenol	<0.1	400.0
2,4,6-Trichlorophenol	<0.1	2.0

Surrogates:	% Recovery	Limits
Nitrobenzene d5	83	35-114
2-Fluorobiphenyl	104	43-116
p-Terphenyl d14	114	33-141
Phenol d6	80	10-94
2-Fluorophenol	89	21-100
2,4,6-Tribromophenol	78	10-123

Case No. D0623-02

B-TP2A

Parameter	Result, mg/Kg
Reactivity	
Sulfide	117
Cyanide	<0.3
Corrosivity	
pH, S.U.	7.8
Ignitability, Deg. F	145
Total Petroleum Hydrocarbons	34,900
PCB's	<1.0
Total Organic Halides	199
Total Moisture, %	36
Total Solids, %	64

Sample: B-TP2A

Case No. D0623-02
Date Analyzed: 7/2/93

Subject: Volatile Organic Compounds
Method: EPA 8240

Compound	Concentration mg/Kg (ppm)	Reporting Limit
Acetone	N.D.	5
Benzene	21	0.5
Bromochloromethane	N.D.	10
Bromodichloromethane	N.D.	0.5
Bromoform	N.D.	0.5
Bromomethane	N.D.	10
2-Butanone	N.D.	5
n-Butylbenzene	2.0	0.5
sec-Butylbenzene	N.D.	0.5
tert-Butylbenzene	N.D.	0.5
Carbon disulfide	N.D.	5
Carbon tetrachloride	N.D.	0.5
Chlorobenzene	N.D.	0.5
Chlorodibromomethane	N.D.	0.5
Chloroethane	N.D.	10
Chloroform	N.D.	0.5
Chloromethane	N.D.	10
2-Chlorotoluene	N.D.	0.5
4-Chlorotoluene	N.D.	0.5
Dibromomethane	N.D.	0.5
1,2-Dibromo-3-chloropropane	N.D.	0.5
1,2-Dibromoethane	N.D.	0.5
1,2-Dichlorobenzene	N.D.	0.5
1,3-Dichlorobenzene	N.D.	0.5
1,4-Dichlorobenzene	N.D.	0.5
Dichlorodifluoromethane	N.D.	0.5
1,1-Dichloroethane	N.D.	0.5
1,2-Dichloroethane	N.D.	0.5
1,1-Dichloroethene	N.D.	0.5
trans-1,2-Dichloroethene	N.D.	0.5
1,2-Dichloropropane	N.D.	0.5
cis-1,3-Dichloropropene	N.D.	0.5
trans-1,3-Dichloropropene	N.D.	0.5
1,4-Dioxane	N.D.	10
Ethanol	N.D.	10
Ethylbenzene	7.4	0.5
Ethyl methacrylate	N.D.	10
2-Hexanone	N.D.	5
Isopropylbenzene	17	0.5
p-Isopropyltoluene	N.D.	0.5
Methylene chloride	N.D.	2

Sample: B-TP2A

Case No. D0623-02

Compound	Concentration mg/Kg (ppm)	Reporting Limit
4-Methyl-2-pentanone	N.D.	5
n-Propylbenzene	3.9	0.5
Styrene	N.D.	0.5
1,1,1,2-Tetrachloroethane	N.D.	0.5
1,1,2,2-Tetrachloroethane	N.D.	0.5
Tetrachloroethene	N.D.	0.5
Toluene	N.D.	0.5
1,2,3-Trichlorobenzene	N.D.	0.5
1,1,1-Trichloroethane	N.D.	0.5
1,1,2-Trichloroethane	N.D.	0.5
Trichloroethene	N.D.	0.5
Trichlorofluoromethane	N.D.	0.5
1,2,3-Trichloropropane	N.D.	0.5
1,2,4-Trimethylbenzene	1.5	0.5
1,3,5-Trimethylbenzene	N.D.	0.5
Vinyl acetate	N.D.	10
Vinyl chloride	N.D.	10
Xylene, Total	1.7	0.5

Surrogates:

Compound	% Recovery	Limits
Toluene d8	95	81-117
1,2-Dichloroethane-d4	109	70-121
4 BFB	87	74-121

Sample: B-TP2A

Case No. D0623-02
Date Extracted: 7/1/93
Date Analyzed: 7/2/93

Subject: Semivolatile Base/Neutral Extractable Compounds
Method: EPA 8270

Compound	Concentration, mg/Kg (ppm)	Reporting Limit
Acenaphthene	25	2
Acenaphthylene	N.D.	2
Acetophenone	N.D.	10
4-Aminobiphenyl	N.D.	10
Aniline	N.D.	10
Anthracene	51	2
Benzidine	N.D.	30
Benzo(a)anthracene	73	2
Benzo(b)fluoranthene	37	10
Benzo(k)fluoranthene	N.D.	10
Benzoic acid	N.D.	40
Benzo(g,h,i)perylene	61	10
Benzo(a)pyrene	81	10
Benzyl alcohol	N.D.	4
Bis(2-chloroethyl)ether	N.D.	4
Bis(2-chloroisopropyl)ether	N.D.	4
Bis(2-chloroethoxy)methane	N.D.	4
Bis(2-ethylhexyl) phthalate	N.D.	2
4-Bromophenyl phenyl ether	N.D.	4
Butyl benzyl phthalate	N.D.	4
4-Chloroaniline	N.D.	4
1-Chloronaphthalene	N.D.	4
2-Chloronaphthalene	N.D.	4
4-Chlorophenyl phenyl ether	N.D.	4
Chrysene	174	4
Dibenz(a,j)acridine	N.D.	40
Dibenz(a,h)anthracene	27	20
Dibenzofuran	N.D.	4
Di-n-butylphthalate	N.D.	2
1,2-Dichlorobenzene	N.D.	2
1,3-Dichlorobenzene	N.D.	2
1,4-Dichlorobenzene	N.D.	2
3,3'-Dichlorobenzidine	N.D.	20
Diethyl phthalate	N.D.	2
p-Dimethylaminoazobenzene	N.D.	4
7,12-Dimethylbenz(a)anthracene	54	20
Dimethylphenethylamine	N.D.	4
Dimethyl phthalate	N.D.	2
2,4-Dinitrotoluene	N.D.	4
2,6-Dinitrotoluene	N.D.	4
Di(n)octyl phthalate	N.D.	2
Diphenylamine	N.D.	20
1,2-Diphenylhydrazine	N.D.	20
Ethyl methanesulfonate	N.D.	4
Fluoranthene	24	2
Fluorene	84	2
Hexachlorobenzene	N.D.	10
Hexachlorobutadiene	N.D.	4
Hexachlorocyclopentadiene	N.D.	30
Hexachloroethane	N.D.	4
Indeno(1,2,3-cd)pyrene	23	10

Sample: B-TP2A

Case No. D0623-02

Compound	Concentration, mg/Kg (ppm)	Reporting Limit
Isophorone	N.D.	10
3-Methylcholanthrene	N.D.	20
Methyl methanesulfonate	N.D.	4
2-Methylnaphthalene	268	2
Naphthalene	97	2
1-Naphthylamine	N.D.	10
2-Naphthylamine	N.D.	10
2-Nitroaniline	N.D.	4
3-Nitroaniline	N.D.	4
4-Nitroaniline	N.D.	4
Nitrobenzene	N.D.	4
N-Nitrosodibutylamine	N.D.	10
N-Nitrosodimethylamine	N.D.	10
N-Nitrosodiphenylamine	N.D.	20
N-Nitroso-di-n-propylamine	N.D.	10
N-Nitrosopiperidine	N.D.	10
Pentachlorobenzene	N.D.	4
Pentachloronitrobenzene	N.D.	20
Phenacetin	N.D.	20
Phenanthrene	214	2
2-Picoline	N.D.	10
Pronamide	N.D.	20
Pyrene	197	2
1,2,4,5-Tetrachlorobenzene	N.D.	4
1,2,4-Trichlorobenzene	N.D.	2

Semivolatile Acid Extractable Compounds

Compound	Concentration, mg/Kg (ppm)	Reporting Limit
4-Chloro-3-methylphenol	N.D.	10
2-Chlorophenol	N.D.	2
2,4-Dichlorophenol	N.D.	10
2,6-Dichlorophenol	N.D.	10
2,4-Dimethylphenol	N.D.	2
4,6-Dinitro-2-methylphenol	N.D.	40
2,4-Dinitrophenol	N.D.	40
2-Methylphenol	N.D.	2
4-Methylphenol	N.D.	2
2-Nitrophenol	N.D.	20
4-Nitrophenol	N.D.	20
Pentachlorophenol	N.D.	20
Phenol	N.D.	2
2,3,4,6-Tetrachlorophenol	N.D.	10
2,4,5-Trichlorophenol	N.D.	10
2,4,6-Trichlorophenol	N.D.	10

Surrogates:

Compound	% Recovery	Limits
Nitrobenzene d5	109	23-120
2-Fluorobiphenyl	113	30-115
p-Terphenyl d14	85	18-137
Phenol d6	98	24-113
2,4,6-Tribromophenol	87	19-122
2-Fluorophenol	102	25-121

Sample: B-TP2A

Case No. D0623-02

Date TCLP Extracted: 6/23/93
Date Analyzed*: 6/29/93

TCLP Extractable Metals:	Result, mg/L	Regulatory Limit, mg/L
Arsenic	<0.1	5.0
Barium	<0.5	100.0
Cadmium	<0.05	1.0
Chromium	<0.05	5.0
Lead	<0.2	5.0
Mercury	<0.005	0.2
Selenium	<0.1	1.0
Silver	<0.05	5.0

* Date Completed

Sample: B-TP2A Case No.. D0623-02

Date TCLP Extracted: 6/23/93
Date Prep Extracted: 6/30/93
Date Analyzed: 7/1/93

TCLP Extractable Pesticides/Herbicides:

Compound	Concentration mg/L (ppm)	Regulatory Limit, mg/L (ppm)
Chlordane	<0.01	0.03
2,4-D	<0.05	10.0
Endrin	<0.001	0.02
Heptachlor	<0.001	0.008
Heptachlor Epoxide	<0.001	0.008
Lindane	<0.001	0.4
Methoxychlor	<0.005	10.0
Toxaphene	<0.01	0.5
2,4,5-TP Silvex	<0.05	1.0

Sample: B-TP2A Case No. D0623-02

Date TCLP Extracted: 6/23/93
Date Prep Extracted: 6/30/93
Date Analyzed: 6/30/93

TCLP Semivolatile Base/Neutral Extractable Compounds:

Compound	Concentration mg/L (ppm)	Regulatory Limit, mg/L (ppm)
1,4-Dichlorobenzene	<0.05	7.5
Hexachlorobenzene	<0.05	0.13
Hexachloro-1,3-butadiene	<0.05	0.5
Hexachloroethane	<0.05	3.0
Nitrobenzene	<0.05	2.0
Pyridine	<0.05	5.0
2,4-Dinitrotoluene	<0.05	0.13

TCLP Semivolatile Acid Extractable Compounds:

Compound	Concentration mg/L (ppm)	Regulatory Limit, mg/L (ppm)
o-Cresol	<0.1	200.0
m-Cresol	<0.1	200.0
p-Cresol	<0.1	200.0
Pentachlorophenol	<0.1	100.0
2,4,5-Trichlorophenol	<0.1	400.0
2,4,6-Trichlorophenol	<0.1	2.0

Surrogates:	% Recovery	Limits
Nitrobenzene d5	81	35-114
2-Fluorobiphenyl	104	43-116
p-Terphenyl d14	114	33-141
Phenol d6	54	10-94
2-Fluorophenol	71	21-100
2,4,6-Tribromophenol	83	10-123

Case No. D0623-02

B-TP3A

Parameter	Result, mg/Kg
Reactivity	
Sulfide	29
Cyanide	<0.3
Corrosivity	
pH, S.U.	8.6
Ignitability, Deg. F	142
Total Petroleum Hydrocarbons	57,500
PCB's	<0.5
Total Organic Halides	<10
Total Moisture, %	35
Total Solids, %	65

Sample: B-TP3A

Case No. D0623-02
Date Analyzed: 7/1/93

Subject: Volatile Organic Compounds
Method: EPA 8240

Compound	Concentration mg/Kg (ppm)	Reporting Limit
Acetone	N.D.	5
Benzene	21	0.5
Bromochloromethane	N.D.	10
Bromodichloromethane	N.D.	0.5
Bromoform	N.D.	0.5
Bromomethane	N.D.	10
2-Butanone	N.D.	5
n-Butylbenzene	13	0.5
sec-Butylbenzene	8.1	0.5
tert-Butylbenzene	8.4	0.5
Carbon disulfide	N.D.	5
Carbon tetrachloride	N.D.	0.5
Chlorobenzene	N.D.	0.5
Chlorodibromomethane	N.D.	0.5
Chloroethane	N.D.	10
Chloroform	N.D.	0.5
Chloromethane	N.D.	10
2-Chlorotoluene	N.D.	0.5
4-Chlorotoluene	N.D.	0.5
Dibromomethane	N.D.	0.5
1,2-Dibromo-3-chloropropane	N.D.	0.5
1,2-Dibromoethane	N.D.	0.5
1,2-Dichlorobenzene	N.D.	0.5
1,3-Dichlorobenzene	N.D.	0.5
1,4-Dichlorobenzene	N.D.	0.5
Dichlorodifluoromethane	N.D.	0.5
1,1-Dichloroethane	N.D.	0.5
1,2-Dichloroethane	N.D.	0.5
1,1-Dichloroethene	N.D.	0.5
trans-1,2-Dichloroethene	N.D.	0.5
1,2-Dichloropropane	N.D.	0.5
cis-1,3-Dichloropropene	N.D.	0.5
trans-1,3-Dichloropropene	N.D.	0.5
1,4-Dioxane	N.D.	10
Ethanol	N.D.	10
Ethylbenzene	27	0.5
Ethyl methacrylate	N.D.	10
2-Hexanone	N.D.	5
Isopropylbenzene	39	0.5
p-Isopropyltoluene	6.9	0.5
Methylene chloride	N.D.	2

Sample: B-TP3A

Case No. D0623-02

Compound	Concentration mg/Kg (ppm)	Reporting Limit
4-Methyl-2-pentanone	N.D.	5
n-Propylbenzene	22	0.5
Styrene	N.D.	0.5
1,1,1,2-Tetrachloroethane	N.D.	0.5
1,1,2,2-Tetrachloroethane	N.D.	0.5
Tetrachloroethene	N.D.	0.5
Toluene	2.9	0.5
1,2,3-Trichlorobenzene	N.D.	0.5
1,1,1-Trichloroethane	N.D.	0.5
1,1,2-Trichloroethane	N.D.	0.5
Trichloroethene	N.D.	0.5
Trichlorofluoromethane	N.D.	0.5
1,2,3-Trichloropropane	N.D.	0.5
1,2,4-Trimethylbenzene	45	0.5
1,3,5-Trimethylbenzene	26	0.5
Vinyl acetate	N.D.	10
Vinyl chloride	N.D.	10
Xylene, Total	41	0.5

Surrogates:

Compound	% Recovery	Limits
Toluene d8	81	81-117
1,2-Dichloroethane-d4	113	70-121
4 BFB	75	74-121

Sample: B-TP3A

Case No. D0623-02
Date Extracted: 7/1/93
Date Analyzed: 7/2/93

Subject: Semivolatile Base/Neutral Extractable Compounds
Method: EPA 8270

Compound	Concentration, mg/Kg (ppm)	Reporting Limit
Acenaphthene	52	2
Acenaphthylene	N.D.	2
Acetophenone	N.D.	10
4-Aminobiphenyl	N.D.	10
Aniline	N.D.	10
Anthracene	52	2
Benzidine	N.D.	30
Benzo(a)anthracene	8.6	2
Benzo(b)fluoranthene	N.D.	10
Benzo(k)fluoranthene	N.D.	10
Benzoic acid	N.D.	40
Benzo(g,h,i)perylene	N.D.	10
Benzo(a)pyrene	N.D.	10
Benzyl alcohol	N.D.	4
Bis(2-chloroethyl)ether	N.D.	4
Bis(2-chloroisopropyl)ether	N.D.	4
Bis(2-chloroethoxy)methane	N.D.	4
Bis(2-ethylhexyl) phthalate	N.D.	2
4-Bromophenyl phenyl ether	N.D.	4
Butyl benzyl phthalate	N.D.	4
4-Chloroaniline	N.D.	4
1-Chloronaphthalene	N.D.	4
2-Chloronaphthalene	N.D.	4
4-Chlorophenyl phenyl ether	N.D.	4
Chrysene	25	4
Dibenz(a,j)acridine	N.D.	40
Dibenz(a,h)anthracene	N.D.	20
Dibenzofuran	N.D.	4
Di-n-butylphthalate	N.D.	2
1,2-Dichlorobenzene	N.D.	2
1,3-Dichlorobenzene	N.D.	2
1,4-Dichlorobenzene	N.D.	2
3,3'-Dichlorobenzidine	N.D.	20
Diethyl phthalate	N.D.	2
p-Dimethylaminoazobenzene	N.D.	4
7,12-Dimethylbenz(a)anthracene	N.D.	20
Dimethylphenethylamine	N.D.	4
Dimethyl phthalate	N.D.	2
2,4-Dinitrotoluene	N.D.	4
2,6-Dinitrotoluene	N.D.	4
Di(n)octyl phthalate	N.D.	2
Diphenylamine	N.D.	20
1,2-Diphenylhydrazine	N.D.	20
Ethyl methanesulfonate	N.D.	4
Fluoranthene	11	2
Fluorene	239	2
Hexachlorobenzene	N.D.	10
Hexachlorobutadiene	N.D.	4
Hexachlorocyclopentadiene	N.D.	30
Hexachloroethane	N.D.	4
Indeno(1,2,3-cd)pyrene	N.D.	10

