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*GF Project No.*  
47743

## **REMEDIAL INVESTIGATION WORK PLAN**

202-218 MORGAN AVENUE  
BROOKLYN, NEW YORK

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PROJECT #47743  
SEPTEMBER 2009



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## **1.0 INTRODUCTION**

Gannett Fleming Engineers, P.C. (GF), on behalf of Frito-Lay, Inc., has prepared this Work Plan for the remedial investigation (RI) at 202-218 Morgan Avenue, Brooklyn, New York (Figure 1). The purpose of this RI is to quantify and delineate subsurface impacted soil and groundwater, identify potential contaminant sources, migration paths and receptors, assess the actual and potential threat to human health, fish and wildlife and the environment, and assess remedial alternatives based upon the findings.

The proposed scope of work is as follows as recommended by the NYSDEC:

- Two (2) soil borings will be advanced on site along English Kills;
- Thirteen (13) soil borings will be advanced at various on site locations to complete the 50' x 50' sampling grid;
- Two (2) surface water samples will be collected;
- Four (4) sediment samples will be collected from Newtown Creek;
- One (1) on-site and two (2) off-site upgradient groundwater monitoring wells will be installed; and,
- Eight (8) groundwater monitoring wells sampled.

The existing surface soil samples, debris pile samples, soil boring locations, and monitoring well locations discussed in this RI Work Plan are presented on Figure 2. The proposed soil borings, soil gas probe, sediment sample, surface water, and groundwater monitoring well locations are presented on Figure 37.

This information, in conjunction with data collected from previous investigations, will be used to determine future remedial actions.

This Work Plan includes:

- Historical background and physical site conditions,
- Description of sensitive receptors and land use within one half mile radius of the site boundary,
- Detailed work scope with proposed sampling locations and rationale for the sampling,
- Sampling methodology and QA/QC procedures,
- Community Air Monitoring Plan,
- Health and Safety protocols, and
- Personnel qualifications.

## **2.0 HISTORICAL BACKGROUND**

### **2.1 Site Location and Description**

The site is located at 202-218 Morgan Avenue, Brooklyn, New York. The site is located adjacent to the west side of English Kills on the eastern side of Morgan Avenue between Ten Eyck Street and Stagg Street. The site is located near the north end of the borough of Brooklyn approximately 1.9 miles east of the East River, and approximately 5.5 miles south of LaGuardia Airport. The site is located approximately at latitude 40° 42' 42" North and Longitude 73° 55' 59" West and found in the New York City Borough, Block, and Lot designation system at Borough 3, Block 2942, and Lot 105. A site location map created from the United States Geological Survey (USGS) 7.5-minute "Brooklyn, New York" Quadrangle is presented as Figure 1.

The site is currently vacant with multiple debris piles throughout. Past use of the property as a solid waste storage facility has potentially impacted subsurface conditions. Past historical uses of surrounding properties within the inferred upgradient groundwater flow path of the subject property included a chromium-plating business, multiple machine shops, metal finishing shops, foundries, and electrical equipment manufacturing. Regional groundwater quality has potentially been impacted by the heavy industrial use of the neighborhood. This impacted upgradient groundwater has potentially impacted subsurface conditions at the subject property.

### **2.2 Historical Site Investigation and Remediation Activities**

In October 2003, Gannett Fleming Engineers, P.C. (GF) performed a Subsurface Investigation at 202-218 Morgan Avenue in Brooklyn, New York. The subsurface investigation was performed to assess the environmental quality of the site prior to the potential purchase by Steel Quattro,

LLC. The subsurface investigation included the collection and analysis of eight soil borehole samples, five surficial soil samples, and four groundwater samples.

These analytical results were originally compared to NYSDEC TAGM recommended soil cleanup objective (RSCOs). Based upon the analysis of surface and subsurface soil samples collected as compared to RSCOs, semi-volatile organic compounds (SVOC) and metal impacts were prevalent throughout most of the property. SVOC impacts appeared to be greatest to the east of the building located near the middle of the site. Elevated lead and mercury concentrations appeared to be ubiquitous. Polychlorinated biphenyl (PCB) surface soil impacts were encountered throughout the site, as well as subsurface soil impacts east of the building. Elevated volatile organic compound (VOC) concentrations, including chlorinated compounds were encountered in surface and subsurface soils collected between the lean-to and the building. Several drums were observed in this area which potentially may represent an on-site VOC source area.

The 2003 soil sample results as compared to Brownfields Cleanup Objectives (BCO) for Protection of Groundwater (BCO PG) and BCO for Protection of Public Health-Commercial (BCO PPHC) are presented in Figures 3 through 16.

### **2.2.1 Surficial Soil Sample Analytical Results - 2003**

Surficial soil sample results reported VOCs consisting of 1,2-dichloroethene, acetone, tetrachloroethene, trichloroethene, and vinyl chloride at concentrations above the BCO PG, but below BCO PPHC. At SS-3 acetone was detected at a concentration of 260 micrograms per kilogram ( $\mu\text{g/kg}$ ) which is above the BCO PG concentration of 50  $\mu\text{g/kg}$ , 1,2-dichloroethene (DCE) was detected at a concentration of 290  $\mu\text{g/kg}$  which is above the BCO PG concentration of 190  $\mu\text{g/kg}$ , tetrachloroethene (PCE) was detected at a concentration of 29,000  $\mu\text{g/kg}$  which is above the BCO PG concentration of 1,300  $\mu\text{g/kg}$ , trichloroethene (TCE) was detected at a concentration of 1,500  $\mu\text{g/kg}$  which is above the BCO PG concentration of 470  $\mu\text{g/kg}$ , and vinyl

chloride was detected at a concentration of 310 µg/kg which is above the BCO PG concentration of 20 µg/kg. These results are presented in Table 1 and Figure 3.

Surficial soil sample results reported concentrations of benzo(a)pyrene and dibenzo(a,h)anthracene above BCO PPHC at SS-1, SS-2, SS-3, and SS-4. Benzo(a)pyrene was detected at concentrations ranging from 4,500 µg/kg (SS-1) to 1,500 µg/kg (SS-3). Dibenzo(a,h)anthracene was detected at concentrations ranging from 1,300 µg/kg (SS-1) to 620 µg/kg (SS-3). These reported concentrations are above the BCO PPHC of 1,000 µg/kg for benzo(a)pyrene and 560 µg/kg dibenzo(a,h)anthracene. These results are presented in Table 2 and Figure 4.

Surficial soil sample results reported concentrations of benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, and chrysene above the BCO PG at SS-1, SS-2, SS-3, and SS-4. Benzo(a)anthracene was detected at concentrations ranging from 4,300 µg/kg (SS-2) to 1,600 µg/kg (SS-3). Benzo(b)fluoranthene was detected at concentrations ranging from 4,000 µg/kg (SS-1) to 1,900 µg/kg (SS-3). Benzo(k)fluoranthene was detected at concentrations ranging from 4,000 µg/kg (SS-1) to 1,900 µg/kg (SS-3). Chrysene was detected at concentrations ranging from 4,200 µg/kg (SS-2) to 1,800 µg/kg (SS-3). These reported concentrations are above the BCO PG of 1,000 µg/kg for benzo(a)anthracene and chrysene and 1,700 µg/kg for benzo(b)fluoranthene and benzo(k)fluoranthene. These results are presented in Table 2 and Figure 5.

Surficial soil sample results reported concentration of PCBs above the BCO PPHC at SS-1, SS-2, SS-3, SS-4 and SS-5. Aroclor 1242 was detected at SS-3, SS-4, and SS-5 with concentrations ranging from 8,500 µg/kg (SS-3) to 190,000 µg/kg (SS-5). Aroclor 1254 was detected at SS-2 with a concentration of 2,900 µg/kg. Aroclor 1260 was detected at SS-1 with a concentration of 11,000 µg/kg. These PCB concentrations are above the BCO PPHC of 1,000 µg/kg for Aroclor 1242, 1254, and 1260 and above the BCO PG of 3,200 µg/kg for Aroclor 1242 and 1260. These results are presented in Table 3 and Figures 6 and 7.

Surficial soil samples results reported concentrations of arsenic, barium, cadmium, lead, and mercury above BCO PPHC. Arsenic was detected at SS-1 and SS-4 with concentrations ranging from 26 milligrams per kilogram (mg/kg) (SS-1) to 34 mg/kg (SS-4). Barium was detected at SS-1, SS-2, SS-3, SS-4, and SS-5 with concentrations ranging from 400 mg/kg (SS-2) to 820 mg/kg (SS-1). Cadmium was detected at SS-1, SS-3, SS-4, and SS-5 with concentrations ranging from 15 mg/kg (SS-3) to 54 mg/kg (SS-5). Lead was detected at SS-1, SS-3, SS-4, and SS-5 with concentrations ranging from 1,000 mg/kg (SS-3) to 50,000 mg/kg (SS-1). Mercury was detected at SS-1, SS-3, SS-4, and SS-5 with concentrations ranging from 2.8 mg/kg (SS-4) to 20 mg/kg (SS-1). These concentrations are above the BCO PPHC of 16 mg/kg for arsenic, 400 mg/kg for barium, 9.3 mg/kg for cadmium, 1,000 mg/kg for lead), and 2.8 mg/kg for mercury. These results are presented in Table 4 and Figure 8.

Surficial soil samples results reported concentrations of arsenic, barium, cadmium, chromium, lead, mercury, and selenium above BCO PG. Arsenic was detected at SS-1 and SS-4 with concentrations ranging from 26 milligrams per kilogram (mg/kg) (SS-1) to 34 mg/kg (SS-4). Barium was detected at SS-1 with a concentration of 820 mg/kg. Cadmium was detected at SS-1, SS-3, SS-4, and SS-5 with concentrations ranging from 15 mg/kg (SS-3) to 54 mg/kg (SS-5). Chromium was detected at SS-1, SS-2, SS-3, SS-4, and SS-5 with concentrations ranging from 38 mg/kg (SS-2) to 200 mg/kg (SS-5). Lead was detected at SS-1, SS-2, SS-3, SS-4, and SS-5 with concentrations ranging from 740 mg/kg (SS-2) to 50,000 mg/kg (SS-1). Mercury was detected at SS-1, SS-2, SS-3, SS-4, and SS-5 with concentrations ranging from 1.2 mg/kg (SS-2) to 20 mg/kg (SS-1). Selenium was detected at SS-1, SS-2, SS-3, and SS-4 with concentrations ranging from 4.2 mg/kg (SS-1) to 120 mg/kg (SS-4). These reported concentrations are above the BCO PG of 16 mg/kg for arsenic, 820 mg/kg for barium, 7.5 mg/kg for cadmium, 19 mg/kg for chromium, 450 mg/kg for lead, 0.73 mg/kg for mercury, and 4 mg/kg for selenium. These results are presented in Table 4 and Figure 9.

Soil boring sample results reported concentrations of 1,2-dichloroethene, 2-butanone, acetone, benzene, ethyl benzene, toluene, vinyl chloride, and total xylenes above BCO PG, but below BCO PPHC. 1,2-dichloroethene was detected at SB-4 (4.5 to 6 feet) with a concentration of 490



µg/kg. 2-butanone was detected at SB-7 (4 to 5.5 feet) with a concentration of 200 µg/kg. Acetone was detected at SB-6 (6 to 8 feet) and SB-8 (0 to 3 feet) with concentrations ranging from 150 µg/kg (SB-8) to 820 µg/kg (SB-7). Benzene was detected at SB-4 and SB-6 with concentrations ranging from 65 µg/kg (SB-6) to 160 µg/kg (SB-4). Ethylbenzene was detected at SB-6 with a concentration of 1,100 µg/kg. Toluene was detected at SB-6 and SB-7 with concentrations ranging from 870 µg/kg (SB-7) to 1,600 µg/kg (SB-6). Vinyl chloride was detected at SB-6 with a concentration of 6,900 µg/kg. Total xylenes were detected at a concentration of 2,700 µg/kg at SB-6. These reported concentrations are above the BCO PG of 190 µg/kg for 1,2-dichloroethene, 120 µg/kg for 2-butanone, 50 µg/kg for acetone, 60 µg/kg for benzene, 1,000 µg/kg for ethylbenzene, 700 µg/kg for toluene, 20 µg/kg for vinyl chloride, and 1,600 µg/kg for total xylenes. These results are presented in Table 5 and Figure 10.

Soil boring sample results reported concentrations of benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene above BCO PPHC and benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, and chrysene above BCO PG. Benzo(a)anthracene was detected at SB-5 (0 to 4 feet) and SB-6 (6 to 8 feet) with concentrations ranging from 14,000 µg/kg (SB-6) to 20,000 µg/kg (SB-5). Benzo(a)pyrene was detected at SB-4 (4.5 to 6 feet), SB-5 (0 to 4 feet), SB-6 (6 to 8 feet), SB-7 (4 to 5.5 feet), and SB-8 (0 to 3 feet) with concentrations ranging from 1,400 µg/kg (SB-4) to 14,000 µg/kg (SB-5). Benzo(b)fluoranthene was detected at SB-5 (0 to 4 feet) and SB-6 (6 to 8 feet) with concentrations ranging from 12,000 µg/kg (SB-6) to 15,000 µg/kg (SB-5). Dibenzo(a,h)anthracene was detected at SB-5 (0 to 4 feet), SB-6 (6 to 8 feet), SB-7 (4 to 5.5 feet), and SB-8 (0 to 3 feet) with concentrations ranging from 590 µg/kg (SB-8) to 2,600 µg/kg (SB-5). Indeno(1,2,3-cd)pyrene was detected at SB-5 (0 to 4 feet) with a concentration of 6,400 µg/kg. These reported concentrations are above the BCO PPHC of 5,600 µg/kg for benzo(a)anthracene, 1,000 µg/kg for benzo(a)pyrene, 5,600 µg/kg for benzo(b)fluoranthene, 560 µg/kg for dibenzo(a,h)anthracene, and 5,600 µg/kg for indeno(1,2,3-cd)pyrene. These results are presented in Table 6 and Figure 11.

Soil boring sample results reported concentrations of benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, and chrysene above BCO PG. Benzo(a)anthracene was detected at SB-4 (4.5 to 6 feet), SB-5 (0 to 4 feet), SB-6 (6 to 8 feet), SB-7 (4 to 5.5 feet), and SB-8 (0 to 3 feet) with concentrations ranging from 1,500 µg/kg (SB-4) to 20,000 (SB-5). Benzo(a)pyrene was detected at SB-4 (4.5 to 6 feet), SB-5 (0 to 4 feet), SB-6 (6 to 8 feet), SB-7 (4 to 5.5 feet), and SB-8 (0 to 3 feet) with concentrations ranging from 1,400 µg/kg (SB-4) to 14,000 µg/kg (SB-5). Benzo(b)fluoranthene was detected at SB-5 (0 to 4 feet), SB-6 (6 to 8 feet), SB-7 (4 to 5.5 feet), and SB-8 (0 to 3 feet) with concentrations ranging from 3,500 µg/kg (SB-7) to 15,000 µg/kg (SB-5). Benzo(k)fluoranthene was detected at SB-5 (0 to 4 feet), SB-6 (6 to 8 feet), SB-7 (4 to 5.5 feet), and SB-8 (0 to 3 feet) with concentrations ranging from 3,500 µg/kg (SB-7) to 15,000 µg/kg (SB-5). Chrysene was detected at SB-3 (7 to 9.5 feet), SB-4 (4.5 to 6 feet), SB-5 (0 to 4 feet), SB-6 (6 to 8 feet), SB-7 (4 to 5.5 feet), and SB-8 (0 to 3 feet) with concentrations ranging from 1,100 µg/kg (SB-3) to 17,000 µg/kg (SB-5). These reported concentrations are above the BCO PG of 1,000 µg/kg for benzo(a)anthracene, 1,700 µg/kg for benzo(b)fluoranthene, 1,700 µg/kg for benzo(k)fluoranthene, and 1,000 µg/kg for chrysene. These results are presented in Table 6 and Figure 12.

Soil boring sample results reported concentrations of PCBs above the BCO PPHC at SB-3 (7 to 9.5 feet), SB-4 (4.5 to 6 feet), SB-5 (0 to 4 feet), SB-6 (6 to 8 feet), SB-7 (4 to 5.5 feet), and SB-8 (0 to 3 feet). Aroclor 1242 was detected at SB-3, SB-6, and SB-8 with concentrations ranging from 1,300 µg/kg (SB-3) to 85,000 µg/kg (SB-8). Aroclor 1254 was detected at SB-4, SB-5, and SB-7 with concentrations ranging from 1,600 µg/kg (SB-4) to 33,000 µg/kg (SB-7). These PCB concentrations are above the BCO PPHC of 1,000 µg/kg for Aroclor 1242 and 1254. These results are presented in Table 7 and Figure 13.

Soil boring sample results reported concentrations of PCBs above the BCO PG at SB-5 (0 to 4 feet), SB-6 (6 to 8 feet), SB-7 (4 to 5.5 feet), and SB-8 (0 to 3 feet). Aroclor 1242 was detected at SB-6 and SB-8 with concentrations ranging from 32,000 µg/kg (SB-6) to 85,000 µg/kg (SB-8). Aroclor 1254 was detected at SB-5 and SB-7 with concentrations ranging from 3,400 µg/kg

(SB-5) to 33,000 µg/kg (SB-7). These PCB concentrations are and above the BCO PG of 3,200 µg/kg for Aroclor 1242 and 1254. These results are presented in Table 7 and Figure 14.