Sample: B-TP3A

Case No. D0623-02

Compound	Concentration, mg/Kg (ppm)	Reporting Limit
Isophorone	N.D.	10
3-Methylcholanthrene	N.D.	20
Methyl methanesulfonate	N.D.	4
2-Methylnaphthalene	1250	2
Naphthalene	242	2
1-Naphthylamine	N.D.	10
2-Naphthylamine	N.D.	10
2-Nitroaniline	N.D.	4
3-Nitroaniline	N.D.	4
4-Nitroaniline	N.D.	4
Nitrobenzene	N.D.	4
N-Nitrosodibutylamine	N.D.	10
N-Nitrosodimethylamine	N.D.	10
N-Nitrosodiphenylamine	N.D.	20
N-Nitroso-di-n-propylamine	N.D.	10
N-Nitrosopiperidine	N.D.	10
Pentachlorobenzene	N.D.	4
Pentachloronitrobenzene	N.D.	20
Phenacetin	N.D.	20
Phenanthrene	363	2
2-Picoline	N.D.	10
Pronamide	N.D.	20
Pyrene	11	2
1,2,4,5-Tetrachlorobenzene	N.D.	4
1,2,4-Trichlorobenzene	N.D.	2

Semivolatile Acid Extractable Compounds

Compound	Concentration, mg/Kg (ppm)	Reporting Limit
4-Chloro-3-methylphenol	N.D.	10
2-Chlorophenol	N.D.	2
2,4-Dichlorophenol	N.D.	10
2,6-Dichlorophenol	N.D.	10
2,4-Dimethylphenol	N.D.	2
4,6-Dinitro-2-methylphenol	N.D.	40
2,4-Dinitrophenol	N.D.	40
2-Methylphenol	N.D.	2
4-Methylphenol	N.D.	2
2-Nitrophenol	N.D.	20
4-Nitrophenol	N.D.	20
Pentachlorophenol	N.D.	20
Phenol	N.D.	2
2,3,4,6-Tetrachlorophenol	N.D.	10
2,4,5-Trichlorophenol	N.D.	10
2,4,6-Trichlorophenol	N.D.	10

Surrogates:

Compound	% Recovery	Limits
Nitrobenzene d5	108	23-120
2-Fluorobiphenyl	103	30-115
p-Terphenyl d14	96	18-137
Phenol d6	83	24-113
2,4,6-Tribromophenol	80	19-122
2-Fluorophenol	105	25-121

Sample: B-TP3A

Case No. D0623-02

Date TCLP Extracted: 6/23/93
Date Analyzed*: 6/29/93

TCLP Extractable Metals:	Result, mg/L	Regulatory Limit, mg/L
Arsenic	<0.1	5.0
Barium	0.82	100.0
Cadmium	<0.05	1.0
Chromium	<0.05	5.0
Lead	<0.2	5.0
Mercury	<0.005	0.2
Selenium	<0.1	1.0
Silver	<0.05	5.0

* Date Completed

Sample: B-TP3A Case No. D0623-02

Date TCLP Extracted: 6/25/93
Date Analyzed: 7/1/93

TCLP Volatile Organic Compounds:

Compound	Concentration mg/L (ppm)	Regulatory Limit, mg/L (ppm)
Benzene	0.86	0.5
Carbon Tetrachloride	<0.02	0.5
Chlorobenzene	<0.02	100.0
Chloroform	<0.02	6.0
1,4-Dichlorobenzene	<0.02	7.5
1,2-Dichloroethane	<0.02	0.5
1,1-Dichloroethylene	<0.02	0.7
Methyl Ethyl Ketone (MEK)	<0.5	200.0
Tetrachloroethylene	<0.02	0.7
Trichloroethylene	<0.02	0.5
Vinyl Chloride	<0.04	0.2

Surrogates:	% Recovery	Limits
Toluene d8	93	88-110
1,2-Dichloroethane-d4	113	76-114
4-Bromofluorobenzene	96	86-115

Sample: B-TP3A

Case No. D0623-02

Date TCLP Extracted: 6/23/93
Date Prep Extracted: 6/30/93
Date Analyzed: 7/1/93

TCLP Extractable Pesticides/Herbicides:

Compound	Concentration mg/L (ppm)	Regulatory Limit, mg/L (ppm)
Chlordane	<0.01	0.03
2,4-D	<0.05	10.0
Endrin	<0.001	0.02
Heptachlor	<0.001	0.008
Heptachlor Epoxide	<0.001	0.008
Lindane	<0.001	0.4
Methoxychlor	<0.005	10.0
Toxaphene	<0.01	0.5
2,4,5-TP Silvex	<0.05	1.0

Sample: B-TP3A Case No. D0623-02

Date TCLP Extracted: 6/23/93
Date Prep Extracted: 6/30/93
Date Analyzed: 6/30/93

TCLP Semivolatile Base/Neutral Extractable Compounds:

Compound	Concentration mg/L (ppm)	Regulatory Limit, mg/L (ppm)
1,4-Dichlorobenzene	<0.05	7.5
Hexachlorobenzene	<0.05	0.13
Hexachloro-1,3-butadiene	<0.05	0.5
Hexachloroethane	<0.05	3.0
Nitrobenzene	<0.05	2.0
Pyridine	<0.05	5.0
2,4-Dinitrotoluene	<0.05	0.13

TCLP Semivolatile Acid Extractable Compounds:

Compound	Concentration mg/L (ppm)	Regulatory Limit, mg/L (ppm)
o-Cresol	<0.1	200.0
m-Cresol	<0.1	200.0
p-Cresol	<0.1	200.0
Pentachlorophenol	<0.1	100.0
2,4,5-Trichlorophenol	<0.1	400.0
2,4,6-Trichlorophenol	<0.1	2.0

Surrogates:	% Recovery	Limits
Nitrobenzene d5	82	35-114
2-Fluorobiphenyl	102	43-116
p-Terphenyl d14	123	33-141
Phenol d6	54	10-94
2-Fluorophenol	70	21-100
2,4,6-Tribromophenol	77	10-123

Case No. D0623-02

B-TP5A

Parameter	Result, mg/Kg
Reactivity	
Sulfide	2.1
Cyanide	<0.3
Corrosivity	
pH, S.U.	8.2
Ignitability, Deg. F	>200
Total Petroleum Hydrocarbons	39,800
PCB's	<0.5
Total Organic Halides	29
Total Moisture, %	29
Total Solids, %	71

Sample: B-TP5A

Case No. D0623-02
Date Analyzed: 6/30/93

Subject: Volatile Organic Compounds
Method: EPA 8240

Compound	Concentration mg/Kg (ppm)	Reporting Limit
Acetone	N.D.	5
Benzene	N.D.	0.5
Bromochloromethane	N.D.	10
Bromodichloromethane	N.D.	0.5
Bromoform	N.D.	0.5
Bromomethane	N.D.	10
2-Butanone	N.D.	5
n-Butylbenzene	N.D.	0.5
sec-Butylbenzene	N.D.	0.5
tert-Butylbenzene	N.D.	0.5
Carbon disulfide	N.D.	5
Carbon tetrachloride	N.D.	0.5
Chlorobenzene	N.D.	0.5
Chlorodibromomethane	N.D.	0.5
Chloroethane	N.D.	10
Chloroform	N.D.	0.5
Chloromethane	N.D.	10
2-Chlorotoluene	N.D.	0.5
4-Chlorotoluene	N.D.	0.5
Dibromomethane	N.D.	0.5
1,2-Dibromo-3-chloropropane	N.D.	0.5
1,2-Dibromoethane	N.D.	0.5
1,2-Dichlorobenzene	N.D.	0.5
1,3-Dichlorobenzene	N.D.	0.5
1,4-Dichlorobenzene	N.D.	0.5
Dichlorodifluoromethane	N.D.	0.5
1,1-Dichloroethane	N.D.	0.5
1,2-Dichloroethane	N.D.	0.5
1,1-Dichloroethene	N.D.	0.5
trans-1,2-Dichloroethene	N.D.	0.5
1,2-Dichloropropane	N.D.	0.5
cis-1,3-Dichloropropene	N.D.	0.5
trans-1,3-Dichloropropene	N.D.	0.5
1,4-Dioxane	N.D.	10
Ethanol	N.D.	10
Ethylbenzene	N.D.	0.5
Ethyl methacrylate	N.D.	10
2-Hexanone	N.D.	5
Isopropylbenzene	N.D.	0.5
p-Isopropyltoluene	N.D.	0.5
Methylene chloride	N.D.	2

Sample: B-TP5A

Case No. D0623-02

Compound	Concentration mg/Kg (ppm)	Reporting Limit
4-Methyl-2-pentanone	N.D.	5
n-Propylbenzene	N.D.	0.5
Styrene	N.D.	0.5
1,1,1,2-Tetrachloroethane	N.D.	0.5
1,1,2,2-Tetrachloroethane	N.D.	0.5
Tetrachloroethene	N.D.	0.5
Toluene	N.D.	0.5
1,2,3-Trichlorobenzene	N.D.	0.5
1,1,1-Trichloroethane	N.D.	0.5
1,1,2-Trichloroethane	N.D.	0.5
Trichloroethene	N.D.	0.5
Trichlorofluoromethane	N.D.	0.5
1,2,3-Trichloropropane	N.D.	0.5
1,2,4-Trimethylbenzene	N.D.	0.5
1,3,5-Trimethylbenzene	N.D.	0.5
Vinyl acetate	N.D.	10
Vinyl chloride	N.D.	10
Xylene, Total	N.D.	0.5

Surrogates:

Compound	% Recovery	Limits
Toluene d8	94	81-117
1,2-Dichloroethane-d4	109	70-121
4 BFB	99	74-121

Sample: B-TP5A

Case No. D0623-02
Date Extracted: 7/1/93
Date Analyzed: 7/2/93

Subject: Semivolatile Base/Neutral Extractable Compounds
Method: EPA 8270

Compound	Concentration, mg/Kg (ppm)	Reporting Limit
Acenaphthene	4.3	2
Acenaphthylene	N.D.	2
Acetophenone	N.D.	10
4-Aminobiphenyl	N.D.	10
Aniline	N.D.	10
Anthracene	6.7	2
Benzidine	N.D.	30
Benzo(a)anthracene	3.5	2
Benzo(b)fluoranthene	N.D.	10
Benzo(k)fluoranthene	N.D.	10
Benzoic acid	N.D.	40
Benzo(g,h,i)perylene	N.D.	10
Benzo(a)pyrene	N.D.	10
Benzyl alcohol	N.D.	4
Bis(2-chloroethyl)ether	N.D.	4
Bis(2-chloroisopropyl)ether	N.D.	4
Bis(2-chloroethoxy)methane	N.D.	4
Bis(2-ethylhexyl) phthalate	N.D.	2
4-Bromophenyl phenyl ether	N.D.	4
Butyl benzyl phthalate	N.D.	4
4-Chloroaniline	N.D.	4
1-Chloronaphthalene	N.D.	4
2-Chloronaphthalene	N.D.	4
4-Chlorophenyl phenyl ether	N.D.	4
Chrysene	N.D.	4
Dibenz(a,j)acridine	N.D.	40
Dibenz(a,h)anthracene	N.D.	20
Dibenzofuran	N.D.	4
Di-n-butylphthalate	N.D.	2
1,2-Dichlorobenzene	N.D.	2
1,3-Dichlorobenzene	N.D.	2
1,4-Dichlorobenzene	N.D.	2
3,3'-Dichlorobenzidine	N.D.	20
Diethyl phthalate	N.D.	2
p-Dimethylaminoazobenzene	N.D.	4
7,12-Dimethylbenz(a)anthracene	N.D.	20
Dimethylphenethylamine	N.D.	4
Dimethyl phthalate	N.D.	2
2,4-Dinitrotoluene	N.D.	4
2,6-Dinitrotoluene	N.D.	4
Di(n)octyl phthalate	N.D.	2
Diphenylamine	N.D.	20
1,2-Diphenylhydrazine	N.D.	20
Ethyl methanesulfonate	N.D.	4
Fluoranthene	4.8	2
Fluorene	3.2	2
Hexachlorobenzene	N.D.	10
Hexachlorobutadiene	N.D.	4
Hexachlorocyclopentadiene	N.D.	30
Hexachloroethane	N.D.	4
Indeno(1,2,3-cd)pyrene	N.D.	10

Sample: B-TP5A

Case No. D0623-02

Compound	Concentration, mg/Kg (ppm)	Reporting Limit
Isophorone	N.D.	10
3-Methylcholanthrene	N.D.	20
Methyl methanesulfonate	N.D.	4
2-Methylnaphthalene	11	2
Naphthalene	3.8	2
1-Naphthylamine	N.D.	10
2-Naphthylamine	N.D.	10
2-Nitroaniline	N.D.	4
3-Nitroaniline	N.D.	4
4-Nitroaniline	N.D.	4
Nitrobenzene	N.D.	4
N-Nitrosodibutylamine	N.D.	10
N-Nitrosodimethylamine	N.D.	10
N-Nitrosodiphenylamine	N.D.	20
N-Nitroso-di-n-propylamine	N.D.	10
N-Nitrosopiperidine	N.D.	10
Pentachlorobenzene	N.D.	4
Pentachloronitrobenzene	N.D.	20
Phenacetin	N.D.	20
Phenanthrene	6.8	2
2-Picoline	N.D.	10
Pronamide	N.D.	20
Pyrene	9.2	2
1,2,4,5-Tetrachlorobenzene	N.D.	4
1,2,4-Trichlorobenzene	N.D.	2

Semivolatile Acid Extractable Compounds

Compound	Concentration, mg/Kg (ppm)	Reporting Limit
4-Chloro-3-methylphenol	N.D.	10
2-Chlorophenol	N.D.	2
2,4-Dichlorophenol	N.D.	10
2,6-Dichlorophenol	N.D.	10
2,4-Dimethylphenol	N.D.	2
4,6-Dinitro-2-methylphenol	N.D.	40
2,4-Dinitrophenol	N.D.	40
2-Methylphenol	N.D.	2
4-Methylphenol	N.D.	2
2-Nitrophenol	N.D.	20
4-Nitrophenol	N.D.	20
Pentachlorophenol	N.D.	20
Phenol	N.D.	2
2,3,4,6-Tetrachlorophenol	N.D.	10
2,4,5-Trichlorophenol	N.D.	10
2,4,6-Trichlorophenol	N.D.	10

Surrogates:

Compound	% Recovery	Limits
Nitrobenzene d5	83	23-120
2-Fluorobiphenyl	108	30-115
p-Terphenyl d14	66	18-137
Phenol d6	87	24-113
2,4,6-Tribromophenol	106	19-122
2-Fluorophenol	89	25-121

Sample: B-TP5A

Case No. D0623-02

Date TCLP Extracted: 6/23/93
Date Analyzed*: 6/29/93

TCLP Extractable Metals:	Result, mg/L	Regulatory Limit, mg/L
Arsenic	<0.1	5.0
Barium	0.75	100.0
Cadmium	<0.05	1.0
Chromium	<0.05	5.0
Lead	<0.2	5.0
Mercury	<0.005	0.2
Selenium	<0.1	1.0
Silver	<0.05	5.0

* Date Completed

Sample: B-TP5A Case No. D0623-02

Date TCLP Extracted: 6/26/93
Date Analyzed: 7/1/93

TCLP Volatile Organic Compounds:

Compound	Concentration mg/L (ppm)	Regulatory Limit, mg/L (ppm)
Benzene	<0.02	0.5
Carbon Tetrachloride	<0.02	0.5
Chlorobenzene	<0.02	100.0
Chloroform	<0.02	6.0
1,4-Dichlorobenzene	<0.02	7.5
1,2-Dichloroethane	<0.02	0.5
1,1-Dichloroethylene	<0.02	0.7
Methyl Ethyl Ketone (MEK)	<0.5	200.0
Tetrachloroethylene	<0.02	0.7
Trichloroethylene	<0.02	0.5
Vinyl Chloride	<0.04	0.2

Surrogates:	% Recovery	Limits
Toluene d8	96	88-110
1,2-Dichloroethane-d4	108	76-114
4-Bromofluorobenzene	111	86-115

Sample: B-TP5A

Case No. D0623-02

Date TCLP Extracted: 6/23/93
Date Prep Extracted: 6/30/93
Date Analyzed: 7/2/93

TCLP Extractable Pesticides/Herbicides:

Compound	Concentration mg/L (ppm)	Regulatory Limit, mg/L (ppm)
Chlordane	<0.01	0.03
2,4-D	<0.05	10.0
Endrin	<0.001	0.02
Heptachlor	<0.001	0.008
Heptachlor Epoxide	<0.001	0.008
Lindane	<0.001	0.4
Methoxychlor	<0.005	10.0
Toxaphene	<0.01	0.5
2,4,5-TP Silvex	<0.05	1.0

Sample: B-TP5A Case No. D0623-02

Date TCLP Extracted: 6/23/93
Date Prep Extracted: 6/30/93
Date Analyzed: 6/30/93

TCLP Semivolatile Base/Neutral Extractable Compounds:

Compound	Concentration mg/L (ppm)	Regulatory Limit, mg/L (ppm)
1,4-Dichlorobenzene	<0.05	7.5
Hexachlorobenzene	<0.05	0.13
Hexachloro-1,3-butadiene	<0.05	0.5
Hexachloroethane	<0.05	3.0
Nitrobenzene	<0.05	2.0
Pyridine	<0.05	5.0
2,4-Dinitrotoluene	<0.05	0.13

TCLP Semivolatile Acid Extractable Compounds:

Compound	Concentration mg/L (ppm)	Regulatory Limit, mg/L (ppm)
o-Cresol	<0.1	200.0
m-Cresol	<0.1	200.0
p-Cresol	<0.1	200.0
Pentachlorophenol	<0.1	100.0
2,4,5-Trichlorophenol	<0.1	400.0
2,4,6-Trichlorophenol	<0.1	2.0

Surrogates:	% Recovery	Limits
Nitrobenzene d5	91	35-114
2-Fluorobiphenyl	113	43-116
p-Terphenyl d14	122	33-141
Phenol d6	80	10-94
2-Fluorophenol	92	21-100
2,4,6-Tribromophenol	88	10-123

Case No. D0623-02

SGA-TP2A

Parameter	Result, mg/Kg
Reactivity	
Sulfide	15
Cyanide	<0.3
Corrosivity	
pH, S.U.	8.4
Ignitability, Deg. F	143
Total Petroleum Hydrocarbons	92,800
PCB's	<0.5
Total Organic Halides	328
Total Moisture, %	48
Total Solids, %	52

Sample: SGA-TP2A

Case No. D0623-02
Date Analyzed: 7/1/93

Subject: Volatile Organic Compounds
Method: EPA 8240

Compound	Concentration mg/Kg (ppm)	Reporting Limit
Acetone	N.D.	5
Benzene	9.3	0.5
Bromochloromethane	N.D.	10
Bromodichloromethane	N.D.	0.5
Bromoform	N.D.	0.5
Bromomethane	N.D.	10
2-Butanone	N.D.	5
n-Butylbenzene	10	0.5
sec-Butylbenzene	N.D.	0.5
tert-Butylbenzene	3.4	0.5
Carbon disulfide	N.D.	5
Carbon tetrachloride	N.D.	0.5
Chlorobenzene	N.D.	0.5
Chlorodibromomethane	N.D.	0.5
Chloroethane	N.D.	10
Chloroform	N.D.	0.5
Chloromethane	N.D.	10
2-Chlorotoluene	N.D.	0.5
4-Chlorotoluene	N.D.	0.5
Dibromomethane	N.D.	0.5
1,2-Dibromo-3-chloropropane	N.D.	0.5
1,2-Dibromoethane	N.D.	0.5
1,2-Dichlorobenzene	N.D.	0.5
1,3-Dichlorobenzene	N.D.	0.5
1,4-Dichlorobenzene	N.D.	0.5
Dichlorodifluoromethane	N.D.	0.5
1,1-Dichloroethane	N.D.	0.5
1,2-Dichloroethane	N.D.	0.5
1,1-Dichloroethene	N.D.	0.5
trans-1,2-Dichloroethene	N.D.	0.5
1,2-Dichloropropane	N.D.	0.5
cis-1,3-Dichloropropene	N.D.	0.5
trans-1,3-Dichloropropene	N.D.	0.5
1,4-Dioxane	N.D.	10
Ethanol	N.D.	10
Ethylbenzene	1.8	0.5
Ethyl methacrylate	N.D.	10
2-Hexanone	N.D.	5
Isopropylbenzene	13	0.5
p-Isopropyltoluene	N.D.	0.5
Methylene chloride	N.D.	2

Sample: SGA-TP2A

Case No. D0623-02

Compound	Concentration mg/Kg (ppm)	Reporting Limit
4-Methyl-2-pentanone	N.D.	5
n-Propylbenzene	19	0.5
Styrene	N.D.	0.5
1,1,1,2-Tetrachloroethane	N.D.	0.5
1,1,2,2-Tetrachloroethane	N.D.	0.5
Tetrachloroethene	N.D.	0.5
Toluene	0.79	0.5
1,2,3-Trichlorobenzene	N.D.	0.5
1,1,1-Trichloroethane	N.D.	0.5
1,1,2-Trichloroethane	N.D.	0.5
Trichloroethene	N.D.	0.5
Trichlorofluoromethane	N.D.	0.5
1,2,3-Trichloropropane	N.D.	0.5
1,2,4-Trimethylbenzene	1.3	0.5
1,3,5-Trimethylbenzene	N.D.	0.5
Vinyl acetate	N.D.	10
Vinyl chloride	N.D.	10
Xylene, Total	2.4	0.5

Surrogates:

Compound	% Recovery	Limits
Toluene d8	95	81-117
1,2-Dichloroethane-d4	117	70-121
4 BFB	92	74-121

Sample: SGA-TP2A

Case No. D0623-02
Date Extracted: 7/1/93
Date Analyzed: 7/2/93

Subject: Semivolatile Base/Neutral Extractable Compounds
Method: EPA 8270

Compound	Concentration, mg/Kg (ppm)	Reporting Limit
Acenaphthene	142	3
Acenaphthylene	N.D.	3
Acetophenone	N.D.	15
4-Aminobiphenyl	N.D.	15
Aniline	N.D.	15
Anthracene	86	3
Benzidine	N.D.	45
Benzo(a)anthracene	15	3
Benzo(b)fluoranthene	N.D.	15
Benzo(k)fluoranthene	N.D.	15
Benzoic acid	N.D.	60
Benzo(g,h,i)perylene	N.D.	15
Benzo(a)pyrene	16	15
Benzyl alcohol	N.D.	6
Bis(2-chloroethyl)ether	N.D.	6
Bis(2-chloroisopropyl)ether	N.D.	6
Bis(2-chloroethoxy)methane	N.D.	6
Bis(2-ethylhexyl) phthalate	N.D.	3
4-Bromophenyl phenyl ether	N.D.	6
Butyl benzyl phthalate	N.D.	6
4-Chloroaniline	N.D.	6
1-Chloronaphthalene	N.D.	6
2-Chloronaphthalene	N.D.	6
4-Chlorophenyl phenyl ether	N.D.	6
Chrysene	37	6
Dibenz(a,j)acridine	N.D.	60
Dibenz(a,h)anthracene	N.D.	30
Dibenzofuran	N.D.	6
Di-n-butylphthalate	N.D.	3
1,2-Dichlorobenzene	N.D.	3
1,3-Dichlorobenzene	N.D.	3
1,4-Dichlorobenzene	N.D.	3
3,3'-Dichlorobenzidine	N.D.	30
Diethyl phthalate	N.D.	3
p-Dimethylaminoazobenzene	N.D.	6
7,12-Dimethylbenz(a)anthracene	N.D.	30
Dimethylphenethylamine	N.D.	6
Dimethyl phthalate	N.D.	3
2,4-Dinitrotoluene	N.D.	6
2,6-Dinitrotoluene	N.D.	6
Di(n)octyl phthalate	N.D.	3
Diphenylamine	N.D.	30
1,2-Diphenylhydrazine	N.D.	30
Ethyl methanesulfonate	N.D.	6
Fluoranthene	19	3
Fluorene	427	3
Hexachlorobenzene	N.D.	15
Hexachlorobutadiene	N.D.	6
Hexachlorocyclopentadiene	N.D.	45
Hexachloroethane	N.D.	6
Indeno(1,2,3-cd)pyrene	N.D.	15

Sample: SGA-TP2A

Case No. D0623-02

Compound	Concentration, mg/Kg (ppm)	Reporting Limit
Isophorone	N.D.	15
3-Methylcholanthrene	N.D.	30
Methyl methanesulfonate	N.D.	6
2-Methylnaphthalene	2090	3
Naphthalene	53	3
1-Naphthylamine	N.D.	15
2-Naphthylamine	N.D.	15
2-Nitroaniline	N.D.	6
3-Nitroaniline	N.D.	6
4-Nitroaniline	N.D.	6
Nitrobenzene	N.D.	6
N-Nitrosodibutylamine	N.D.	15
N-Nitrosodimethylamine	N.D.	15
N-Nitrosodiphenylamine	N.D.	30
N-Nitroso-di-n-propylamine	N.D.	15
N-Nitrosopiperidine	N.D.	15
Pentachlorobenzene	N.D.	6
Pentachloronitrobenzene	N.D.	30
Phenacetin	N.D.	30
Phenanthrene	675	3
2-Picoline	N.D.	15
Pronamide	N.D.	30
Pyrene	65	3
1,2,4,5-Tetrachlorobenzene	N.D.	6
1,2,4-Trichlorobenzene	N.D.	3

Semivolatile Acid Extractable Compounds

Compound	Concentration, mg/Kg (ppm)	Reporting Limit
4-Chloro-3-methylphenol	N.D.	15
2-Chlorophenol	N.D.	3
2,4-Dichlorophenol	N.D.	15
2,6-Dichlorophenol	N.D.	15
2,4-Dimethylphenol	N.D.	3
4,6-Dinitro-2-methylphenol	N.D.	60
2,4-Dinitrophenol	N.D.	60
2-Methylphenol	N.D.	3
4-Methylphenol	N.D.	3
2-Nitrophenol	N.D.	30
4-Nitrophenol	N.D.	30
Pentachlorophenol	N.D.	30
Phenol	N.D.	3
2,3,4,6-Tetrachlorophenol	N.D.	15
2,4,5-Trichlorophenol	N.D.	15
2,4,6-Trichlorophenol	N.D.	15

Surrogates:

Compound	% Recovery	Limits
Nitrobenzene d5	97	23-120
2-Fluorobiphenyl	109	30-115
p-Terphenyl d14	90	18-137
Phenol d6	104	24-113
2,4,6-Tribromophenol	61	19-122
2-Fluorophenol	107	25-121

Sample: SGA-TP2A

Case No. D0623-02

Date TCLP Extracted: 6/23/93
Date Analyzed*: 6/29/93

TCLP Extractable Metals:	Result, mg/L	Regulatory Limit, mg/L
Arsenic	<0.1	5.0
Barium	1.3	100.0
Cadmium	<0.05	1.0
Chromium	<0.05	5.0
Lead	<0.2	5.0
Mercury	<0.005	0.2
Selenium	<0.1	1.0
Silver	<0.05	5.0

* Date Completed

Sample: SGA-TP2A

Case No. D0623-02

Date TCLP Extracted: 6/26/93
Date Analyzed: 7/1/93

TCLP Volatile Organic Compounds:

Compound	Concentration mg/L (ppm)	Regulatory Limit, mg/L (ppm)
Benzene	0.46	0.5
Carbon Tetrachloride	<0.02	0.5
Chlorobenzene	<0.02	100.0
Chloroform	<0.02	6.0
1,4-Dichlorobenzene	<0.02	7.5
1,2-Dichloroethane	<0.02	0.5
1,1-Dichloroethylene	<0.02	0.7
Methyl Ethyl Ketone (MEK)	<0.5	200.0
Tetrachloroethylene	<0.02	0.7
Trichloroethylene	<0.02	0.5
Vinyl Chloride	<0.04	0.2

Surrogates:	% Recovery	Limits
Toluene d8	89	88-110
1,2-Dichloroethane-d4	111	76-114
4-Bromofluorobenzene	112	86-115

Sample: SGA-TP2A

Case No. D0623-02

Date TCLP Extracted: 6/23/93
Date Prep Extracted: 6/30/93
Date Analyzed: 7/2/93

TCLP Extractable Pesticides/Herbicides:

Compound	Concentration mg/L (ppm)	Regulatory Limit, mg/L (ppm)
Chlordane	<0.01	0.03
2,4-D	<0.05	10.0
Endrin	<0.001	0.02
Heptachlor	<0.001	0.008
Heptachlor Epoxide	<0.001	0.008
Lindane	<0.001	0.4
Methoxychlor	<0.005	10.0
Toxaphene	<0.01	0.5
2,4,5-TP Silvex	<0.05	1.0

Sample: SGA-TP2A

Case No. D0623-02

Date TCLP Extracted: 6/23/93
Date Prep Extracted: 6/30/93
Date Analyzed: 7/2/93

TCLP Semivolatile Base/Neutral Extractable Compounds:

Compound	Concentration mg/L (ppm)	Regulatory Limit, mg/L (ppm)
1,4-Dichlorobenzene	<0.05	7.5
Hexachlorobenzene	<0.05	0.13
Hexachloro-1,3-butadiene	<0.05	0.5
Hexachloroethane	<0.05	3.0
Nitrobenzene	<0.05	2.0
Pyridine	<0.05	5.0
2,4-Dinitrotoluene	<0.05	0.13

TCLP Semivolatile Acid Extractable Compounds:

Compound	Concentration mg/L (ppm)	Regulatory Limit, mg/L (ppm)
o-Cresol	<0.1	200.0
m-Cresol	<0.1	200.0
p-Cresol	<0.1	200.0
Pentachlorophenol	<0.1	100.0
2,4,5-Trichlorophenol	<0.1	400.0
2,4,6-Trichlorophenol	<0.1	2.0

Surrogates:	% Recovery	Limits
Nitrobenzene d5	80	35-114
2-Fluorobiphenyl	109	43-116
p-Terphenyl d14	127	33-141
Phenol d6	61	10-94
2-Fluorophenol	75	21-100
2,4,6-Tribromophenol	120	10-123

Case No. D0623-02

SGA-TP2B

Parameter	Result, mg/Kg
Reactivity	
Sulfide	200
Cyanide	<0.3
Corrosivity	
pH, S.U.	6.9
Ignitability, Deg. F	115
Total Petroleum Hydrocarbons	156,000
PCB's	<0.5
Total Organic Halides	35
Total Moisture, %	22
Total Solids, %	77

Sample: SGA-TP2B

Case No. D0623-02
Date Analyzed: 7/1/93

Subject: Volatile Organic Compounds
Method: EPA 8240

Compound	Concentration mg/Kg (ppm)	Reporting Limit
Acetone	N.D.	5
Benzene	0.75	0.5
Bromochloromethane	N.D.	10
Bromodichloromethane	N.D.	0.5
Bromoform	N.D.	0.5
Bromomethane	N.D.	10
2-Butanone	N.D.	5
n-Butylbenzene	8.7	0.5
sec-Butylbenzene	3.1	0.5
tert-Butylbenzene	1.1	0.5
Carbon disulfide	N.D.	5
Carbon tetrachloride	N.D.	0.5
Chlorobenzene	N.D.	0.5
Chlorodibromomethane	N.D.	0.5
Chloroethane	N.D.	10
Chloroform	N.D.	0.5
Chloromethane	N.D.	10
2-Chlorotoluene	N.D.	0.5
4-Chlorotoluene	N.D.	0.5
Dibromomethane	N.D.	0.5
1,2-Dibromo-3-chloropropane	N.D.	0.5
1,2-Dibromoethane	N.D.	0.5
1,2-Dichlorobenzene	N.D.	0.5
1,3-Dichlorobenzene	N.D.	0.5
1,4-Dichlorobenzene	N.D.	0.5
Dichlorodifluoromethane	N.D.	0.5
1,1-Dichloroethane	N.D.	0.5
1,2-Dichloroethane	N.D.	0.5
1,1-Dichloroethene	N.D.	0.5
trans-1,2-Dichloroethene	N.D.	0.5
1,2-Dichloropropane	N.D.	0.5
cis-1,3-Dichloropropene	N.D.	0.5
trans-1,3-Dichloropropene	N.D.	0.5
1,4-Dioxane	N.D.	10
Ethanol	N.D.	10
Ethylbenzene	1.3	0.5
Ethyl methacrylate	N.D.	10
2-Hexanone	N.D.	5
Isopropylbenzene	11	0.5
p-Isopropyltoluene	N.D.	0.5
Methylene chloride	N.D.	2

Sample: SGA-TP2B

Case No. D0623-02

Compound	Concentration mg/Kg (ppm)	Reporting Limit
4-Methyl-2-pentanone	N.D.	5
n-Propylbenzene	13	0.5
Styrene	N.D.	0.5
1,1,1,2-Tetrachloroethane	N.D.	0.5
1,1,2,2-Tetrachloroethane	N.D.	0.5
Tetrachloroethene	N.D.	0.5
Toluene	0.68	0.5
1,2,3-Trichlorobenzene	N.D.	0.5
1,1,1-Trichloroethane	N.D.	0.5
1,1,2-Trichloroethane	N.D.	0.5
Trichloroethene	N.D.	0.5
Trichlorofluoromethane	N.D.	0.5
1,2,3-Trichloropropane	N.D.	0.5
1,2,4-Trimethylbenzene	3.9	0.5
1,3,5-Trimethylbenzene	1.1	0.5
Vinyl acetate	N.D.	10
Vinyl chloride	N.D.	10
Xylene, Total	3.2	0.5

Surrogates:

Compound	% Recovery	Limits
Toluene d8	93	81-117
1,2-Dichloroethane-d4	104	70-121
4 BFB	98	74-121