Soil boring sample results reported concentrations of arsenic, barium, cadmium, lead, and mercury above BCO PPHC. Arsenic was detected at SB-4 (4.5 to 6 feet) with a concentration of 28 mg/kg. Barium was detected at SB-6 (6 to 8 feet), SB-7 (4 to 5.5 feet), and SB-8 (0 to 3 feet) with concentrations ranging from 440 mg/kg (SB-8) to 590 mg/kg (SB-7). Cadmium was detected at SB-6 (6 to 8 feet), SB-7 (4 to 5.5 feet), and SB-8 (0 to 3 feet) with concentrations ranging from 17 mg/kg (SB-8) to 43 mg/kg (SB-7). Lead was detected at SB-6 (6 to 8 feet), SB-7 (4 to 5.5 feet), and SB-8 (0 to 3 feet) with concentrations ranging from 1,000 mg/kg (SB-8) to 8,200 mg/kg (SB-8). Mercury was detected at SB-6 (6 to 8 feet) and SB-7 (4 to 5.5 feet) with concentrations ranging from 6.5 mg/kg (SB-6) to 9.9 mg/kg (SB-7). These concentrations are above the BCO PPHC of 16 mg/kg for arsenic, 400 mg/kg for barium, 9.3 mg/kg for cadmium, 1,000 mg/kg for lead, and 2.8 mg/kg for mercury. These results are presented in Table 8 and Figure 15.

Soil boring sample results reported concentrations of arsenic, cadmium, chromium, lead, mercury, and selenium above BCO PG. Arsenic was detected at SB-4 (4.5 to 6 feet) with a concentration of 28 mg/kg. Cadmium was detected at SB-6 (6 to 8 feet), SB-7 (4 to 5.5 feet), and SB-8 (0 to 3 feet) with concentrations ranging from 17 mg/kg (SB-8) to 43 mg/kg (SB-7). Chromium was detected at SB-3 (7 to 9.5 feet), SB-4 (4.5 to 6 feet), SB-5 (0 to 4 feet), SB-6 (6 to 8 feet), SB-7 (4 to 5.5 feet), and SB-8 (0 to 3 feet) with concentrations ranging from 30 mg/kg (SB-4) to 220 mg/kg (SB-6). Lead was detected at SB-3 (7 to 9.5 feet), SB-5 (0 to 4 feet), SB-6 (6 to 8 feet), SB-7 (4 to 5.5 feet), and SB-8 (0 to 3 feet) with concentrations ranging from 700 mg/kg (SB-3) to 8,200 mg/kg (SB-8). Mercury was detected at SB-3 (7 to 9.5 feet), SB-5 (0 to 4 feet), SB-6 (6 to 8 feet), SB-7 (4 to 5.5 feet), and SB-8 (0 to 3 feet) with concentrations ranging from 1.2 mg/kg (SB-5) to 9.9 mg/kg (SB-7). Selenium was detected at SB-3 (7 to 9.5 feet) with a concentration of 5.7 mg/kg. These reported concentrations are above the BCO PG of 16 mg/kg for arsenic, 7.5 mg/kg for cadmium, 19 mg/kg for chromium, 450 mg/kg for lead, 0.73 mg/kg for mercury, and 4 mg/kg for selenium. These results are presented in Table 8 and Figure 16.

Elevated lead and mercury concentrations were observed in the groundwater throughout the site. The highest levels of metal impacts were detected in the groundwater sample collected from the eastern edge of the site along the English Kills. Elevated VOC concentrations were detected in the groundwater sample collected between the lean-to and the building. At GW-3, 1,2-dichloroethene was detected at a concentration of 2,900 µg/l, benzene was detected at a concentration of 2 µg/l, tetrachloroethene was detected at a concentration of 12 µg/l, trichloroethene was detected at a concentration of 15 µg/l, and vinyl chloride was detected at a concentration of 2,500 µg/l, and at GW-4, acetone was detected at a concentration of 76 µg/l. These concentrations are above the NYSDEC Ambient Groundwater Quality Standards of 5 µg/l for 1,2-dichloroethene, 50 µg/l for acetone, 1 µg/l for benzene, 5 µg/l for tetrachloroethene, 5 µg/l for trichloroethene, and 2 µg/l for vinyl chloride. These results are presented in Table 9 and Figure 17.

An elevated SVOC concentration was detected in the groundwater sample collected at GW-1. Bis(2-ethylhexyl)phthalate was detected at a concentration of 6 µg/l, which is above the NYSDEC Ambient Groundwater Quality Standards of 5 µg/l. This result is presented in Table 10 and Figure 18.

Elevated metal concentrations were detected in all groundwater monitoring wells installed at the site. At GW-1, lead was detected at a concentration 0.11 mg/l, at GW-2, arsenic was detected at a concentration of 0.031 mg/l, lead was detected at a concentration of 0.61 mg/l, and mercury was detected at a concentration of 0.002 mg/l, at GW-3, cadmium was detected at a concentration of 0.006, lead was detected at a concentration of 2.7 mg/l, and mercury was detected at a concentration of 0.0018 mg/l, and at GW-4, arsenic was detected at a concentration of 0.32, barium was detected at a concentration of 310 mg/l, cadmium was detected at a concentration of 0.13 mg/l, chromium was detected at a concentration of 0.8 mg/l, lead was detected at a concentration of 19 mg/l, and mercury was detected at a concentration of 0.092 mg/l. These concentrations are above the NYSDEC Ambient Groundwater Quality Standards of

0.25 mg/l for arsenic, 1 mg/l for barium, 0.005 mg/l for cadmium, 0.05 mg/l for chromium, 0.025 for lead, and 0.0007 for mercury. These results are presented in Table 11 and Figure 19.

### **2.2.2 Phase I Environmental Site Assessment - 2006**

In December 2006, Frito Lay, Inc. retained GF to perform a Phase I Environmental Site Assessment (ESA) of 202-218 Morgan Avenue, Brooklyn, New York. Pre-inspection activities consisted of an environmental database search and historical document review. On-site activities consisted of a site reconnaissance to assess current conditions, to identify visible evidence of spills, discharges, or other potential environmental liabilities, and to review historical site operations. Freedom of Information Law (FOIL) requests were submitted to federal, state, and local regulatory agencies.

The Phase I ESA revealed six environmental conditions (ECs) and two *de minimis* concerns in connection with the site.

The following lists the recommendations included in the Phase I ESA report based upon the ECs:

- During the site reconnaissance performed by GF in December 2006, numerous debris piles were observed throughout the site. These piles contained an array of miscellaneous debris ranging from tires and concrete pillars to plastics and domestic wastes. Additionally, the October 2003 investigation report by GF identified VOC, SVOC, PCB, and metals impacts to soil and groundwater on the subject property. Due to the past usage of the property as a scrap metal yard, and the present condition of the property, soil, groundwater and soil gas sampling and analysis were recommended.
- Past historical uses of surrounding properties within the inferred upgradient groundwater flow path of the subject property include a chromium-plating business, multiple machine shops, metal finishing shops, foundries, and electrical equipment manufacturing. Regional groundwater quality has potentially been impacted by the heavy industrial use

of the neighborhood. This impacted upgradient groundwater potentially impacted subsurface conditions at the subject property. Soil, groundwater, and soil gas sample collection and analysis were recommended to identify whether the subject property was impacted by upgradient site activities. Additionally, the surrounding sites of concern should be researched to determine if more information is available from regulatory agencies.

### **2.2.3 Surficial Soil and Debris Pile Analytical Results - 2007**

In January 2007, GF prepared the Surface Pile Characterization Work Plan to address the disposal issues. Surficial soil and debris pile samples were collected on February 23, 2007. The results of the debris pile and surficial investigation indicate the presence of elevated levels of VOCs, SVOCs, PCBs and metals.

Surficial soil and debris pile sample results reported acetone, cis-1,2-dichloroethene, tetrachloroethene, trichloroethene, and vinyl chloride) above BCO PG, but below BCO PPHC in one surficial soil sample (SS-3) located in the southern portion of the site along English Kills. Acetone was detected at SS-2 with a concentration of 62 µg/kg. At SS-3, cis-1,2-dichloroethene was detected at a concentration of 260 µg/kg, tetrachloroethene was detected at a concentration of 11,000 µg/kg, trichloroethene was detected at a concentration of 470 µg/kg, and vinyl chloride was detected at a concentration of 23 µg/kg. These results are above the BCO PG of 50 µg/kg for acetone, 250 µg/kg for cis-1,2-dichloroethene, 1,300 µg/kg for tetrachloroethene, 470 µg/kg for trichloroethene, and 20 µg/kg for vinyl chloride. These results are presented in Tables 12 and 13, and Figure 20.

Surficial soil and debris pile sample results reported benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene) above the BCO PPHC. At SS-5, benzo(a)anthracene was detected at a concentration of 16,000 µg/kg, benzo(a)pyrene was detected at a concentration of 21,000 µg/kg, benzo(b)fluoranthene was detected at a concentration of 12,000 µg/kg, dibenzo(a,h)anthracene was detected at a concentration of 5,200 µg/kg, and indeno(1,2,3-cd)pyrene was detected at a concentration of

18,000 µg/kg. These results are above the BCO PPHC of 5,600 µg/kg for benzo(a)pyrene, 1,000 µg/kg for benzo(a)pyrene, 5,600 µg/kg for benzo(b)fluoranthene, 560 µg/kg for dibenzo(a,h)anthracene, and 5,600 µg/kg for indeno(1,2,3-cd)pyrene. These results are presented in Tables 14 and 15, and Figure 21.