Sample: SGA-TP2B

Case No. D0623-02
Date Extracted: 7/1/93
Date Analyzed: 7/2/93

Subject: Semivolatile Base/Neutral Extractable Compounds
Method: EPA 8270

Compound	Concentration, mg/Kg (ppm)	Reporting Limit
Acenaphthene	57	2
Acenaphthylene	N.D.	2
Acetophenone	N.D.	10
4-Aminobiphenyl	N.D.	10
Aniline	N.D.	10
Anthracene	39	2
Benzidine	N.D.	30
Benzo(a)anthracene	7.6	2
Benzo(b)fluoranthene	N.D.	10
Benzo(k)fluoranthene	N.D.	10
Benzoic acid	N.D.	40
Benzo(g,h,i)perylene	N.D.	10
Benzo(a)pyrene	N.D.	10
Benzyl alcohol	N.D.	4
Bis(2-chloroethyl)ether	N.D.	4
Bis(2-chloroisopropyl)ether	N.D.	4
Bis(2-chloroethoxy)methane	N.D.	4
Bis(2-ethylhexyl) phthalate	N.D.	2
4-Bromophenyl phenyl ether	N.D.	4
Butyl benzyl phthalate	N.D.	4
4-Chloroaniline	N.D.	4
1-Chloronaphthalene	N.D.	4
2-Chloronaphthalene	N.D.	4
4-Chlorophenyl phenyl ether	N.D.	4
Chrysene	21	4
Dibenz(a,j)acridine	N.D.	40
Dibenz(a,h)anthracene	N.D.	20
Dibenzofuran	N.D.	4
Di-n-butylphthalate	N.D.	2
1,2-Dichlorobenzene	N.D.	2
1,3-Dichlorobenzene	N.D.	2
1,4-Dichlorobenzene	N.D.	2
3,3'-Dichlorobenzidine	N.D.	20
Diethyl phthalate	N.D.	2
p-Dimethylaminoazobenzene	N.D.	4
7,12-Dimethylbenz(a)anthracene	N.D.	20
Dimethylphenethylamine	N.D.	4
Dimethyl phthalate	N.D.	2
2,4-Dinitrotoluene	N.D.	4
2,6-Dinitrotoluene	N.D.	4
Di(n)octyl phthalate	N.D.	2
Diphenylamine	N.D.	20
1,2-Diphenylhydrazine	N.D.	20
Ethyl methanesulfonate	N.D.	4
Fluoranthene	7.7	2
Fluorene	142	2
Hexachlorobenzene	N.D.	10
Hexachlorobutadiene	N.D.	4
Hexachlorocyclopentadiene	N.D.	30
Hexachloroethane	N.D.	4
Indeno(1,2,3-cd)pyrene	N.D.	10

Sample: SGA-TP2B

Case No. D0623-02

Compound	Concentration, mg/Kg (ppm)	Reporting Limit
Isophorone	N.D.	10
3-Methylcholanthrene	N.D.	20
Methyl methanesulfonate	N.D.	4
2-Methylnaphthalene	899	2
Naphthalene	77	2
1-Naphthylamine	N.D.	10
2-Naphthylamine	N.D.	10
2-Nitroaniline	N.D.	4
3-Nitroaniline	N.D.	4
4-Nitroaniline	N.D.	4
Nitrobenzene	N.D.	4
N-Nitrosodibutylamine	N.D.	10
N-Nitrosodimethylamine	N.D.	10
N-Nitrosodiphenylamine	N.D.	20
N-Nitroso-di-n-propylamine	N.D.	10
N-Nitrosopiperidine	N.D.	10
Pentachlorobenzene	N.D.	4
Pentachloronitrobenzene	N.D.	20
Phenacetin	N.D.	20
Phenanthrene	290	2
2-Picoline	N.D.	10
Pronamide	N.D.	20
Pyrene	35	2
1,2,4,5-Tetrachlorobenzene	N.D.	4
1,2,4-Trichlorobenzene	N.D.	2

Semivolatile Acid Extractable Compounds

Compound	Concentration, mg/Kg (ppm)	Reporting Limit
4-Chloro-3-methylphenol	N.D.	10
2-Chlorophenol	N.D.	2
2,4-Dichlorophenol	N.D.	10
2,6-Dichlorophenol	N.D.	10
2,4-Dimethylphenol	N.D.	2
4,6-Dinitro-2-methylphenol	N.D.	40
2,4-Dinitrophenol	N.D.	40
2-Methylphenol	N.D.	2
4-Methylphenol	N.D.	2
2-Nitrophenol	N.D.	20
4-Nitrophenol	N.D.	20
Pentachlorophenol	N.D.	20
Phenol	N.D.	2
2,3,4,6-Tetrachlorophenol	N.D.	10
2,4,5-Trichlorophenol	N.D.	10
2,4,6-Trichlorophenol	N.D.	10

Surrogates:

Compound	% Recovery	Limits
Nitrobenzene d5	89	23-120
2-Fluorobiphenyl	104	30-115
p-Terphenyl d14	84	18-137
Phenol d6	99	24-113
2,4,6-Tribromophenol	58	19-122
2-Fluorophenol	103	25-121

Sample: SGA-TP2B

Case No. D0623-02

Date TCLP Extracted: 6/23/93
Date Analyzed*: 6/29/93

TCLP Extractable Metals:	Result, mg/L	Regulatory Limit, mg/L
Arsenic	<0.1	5.0
Barium	0.62	100.0
Cadmium	<0.05	1.0
Chromium	<0.05	5.0
Lead	0.62	5.0
Mercury	<0.005	0.2
Selenium	<0.1	1.0
Silver	<0.05	5.0

* Date Completed

Sample: SGA-TP2B Case No. D0623-02

Date TCLP Extracted: 6/26/93
Date Analyzed: 7/1/93

TCLP Volatile Organic Compounds:

Compound	Concentration mg/L (ppm)	Regulatory Limit, mg/L (ppm)
Benzene	0.04	0.5
Carbon Tetrachloride	<0.02	0.5
Chlorobenzene	<0.02	100.0
Chloroform	<0.02	6.0
1,4-Dichlorobenzene	<0.02	7.5
1,2-Dichloroethane	<0.02	0.5
1,1-Dichloroethylene	<0.02	0.7
Methyl Ethyl Ketone (MEK)	<0.5	200.0
Tetrachloroethylene	<0.02	0.7
Trichloroethylene	<0.02	0.5
Vinyl Chloride	<0.04	0.2

Surrogates:	% Recovery	Limits
Toluene d8	90	88-110
1,2-Dichloroethane-d4	109	76-114
4-Bromofluorobenzene	113	86-115

Sample: SGA-TP2B Case No. D0623-02

Date TCLP Extracted: 6/23/93
Date Prep Extracted: 6/30/93
Date Analyzed: 7/2/93

TCLP Extractable Pesticides/Herbicides:

Compound	Concentration mg/L (ppm)	Regulatory Limit, mg/L (ppm)
Chlordane	<0.01	0.03
2,4-D	<0.05	10.0
Endrin	<0.001	0.02
Heptachlor	<0.001	0.008
Heptachlor Epoxide	<0.001	0.008
Lindane	<0.001	0.4
Methoxychlor	<0.005	10.0
Toxaphene	<0.01	0.5
2,4,5-TP Silvex	<0.05	1.0

Sample: SGA-TP2B Case No. D0623-02

Date TCLP Extracted: 6/23/93
Date Prep Extracted: 6/30/93
Date Analyzed: 7/2/93

TCLP Semivolatile Base/Neutral Extractable Compounds:

Compound	Concentration mg/L (ppm)	Regulatory Limit, mg/L (ppm)
1,4-Dichlorobenzene	<0.05	7.5
Hexachlorobenzene	<0.05	0.13
Hexachloro-1,3-butadiene	<0.05	0.5
Hexachloroethane	<0.05	3.0
Nitrobenzene	<0.05	2.0
Pyridine	<0.05	5.0
2,4-Dinitrotoluene	<0.05	0.13

TCLP Semivolatile Acid Extractable Compounds:

Compound	Concentration mg/L (ppm)	Regulatory Limit, mg/L (ppm)
o-Cresol	<0.1	200.0
m-Cresol	<0.1	200.0
p-Cresol	<0.1	200.0
Pentachlorophenol	<0.1	100.0
2,4,5-Trichlorophenol	<0.1	400.0
2,4,6-Trichlorophenol	<0.1	2.0

Surrogates:	% Recovery	Limits
Nitrobenzene d5	75	35-114
2-Fluorobiphenyl	107	43-116
p-Terphenyl d14	133	33-141
Phenol d6	53	10-94
2-Fluorophenol	67	21-100
2,4,6-Tribromophenol	117	10-123

Case No. D0623-02

SGA-TP3A

Parameter	Result, mg/Kg
Reactivity	
Sulfide	26
Cyanide	<0.3
Corrosivity	
pH, S.U.	8.3
Ignitability, Deg. F	145
Total Petroleum Hydrocarbons	234,000
PCB's	<1.0
Total Organic Halides	39
Total Moisture, %	51
Total Solids, %	49

Sample: SGA-TP3A

Case No. D0623-02
Date Analyzed: 7/1/93

Subject: Volatile Organic Compounds
Method: EPA 8240

Compound	Concentration mg/Kg (ppm)	Reporting Limit
Acetone	N.D.	5
Benzene	11	0.5
Bromochloromethane	N.D.	10
Bromodichloromethane	N.D.	0.5
Bromoform	N.D.	0.5
Bromomethane	N.D.	10
2-Butanone	N.D.	5
n-Butylbenzene	15	0.5
sec-Butylbenzene	5.9	0.5
tert-Butylbenzene	1.7	0.5
Carbon disulfide	N.D.	5
Carbon tetrachloride	N.D.	0.5
Chlorobenzene	N.D.	0.5
Chlorodibromomethane	N.D.	0.5
Chloroethane	N.D.	10
Chloroform	N.D.	0.5
Chloromethane	N.D.	10
2-Chlorotoluene	N.D.	0.5
4-Chlorotoluene	N.D.	0.5
Dibromomethane	N.D.	0.5
1,2-Dibromo-3-chloropropane	N.D.	0.5
1,2-Dibromoethane	N.D.	0.5
1,2-Dichlorobenzene	N.D.	0.5
1,3-Dichlorobenzene	N.D.	0.5
1,4-Dichlorobenzene	N.D.	0.5
Dichlorodifluoromethane	N.D.	0.5
1,1-Dichloroethane	N.D.	0.5
1,2-Dichloroethane	N.D.	0.5
1,1-Dichloroethene	N.D.	0.5
trans-1,2-Dichloroethene	N.D.	0.5
1,2-Dichloropropane	N.D.	0.5
cis-1,3-Dichloropropene	N.D.	0.5
trans-1,3-Dichloropropene	N.D.	0.5
1,4-Dioxane	N.D.	10
Ethanol	N.D.	10
Ethylbenzene	28	0.5
Ethyl methacrylate	N.D.	10
2-Hexanone	N.D.	5
Isopropylbenzene	26	0.5
p-Isopropyltoluene	N.D.	0.5
Methylene chloride	N.D.	2

Sample: SGA-TP3A

Case No. D0623-02

Compound	Concentration mg/Kg (ppm)	Reporting Limit
4-Methyl-2-pentanone	N.D.	5
n-Propylbenzene	26	0.5
Styrene	N.D.	0.5
1,1,1,2-Tetrachloroethane	N.D.	0.5
1,1,2,2-Tetrachloroethane	N.D.	0.5
Tetrachloroethene	N.D.	0.5
Toluene	1.3	0.5
1,2,3-Trichlorobenzene	N.D.	0.5
1,1,1-Trichloroethane	N.D.	0.5
1,1,2-Trichloroethane	N.D.	0.5
Trichloroethene	N.D.	0.5
Trichlorofluoromethane	N.D.	0.5
1,2,3-Trichloropropane	N.D.	0.5
1,2,4-Trimethylbenzene	1.1	0.5
1,3,5-Trimethylbenzene	N.D.	0.5
Vinyl acetate	N.D.	10
Vinyl chloride	N.D.	10
Xylene, Total	2.0	0.5

Surrogates:

Compound	% Recovery	Limits
Toluene d8	89	81-117
1,2-Dichloroethane-d4	116	70-121
4 BFB	76	74-121

Sample: SGA-TP3A

Case No. D0623-02
Date Extracted: 7/1/93
Date Analyzed: 7/2/93

Subject: Semivolatile Base/Neutral Extractable Compounds
Method: EPA 8270

Compound	Concentration, mg/Kg (ppm)	Reporting Limit
Acenaphthene	210	3
Acenaphthylene	N.D.	3
Acetophenone	N.D.	15
4-Aminobiphenyl	N.D.	15
Aniline	N.D.	15
Anthracene	104	3
Benzidine	N.D.	45
Benzo(a)anthracene	15	3
Benzo(b)fluoranthene	16	15
Benzo(k)fluoranthene	N.D.	15
Benzoic acid	N.D.	60
Benzo(g,h,i)perylene	N.D.	15
Benzo(a)pyrene	16	15
Benzyl alcohol	N.D.	6
Bis(2-chloroethyl)ether	N.D.	6
Bis(2-chloroisopropyl)ether	N.D.	6
Bis(2-chloroethoxy)methane	N.D.	6
Bis(2-ethylhexyl) phthalate	N.D.	6
4-Bromophenyl phenyl ether	N.D.	6
Butyl benzyl phthalate	N.D.	6
4-Chloroaniline	N.D.	6
1-Chloronaphthalene	N.D.	6
2-Chloronaphthalene	N.D.	6
4-Chlorophenyl phenyl ether	N.D.	6
Chrysene	53	6
Dibenz(a,j)acridine	N.D.	60
Dibenz(a,h)anthracene	N.D.	30
Dibenzofuran	N.D.	6
Di-n-butylphthalate	N.D.	3
1,2-Dichlorobenzene	N.D.	3
1,3-Dichlorobenzene	N.D.	3
1,4-Dichlorobenzene	N.D.	3
3,3'-Dichlorobenzidine	N.D.	30
Diethyl phthalate	N.D.	3
p-Dimethylaminoazobenzene	N.D.	6
7,12-Dimethylbenz(a)anthracene	N.D.	30
Dimethylphenethylamine	N.D.	6
Dimethyl phthalate	N.D.	3
2,4-Dinitrotoluene	N.D.	6
2,6-Dinitrotoluene	N.D.	6
Di(n)octyl phthalate	N.D.	3
Diphenylamine	N.D.	30
1,2-Diphenylhydrazine	N.D.	30
Ethyl methanesulfonate	N.D.	6
Fluoranthene	25	3
Fluorene	936	3
Hexachlorobenzene	N.D.	15
Hexachlorobutadiene	N.D.	6
Hexachlorocyclopentadiene	N.D.	45
Hexachloroethane	N.D.	6
Indeno(1,2,3-cd)pyrene	N.D.	15

Sample: SGA-TP3A

Case No. D0623-02

Compound	Concentration, mg/Kg (ppm)	Reporting Limit
Isophorone	N.D.	15
3-Methylcholanthrene	N.D.	30
Methyl methanesulfonate	N.D.	6
2-Methylnaphthalene	2820	3
Naphthalene	430	3
1-Naphthylamine	N.D.	15
2-Naphthylamine	N.D.	15
2-Nitroaniline	N.D.	6
3-Nitroaniline	N.D.	6
4-Nitroaniline	N.D.	6
Nitrobenzene	N.D.	6
N-Nitrosodibutylamine	N.D.	15
N-Nitrosodimethylamine	N.D.	15
N-Nitrosodiphenylamine	N.D.	30
N-Nitroso-di-n-propylamine	N.D.	15
N-Nitrosopiperidine	N.D.	15
Pentachlorobenzene	N.D.	6
Pentachloronitrobenzene	N.D.	30
Phenacetin	N.D.	30
Phenanthrene	987	3
2-Picoline	N.D.	15
Pronamide	N.D.	30
Pyrene	78	3
1,2,4,5-Tetrachlorobenzene	N.D.	6
1,2,4-Trichlorobenzene	N.D.	3

Semivolatile Acid Extractable Compounds

Compound	Concentration, mg/Kg (ppm)	Reporting Limit
4-Chloro-3-methylphenol	N.D.	15
2-Chlorophenol	N.D.	3
2,4-Dichlorophenol	N.D.	15
2,6-Dichlorophenol	N.D.	15
2,4-Dimethylphenol	N.D.	3
4,6-Dinitro-2-methylphenol	N.D.	60
2,4-Dinitrophenol	N.D.	60
2-Methylphenol	N.D.	3
4-Methylphenol	N.D.	3
2-Nitrophenol	N.D.	30
4-Nitrophenol	N.D.	30
Pentachlorophenol	N.D.	30
Phenol	N.D.	3
2,3,4,6-Tetrachlorophenol	N.D.	15
2,4,5-Trichlorophenol	N.D.	15
2,4,6-Trichlorophenol	N.D.	15

Surrogates:

Compound	% Recovery	Limits
Nitrobenzene d5	92	23-120
2-Fluorobiphenyl	100	30-115
p-Terphenyl d14	88	18-137
Phenol d6	102	24-113
2,4,6-Tribromophenol	96	19-122
2-Fluorophenol	100	25-121