Surficial soil and debris pile sample results reported benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, indeno(1,2,3-cd)pyrene, and phenol above BCO PG. At SS-2, phenol was detected at a concentration of 13,000 µg/kg, at SS-3, benzo(b)fluoranthene was detected at a concentration of 12,000 µg/kg, at SS-5, benzo(a)anthracene was detected at a concentration of 16,000 µg/kg, benzo(b)fluoranthene was detected at a concentration of 12,000 µg/kg, benzo(k)fluoranthene was detected at a concentration of 4,000 µg/kg, chrysene was detected at a concentration of 15,000 µg/kg, indeno(1,2,3-cd)pyrene was detected at a concentration of 18,000 µg/kg, and naphthalene was detected at a concentration of 16,000 µg/kg. These results are above the BCO PG of 1,000 µg/kg for benzo(a)pyrene and chrysene, 1,700 µg/kg for benzo(b)fluoranthene and benzo(k)fluoranthene, 8,200 µg/kg for indeno(1,2,3-cd)pyrene, 12,000 µg/kg for naphthalene, and 330 µg/kg for phenol. These results are presented in Tables 14 and 15, and Figure 22.

Surficial soil and debris pile sample results reported concentrations of PCBs above BCO PPHC. Aroclor 1248 was detected at SS-1, SS-2, SS-3, SS-4, SS-5, SS-6, DP-1, DP-2, DP-3, and DP-6, with concentrations ranging from 8,200 µg/kg (SS-5) to 75,000 µg/kg (SS-2). Aroclor 1260 was detected at SS-2, SS-6, and DP-5 with concentrations ranging from 4,200 µg/kg to 7,400 µg/kg. These results are above the BCO PPHC of 1,000 µg/kg for Aroclor 1248 and Aroclor 1260. These results are presented in Tables 16 and 17, and Figure 23.

Surficial soil and debris pile sample results reported concentrations of PCBs above BCO PG. Aroclor 1248 was detected at SS-1, SS-2, SS-3, SS-4, SS-5, SS-6, DP-1, DP-2, DP-3, and DP-5 with concentrations ranging from 8,200 µg/kg (SS-5) to 75,000 µg/kg (SS-2). Aroclor 1260 was detected at SS-2, SS-6, and DP-5 with concentrations ranging from 4,200 µg/kg to 7,400 µg/kg.



These results are above the BCO PG of 3,200 µg/kg for Aroclor 1248 and Aroclor 1260. These results are presented in Tables 16 and 17, and Figure 24.

Surficial soil and debris pile sample results reported concentrations of arsenic, barium, cadmium, chromium, lead, and mercury above BCO PPHC. Arsenic was detected at SS-1, SS-2, and SS-6 with concentrations ranging from 22 mg/kg (SS-1) to 52.6 mg/kg (SS-2). Barium was detected at SS-1, SS-2, SS-3, SS-4, SS-5, SS-6, DP-1, DP-2, DP-3, DP-5, and DP-6 with concentrations ranging from 464 mg/kg (DP-2) to 4,580 mg/kg (DP-6). Cadmium was detected at SS-1, SS-2, SS-3, SS-4, SS-6, DP-1, DP-2, and DP-3 with concentrations ranging from 16.9 mg/kg (SS-4) to 82 mg/kg (SS-6). Lead was detected at SS-1, SS-2, SS-3, SS-4, SS-5, SS-6, DP-1, DP-2, DP-3, and DP-6 with concentrations ranging from 1,040 mg/kg (DP-2) to 9,790 mg/kg (SS-2). Mercury was detected at SS-2, SS-3, SS-6, and DP-3 with concentrations ranging from 4.9 mg/kg (DP-3) to 11.1 mg/kg (SS-6). These concentrations are above the BCO PPHC of 16 mg/kg for arsenic, 400 mg/kg for barium, 9.3 mg/kg for cadmium, 400 mg/kg for chromium, 1,000 mg/kg for lead, and 2.8 mg/kg for mercury. These results are presented in Tables 18 and 19, and Figure 25.

Surficial soil and debris pile sample results reported concentrations of arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver above BCO PG. Arsenic was detected at SS-1, SS-2, and SS-6 with concentrations ranging from 22 mg/kg (SS-1) to 52.6 mg/kg (SS-2). Barium was detected at SS-2, SS-4, SS-5, SS-6, DP-3, and DP-6 with concentrations ranging from 873 mg/kg (SS-4) to 4,580 mg/kg (DP-6). Cadmium was detected at SS-1, SS-2, SS-3, SS-4, SS-6, DP-1, DP-2, and DP-3 with concentrations ranging from 16.9 mg/kg (SS-4) to 82 mg/kg (SS-6). Chromium was detected at SS-1, SS-2, SS-3, SS-4, SS-5, SS-6, DP-1, DP-2, and DP-3 with concentrations ranging from 47.6 mg/kg (SS-5) to 798 mg/kg (SS-6). Lead was detected at SS-1, SS-2, SS-3, SS-4, SS-5, SS-6, DP-1, DP-2, DP-3, DP-5, and DP-6 with concentrations ranging from 930 mg/kg (DP-5) to 9,790 mg/kg (SS-2). Mercury was detected at SS-1, SS-2, SS-3, SS-4, SS-5, SS-6, DP-2, and DP-3 with concentrations ranging from 1.4 mg/kg (SS-4) to 11.1 mg/kg (SS-6). Selenium was detected at SS-1, SS-2, SS-6, and DP-5 with concentrations ranging from 21.9 mg/kg (SS-6) to 56.2 mg/kg (SS-2). Silver was detected at SS-1, SS-2, SS-3,



SS-6, and DP-1 with concentrations ranging from 9.44 mg/kg (DP-1) to 56.2 mg/kg (SS-2). These reported concentrations are above the BCO PG of 16 mg/kg for arsenic, 820 mg/kg for barium, 7.5 mg/kg for cadmium, 19 mg/kg for chromium, 450 mg/kg for lead, 0.73 mg/kg for mercury, 4 mg/kg for selenium, and 8 mg/kg for silver. These results are presented in Tables 18 and 19, and Figure 26.

#### **2.2.4 Phase II ESA – Soil Analytical Results (2007-2008)**

In December 2007 and January 2008, GF on behalf of Frito-Lay Inc., conducted a Phase II ESA investigation. The scope of this investigation was to identify potential on-site impacts to the soil, groundwater, and soil gas from ECs observed and reported during GF's Phase I ESA.

On December 10 and 11, 2007, 15 borings were advanced and five (5) monitoring wells were installed. On December 12, the monitoring wells were gauged and developed. On December 26, the monitoring wells were gauged, sampled and surveyed by Naik Consulting Group, P.C. (Naik). On January 26 through 28, 2008, Naeva Geophysics, Inc. (Naeva) performed a geophysical survey for the subject property. On January 18, 2008, the five monitoring wells were gauged.

VOC soil concentrations exceeded NYSDEC Recommended Soil Cleanup Objectives (RSCOs) and the BCO PG throughout the site, with the highest VOC (non-chlorinated) concentrations located at the center of the site (SB-6, SB-8, SB-9, and SB-11). VOC concentrations did not exceed the BCO PPHC in any of the soil samples collected. 1,2,4-trimethylbenzene was detected at SB-8 and SB-9 with concentrations ranging from 3,700 µg/kg (0 to 5 feet) (SB-9) to 4,800 µg/kg (0 to 5 feet) (SB-8). 2-butanone was detected at SB-8 with a concentration of 310 µg/kg (0 to 5 feet). Acetone was detected at SB-2, SB-3, SB-4, SB-5, SB-6, SB-7, SB-8, SB-9, SB-10 and SB-11 with concentrations ranging from 170 µg/kg (0 to 5 feet) to 1,900 µg/kg (5 to 7 feet). Benzene was detected at SB-8 with a concentration of 150 µg/kg (0 to 5 feet). Ethylbenzene was detected at SB-8 with a concentration of 2,200 µg/kg (0 to 5 feet). M&P xylene was detected at SB-8 and SB-9 with concentrations ranging from 990 µg/kg (0 to 5 feet)

(SB-9) to 1,700 µg/kg (0 to 5 feet) (SB-8). Naphthalene was detected at SB-8 with a concentration of 160,000 µg/kg (0 to 5 feet). O-xylene was detected at SB-8 and SB-9 with concentrations ranging from 880 µg/kg (0 to 5 feet) (SB-9) to 1,100 µg/kg (0 to 5 feet) (SB-8). These results are above the BCO PG of 3,600 µg/kg for 1,2,4 trimethylbenzene, 50 µg/kg for acetone, 120 µg/kg for 2-butanone, 60 µg/kg for benzene, 1,000 µg/kg for ethylbenzene, 1,600 µg/kg for m&p xylene, 12,000 µg/kg for naphthalene, and 1,600 µg/kg for o-xylene. These results are presented in Table 20 and Figure 27.