Sample: SGA-TP3A

Case No. D0623-02

Date TCLP Extracted: 6/23/93
Date Analyzed*: 6/29/93

TCLP Extractable Metals:	Result, mg/L	Regulatory Limit, mg/L
Arsenic	<0.1	5.0
Barium	0.88	100.0
Cadmium	<0.05	1.0
Chromium	<0.05	5.0
Lead	<0.2	5.0
Mercury	<0.005	0.2
Selenium	<0.1	1.0
Silver	<0.05	5.0

* Date Completed

Sample: SGA-TP3A

Case No. D0623-02

Date TCLP Extracted: 6/26/93
Date Analyzed: 7/1/93

TCLP Volatile Organic Compounds:

Compound	Concentration mg/L (ppm)	Regulatory Limit, mg/L (ppm)
Benzene	0.32	0.5
Carbon Tetrachloride	<0.02	0.5
Chlorobenzene	<0.02	100.0
Chloroform	<0.02	6.0
1,4-Dichlorobenzene	<0.02	7.5
1,2-Dichloroethane	<0.02	0.5
1,1-Dichloroethylene	<0.02	0.7
Methyl Ethyl Ketone (MEK)	<0.5	200.0
Tetrachloroethylene	<0.02	0.7
Trichloroethylene	<0.02	0.5
Vinyl Chloride	<0.04	0.2

Surrogates:	% Recovery	Limits
Toluene d8	97	88-110
1,2-Dichloroethane-d4	110	76-114
4-Bromofluorobenzene	112	86-115

Sample: SGA-TP3A Case No. D0623-02

Date TCLP Extracted: 6/23/93
Date Prep Extracted: 6/30/93
Date Analyzed: 7/6/93

TCLP Extractable Pesticides/Herbicides:

Compound	Concentration mg/L (ppm)	Regulatory Limit, mg/L (ppm)
Chlordane	<0.01	0.03
2,4-D	<0.05	10.0
Endrin	<0.001	0.02
Heptachlor	<0.001	0.008
Heptachlor Epoxide	<0.001	0.008
Lindane	<0.001	0.4
Methoxychlor	<0.005	10.0
Toxaphene	<0.01	0.5
2,4,5-TP Silvex	<0.05	1.0

Sample: SGA-TP3A Case No. D0623-02

Date TCLP Extracted: 6/23/93
Date Prep Extracted: 6/30/93
Date Analyzed: 7/2/93

TCLP Semivolatile Base/Neutral Extractable Compounds:

Compound	Concentration mg/L (ppm)	Regulatory Limit, mg/L (ppm)
1,4-Dichlorobenzene	<0.05	7.5
Hexachlorobenzene	<0.05	0.13
Hexachloro-1,3-butadiene	<0.05	0.5
Hexachloroethane	<0.05	3.0
Nitrobenzene	<0.05	2.0
Pyridine	<0.05	5.0
2,4-Dinitrotoluene	<0.05	0.13

TCLP Semivolatile Acid Extractable Compounds:

Compound	Concentration mg/L (ppm)	Regulatory Limit, mg/L (ppm)
o-Cresol	<0.1	200.0
m-Cresol	<0.1	200.0
p-Cresol	<0.1	200.0
Pentachlorophenol	<0.1	100.0
2,4,5-Trichlorophenol	<0.1	400.0
2,4,6-Trichlorophenol	<0.1	2.0

Surrogates:	% Recovery	Limits
Nitrobenzene d5	73	35-114
2-Fluorobiphenyl	96	43-116
p-Terphenyl d14	125	33-141
Phenol d6	49	10-94
2-Fluorophenol	65	21-100
2,4,6-Tribromophenol	118	10-123

Case No. D0623-02

SGA-TP3B

Parameter	Result, mg/Kg
Reactivity	
Sulfide	6.1
Cyanide	<0.3
Corrosivity	
pH, S.U.	8.0
Ignitability, Deg. F	>200
Total Petroleum Hydrocarbons	44,600
PCB's	<0.5
Total Organic Halides	158
Total Moisture, %	25
Total Solids, %	75

Sample: SGA-TP3B

Case No. D0623-02
Date Analyzed: 7/1/93

Subject: Volatile Organic Compounds
Method: EPA 8240

Compound	Concentration mg/Kg (ppm)	Reporting Limit
Acetone	N.D.	5
Benzene	3.1	0.5
Bromochloromethane	N.D.	10
Bromodichloromethane	N.D.	0.5
Bromoform	N.D.	0.5
Bromomethane	N.D.	10
2-Butanone	N.D.	5
n-Butylbenzene	7.1	0.5
sec-Butylbenzene	2.2	0.5
tert-Butylbenzene	0.66	0.5
Carbon disulfide	N.D.	5
Carbon tetrachloride	N.D.	0.5
Chlorobenzene	0.50	0.5
Chlorodibromomethane	N.D.	0.5
Chloroethane	N.D.	10
Chloroform	N.D.	0.5
Chloromethane	N.D.	10
2-Chlorotoluene	N.D.	0.5
4-Chlorotoluene	N.D.	0.5
Dibromomethane	N.D.	0.5
1,2-Dibromo-3-chloropropane	N.D.	0.5
1,2-Dibromoethane	N.D.	0.5
1,2-Dichlorobenzene	N.D.	0.5
1,3-Dichlorobenzene	N.D.	0.5
1,4-Dichlorobenzene	N.D.	0.5
Dichlorodifluoromethane	N.D.	0.5
1,1-Dichloroethane	N.D.	0.5
1,2-Dichloroethane	N.D.	0.5
1,1-Dichloroethene	N.D.	0.5
trans-1,2-Dichloroethene	N.D.	0.5
1,2-Dichloropropane	N.D.	0.5
cis-1,3-Dichloropropene	N.D.	0.5
trans-1,3-Dichloropropene	N.D.	0.5
1,4-Dioxane	N.D.	10
Ethanol	N.D.	10
Ethylbenzene	N.D.	0.5
Ethyl methacrylate	N.D.	10
2-Hexanone	N.D.	5
Isopropylbenzene	4.5	0.5
p-Isopropyltoluene	0.65	0.5
Methylene chloride	N.D.	2

Sample: SGA-TP3B

Case No. D0623-02

Compound	Concentration mg/Kg (ppm)	Reporting Limit
4-Methyl-2-pentanone	N.D.	5
n-Propylbenzene	10	0.5
Styrene	N.D.	0.5
1,1,1,2-Tetrachloroethane	N.D.	0.5
1,1,2,2-Tetrachloroethane	N.D.	0.5
Tetrachloroethene	N.D.	0.5
Toluene	0.54	0.5
1,2,3-Trichlorobenzene	N.D.	0.5
1,1,1-Trichloroethane	N.D.	0.5
1,1,2-Trichloroethane	N.D.	0.5
Trichloroethene	N.D.	0.5
Trichlorofluoromethane	N.D.	0.5
1,2,3-Trichloropropane	N.D.	0.5
1,2,4-Trimethylbenzene	2.2	0.5
1,3,5-Trimethylbenzene	0.79	0.5
Vinyl acetate	N.D.	10
Vinyl chloride	N.D.	10
Xylene, Total	1.9	0.5

Surrogates:

Compound	% Recovery	Limits
Toluene d8	90	81-117
1,2-Dichloroethane-d4	112	70-121
4 BFB	101	74-121

Sample: SGA-TP3B

Case No. D0623-02
Date Extracted: 7/1/93
Date Analyzed: 7/1/93

Subject: Semivolatile Base/Neutral Extractable Compounds
Method: EPA 8270

Compound	Concentration, mg/Kg (ppm)	Reporting Limit
Acenaphthene	31	2
Acenaphthylene	N.D.	2
Acetophenone	N.D.	10
4-Aminobiphenyl	N.D.	10
Aniline	N.D.	10
Anthracene	32	2
Benzidine	N.D.	30
Benzo(a)anthracene	5.9	2
Benzo(b)fluoranthene	N.D.	10
Benzo(k)fluoranthene	N.D.	10
Benzoic acid	N.D.	40
Benzo(g,h,i)perylene	N.D.	10
Benzo(a)pyrene	N.D.	10
Benzyl alcohol	N.D.	4
Bis(2-chloroethyl)ether	N.D.	4
Bis(2-chloroisopropyl)ether	N.D.	4
Bis(2-chloroethoxy)methane	N.D.	4
Bis(2-ethylhexyl) phthalate	N.D.	2
4-Bromophenyl phenyl ether	N.D.	4
Butyl benzyl phthalate	N.D.	4
4-Chloroaniline	N.D.	4
1-Chloronaphthalene	N.D.	4
2-Chloronaphthalene	N.D.	4
4-Chlorophenyl phenyl ether	N.D.	4
Chrysene	15	4
Dibenz(a,j)acridine	N.D.	40
Dibenz(a,h)anthracene	N.D.	20
Dibenzofuran	N.D.	4
Di-n-butylphthalate	N.D.	2
1,2-Dichlorobenzene	N.D.	2
1,3-Dichlorobenzene	N.D.	2
1,4-Dichlorobenzene	N.D.	2
3,3'-Dichlorobenzidine	N.D.	20
Diethyl phthalate	N.D.	2
p-Dimethylaminoazobenzene	N.D.	4
7,12-Dimethylbenz(a)anthracene	N.D.	20
Dimethylphenethylamine	N.D.	4
Dimethyl phthalate	N.D.	2
2,4-Dinitrotoluene	N.D.	4
2,6-Dinitrotoluene	N.D.	4
Di(n)octyl phthalate	N.D.	2
Diphenylamine	N.D.	20
1,2-Diphenylhydrazine	N.D.	20
Ethyl methanesulfonate	N.D.	4
Fluoranthene	4.2	2
Fluorene	39	2
Hexachlorobenzene	N.D.	10
Hexachlorobutadiene	N.D.	4
Hexachlorocyclopentadiene	N.D.	30
Hexachloroethane	N.D.	4
Indeno(1,2,3-cd)pyrene	N.D.	10

Sample: SGA-TP3B

Case No. D0623-02

Compound	Concentration, mg/Kg (ppm)	Reporting Limit
Isophorone	N.D.	10
3-Methylcholanthrene	N.D.	20
Methyl methanesulfonate	N.D.	4
2-Methylnaphthalene	670	2
Naphthalene	131	2
1-Naphthylamine	N.D.	10
2-Naphthylamine	N.D.	10
2-Nitroaniline	N.D.	4
3-Nitroaniline	N.D.	4
4-Nitroaniline	N.D.	4
Nitrobenzene	N.D.	4
N-Nitrosodibutylamine	N.D.	10
N-Nitrosodimethylamine	N.D.	10
N-Nitrosodiphenylamine	N.D.	20
N-Nitroso-di-n-propylamine	N.D.	10
N-Nitrosopiperidine	N.D.	10
Pentachlorobenzene	N.D.	4
Pentachloronitrobenzene	N.D.	20
Phenacetin	N.D.	20
Phenanthrene	198	2
2-Picoline	N.D.	10
Pronamide	N.D.	20
Pyrene	25	2
1,2,4,5-Tetrachlorobenzene	N.D.	4
1,2,4-Trichlorobenzene	N.D.	2

Semivolatile Acid Extractable Compounds

Compound	Concentration, mg/Kg (ppm)	Reporting Limit
4-Chloro-3-methylphenol	N.D.	10
2-Chlorophenol	N.D.	2
2,4-Dichlorophenol	N.D.	10
2,6-Dichlorophenol	N.D.	10
2,4-Dimethylphenol	N.D.	2
4,6-Dinitro-2-methylphenol	N.D.	40
2,4-Dinitrophenol	N.D.	40
2-Methylphenol	N.D.	2
4-Methylphenol	N.D.	2
2-Nitrophenol	N.D.	20
4-Nitrophenol	N.D.	20
Pentachlorophenol	N.D.	20
Phenol	N.D.	2
2,3,4,6-Tetrachlorophenol	N.D.	10
2,4,5-Trichlorophenol	N.D.	10
2,4,6-Trichlorophenol	N.D.	10

Surrogates:

Compound	% Recovery	Limits
Nitrobenzene d5	73	23-120
2-Fluorobiphenyl	108	30-115
p-Terphenyl d14	117	18-137
Phenol d6	89	24-113
2,4,6-Tribromophenol	58	19-122
2-Fluorophenol	92	25-121

Sample: SGA-TP3B

Case No. D0623-02

Date TCLP Extracted: 6/23/93
Date Analyzed*: 6/29/93

TCLP Extractable Metals:	Result, mg/L	Regulatory Limit, mg/L
Arsenic	<0.1	5.0
Barium	1.1	100.0
Cadmium	<0.05	1.0
Chromium	0.21	5.0
Lead	<0.2	5.0
Mercury	<0.005	0.2
Selenium	<0.1	1.0
Silver	<0.05	5.0

* Date Completed

Sample: SGA-TP3B

Case No. D0623-02

Date TCLP Extracted: 6/28/93
Date Analyzed: 7/1/93

TCLP Volatile Organic Compounds:

Compound	Concentration mg/L (ppm)	Regulatory Limit, mg/L (ppm)
Benzene	0.12	0.5
Carbon Tetrachloride	<0.02	0.5
Chlorobenzene	<0.02	100.0
Chloroform	<0.02	6.0
1,4-Dichlorobenzene	<0.02	7.5
1,2-Dichloroethane	<0.02	0.5
1,1-Dichloroethylene	<0.02	0.7
Methyl Ethyl Ketone (MEK)	<0.5	200.0
Tetrachloroethylene	<0.02	0.7
Trichloroethylene	<0.02	0.5
Vinyl Chloride	<0.04	0.2

Surrogates:	% Recovery	Limits
Toluene d8	91	88-110
1,2-Dichloroethane-d4	104	76-114
4-Bromofluorobenzene	112	86-115

Sample: SGA-TP3B

Case No. D0623-02

Date TCLP Extracted: 6/23/93
Date Prep Extracted: 6/30/93
Date Analyzed: 7/6/93

TCLP Extractable Pesticides/Herbicides:

Compound	Concentration mg/L (ppm)	Regulatory Limit, mg/L (ppm)
Chlordane	<0.01	0.03
2,4-D	<0.05	10.0
Endrin	<0.001	0.02
Heptachlor	<0.001	0.008
Heptachlor Epoxide	<0.001	0.008
Lindane	<0.001	0.4
Methoxychlor	<0.005	10.0
Toxaphene	<0.01	0.5
2,4,5-TP Silvex	<0.05	1.0

Sample: SGA-TP3B Case No. D0623-02

Date TCLP Extracted: 6/23/93
Date Prep Extracted: 6/30/93
Date Analyzed: 7/2/93

TCLP Semivolatile Base/Neutral Extractable Compounds:

Compound	Concentration mg/L (ppm)	Regulatory Limit, mg/L (ppm)
1,4-Dichlorobenzene	<0.05	7.5
Hexachlorobenzene	<0.05	0.13
Hexachloro-1,3-butadiene	<0.05	0.5
Hexachloroethane	<0.05	3.0
Nitrobenzene	<0.05	2.0
Pyridine	<0.05	5.0
2,4-Dinitrotoluene	<0.05	0.13

TCLP Semivolatile Acid Extractable Compounds:

Compound	Concentration mg/L (ppm)	Regulatory Limit, mg/L (ppm)
o-Cresol	<0.1	200.0
m-Cresol	<0.1	200.0
p-Cresol	<0.1	200.0
Pentachlorophenol	<0.1	100.0
2,4,5-Trichlorophenol	<0.1	400.0
2,4,6-Trichlorophenol	<0.1	2.0

Surrogates:	% Recovery	Limits
Nitrobenzene d5	77	35-114
2-Fluorobiphenyl	106	43-116
p-Terphenyl d14	123	33-141
Phenol d6	59	10-94
2-Fluorophenol	74	21-100
2,4,6-Tribromophenol	120	10-123

Case No. D0623-02.A

SGA-TP3C

Parameter	Result, mg/Kg
Reactivity	
Sulfide	22
Cyanide	<0.3
Corrosivity	
pH, S.U.	7.0
Ignitability, Deg. F	>200
Total Petroleum Hydrocarbons	30,000
PCB's	<0.5
Total Organic Halides	59
Total Moisture, %	17
Total Solids, %	83

Sample: SGA-TP3C

Case No. D0623-02
Date Analyzed: 7/1/93

Subject: Volatile Organic Compounds
Method: EPA 8240

Compound	Concentration mg/Kg (ppm)	Reporting Limit
Acetone	N.D.	5
Benzene	40	0.5
Bromochloromethane	N.D.	10
Bromodichloromethane	N.D.	0.5
Bromoform	N.D.	0.5
Bromomethane	N.D.	10
2-Butanone	N.D.	5
n-Butylbenzene	8.4	0.5
sec-Butylbenzene	2.6	0.5
tert-Butylbenzene	5.0	0.5
Carbon disulfide	N.D.	5
Carbon tetrachloride	N.D.	0.5
Chlorobenzene	N.D.	0.5
Chlorodibromomethane	N.D.	0.5
Chloroethane	N.D.	10
Chloroform	N.D.	0.5
Chloromethane	N.D.	10
2-Chlorotoluene	N.D.	0.5
4-Chlorotoluene	N.D.	0.5
Dibromomethane	N.D.	0.5
1,2-Dibromo-3-chloropropane	N.D.	0.5
1,2-Dibromoethane	N.D.	0.5
1,2-Dichlorobenzene	N.D.	0.5
1,3-Dichlorobenzene	N.D.	0.5
1,4-Dichlorobenzene	N.D.	0.5
Dichlorodifluoromethane	N.D.	0.5
1,1-Dichloroethane	N.D.	0.5
1,2-Dichloroethane	N.D.	0.5
1,1-Dichloroethene	N.D.	0.5
trans-1,2-Dichloroethene	N.D.	0.5
1,2-Dichloropropane	N.D.	0.5
cis-1,3-Dichloropropene	N.D.	0.5
trans-1,3-Dichloropropene	N.D.	0.5
1,4-Dioxane	N.D.	10
Ethanol	N.D.	10
Ethylbenzene	15	0.5
Ethyl methacrylate	N.D.	10
2-Hexanone	N.D.	5
Isopropylbenzene	8.9	0.5
p-Isopropyltoluene	1.6	0.5
Methylene chloride	N.D.	2