VOC soil concentrations exceeded NYSDEC Recommended Soil Cleanup Objectives (RSCOs) and the BCO PG throughout the site, with the highest VOC (chlorinated) concentrations located at the center of the site (SB-6, SB-8, SB-9, and SB-11). VOC concentrations did not exceed the BCO PPHC in any of the soil samples collected. 1,2-dichlorobenzene was detected at SB-9 with a concentration of 4,700 µg/kg (0 to 5 feet). Cis-1,2-dichloroethene was detected SB-6, SB-7, SB-8, SB-9, SB-10, SB-11, SB-14, and SB-15 with concentrations ranging from 280 µg/kg (5 to 7 feet) to 15,000 µg/kg (9 to 11 feet). Tetrachloroethene was detected SB-6, SB-10, and SB-11 with concentrations ranging from 4,700 µg/kg (9 to 11 feet) (SB-10) to 140,000 µg/kg (0 to 5 feet) (SB-11). Trichloroethene was detected SB-6 and SB-11 with concentrations ranging from 590 µg/kg (9 to 11 feet) (SB-11) to 2,300 µg/kg (0 to 5 feet) (SB-6). Vinyl chloride was detected SB-5, SB-6, SB-7, SB-8, SB-9, SB-11 and SB-15 with concentrations ranging from 32 µg/kg (0 to 5 feet) (SB-10) to 2,100 µg/kg (0 to 5 feet) (SB-10). These results are above the BCO PG of 1,100 µg/kg for 1,2-dichlorobenzene, 250 µg/kg for cis-1,2-dichloroethene, 1,300 µg/kg for tetrachloroethene, 470 µg/kg for trichloroethene, and 20 µg/kg for vinyl chloride. These results are presented in Table 20 and Figure 28.

SVOC concentrations in soil exceeded NYSDEC RSCOs and BCO PPHC throughout the site. The highest SVOC concentrations were located in the center and northeast corner of the property and spanned a depth of 0-5 feet below grade. Benzo(a)anthracene was detected at a SB-2, SB-7, SB-8, SB-9, SB-10, SB-11, SB-12, SB-14, and SB-15 with concentrations ranging from 6,600 µg/kg (9 to 11 feet) (SB-10) to 100,000 µg/kg (5 to 7 feet) (SB-10). Benzo(a)pyrene was detected at a SB-1, SB-2, SB-3, SB-4, SB-6, SB-7, SB-8, SB-9, SB-10, SB-11, SB-12, SB-13,

SB-14, and SB-15 with concentrations ranging from 1,000 µg/kg (0 to 5 feet) (SB-3) (9 to 11 feet) (SB-4) to 75,000 µg/kg (5 to 7 feet) (SB-10). Benzo(b)fluoranthene was detected at a SB-2, SB-7, SB-8, SB-9, SB-10, SB-11, SB-12, SB-13, SB-14, and SB-15 with concentrations ranging from 6,200 µg/kg (0 to 5 feet) (SB-13) to 110,000 µg/kg (5 to 7 feet) (SB-10). Chrysene was detected at a SB-8 and SB-10 with concentrations ranging from 75,000 µg/kg (0 to 5 feet) (SB-8) to 97,000 µg/kg (5 to 7 feet) (SB-10). Dibenzo(a,h)anthracene was detected at a SB-8, SB-10, SB-12, and SB-14 with concentrations ranging from 960 µg/kg (7 to 9 feet) (SB-14) to 3,700 µg/kg (5 to 7 feet) (SB-10). Indeno(1,2,3-cd)pyrene was detected at a SB-8, SB-10, SB-12, and SB-14 with concentrations ranging from 7,900 µg/kg (7 to 9 feet) (SB-14) to 37,000 µg/kg (5 to 7 feet) (SB-10). These results are above the BCO PPHC of 5,600 µg/kg for benzo(a)anthracene, 1,000 µg/kg for benzo(a)pyrene, 5,600 µg/kg for benzo(b)fluoranthene, 56,000 µg/kg for chrysene, 560 µg/kg for dibenzo(a,h)anthracene, and 5,600 µg/kg for indeno(1,2,3-cd)pyrene. These results are presented in Table 21 and Figure 29.

SVOC concentrations in soil exceeded NYSDEC RSCOs and BCO PG throughout the site. The highest SVOC concentrations were located in the center and northeast corner of the property and spanned a depth of 0-5 feet below grade. 3+4 methylphenol was detected at SB-8 with a concentration of 2,300 µg/kg (0 to 5 feet). Benzo(a)anthracene was detected at a SB-1, SB-2, SB-3, SB-4, SB-5, SB-6, SB-7, SB-8, SB-9, SB-10, SB-11, SB-12, SB-13, SB-14, and SB-15 with concentrations ranging from 1,000 µg/kg (5 to 7 feet) (SB-3) to 100,000 µg/kg (5 to 7 feet) (SB-10). Benzo(a)pyrene was detected at a SB-8, SB-10, and SB-14 with concentrations ranging from 28,000 µg/kg (0 to 5 feet) (SB-14) to 75,000 µg/kg (5 to 7 feet) (SB-10). Benzo(b)fluoranthene was detected at a SB-1, SB-2, SB-4, SB-6, SB-7, SB-8, SB-9, SB-10, SB-11, SB-12, SB-13, SB-14, and SB-15 with concentrations ranging from 1,700 µg/kg (5 to 7 feet) (SB-4) to 110,000 µg/kg (5 to 7 feet) (SB-10). Chrysene was detected at a SB-1, SB-2, SB-3, SB-4, SB-5, SB-6, SB-7, SB-8, SB-9, SB-10, SB-11, SB-12, SB-13, SB-14, and SB-15 with concentrations ranging from 1,100 µg/kg (5 to 7 feet) (SB-3) (5 to 7 feet) (SB-5) to 97,000 µg/kg (5 to 7 feet) (SB-10). Indeno(1,2,3-cd)pyrene was detected at a SB-8, SB-10, SB-12, and SB-14 with concentrations ranging from 10,000 µg/kg (0 to 5 feet) (SB-12) to 37,000 µg/kg (5 to 7 feet) (SB-10). Naphthalene was detected at a SB-8 and SB-10 with concentrations ranging from

20,000 µg/kg (5 to 7 feet) (SB-10) to 57,000 µg/kg (0 to 5 feet) (SB-8). Phenol was detected at a SB-10, SB-11, and SB-13 with concentrations ranging from 880 µg/kg (9 to 11 feet) (SB-10) to 3,100 µg/kg (5 to 7 feet) (SB-11). These results are above the BCO PC of 650 µg/kg for 3+4 methylphenol, 1,100 µg/kg for benzo(a)anthracene, 22,000 µg/kg for benzo(a)pyrene, 1,700 µg/kg for benzo(b)fluoranthene and benzo(k)fluoranthene, 1,000 µg/kg for chrysene, 8,200 µg/kg for indeno(1,2,3-cd)pyrene, 12,000 µg/kg for naphthalene, and 330 µg/kg for pyrene. These results are presented in Table 21 and Figure 30.

Total PCB concentrations in soil exceeded NYSDEC RSCOs and BCO PPHC with the highest concentration reported in the samples collected from 9 to 11 feet below grade. BCO PPHC criteria (1,000 µg/kg) is an order of magnitude lower than RSCOs (10,000 µg/kg). Aroclor 1242 was detected at SB-2, SB-5, and SB-8 with concentrations ranging from 1,100 µg/kg (5 to 7 feet) (SB-5) to 73,000 µg/kg (0 to 5 feet) (SB-8). Aroclor 1248 was detected at SB-9, SB-10, SB-11, SB-13, and SB-15 with concentrations ranging from 2,900 µg/kg (0 to 5 feet) (SB-10) to 22,000 µg/kg (0 to 5 feet) (SB-9) (9 to 11 feet) (SB-13). Aroclor 1254 was detected at SB-2, SB-5, SB-6, SB-7, SB-8, and SB-14 with concentrations ranging from 1,200 µg/kg (5 to 7 feet) (SB-5) to 33,000 µg/kg (5 to 7 feet) (SB-6). Aroclor 1260 was detected at SB-7 with a concentration of 1,600 µg/kg (0 to 5 feet). These results are above the BCO PPHC of 1,000 µg/kg for Aroclor 1242, Aroclor 1248, Aroclor 1254, and Aroclor 1260. These results are presented in Table 22 and Figure 31.

Total PCB concentrations in soil exceeded NYSDEC RSCOs and BCO PG with the highest concentration reported in the samples collected from 9 to 11 feet below grade. Aroclor 1242 was detected at SB-2 and SB-8 with concentrations ranging from 5,600 µg/kg (5 to 7 feet) (SB-8) to 73,000 µg/kg (0 to 5 feet) (SB-8). Aroclor 1248 was detected at SB-9, SB-10, SB-11, SB-13, and SB-15 with concentrations ranging from 4,600 µg/kg (0 to 5 feet) (SB-11) to 22,000 µg/kg (0 to 5 feet) (SB-9) (9 to 11 feet) (SB-13). Aroclor 1254 was detected at SB-2, SB-6, SB-7, SB-8, and SB-14 with concentrations ranging from 9,500 µg/kg (7 to 9 feet) (SB-14) to 33,000 µg/kg (5 to 7 feet) (SB-6). These results are above the BCO PG of 3,200 µg/kg for Aroclor 1242, Aroclor 1248, and Aroclor 1254. These results are presented in Table 22 and Figure 32.

Soil metals concentrations exceeded NYSDEC RSCOs and BCO PPHC throughout the site. Arsenic, barium, cadmium, chromium, copper, lead, mercury, and nickel concentrations all exceeded BCO PPHC. The highest concentrations were reported from the soil samples obtained at the center of the site (SB-8, SB-9, and SB-11). Soils from 0 to 5 feet below grade were reported with the highest metals impacts. Arsenic was detected at SB-1, SB-3, SB-8, SB-9, SB-10, and SB-13 with concentrations ranging from 18.6 mg/kg (7 to 8 feet) (SB-9) to 168 mg/kg (0 to 5 feet) (SB-1). Barium was detected at SB-1, SB-2, SB-3, SB-6, SB-7, SB-8, SB-9, SB-10, SB-11, and SB-12 with concentrations ranging from 430 mg/kg (5 to 7 feet) (SB-12) to 1,590 mg/kg (0 to 5 feet) (SB-8). Cadmium was detected at SB-8, SB-9, SB-11, and SB-12 with concentrations ranging from 10.1 mg/kg (7 to 8 feet) (SB-9) to 45.2 mg/kg (0 to 5 feet) (SB-8). Chromium was detected at SB-8 and SB-9 with concentrations ranging from 441 mg/kg (0 to 5 feet) (SB-8) to 454 mg/kg (0 to 5 feet) (SB-9). Copper was detected at SB-1, SB-2, SB-3, SB-4, SB-5, SB-6, SB-7, SB-8, SB-9, SB-10, SB-11, SB-12, SB-13, SB-14, and SB-15 with concentrations ranging from 281 mg/kg (9 to 11 feet) (SB-11) to 2,430 mg/kg (7 to 8 feet) (SB-9). Lead was detected at SB-1, SB-2, SB-3, SB-6, SB-7, SB-8, SB-9, SB-11, SB-12, SB-14, and SB-15 with concentrations ranging from 1,180 mg/kg (0 to 5 feet) (SB-15) to 9,020 mg/kg (5 to 7 feet) (SB-8). Mercury was detected at SB-1, SB-2, SB-3, SB-5, SB-6, SB-7, SB-8, SB-9, SB-11, SB-12, SB-13, SB-14, and SB-15 with concentrations ranging from 2.9 mg/kg (0 to 5 feet) (SB-6) to 11.2 mg/kg (0 to 5 feet) (SB-5). Nickel was detected at SB-9 with a concentration of 565 mg/kg (0 to 5 feet). These concentrations are above the BCO PPHC of 16 mg/kg for arsenic, 400 mg/kg for barium, 9.3 mg/kg for cadmium, 400 mg/kg for chromium, 270 mg/kg for copper, 1,000 mg/kg for lead, 2.8 mg/kg for mercury, and 310 mg/kg for nickel. These results are presented in Table 23 and Figure 33.

Soil metals concentrations exceeded NYSDEC RSCOs and BCO PG throughout the site. Arsenic, barium, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver, and zinc concentrations all exceeded BCO PG. Arsenic was detected at SB-1, SB-3, SB-8, SB-9, SB-10, and SB-13 with concentrations ranging from 18.6 mg/kg (7 to 8 feet) (SB-9) to 168 mg/kg (0 to 5 feet) (SB-1). Barium was detected at SB-1, SB-3, SB-6, SB-8, and SB-9 with concentrations

ranging from 875 mg/kg (0 to 5 feet) (SB-1) to 1,590 mg/kg (0 to 5 feet) (SB-8). Cadmium was detected at SB-7, SB-8, SB-9, SB-11, SB-12, and SB-13 with concentrations ranging from 7.83 mg/kg (9 to 11 feet) (SB-13) to 45.2 mg/kg (0 to 5 feet) (SB-8). Chromium was detected at SB-1, SB-2, SB-3, SB-4, SB-5, SB-6, SB-7, SB-8, SB-9, SB-10, SB-11, SB-12, SB-13, SB-14, and SB-15 with concentrations ranging from 20.4 mg/kg (0 to 5 feet) (SB-14) to 454 mg/kg (0 to 5 feet) (SB-9). Copper was detected at SB-9 with concentrations ranging from 2,330 mg/kg (0 to 0 feet) (SB-9) to 2,430 mg/kg (7 to 8 feet) (SB-9). Lead was detected at SB-1, SB-2, SB-3, SB-4, SB-5, SB-6, SB-7, SB-8, SB-9, SB-11, SB-12, SB-14, and SB-15 with concentrations ranging from 503 mg/kg (9 to 11 feet) (SB-14) to 9,020 mg/kg (5 to 7 feet) (SB-8). Mercury was detected at SB-1, SB-2, SB-3, SB-4, SB-5, SB-6, SB-7, SB-8, SB-9, SB-10, SB-11, SB-12, SB-13, SB-14, and SB-15 with concentrations ranging from 1.4 mg/kg (5 to 7 feet) (SB-4) to 11.2 mg/kg (0 to 5 feet) (SB-5). Nickel was detected at SB-8, SB-9, SB-10, SB-11, and SB-12 with concentrations ranging from 130 mg/kg (5 to 7 feet) (SB-12) to 565 mg/kg (0 to 5 feet) (SB-9). Selenium was detected at SB-1, SB-10, and SB-13 with concentrations ranging from 11.1 mg/kg (0 to 5 feet) (SB-10) to 71.1 mg/kg (9 to 11 feet) (SB-13). Silver was detected at SB-11 with a concentration of 10.7 mg/kg (0 to 5 feet). Zinc was detected at SB-2, SB-7, SB-8, SB-9, SB-11, SB-12, and SB-15 with concentrations ranging from 2,690 mg/kg (5 to 7 feet) (SB-11) to 6,592 mg/kg (5 to 7 feet) (SB-8). These reported concentrations are above the BCO PG of 16 mg/kg for arsenic, 820 mg/kg for barium, 7.5 mg/kg for cadmium, 19 mg/kg for chromium, 1,720 mg/kg for copper, 450 mg/kg for lead, 0.73 mg/kg for mercury, 1130 mg/kg for nickel, 4 mg/kg for selenium, 8 mg/kg for silver, and 2,480 mg/kg for zinc. These results are presented in Table 23 and Figure 34.

### **2.2.5 Phase II ESA – Groundwater Analytical Results (2007-2008)**

Groundwater results reported limited concentrations of VOCs, SVOCs, and metals. Slight exceedences of Guidance Values for vinyl chloride were reported in the two upgradient groundwater monitoring wells (MW-1 and MW-2). Slight exceedences of Guidance Values for methyl tert-butyl ether (MTBE) were reported in the two downgradient wells (MW-4 and MW-5). SVOCs were not detected or detected below Guidance Values for all five groundwater

samples. Aluminum, iron, manganese, and thallium were reported at concentrations slightly above Guidance Values. Sodium was reported in all groundwater samples at orders of magnitude above Guidance Values. The site is surrounded to the east and south by English Kills. Groundwater is tidally influenced and brackish conditions exist below the site. Therefore, further investigation into the high sodium concentrations was not recommended.

Vinyl chloride was detected at MW-1 and MW-2 with concentrations ranging from 12 µg/l (MW-1) to 13 µg/l (MW-2). Cis-1,2-dichloroethene was detected at MW-2 with a concentration of 12 µg/l. MTBE was detected at MW-4 and MW-5 with concentrations ranging from 12 µg/l to 28 µg/l, respectively. Aluminum was detected at MW-1, MW-2, MW-3, MW-4, and MW-5 with concentrations ranging from 129 µg/l (MW-1) to 485 µg/l (MW-3). Antimony was detected at MW-3 at a concentration of 15.6 µg/l. Iron was detected at MW-1, MW-2, MW-3, MW-4, and MW-5 with concentrations ranging from 412 µg/l (MW-5) to 1,079 µg/l (MW-2). Lead was detected at MW-4 at a concentration of 25.2 µg/l. Magnesium was detected at MW-4 at a concentration of 62,400 µg/l. Manganese was detected at MW-1, MW-2, MW-3, and MW-5 with concentrations ranging from 360 µg/l (MW-5) to 1,820 µg/l (MW-1). Sodium was detected at MW-1, MW-2, MW-3, MW-4, and MW-5 with concentrations ranging from 165,000 µg/l (MW-5) to 203,000 µg/l (MW-3). Thallium was detected at MW-1 and MW-3 with concentrations ranging from 9.7 µg/l (MW-5) to 11.7 µg/l (MW-3). These results exceed the NYSDEC Guidance Values of 100 µg/l for aluminum, 3 µg/l for antimony, 300 µg/l for iron, 25 µg/l for lead, 35,000 µg/l for magnesium, 300 µg/l for manganese, 20,000 µg/l for sodium, and 0.5 µg/l for thallium. These results are presented in Tables 24, 25, and 26, and Figures 35 and 36. No SVOC concentrations were detected above NYSDEC Guidance Values, therefore, no figure has been provided.