Sample: SGA-TP3C

Case No. D0623-02

Compound	Concentration mg/Kg (ppm)	Reporting Limit
4-Methyl-2-pentanone	N.D.	5
n-Propylbenzene	12	0.5
Styrene	N.D.	0.5
1,1,1,2-Tetrachloroethane	N.D.	0.5
1,1,2,2-Tetrachloroethane	N.D.	0.5
Tetrachloroethene	N.D.	0.5
Toluene	1.5	0.5
1,2,3-Trichlorobenzene	N.D.	0.5
1,1,1-Trichloroethane	N.D.	0.5
1,1,2-Trichloroethane	N.D.	0.5
Trichloroethene	N.D.	0.5
Trichlorofluoromethane	N.D.	0.5
1,2,3-Trichloropropane	N.D.	0.5
1,2,4-Trimethylbenzene	30	0.5
1,3,5-Trimethylbenzene	9.1	0.5
Vinyl acetate	N.D.	10
Vinyl chloride	N.D.	10
Xylene, Total	6.7	0.5

Surrogates:

Compound	% Recovery	Limits
Toluene d8	88	81-117
1,2-Dichloroethane-d4	106	70-121
4 BFB	105	74-121

Sample: SGA-TP3C

Case No. D0623-02
Date Extracted: 7/1/93
Date Analyzed: 7/1/93

Subject: Semivolatile Base/Neutral Extractable Compounds
Method: EPA 8270

Compound	Concentration, mg/Kg (ppm)	Reporting Limit
Acenaphthene	7.6	2
Acenaphthylene	N.D.	2
Acetophenone	N.D.	10
4-Aminobiphenyl	N.D.	10
Aniline	N.D.	10
Anthracene	12	2
Benzidine	N.D.	30
Benzo(a)anthracene	N.D.	2
Benzo(b)fluoranthene	N.D.	10
Benzo(k)fluoranthene	N.D.	10
Benzoic acid	N.D.	40
Benzo(g,h,i)perylene	N.D.	10
Benzo(a)pyrene	N.D.	10
Benzyl alcohol	N.D.	4
Bis(2-chloroethyl)ether	N.D.	4
Bis(2-chloroisopropyl)ether	N.D.	4
Bis(2-chloroethoxy)methane	N.D.	4
Bis(2-ethylhexyl) phthalate	N.D.	2
4-Bromophenyl phenyl ether	N.D.	4
Butyl benzyl phthalate	N.D.	4
4-Chloroaniline	N.D.	4
1-Chloronaphthalene	N.D.	4
2-Chloronaphthalene	N.D.	4
4-Chlorophenyl phenyl ether	N.D.	4
Chrysene	N.D.	4
Dibenz(a,j)acridine	N.D.	40
Dibenz(a,h)anthracene	N.D.	20
Dibenzofuran	N.D.	4
Di-n-butylphthalate	N.D.	2
1,2-Dichlorobenzene	N.D.	2
1,3-Dichlorobenzene	N.D.	2
1,4-Dichlorobenzene	N.D.	2
3,3'-Dichlorobenzidine	N.D.	20
Diethyl phthalate	N.D.	2
p-Dimethylaminoazobenzene	N.D.	4
7,12-Dimethylbenz(a)anthracene	N.D.	20
Dimethylphenethylamine	N.D.	4
Dimethyl phthalate	N.D.	2
2,4-Dinitrotoluene	N.D.	4
2,6-Dinitrotoluene	N.D.	4
Di(n)octyl phthalate	N.D.	2
Diphenylamine	N.D.	20
1,2-Diphenylhydrazine	N.D.	20
Ethyl methanesulfonate	N.D.	4
Fluoranthene	N.D.	2
Fluorene	83	2
Hexachlorobenzene	N.D.	10
Hexachlorobutadiene	N.D.	4
Hexachlorocyclopentadiene	N.D.	30
Hexachloroethane	N.D.	4
Indeno(1,2,3-cd)pyrene	N.D.	10

Sample: SGA-TP3C

Case No. D0623-02

Compound	Concentration, mg/Kg (ppm)	Reporting Limit
Isophorone	N.D.	10
3-Methylcholanthrene	N.D.	20
Methyl methanesulfonate	N.D.	4
2-Methylnaphthalene	28	2
Naphthalene	15	2
1-Naphthylamine	N.D.	10
2-Naphthylamine	N.D.	10
2-Nitroaniline	N.D.	4
3-Nitroaniline	N.D.	4
4-Nitroaniline	N.D.	4
Nitrobenzene	N.D.	4
N-Nitrosodibutylamine	N.D.	10
N-Nitrosodimethylamine	N.D.	10
N-Nitrosodiphenylamine	N.D.	20
N-Nitroso-di-n-propylamine	N.D.	10
N-Nitrosopiperidine	N.D.	10
Pentachlorobenzene	N.D.	4
Pentachloronitrobenzene	N.D.	20
Phenacetin	N.D.	20
Phenanthrene	49	2
2-Picoline	N.D.	10
Pronamide	N.D.	20
Pyrene	4.4	2
1,2,4,5-Tetrachlorobenzene	N.D.	4
1,2,4-Trichlorobenzene	N.D.	2

Semivolatile Acid Extractable Compounds

Compound	Concentration, mg/Kg (ppm)	Reporting Limit
4-Chloro-3-methylphenol	N.D.	10
2-Chlorophenol	N.D.	2
2,4-Dichlorophenol	N.D.	10
2,6-Dichlorophenol	N.D.	10
2,4-Dimethylphenol	N.D.	2
4,6-Dinitro-2-methylphenol	N.D.	40
2,4-Dinitrophenol	N.D.	40
2-Methylphenol	N.D.	2
4-Methylphenol	N.D.	2
2-Nitrophenol	N.D.	20
4-Nitrophenol	N.D.	20
Pentachlorophenol	N.D.	20
Phenol	N.D.	2
2,3,4,6-Tetrachlorophenol	N.D.	10
2,4,5-Trichlorophenol	N.D.	10
2,4,6-Trichlorophenol	N.D.	10

Surrogates:

Compound	% Recovery	Limits
Nitrobenzene d5	94	23-120
2-Fluorobiphenyl	107	30-115
p-Terphenyl d14	127	18-137
Phenol d6	96	24-113
2,4,6-Tribromophenol	55	19-122
2-Fluorophenol	102	25-121

Sample: SGA-TP3C

Case No. D0623-02

Date TCLP Extracted: 6/23/93
Date Analyzed*: 6/29/93

TCLP Extractable Metals:	Result, mg/L	Regulatory Limit, mg/L
Arsenic	<0.1	5.0
Barium	1.1	100.0
Cadmium	<0.05	1.0
Chromium	<0.05	5.0
Lead	<0.2	5.0
Mercury	<0.005	0.2
Selenium	<0.1	1.0
Silver	<0.05	5.0

* Date Completed

Sample: SGA-TP3C

Case No. D0623-02

Date TCLP Extracted: 6/28/93
Date Analyzed: 7/1/93

TCLP Volatile Organic Compounds:

Compound	Concentration mg/L (ppm)	Regulatory Limit, mg/L (ppm)
Benzene	1.1	0.5
Carbon Tetrachloride	<0.02	0.5
Chlorobenzene	<0.02	100.0
Chloroform	<0.02	6.0
1,4-Dichlorobenzene	<0.02	7.5
1,2-Dichloroethane	<0.02	0.5
1,1-Dichloroethylene	<0.02	0.7
Methyl Ethyl Ketone (MEK)	<0.5	200.0
Tetrachloroethylene	<0.02	0.7
Trichloroethylene	<0.02	0.5
Vinyl Chloride	<0.04	0.2

Surrogates:	% Recovery	Limits
Toluene d8	92	88-110
1,2-Dichloroethane-d4	111	76-114
4-Bromofluorobenzene	115	86-115

Sample: SGA-TP3C

Case No. D0623-02

Date TCLP Extracted: 6/23/93
Date Prep Extracted: 6/30/93
Date Analyzed: 7/6/93

TCLP Extractable Pesticides/Herbicides:

Compound	Concentration mg/L (ppm)	Regulatory Limit, mg/L (ppm)
Chlordane	<0.01	0.03
2,4-D	<0.05	10.0
Endrin	<0.001	0.02
Heptachlor	<0.001	0.008
Heptachlor Epoxide	<0.001	0.008
Lindane	<0.001	0.4
Methoxychlor	<0.005	10.0
Toxaphene	<0.01	0.5
2,4,5-TP Silvex	<0.05	1.0

Sample: SGA-TP3C Case No. D0623-02

Date TCLP Extracted: 6/23/93
Date Prep Extracted: 6/30/93
Date Analyzed: 7/2/93

TCLP Semivolatile Base/Neutral Extractable Compounds:

Compound	Concentration mg/L (ppm)	Regulatory Limit, mg/L (ppm)
1,4-Dichlorobenzene	<0.05	7.5
Hexachlorobenzene	<0.05	0.13
Hexachloro-1,3-butadiene	<0.05	0.5
Hexachloroethane	<0.05	3.0
Nitrobenzene	<0.05	2.0
Pyridine	<0.05	5.0
2,4-Dinitrotoluene	<0.05	0.13

TCLP Semivolatile Acid Extractable Compounds:

Compound	Concentration mg/L (ppm)	Regulatory Limit, mg/L (ppm)
o-Cresol	<0.1	200.0
m-Cresol	<0.1	200.0
p-Cresol	<0.1	200.0
Pentachlorophenol	<0.1	100.0
2,4,5-Trichlorophenol	<0.1	400.0
2,4,6-Trichlorophenol	<0.1	2.0

Surrogates:	% Recovery	Limits
Nitrobenzene d5	72	35-114
2-Fluorobiphenyl	87	43-116
p-Terphenyl d14	95	33-141
Phenol d6	57	10-94
2-Fluorophenol	79	21-100
2,4,6-Tribromophenol	112	10-123

Case No. D0623-02

SGA-TP4A

Parameter	Result, mg/Kg
Reactivity	
Sulfide	<1
Cyanide	<0.3
Corrosivity	
pH, S.U.	8.6
Ignitability, Deg. F	>200
Total Petroleum Hydrocarbons	43,100
PCB's	<0.5
Total Organic Halides	28
Total Moisture, %	34
Total Solids, %	66

Sample: SGA-TP4A

Case No. D0623-02
Date Analyzed: 7/1/93

Subject: Volatile Organic Compounds
Method: EPA 8240

Compound	Concentration mg/Kg (ppm)	Reporting Limit
Acetone	N.D.	5
Benzene	N.D.	0.5
Bromochloromethane	N.D.	10
Bromodichloromethane	N.D.	0.5
Bromoform	N.D.	0.5
Bromomethane	N.D.	10
2-Butanone	N.D.	5
n-Butylbenzene	N.D.	0.5
sec-Butylbenzene	N.D.	0.5
tert-Butylbenzene	N.D.	0.5
Carbon disulfide	N.D.	5
Carbon tetrachloride	N.D.	0.5
Chlorobenzene	N.D.	0.5
Chlorodibromomethane	N.D.	0.5
Chloroethane	N.D.	10
Chloroform	N.D.	0.5
Chloromethane	N.D.	10
2-Chlorotoluene	N.D.	0.5
4-Chlorotoluene	N.D.	0.5
Dibromomethane	N.D.	0.5
1,2-Dibromo-3-chloropropane	N.D.	0.5
1,2-Dibromoethane	N.D.	0.5
1,2-Dichlorobenzene	N.D.	0.5
1,3-Dichlorobenzene	N.D.	0.5
1,4-Dichlorobenzene	N.D.	0.5
Dichlorodifluoromethane	N.D.	0.5
1,1-Dichloroethane	N.D.	0.5
1,2-Dichloroethane	N.D.	0.5
1,1-Dichloroethene	N.D.	0.5
trans-1,2-Dichloroethene	N.D.	0.5
1,2-Dichloropropane	N.D.	0.5
cis-1,3-Dichloropropene	N.D.	0.5
trans-1,3-Dichloropropene	N.D.	0.5
1,4-Dioxane	N.D.	10
Ethanol	N.D.	10
Ethylbenzene	N.D.	0.5
Ethyl methacrylate	N.D.	10
2-Hexanone	N.D.	5
Isopropylbenzene	N.D.	0.5
p-Isopropyltoluene	N.D.	0.5
Methylene chloride	N.D.	2

Sample: SGA-TP4A

Case No. D0623-02

Compound	Concentration mg/Kg (ppm)	Reporting Limit
4-Methyl-2-pentanone	N.D.	5
n-Propylbenzene	N.D.	0.5
Styrene	N.D.	0.5
1,1,1,2-Tetrachloroethane	N.D.	0.5
1,1,2,2-Tetrachloroethane	N.D.	0.5
Tetrachloroethene	N.D.	0.5
Toluene	N.D.	0.5
1,2,3-Trichlorobenzene	N.D.	0.5
1,1,1-Trichloroethane	N.D.	0.5
1,1,2-Trichloroethane	N.D.	0.5
Trichloroethene	N.D.	0.5
Trichlorofluoromethane	N.D.	0.5
1,2,3-Trichloropropane	N.D.	0.5
1,2,4-Trimethylbenzene	N.D.	0.5
1,3,5-Trimethylbenzene	N.D.	0.5
Vinyl acetate	N.D.	10
Vinyl chloride	N.D.	10
Xylene, Total	N.D.	0.5

Surrogates:

Compound	% Recovery	Limits
Toluene d8	92	81-117
1,2-Dichloroethane-d4	110	70-121
4 BFB	102	74-121

Sample: SGA-TP4A

Case No. D0623-02
Date Extracted: 7/1/93
Date Analyzed: 7/1/93

Subject: Semivolatile Base/Neutral Extractable Compounds
Method: EPA 8270

Compound	Concentration, mg/Kg (ppm)	Reporting Limit
Acenaphthene	3.9	2
Acenaphthylene	N.D.	2
Acetophenone	N.D.	10
4-Aminobiphenyl	N.D.	10
Aniline	N.D.	10
Anthracene	6.5	2
Benzidine	N.D.	30
Benzo(a)anthracene	N.D.	2
Benzo(b)fluoranthene	N.D.	10
Benzo(k)fluoranthene	N.D.	10
Benzoic acid	N.D.	40
Benzo(g,h,i)perylene	N.D.	10
Benzo(a)pyrene	N.D.	10
Benzyl alcohol	N.D.	4
Bis(2-chloroethyl)ether	N.D.	4
Bis(2-chloroisopropyl)ether	N.D.	4
Bis(2-chloroethoxy)methane	N.D.	4
Bis(2-ethylhexyl) phthalate	N.D.	2
4-Bromophenyl phenyl ether	N.D.	4
Butyl benzyl phthalate	N.D.	4
4-Chloroaniline	N.D.	4
1-Chloronaphthalene	N.D.	4
2-Chloronaphthalene	N.D.	4
4-Chlorophenyl phenyl ether	N.D.	4
Chrysene	N.D.	4
Dibenz(a,j)acridine	N.D.	40
Dibenz(a,h)anthracene	N.D.	20
Dibenzofuran	N.D.	4
Di-n-butylphthalate	N.D.	2
1,2-Dichlorobenzene	N.D.	2
1,3-Dichlorobenzene	N.D.	2
1,4-Dichlorobenzene	N.D.	2
3,3'-Dichlorobenzidine	N.D.	20
Diethyl phthalate	N.D.	2
p-Dimethylaminoazobenzene	N.D.	4
7,12-Dimethylbenz(a)anthracene	N.D.	20
Dimethylphenethylamine	N.D.	4
Dimethyl phthalate	N.D.	2
2,4-Dinitrotoluene	N.D.	4
2,6-Dinitrotoluene	N.D.	4
Di(n)octyl phthalate	N.D.	2
Diphenylamine	N.D.	20
1,2-Diphenylhydrazine	N.D.	20
Ethyl methanesulfonate	N.D.	4
Fluoranthene	N.D.	2
Fluorene	4.0	2
Hexachlorobenzene	N.D.	10
Hexachlorobutadiene	N.D.	4
Hexachlorocyclopentadiene	N.D.	30
Hexachloroethane	N.D.	4
Indeno(1,2,3-cd)pyrene	N.D.	10

Sample: SGA-TP4A

Case No. D0623-02

Date TCLP Extracted: 6/23/93
Date Analyzed*: 6/29/93

TCLP Extractable Metals:	Result, mg/L	Regulatory Limit, mg/L
Arsenic	<0.1	5.0
Barium	<0.5	100.0
Cadmium	<0.05	1.0
Chromium	<0.05	5.0
Lead	<0.2	5.0
Mercury	<0.005	0.2
Selenium	<0.1	1.0
Silver	<0.05	5.0