GF understands that Frito Lay is planning to develop the property by constructing a parking lot. Future plans may include expanding the adjacent storage warehouse and using the remainder of the property as parking space. GF also understands that Frito Lay is committed to remediating impacts that exist on the property that would prevent the development of the property. GF recommended applying for the NYS Brownfields Program to develop the site under Restricted



Use-Commercial Cleanup Objectives. Due to the VOC, PCB, and metal concentrations on the site, the Restricted Use-Commercial criteria as set forth in Part 375 would focus the soil cleanup on the SVOC, PCB, and metals impacts.



### **3.0 PHYSICAL CONDITIONS**

#### **3.1 Site Geology and Topography**

The subject property lies approximately 13 feet above mean sea level. The general topographic gradient at the subject property is flat. Depth to groundwater at the subject property is approximately 5 feet below grade. Since the subject property is mostly vacant, surface runoff is directed by the natural topography of the land and percolates through site soil down to the water table. The nearest water body is English Kills located adjacent to the east side of the subject property. Groundwater elevation contour data shows that the regional inferred groundwater flow direction is to the east towards English Kills with on-site flow radiating from northeast to southeast across the subject property towards English Kills.

According to maps and reports published by the United States Geologic Survey (USGS) and others, the subject property is underlain by unconsolidated Cretaceous to Quaternary age sand and gravel deposits that comprise Long Island's groundwater system. These hydrogeologic units consist of alternating interbedded lenses of gravel, sand, silt, and clay, which form a layered sequence of aquifers and confining units that dip gently to the south and east. Although GF did not collect soil samples, based on the USGS data, underlying soil at the subject property likely consists of well graded fine to coarse grained sand with gravel (SW) or poorly graded fine to coarse grained sand with gravel (SP) as defined by the Unified Soil Classification System (USCS).

#### **3.2 Public/Private Wells**

Potable water connections are provided to the surrounding properties by New York City. There are no public or private wells in the area for domestic use.

### **3.3 Sensitive Human Receptors**

Sensitive Human Receptors are limited to employees of the industrial properties surrounding the site and employees of Frito-Lay, Inc.

## **4.0 PROPOSED SCOPE OF WORK**

The proposed scope of work is as follows as recommended by the NYSDEC:

- Two (2) soil borings will be advanced on site along English Kills;
- Thirteen (13) soil borings will be advanced at various locations on site to complete a 50' x 50' sampling grid;
- Three (3) soil vapor points will be installed and sampled along the perimeter of the site;
- Two (2) surface water samples will be collected;
- Four (4) sediment samples will be collected from Newtown Creek;
- Two (2) off-site upgradient groundwater monitoring wells will be installed; and,
- Seven (7) groundwater monitoring wells sampled.

All proposed and existing soil boring locations, proposed soil vapor collection points, proposed and existing monitoring well locations, proposed sediment sampling locations, and proposed surface water sampling locations are presented as Figure 37.

### **4.1 Utilities Clearance**

GF will review the geophysical survey performed by Naeva Geophysics, Inc. in January 2008 to identify any potential underground obstructions prior to drilling activities on site. The drilling contractor will contact New York One-Call to perform public property utility markouts for the off-site well installation. Each boring will be hand cleared by the drilling contractor to 5 feet below grade.

### **4.2 Onsite Soil Borings**

The site investigation will include an additional 15 soil borings based on discussions and on-site meeting with the NYSDEC. The onsite boring locations are proposed throughout the site to

complete a 50' x 50' sampling grid. Each boring will be advanced using a track mounted hollow stem auger drill rig to the approximate depth of groundwater which is approximately 12 to 15 feet below ground surface (ft-bgs). The actual locations of borings are biased towards areas of concern identified by the Phase I and II ESAs, geophysical survey, historical investigation results, and in accordance with NYSDEC recommendations to sample in 50' x 50' grid pattern across the site.

The first soil sample will be collected from equal portions of the soil boring from 0 to 2 ft-bgs and the other half from 2 to 4 ft-bgs. The second soil sample will be collected from the most contaminated depth below 4 ft-bgs determined visually by staining and/or by the highest photoionization detector (PID) reading. If the second soil sample depth cannot be determined visually or using the PID, the default sample collection depth will be just above the water table. Soil samples will be collected continuously from the surface to the groundwater table using stainless steel spilt spoons. All drill cuttings will be drummed and temporarily stored on site pending results of waste characterization analysis.

GF personnel will document soil lithology and field screen soil vapor headspace in sealable plastic bags using a PID calibrated to a 100 parts per million (ppm) isobutylene standard. One soil sample will be obtained from each borehole from the creek bottom for laboratory analysis. Sample depths may be altered due to field limitations and the actual depth of groundwater at the time of sampling. Soil samples will be placed into laboratory-supplied glassware, immediately stored in an ice-filled cooler, and shipped with chain-of-custody documentation to a NYSDOH-certified laboratory. All soil samples will be analyzed for Target Compound List (TCL) VOCs by United States Environmental Protection Agency (EPA) Method 8260, TCL SVOCs by EPA method 8270, PCBs by EPA method 8082, pesticides by EPA method 8081, and Target Analyte List (TAL) metals by EPA Method 6010/7471 in conformance with Category B protocol. A Data Usability Summary Report (DUSR) will be prepared for inclusion in the Final RI Report.

### **4.3 Subsurface Soil Gas Vapor Sampling**

GF will collect soil vapor gas samples, as per NYSDEC's request, along the perimeter of the site to evaluate the potential for soil vapor intrusion into future on-site construction and the potential for off-site soil vapor migration to assess the presence of VOCs that were detected in the soil and groundwater samples collected from the site.

The soil vapor collection points will be advanced to an approximate depth of 11 ft-bgs, which is generally one (1) foot above the shallowest depth to groundwater at the site. Three (3) temporary soil vapor collection points will be installed on-site with one (1) collection point located along the northern site boundary, one located along the western site boundary in the vicinity of Morgan Avenue, and the remaining soil vapor collection point located approximately 40 feet north of MW-3 (Figure 37).

The objective of the subsurface soil vapor sampling will be to characterize potential vapor impacts from the subsurface soil and/or groundwater. Subsurface soil vapor sampling will follow the protocols outlined in Sections 2.6.1 and 2.7.1 of the NYSDOH Guidance document.

A Geoprobe® will install each soil vapor collection point using direct push technology. Each soil vapor collection point will be installed in the following manner:

- A Geoprobe® will penetrate the surface to expose the soil.
- Once the surface is penetrated, 1-½ inch hollow rods with a disposable point and a 6-inch discreet sampler attachment will be advanced down to one foot above the water table.
- The disposable point will be pushed from the bottom of the rods using inner rods.
- ¼ inch poly tubing will be inserted into the rods.
- The rods will be pulled up, exposing the discreet sampler and ¼ inch poly tubing.
- Bentonite will then be placed at the top three (3) to four (4) inches of the borehole sealing off ambient air from entering the borehole.

After the installation of the temporary soil vapor collection points, each sample point will be purged one (1) to three (3) volumes (the volume of the sample probe and tubing) of ambient air using a peristaltic pump prior to collecting the sample to ensure that the sample is representative of the sampling environment. Each point will be screened for VOCs using a PID. While purging the gas point, a helium test will be performed to ensure the integrity of the bentonite seal between the ground surface and the borehole. The helium test will be performed as follows:

- A small bucket or bag with a hole through the bottom will be placed upside down over the borehole. The tubing will be pulled through the hole in the bucket or bag.
- Bentonite will be placed along the edges of the bucket or bag to create a seal with the ground surface.
- Helium will be introduced into the bucket through a small tube inserted at the base of the bucket or bag.
- The helium detector will be placed at the sample port of the tubing to determine if the helium has penetrated into the borehole. If the helium detector had a reading of higher than 10% helium, the sample point will be resealed with bentonite and the helium test repeated.
- The helium detector will be used to record helium readings prior to and after the soil vapor sampling to document that the levels of helium are less than 10% helium.

Each sample point will be purged of ambient air using a peristaltic pump after the completion of the integrity test. The peristaltic pump will be removed from the sample port once the soil vapor point is determined to be adequately sealed using the helium test and the purge is complete.

Once the soil gas point is determined to be adequately sealed using the helium test and the purge is complete, the peristaltic pump will be removed from the sample port. Once the sampling is complete, the borehole will be filled with sand and patched at the surface with material similar to the original material.

Subsurface air samples will be collected with a laboratory-certified clean 6-liter Summa canister which will be fitted with a two (2) hour regulator and will be installed on the sample port to

begin sampling. The flow rates for sample collection will not exceed 0.2 liters per minute. The sample will be collected over a period of approximately two (2) hours. The sample start time and vacuum (in inches of mercury) contained in the Summa canister will be documented. The sample will be deemed complete when the vacuum remaining in the Summa canister reaches between 4- and 8-inches of mercury.

The laboratory-certified clean Summa canisters will be submitted to an Environmental Laboratory Accreditation Program (ELAP)-certified laboratory to perform VOC analyses in accordance with EPA Air Compendium Method TO-15. The analyses will be performed for the entire suite of VOCs according to EPA Method TO-15. The laboratory will attempt to attain Method Reporting Limits (MRLs) of 1.0 microgram per cubic meter ( $\mu\text{g}/\text{m}^3$ ). However, depending upon contaminant levels, the MRLs may be higher. The soil gas results data set will be reported in  $\mu\text{g}/\text{m}^3$ .