* Date Completed

Sample: SGA-TP4A

Case No. D0623-02

Date TCLP Extracted: 6/28/93
Date Analyzed: 7/1/93

TCLP Volatile Organic Compounds:

Compound	Concentration mg/L (ppm)	Regulatory Limit, mg/L (ppm)
Benzene	<0.02	0.5
Carbon Tetrachloride	<0.02	0.5
Chlorobenzene	<0.02	100.0
Chloroform	<0.02	6.0
1,4-Dichlorobenzene	<0.02	7.5
1,2-Dichloroethane	<0.02	0.5
1,1-Dichloroethylene	<0.02	0.7
Methyl Ethyl Ketone (MEK)	<0.5	200.0
Tetrachloroethylene	<0.02	0.7
Trichloroethylene	<0.02	0.5
Vinyl Chloride	<0.04	0.2

Surrogates:	% Recovery	Limits
Toluene d8	97	88-110
1,2-Dichloroethane-d4	109	76-114
4-Bromofluorobenzene	107	86-115

Sample: SGA-TP4A Case No. D0623-02

Date TCLP Extracted: 6/23/93
Date Prep Extracted: 6/30/93
Date Analyzed: 7/6/93

TCLP Extractable Pesticides/Herbicides:

Compound	Concentration mg/L (ppm)	Regulatory Limit, mg/L (ppm)
Chlordane	<0.01	0.03
2,4-D	<0.05	10.0
Endrin	<0.001	0.02
Heptachlor	<0.001	0.008
Heptachlor Epoxide	<0.001	0.008
Lindane	<0.001	0.4
Methoxychlor	<0.005	10.0
Toxaphene	<0.01	0.5
2,4,5-TP Silvex	<0.05	1.0

Case No. D0623-02

SGA-TP5A

Parameter	Result, mg/Kg
Reactivity	
Sulfide	<1
Cyanide	<0.3
Corrosivity	
pH, S.U.	7.9
Ignitability, Deg. F	>200
Total Petroleum Hydrocarbons	4830
PCB's	<0.5
Total Organic Halides	46
Total Moisture, %	28
Total Solids, %	72

Sample: SGA-TP5A

Case No. D0623-02
Date Analyzed: 7/1/93

Subject: Volatile Organic Compounds
Method: EPA 8240

Compound	Concentration mg/Kg (ppm)	Reporting Limit
Acetone	N.D.	5
Benzene	0.53	0.5
Bromochloromethane	N.D.	10
Bromodichloromethane	N.D.	0.5
Bromoform	N.D.	0.5
Bromomethane	N.D.	10
2-Butanone	N.D.	5
n-Butylbenzene	1.3	0.5
sec-Butylbenzene	N.D.	0.5
tert-Butylbenzene	N.D.	0.5
Carbon disulfide	N.D.	5
Carbon tetrachloride	N.D.	0.5
Chlorobenzene	N.D.	0.5
Chlorodibromomethane	N.D.	0.5
Chloroethane	N.D.	10
Chloroform	N.D.	0.5
Chloromethane	N.D.	10
2-Chlorotoluene	N.D.	0.5
4-Chlorotoluene	N.D.	0.5
Dibromomethane	N.D.	0.5
1,2-Dibromo-3-chloropropane	N.D.	0.5
1,2-Dibromoethane	N.D.	0.5
1,2-Dichlorobenzene	N.D.	0.5
1,3-Dichlorobenzene	N.D.	0.5
1,4-Dichlorobenzene	N.D.	0.5
Dichlorodifluoromethane	N.D.	0.5
1,1-Dichloroethane	N.D.	0.5
1,2-Dichloroethane	N.D.	0.5
1,1-Dichloroethene	N.D.	0.5
trans-1,2-Dichloroethene	N.D.	0.5
1,2-Dichloropropane	N.D.	0.5
cis-1,3-Dichloropropene	N.D.	0.5
trans-1,3-Dichloropropene	N.D.	0.5
1,4-Dioxane	N.D.	10
Ethanol	N.D.	10
Ethylbenzene	2.6	0.5
Ethyl methacrylate	N.D.	10
2-Hexanone	N.D.	5
Isopropylbenzene	0.81	0.5
p-Isopropyltoluene	N.D.	0.5
Methylene chloride	N.D.	2

Sample: SGA-TP5A

Case No. D0623-02

Compound	Concentration, mg/Kg (ppm)	Reporting Limit
Isophorone	N.D.	10
3-Methylcholanthrene	N.D.	20
Methyl methanesulfonate	N.D.	4
2-Methylnaphthalene	80	2
Naphthalene	23	2
1-Naphthylamine	N.D.	10
2-Naphthylamine	N.D.	10
2-Nitroaniline	N.D.	4
3-Nitroaniline	N.D.	4
4-Nitroaniline	N.D.	4
Nitrobenzene	N.D.	4
N-Nitrosodibutylamine	N.D.	10
N-Nitrosodimethylamine	N.D.	10
N-Nitrosodiphenylamine	N.D.	20
N-Nitroso-di-n-propylamine	N.D.	10
N-Nitrosopiperidine	N.D.	10
Pentachlorobenzene	N.D.	4
Pentachloronitrobenzene	N.D.	20
Phenacetin	N.D.	20
Phenanthrene	23	2
2-Picoline	N.D.	10
Pronamide	N.D.	20
Pyrene	3.2	2
1,2,4,5-Tetrachlorobenzene	N.D.	4
1,2,4-Trichlorobenzene	N.D.	2

Semivolatile Acid Extractable Compounds

Compound	Concentration, mg/Kg (ppm)	Reporting Limit
4-Chloro-3-methylphenol	N.D.	10
2-Chlorophenol	N.D.	2
2,4-Dichlorophenol	N.D.	10
2,6-Dichlorophenol	N.D.	10
2,4-Dimethylphenol	N.D.	2
4,6-Dinitro-2-methylphenol	N.D.	40
2,4-Dinitrophenol	N.D.	40
2-Methylphenol	N.D.	2
4-Methylphenol	N.D.	2
2-Nitrophenol	N.D.	20
4-Nitrophenol	N.D.	20
Pentachlorophenol	N.D.	20
Phenol	N.D.	2
2,3,4,6-Tetrachlorophenol	N.D.	10
2,4,5-Trichlorophenol	N.D.	10
2,4,6-Trichlorophenol	N.D.	10

Surrogates:

Compound	% Recovery	Limits
Nitrobenzene d5	113	23-120
2-Fluorobiphenyl	114	30-115
p-Terphenyl d14	123	18-137
Phenol d6	111	24-113
2,4,6-Tribromophenol	63	19-122
2-Fluorophenol	119	25-121

Sample: SGA-TP5A

Case No. D0623-02

Date TCLP Extracted: 6/23/93
Date Analyzed*: 6/29/93

TCLP Extractable Metals:	Result, mg/L	Regulatory Limit, mg/L
Arsenic	<0.1	5.0
Barium	0.55	100.0
Cadmium	<0.05	1.0
Chromium	0.05	5.0
Lead	0.24	5.0
Mercury	<0.005	0.2
Selenium	<0.1	1.0
Silver	<0.05	5.0

* Date Completed

Case No. D0623-02

SGA-Soil

Parameter	Result, mg/Kg
Reactivity	
Sulfide	<1
Cyanide	<0.3
Corrosivity	
pH, S.U.	5.5
Ignitability, Deg. F	>200
Total Petroleum Hydrocarbons	235
PCB's	<0.5
Total Organic Halides	<10
Total Moisture, %	19
Total Solids, %	81

Sample: SGA-Soil

Case No. D0623-02
Date Analyzed: 6/30/93

Subject: Volatile Organic Compounds
Method: EPA 8240

Compound	Concentration mg/Kg (ppm)	Reporting Limit
Acetone	N.D.	5
Benzene	N.D.	0.5
Bromochloromethane	N.D.	10
Bromodichloromethane	N.D.	0.5
Bromoform	N.D.	0.5
Bromomethane	N.D.	10
2-Butanone	N.D.	5
n-Butylbenzene	N.D.	0.5
sec-Butylbenzene	N.D.	0.5
tert-Butylbenzene	N.D.	0.5
Carbon disulfide	N.D.	5
Carbon tetrachloride	N.D.	0.5
Chlorobenzene	N.D.	0.5
Chlorodibromomethane	N.D.	0.5
Chloroethane	N.D.	10
Chloroform	N.D.	0.5
Chloromethane	N.D.	10
2-Chlorotoluene	N.D.	0.5
4-Chlorotoluene	N.D.	0.5
Dibromomethane	N.D.	0.5
1,2-Dibromo-3-chloropropane	N.D.	0.5
1,2-Dibromoethane	N.D.	0.5
1,2-Dichlorobenzene	N.D.	0.5
1,3-Dichlorobenzene	N.D.	0.5
1,4-Dichlorobenzene	N.D.	0.5
Dichlorodifluoromethane	N.D.	0.5
1,1-Dichloroethane	N.D.	0.5
1,2-Dichloroethane	N.D.	0.5
1,1-Dichloroethene	N.D.	0.5
trans-1,2-Dichloroethene	N.D.	0.5
1,2-Dichloropropane	N.D.	0.5
cis-1,3-Dichloropropene	N.D.	0.5
trans-1,3-Dichloropropene	N.D.	0.5
1,4-Dioxane	N.D.	10
Ethanol	N.D.	10
Ethylbenzene	N.D.	0.5
Ethyl methacrylate	N.D.	10
2-Hexanone	N.D.	5
Isopropylbenzene	N.D.	0.5
p-Isopropyltoluene	N.D.	0.5
Methylene chloride	N.D.	2

Sample: SGA-Soil

Case No. D0623-02

Compound	Concentration mg/Kg (ppm)	Reporting Limit
4-Methyl-2-pentanone	N.D.	5
n-Propylbenzene	N.D.	0.5
Styrene	N.D.	0.5
1,1,1,2-Tetrachloroethane	N.D.	0.5
1,1,2,2-Tetrachloroethane	N.D.	0.5
Tetrachloroethene	N.D.	0.5
Toluene	N.D.	0.5
1,2,3-Trichlorobenzene	N.D.	0.5
1,1,1-Trichloroethane	N.D.	0.5
1,1,2-Trichloroethane	N.D.	0.5
Trichloroethene	N.D.	0.5
Trichlorofluoromethane	N.D.	0.5
1,2,3-Trichloropropane	N.D.	0.5
1,2,4-Trimethylbenzene	N.D.	0.5
1,3,5-Trimethylbenzene	N.D.	0.5
Vinyl acetate	N.D.	10
Vinyl chloride	N.D.	10
Xylene, Total	N.D.	0.5

Surrogates:

Compound	% Recovery	Limits
Toluene d8	94	81-117
1,2-Dichloroethane-d4	105	70-121
4 BFB	106	74-121

Sample: SGA-Soil

Case No. D0623-02
Date Extracted: 7/1/93
Date Analyzed: 7/1/93

Subject: Semivolatile Base/Neutral Extractable Compounds
Method: EPA 8270

Compound	Concentration, mg/Kg (ppm)	Reporting Limit
Acenaphthene	N.D.	2
Acenaphthylene	N.D.	2
Acetophenone	N.D.	10
4-Aminobiphenyl	N.D.	10
Aniline	N.D.	10
Anthracene	N.D.	2
Benzidine	N.D.	30
Benzo(a)anthracene	N.D.	2
Benzo(b)fluoranthene	N.D.	10
Benzo(k)fluoranthene	N.D.	10
Benzoic acid	N.D.	40
Benzo(g,h,i)perylene	N.D.	10
Benzo(a)pyrene	N.D.	10
Benzyl alcohol	N.D.	4
Bis(2-chloroethyl)ether	N.D.	4
Bis(2-chloroisopropyl)ether	N.D.	4
Bis(2-chloroethoxy)methane	N.D.	4
Bis(2-ethylhexyl) phthalate	N.D.	2
4-Bromophenyl phenyl ether	N.D.	4
Butyl benzyl phthalate	N.D.	4
4-Chloroaniline	N.D.	4
1-Chloronaphthalene	N.D.	4
2-Chloronaphthalene	N.D.	4
4-Chlorophenyl phenyl ether	N.D.	4
Chrysene	N.D.	4
Dibenz(a,j)acridine	N.D.	40
Dibenz(a,h)anthracene	N.D.	20
Dibenzofuran	N.D.	4
Di-n-butylphthalate	N.D.	2
1,2-Dichlorobenzene	N.D.	2
1,3-Dichlorobenzene	N.D.	2
1,4-Dichlorobenzene	N.D.	2
3,3'-Dichlorobenzidine	N.D.	20
Diethyl phthalate	N.D.	2
p-Dimethylaminoazobenzene	N.D.	4
7,12-Dimethylbenz(a)anthracene	N.D.	20
Dimethylphenethylamine	N.D.	4
Dimethyl phthalate	N.D.	2
2,4-Dinitrotoluene	N.D.	4
2,6-Dinitrotoluene	N.D.	4
Di(n)octyl phthalate	N.D.	2
Diphenylamine	N.D.	20
1,2-Diphenylhydrazine	N.D.	20
Ethyl methanesulfonate	N.D.	4
Fluoranthene	N.D.	2
Fluorene	N.D.	2
Hexachlorobenzene	N.D.	10
Hexachlorobutadiene	N.D.	4
Hexachlorocyclopentadiene	N.D.	30
Hexachloroethane	N.D.	4
Indeno(1,2,3-cd)pyrene	N.D.	10

Sample: SGA-Soil

Case No. D0623-02

Compound	Concentration, mg/Kg (ppm)	Reporting Limit
Isophorone	N.D.	10
3-Methylcholanthrene	N.D.	20
Methyl methanesulfonate	N.D.	4
2-Methylnaphthalene	N.D.	2
Naphthalene	N.D.	2
1-Naphthylamine	N.D.	10
2-Naphthylamine	N.D.	10
2-Nitroaniline	N.D.	4
3-Nitroaniline	N.D.	4
4-Nitroaniline	N.D.	4
Nitrobenzene	N.D.	4
N-Nitrosodibutylamine	N.D.	10
N-Nitrosodimethylamine	N.D.	10
N-Nitrosodiphenylamine	N.D.	20
N-Nitroso-di-n-propylamine	N.D.	10
N-Nitrosopiperidine	N.D.	10
Pentachlorobenzene	N.D.	4
Pentachloronitrobenzene	N.D.	20
Phenacetin	N.D.	20
Phenanthrene	N.D.	2
2-Picoline	N.D.	10
Pronamide	N.D.	20
Pyrene	N.D.	2
1,2,4,5-Tetrachlorobenzene	N.D.	4
1,2,4-Trichlorobenzene	N.D.	2

Semivolatile Acid Extractable Compounds

Compound	Concentration, mg/Kg (ppm)	Reporting Limit
4-Chloro-3-methylphenol	N.D.	10
2-Chlorophenol	N.D.	2
2,4-Dichlorophenol	N.D.	10
2,6-Dichlorophenol	N.D.	10
2,4-Dimethylphenol	N.D.	2
4,6-Dinitro-2-methylphenol	N.D.	40
2,4-Dinitrophenol	N.D.	40
2-Methylphenol	N.D.	2
4-Methylphenol	N.D.	2
2-Nitrophenol	N.D.	20
4-Nitrophenol	N.D.	20
Pentachlorophenol	N.D.	20
Phenol	N.D.	2
2,3,4,6-Tetrachlorophenol	N.D.	10
2,4,5-Trichlorophenol	N.D.	10
2,4,6-Trichlorophenol	N.D.	10

Surrogates:

Compound	% Recovery	Limits
Nitrobenzene d5	96	23-120
2-Fluorobiphenyl	110	30-115
p-Terphenyl d14	112	18-137
Phenol d6	102	24-113
2,4,6-Tribromophenol	60	19-122
2-Fluorophenol	110	25-121

Sample: SGA-Soil

Case No. D0623-02

Date TCLP Extracted: 6/23/93
Date Analyzed*: 6/29/93

TCLP Extractable Metals:	Result, mg/L	Regulatory Limit, mg/L
Arsenic	<0.1	5.0
Barium	<0.5	100.0
Cadmium	<0.05	1.0
Chromium	<0.05	5.0
Lead	<0.2	5.0
Mercury	<0.005	0.2
Selenium	<0.1	1.0
Silver	<0.05	5.0

* Date Completed

Sample: SGA-Soil

Case No. D0623-02

Date TCLP Extracted: 6/29/93
Date Analyzed: 7/1/93

TCLP Volatile Organic Compounds:

Compound	Concentration mg/L (ppm)	Regulatory Limit, mg/L (ppm)
Benzene	<0.02	0.5
Carbon Tetrachloride	<0.02	0.5
Chlorobenzene	<0.02	100.0
Chloroform	<0.02	6.0
1,4-Dichlorobenzene	<0.02	7.5
1,2-Dichloroethane	<0.02	0.5
1,1-Dichloroethylene	<0.02	0.7
Methyl Ethyl Ketone (MEK)	<0.5	200.0
Tetrachloroethylene	<0.02	0.7
Trichloroethylene	<0.02	0.5
Vinyl Chloride	<0.04	0.2

Surrogates:	% Recovery	Limits
Toluene d8	98	88-110
1,2-Dichloroethane-d4	111	76-114
4-Bromofluorobenzene	113	86-115

Sample: SGA-Soil Case No. D0623-02

Date TCLP Extracted: 6/23/93
Date Prep Extracted: 6/30/93
Date Analyzed: 7/2/93

TCLP Semivolatile Base/Neutral Extractable Compounds:

Compound	Concentration mg/L (ppm)	Regulatory Limit, mg/L (ppm)
1,4-Dichlorobenzene	<0.05	7.5
Hexachlorobenzene	<0.05	0.13
Hexachloro-1,3-butadiene	<0.05	0.5
Hexachloroethane	<0.05	3.0
Nitrobenzene	<0.05	2.0
Pyridine	<0.05	5.0
2,4-Dinitrotoluene	<0.05	0.13

TCLP Semivolatile Acid Extractable Compounds:

Compound	Concentration mg/L (ppm)	Regulatory Limit, mg/L (ppm)
o-Cresol	<0.1	200.0
m-Cresol	<0.1	200.0
p-Cresol	<0.1	200.0
Pentachlorophenol	<0.1	100.0
2,4,5-Trichlorophenol	<0.1	400.0
2,4,6-Trichlorophenol	<0.1	2.0

Surrogates:	% Recovery	Limits
Nitrobenzene d5	89	35-114
2-Fluorobiphenyl	105	43-116
p-Terphenyl d14	112	33-141
Phenol d6	79	10-94
2-Fluorophenol	91	21-100
2,4,6-Tribromophenol	98	10-123

Case No. D0623-02

SGA-TP6A

Parameter	Result, mg/Kg
Reactivity	
Sulfide	4.8
Cyanide	<0.3
Corrosivity	
pH, S.U.	7.5
Ignitability, Deg. F	>200
Total Petroleum Hydrocarbons	114,000
PCB's	<0.5
Total Organic Halides	71
Total Moisture, %	20
Total Solids, %	80

Sample: SGA-Soil

Case No. D0623-02

Date TCLP Extracted: 6/23/93
Date Prep Extracted: 6/30/93
Date Analyzed: 7/6/93

TCLP Extractable Pesticides/Herbicides:

Compound	Concentration mg/L (ppm)	Regulatory Limit, mg/L (ppm)
Chlordane	<0.01	0.03
2,4-D	<0.05	10.0
Endrin	<0.001	0.02
Heptachlor	<0.001	0.008
Heptachlor Epoxide	<0.001	0.008
Lindane	<0.001	0.4
Methoxychlor	<0.005	10.0
Toxaphene	<0.01	0.5
2,4,5-TP Silvex	<0.05	1.0

Sample: SGA-TP6A

Case No. D0623-02
Date Analyzed: 7/2/93

Subject: Volatile Organic Compounds
Method: EPA 8240

Compound	Concentration mg/Kg (ppm)	Reporting Limit
Acetone	N.D.	5
Benzene	8.8	0.5
Bromochloromethane	N.D.	10
Bromodichloromethane	N.D.	0.5
Bromoform	N.D.	0.5
Bromomethane	N.D.	10
2-Butanone	N.D.	5
n-Butylbenzene	3.4	0.5
sec-Butylbenzene	1.5	0.5
tert-Butylbenzene	N.D.	0.5
Carbon disulfide	N.D.	5
Carbon tetrachloride	N.D.	0.5
Chlorobenzene	N.D.	0.5
Chlorodibromomethane	N.D.	0.5
Chloroethane	N.D.	10
Chloroform	N.D.	0.5
Chloromethane	N.D.	10
2-Chlorotoluene	N.D.	0.5
4-Chlorotoluene	N.D.	0.5
Dibromomethane	N.D.	0.5
1,2-Dibromo-3-chloropropane	N.D.	0.5
1,2-Dibromoethane	N.D.	0.5
1,2-Dichlorobenzene	N.D.	0.5
1,3-Dichlorobenzene	N.D.	0.5
1,4-Dichlorobenzene	N.D.	0.5
Dichlorodifluoromethane	N.D.	0.5
1,1-Dichloroethane	N.D.	0.5
1,2-Dichloroethane	N.D.	0.5
1,1-Dichloroethene	N.D.	0.5
trans-1,2-Dichloroethene	N.D.	0.5
1,2-Dichloropropane	N.D.	0.5
cis-1,3-Dichloropropene	N.D.	0.5
trans-1,3-Dichloropropene	N.D.	0.5
1,4-Dioxane	N.D.	10
Ethanol	N.D.	10
Ethylbenzene	7.9	0.5
Ethyl methacrylate	N.D.	10
2-Hexanone	N.D.	5
Isopropylbenzene	8.8	0.5
p-Isopropyltoluene	1.4	0.5
Methylene chloride	N.D.	2

Sample: SGA-TP6A

Case No. D0623-02

Compound	Concentration mg/Kg (ppm)	Reporting Limit
4-Methyl-2-pentanone	N.D.	5
n-Propylbenzene	5.1	0.5
Styrene	N.D.	0.5
1,1,1,2-Tetrachloroethane	N.D.	0.5
1,1,2,2-Tetrachloroethane	N.D.	0.5
Tetrachloroethene	N.D.	0.5
Toluene	1.3	0.5
1,2,3-Trichlorobenzene	N.D.	0.5
1,1,1-Trichloroethane	N.D.	0.5
1,1,2-Trichloroethane	N.D.	0.5
Trichloroethene	N.D.	0.5
Trichlorofluoromethane	N.D.	0.5
1,2,3-Trichloropropane	N.D.	0.5
1,2,4-Trimethylbenzene	15	0.5
1,3,5-Trimethylbenzene	7.8	0.5
Vinyl acetate	N.D.	10
Vinyl chloride	N.D.	10
Xylene, Total	26	0.5

Surrogates:

Compound	% Recovery	Limits
Toluene d8	97	81-117
1,2-Dichloroethane-d4	112	70-121
4 BFB	84	74-121

Sample: SGA-TP6A

Case No. D0623-02
Date Extracted: 7/1/93
Date Analyzed: 7/6/93

Subject: Semivolatile Base/Neutral Extractable Compounds
Method: EPA 8270

Compound	Concentration, mg/Kg (ppm)	Reporting Limit
Acenaphthene	45	5
Acenaphthylene	N.D.	5
Acetophenone	N.D.	25
4-Aminobiphenyl	N.D.	25
Aniline	N.D.	25
Anthracene	63	5
Benzidine	N.D.	75
Benzo(a)anthracene	35	5
Benzo(b)fluoranthene	N.D.	25
Benzo(k)fluoranthene	N.D.	25
Benzoic acid	N.D.	100
Benzo(g,h,i)perylene	N.D.	25
Benzo(a)pyrene	N.D.	25
Benzyl alcohol	N.D.	10
Bis(2-chloroethyl)ether	N.D.	10
Bis(2-chloroisopropyl)ether	N.D.	10
Bis(2-chloroethoxy)methane	N.D.	10
Bis(2-ethylhexyl) phthalate	N.D.	5
4-Bromophenyl phenyl ether	N.D.	10
Butyl benzyl phthalate	N.D.	10
4-Chloroaniline	N.D.	10
1-Chloronaphthalene	N.D.	10
2-Chloronaphthalene	N.D.	10
4-Chlorophenyl phenyl ether	N.D.	10
Chrysene	72	10
Dibenz(a,j)acridine	N.D.	100
Dibenz(a,h)anthracene	N.D.	50
Dibenzofuran	N.D.	10
Di-n-butylphthalate	N.D.	5
1,2-Dichlorobenzene	N.D.	5
1,3-Dichlorobenzene	N.D.	5
1,4-Dichlorobenzene	N.D.	5
3,3'-Dichlorobenzidine	N.D.	50
Diethyl phthalate	N.D.	5
p-Dimethylaminoazobenzene	N.D.	10
7,12-Dimethylbenz(a)anthracene	N.D.	50
Dimethylphenethylamine	N.D.	10
Dimethyl phthalate	N.D.	5
2,4-Dinitrotoluene	N.D.	10
2,6-Dinitrotoluene	N.D.	10
Di(n)octyl phthalate	N.D.	5
Diphenylamine	N.D.	50
1,2-Diphenylhydrazine	N.D.	50
Ethyl methanesulfonate	N.D.	10
Fluoranthene	11	5
Fluorene	39	5
Hexachlorobenzene	N.D.	25
Hexachlorobutadiene	N.D.	10
Hexachlorocyclopentadiene	N.D.	75
Hexachloroethane	N.D.	10
Indeno(1,2,3-cd)pyrene	N.D.	25

Sample: SGA-TP6A

Case No. D0623-02

Compound	Concentration, mg/Kg (ppm)	Reporting Limit
Isophorone	N.D.	25
3-Methylcholanthrene	N.D.	50
Methyl methanesulfonate	N.D.	10
2-Methylnaphthalene	311	5
Naphthalene	97	5
1-Naphthylamine	N.D.	25
2-Naphthylamine	N.D.	25
2-Nitroaniline	N.D.	10
3-Nitroaniline	N.D.	10
4-Nitroaniline	N.D.	10
Nitrobenzene	N.D.	10
N-Nitrosodibutylamine	N.D.	25
N-Nitrosodimethylamine	N.D.	25
N-Nitrosodiphenylamine	N.D.	50
N-Nitroso-di-n-propylamine	N.D.	25
N-Nitrosopiperidine	N.D.	25
Pentachlorobenzene	N.D.	10
Pentachloronitrobenzene	N.D.	50
Phenacetin	*N.D.*	*50*
Phenanthrene	212	5
2-Picoline	N.D.	25
Pronamide	N.D.	50
Pyrene	23	5
1,2,4,5-Tetrachlorobenzene	N.D.	10
1,2,4-Trichlorobenzene	N.D.	5

Semivolatile Acid Extractable Compounds

Compound	Concentration, mg/Kg (ppm)	Reporting Limit
4-Chloro-3-methylphenol	N.D.	25
2-Chlorophenol	N.D.	5
2,4-Dichlorophenol	N.D.	25
2,6-Dichlorophenol	N.D.	25
2,4-Dimethylphenol	N.D.	5
4,6-Dinitro-2-methylphenol	N.D.	100
2,4-Dinitrophenol	N.D.	100
2-Methylphenol	N.D.	5
4-Methylphenol	N.D.	5
2-Nitrophenol	N.D.	50
4-Nitrophenol	N.D.	50
Pentachlorophenol	N.D.	50
Phenol	N.D.	5
2,3,4,6-Tetrachlorophenol	N.D.	25
2,4,5-Trichlorophenol	N.D.	25
2,4,6-Trichlorophenol	N.D.	25

Surrogates:

Compound	% Recovery	Limits
Nitrobenzene d5	90	23-120
2-Fluorobiphenyl	114	30-115
p-Terphenyl d14	67	18-137
Phenol d6	97	24-113
2,4,6-Tribromophenol	52	19-122
2-Fluorophenol	101	25-121

Sample: SGA-TP6A

Case No. D0623-02

Date TCLP Extracted: 6/23/93
Date Analyzed*: 6/29/93

TCLP Extractable Metals:	Result, mg/L	Regulatory Limit, mg/L
Arsenic	<0.1	5.0
Barium	<0.5	100.0
Cadmium	<0.05	1.0
Chromium	<0.05	5.0
Lead	0.44	5.0
Mercury	0.008	0.2
Selenium	<0.1	1.0
Silver	<0.05	5.0

* Date Completed

Sample: SGA-TP6A

Case No. D0623-02

Date TCLP Extracted: 6/29/93
Date Analyzed: 7/1/93

TCLP Volatile Organic Compounds:

Compound	Concentration mg/L (ppm)	Regulatory Limit, mg/L (ppm)
Benzene	0.24	0.5
Carbon Tetrachloride	<0.02	0.5
Chlorobenzene	<0.02	100.0
Chloroform	<0.02	6.0
1,4-Dichlorobenzene	<0.02	7.5
1,2-Dichloroethane	<0.02	0.5
1,1-Dichloroethylene	<0.02	0.7
Methyl Ethyl Ketone (MEK)	<0.5	200.0
Tetrachloroethylene	<0.02	0.7
Trichloroethylene	<0.02	0.5
Vinyl Chloride	<0.04	0.2

Surrogates:	% Recovery	Limits
Toluene d8	94	88-110
1,2-Dichloroethane-d4	109	76-114
4-Bromofluorobenzene	115	86-115

Sample: SGA-TP6A Case No. D0623-02

Date TCLP Extracted: 6/23/93
Date Prep Extracted: 6/30/93
Date Analyzed: 7/6/93

TCLP Extractable Pesticides/Herbicides:

Compound	Concentration mg/L (ppm)	Regulatory Limit, mg/L (ppm)
Chlordane	<0.01	0.03
2,4-D	<0.05	10.0
Endrin	<0.001	0.02
Heptachlor	<0.001	0.008
Heptachlor Epoxide	<0.001	0.008
Lindane	<0.001	0.4
Methoxychlor	<0.005	10.0
Toxaphene	<0.01	0.5
2,4,5-TP Silvex	<0.05	1.0

Sample: SGA-TP6A

Case No. D0623-02

Date TCLP Extracted: 6/23/93
Date Prep Extracted: 6/30/93
Date Analyzed: 7/6/93

TCLP Semivolatile Base/Neutral Extractable Compounds:

Compound	Concentration mg/L (ppm)	Regulatory Limit, mg/L (ppm)
1,4-Dichlorobenzene	<0.05	7.5
Hexachlorobenzene	<0.05	0.13
Hexachloro-1,3-butadiene	<0.05	0.5
Hexachloroethane	<0.05	3.0
Nitrobenzene	<0.05	2.0
Pyridine	<0.05	5.0
2,4-Dinitrotoluene	<0.05	0.13

TCLP Semivolatile Acid Extractable Compounds:

Compound	Concentration mg/L (ppm)	Regulatory Limit, mg/L (ppm)
o-Cresol	<0.1	200.0
m-Cresol	<0.1	200.0
p-Cresol	<0.1	200.0
Pentachlorophenol	<0.1	100.0
2,4,5-Trichlorophenol	<0.1	400.0
2,4,6-Trichlorophenol	<0.1	2.0

Surrogates:	% Recovery	Limits
Nitrobenzene d5	78	35-114
2-Fluorobiphenyl	94	43-116
p-Terphenyl d14	83	33-141
Phenol d6	65	10-94
2-Fluorophenol	73	21-100
2,4,6-Tribromophenol	54	10-123

CUSTODY RECORD

NEW ENGLAND TESTING LABORATORY, INC.
1254 Douglas Avenue
North Providence, RI 02904

D0623-02

CHAIN OF CUSTODY RECORD

PROJ. NO. 16000-444 | PROJECT NAME: BALLFIELDS – TREATABILITY STUDY SAMPLING

CLIENT: DAMES & MOORE

SAMPLE I.D.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	TESTS: VOCs (8240) ✓	SVOCs (8270) ✓	PCBs (8080) ✓	TPH by IR ✓	TCLP Scan ✓	RCRA Characteristics ✓	TOX ✓	Total Moisture ✓	Total Solids ✓	REMARKS
B-TP1A	6-21-93	0910		✓	AREA B – TEST TRENCH 1	1	→	→	→	→	→	→	→	→	→	One jar per sample location. Results
QC–B-TP2A	6-21-93	1020	✓		AREA B – TEST TRENCH 2	1	→	→	→	→	→	→	→	→	→	reported to Dames & Moore within
B-TP3A	6-21-93	1145	✓		AREA B – TEST TRENCH 3	1	→	→	→	→	→	→	→	→	→	10 business days of sample receipt
B-TP5A	6-21-93	1310		✓	AREA B – TEST TRENCH 5	1	→	→	→	→	→	→	→	→	→	
SGA-TP2A	6-22-93	1000	✓		SOIL GAS ANOMALY – TRENCH 2	1	→	→	→	→	→	→	→	→	→	
SGA-TP2B	6-22-93	1000	✓		" " " " "	1	→	→	→	→	→	→	→	→	→	
SGA-TP3A	6-22-93	1030	✓		SOIL GAS ANOMALY – TRENCH 3	1	→	→	→	→	→	→	→	→	→	
QC–SGA-TP3B	6-22-93	1035		✓	" " " " "	1	→	→	→	→	→	→	→	→	→	
SGA-TP3C	6-22-93	1040		✓	" " " " "	1	→	→	→	→	→	→	→	→	→	
SGA-TP4A	6-22-93	1215		✓	SOIL GAS ANOMALY – TRENCH 4	1	→	→	→	→	→	→	→	→	→	
SGA-TP5A	6-22-93	1245		✓	SOIL GAS ANOMALY – TRENCH 5	1	→	→	→	→	→	→	→	→	→	
SGA-SOIL	6-22-93	1300	✓	~~✓~~	SOIL GAS ANOMALY AREA	1	→	→	→	→	→	→	→	→	→	
SGA-TP6A	6-22-93	1415		✓	SOIL GAS ANOMALY – TRENCH 6	1	→	→	→	→	→	→	→	→	→	

02.A

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
[signature]	6-22-93 | 1645				
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Relinquished by: (Signature)	Date/Time	Received for Laboratory by: (Signature)	Date/Time	Remarks	
		[signature]	6/23/93		