The data package provided by the laboratory will meet the specifications of a full ASP Category B deliverable package. The methods and data packages provided by the laboratory will be consistent with the specifications of the most current version of the ASP. A DUSR will be prepared for inclusion in the Final RI Report. QA/QC samples will include one field duplicate, one trip blank, a laboratory blank, and laboratory quality control samples as required by the analytical method.

Additional information will be collected to assist in the interpretation of the soil gas results which includes barometric pressure, wind speed, and wind direction.

The field sampling team will maintain a sample log sheet summarizing the following:

- sample identification
- date and time of sample collection
- sampling depth
- identity of samplers
- sampling methods and devices
- purge volumes
- volume of soil vapor extracted

- the vacuum reading of canisters before and after samples are collected
- apparent moisture content (dry, moist, saturated, etc.) of the sampling zone
- chain of custody protocols and records used to track samples from sampling point to analysis

Pertinent observations will also be recorded, such as odors and readings from field instrumentation during soil gas probe installation and field sampling activities.

#### **4.4 Monitoring Well Installation**

One (1) on-site monitoring well and two (2) off-site up gradient monitoring wells will be installed at the proposed locations presented in Figure 37. The installed two (2) new monitoring wells will be installed west of Morgan Avenue and a new on-site monitoring well will be installed in the vicinity of SB-11. The monitoring wells will be located on the west side of Morgan Avenue within the sidewalk.

The water-level in the borehole will be measured periodically during drilling and immediately before construction of the well. To allow proper well and sand pack installation, the borehole will be over-drilled to at least 10 feet below the depth of the static water table, and the depth of the borehole will be measured with a weighted tape just prior to well construction to determine if there has been any borehole collapse. The wells will be installed a minimum of 5 feet below the groundwater interface. Ten (10) feet of new, clean 2-inch Schedule 40 PVC well screen and the appropriate length of casing will be used. The well materials will be stored and assembled on clean plastic sheeting. Once the well is inserted into the borehole, the annulus between the well casing and the borehole will be filled with sand pack, a bentonite seal, cement/bentonite grout, and a flush-mount protective surface casing with a locking cap.

The sand pack (Morie No. 0 sand) will be placed so that it extends to a minimum depth of 6 inches below the bottom of the screen and a minimum depth of 2 feet above the top of the well screen. The depth to the top of the sand pack will be confirmed by measuring down the annular space between the well casing and the borehole with a weighted tape. If heaving sands are encountered, potable water will be pumped into the borehole to maintain a positive head in the annular space to facilitate



well installation. If difficulties are encountered during placement of the sand pack, then the sand may be tamped with a small diameter (2-inch) rod.

A bentonite seal (minimum of 2 ft) will be placed above the sand pack. The top of the bentonite seal will be measured with a weighted tape and hydrated with potable water prior to grouting. The cement/bentonite grout will be used to fill the annulus of the borehole from above the bentonite seal to land surface. The cement/bentonite grout will be mixed at a ratio of 94 pounds of cement to 3 to 5 pounds of bentonite and 6.5 gallons of potable water. A flush-mount, protective steel casing with locking “J” cap will be installed after completion of the well.

A blank Well Construction Log is included in Appendix B.

#### **4.5 Well Development Procedures**

All wells will be developed using a submersible pump to ensure the removal of any drilling fines and to restore the hydraulic properties of the surrounding water bearing material. The flow rate of the pump will be controlled to create draw-down in the well but not dry the well. The wells will be developed until the turbidity is below 50 NTUs or ten well volumes have been removed, to provide sediment-free water for sampling.

New polyethylene tubing will be used for development of each well. Development water will be drummed and temporarily stored on-site pending receipt of laboratory analytical data to determine proper disposal.

#### **4.6 Well Sampling Procedures**

A groundwater sample will be collected for laboratory analysis from the three (3) newly installed monitoring wells and the existing five (5) monitoring wells located at 202-218 Morgan Avenue approximately 2 weeks after development.

Wells will be purged of three (3) well volumes and a groundwater sample will be collected from each well using a dedicated disposable bailer. The newly installed two (2) monitoring wells located west of Morgan Avenue, the newly installed monitoring well in the vicinity of SB-11, and existing five (5) wells will be sampled and analyzed for TCL VOCs by EPA Method 8260, TCL SVOCs by EPA Method 8270, PCBs by method 8082, and filter and unfiltered TAL metals by EPA method 6010/7470 in conformance with Category B protocol. A DUSR will be prepared for inclusion in the Final RI Report.

Purge water will be drummed and temporarily stored on-site pending receipt of laboratory analytical data to determine proper disposal.

#### **4.7 Surface Water Sampling Procedures**

Two (2) surface water sampling will be collected from Newton Creek located east and south of the property. The samples will be collected from each location using a dedicated disposable bailer. The two (2) surface water samples will be analyzed for TCL VOCs by EPA Method 8260, TCL SVOCs by EPA Method 8270, pesticides by EPA method 8081, PCBs by EPA method 8082, and TAL metals by EPA method 6010/7470 in conformance with Category B protocol. A DUSR will be prepared for inclusion in the Final RI Report.

#### **4.8 Sediment Sampling Procedures**

Four (4) sediment samples will be collected from the bottom of Newton Creek, two (2) samples from south of the property and two (2) samples from the east. The samples will be collected from sediments located at the bottom of the creek and during low tide. The samples will be collected using a bottom dredge sampler tool and analyzed for TCL VOCs by EPA Method 8260, TCL SVOCs by EPA method 8270, pesticides by EPA method 8081, PCBs by EPA method 8082, and TAL metals by EPA Method 6010/7471 in conformance with Category B protocol. A DUSR will be prepared for inclusion in the Final RI Report.

## **4.9 Surveying**

An elevation survey will be conducted on each of the eight (8) wells (3 installed and 5 existing) located at the property and a detailed drawing will be provided.

## **4.10 Community Air Monitoring Program**

A Community Air Monitoring program (CAMP) will be implemented during the RI sampling program. Specifically, this CAMP outlines the air quality monitoring procedures to be followed to protect the downwind community (i.e., off-site receptors, including residents and off-site outside workers) from potential airborne contaminant releases that may be as a direct result of the sampling activities. This CAMP is consistent with the New York State Department of Health (NYSDOH) Generic Community Air Monitoring Plan (Appendix D).

The following sections describe the specific CAMP monitoring procedures for both particulates and VOCs.

### **4.10.1 Particulate Monitoring**

The air will be monitored in real-time during the RI sampling program. Air monitoring for particulates (i.e., dust) will be performed continuously during sampling using both air monitoring equipment and visual observations. Monitoring equipment capable of measuring particulate matter smaller than 10 microns (PM-10) and capable of integrating (averaging) over periods of 15 minutes or less, at a minimum, will be set up at one upwind (background) and one downwind location, at heights approximately 4 feet to 5 feet above land surface (i.e., the breathing zone). This equipment will log the 15-minute average concentrations for subsequent downloading and reporting. An audible alarm on the downwind particulate monitoring device will be set at 100 micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ) above the background level (i.e., the upwind location).

Upwind concentrations will be measured at the start of each workday and periodically throughout the day thereafter to establish background conditions. The CAMP coordinator (SHSS) will record the wind direction and speed as described below. These readings will allow the CAMP coordinator (SHSS) to ensure that CAMP equipment is located appropriately based upon the wind direction. The particulate monitoring equipment will be calibrated at the start of each day and as necessary throughout the day.

The monitoring results will be compared to the following:

- If the downwind PM-10 particulate level is  $100 \mu\text{g}/\text{m}^3$  greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques (e.g., soil wetting) shall be employed. Work may continue with dust suppression techniques, provided that downwind PM-10 particulate levels do not exceed  $150 \mu\text{g}/\text{m}^3$  above the upwind level and provided that no visible dust is migrating from the work area.
- If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than  $150 \mu\text{g}/\text{m}^3$  above the upwind level, work shall be reevaluated and changes initiated to reduce particulate levels to less than  $150 \mu\text{g}/\text{m}^3$  above background conditions and to prevent visible dust migration, including work stoppage if necessary.

Meteorological Data - Meteorological data consisting of wind speed, wind direction, temperature, and barometric pressure will be recorded at a minimum of three times each day. These results will be utilized to position the particulate monitoring equipment in appropriate upwind and downwind locations. A Davis Corporation wireless instrument station (or equivalent) will be used to collect all meteorological monitoring data.

Potential Suppression Techniques - If the integrated particulate level at the downwind location exceeds the upwind level by more than  $100 \mu\text{g}/\text{m}^3$  at any time during sampling activities, then dust suppression techniques will be employed.

Work may continue with dust suppression techniques, provided that downwind PM-10 levels are not more than  $150 \mu\text{g}/\text{m}^3$  greater than the upwind levels; all measures necessary to ensure PM-10 levels of less than  $150 \mu\text{g}/\text{m}^3$  above background will be utilized. There may also be situations where visible dust is generated by sampling activities and migrates to downwind locations but is not detected by the monitoring equipment at or above the action levels. Therefore, if visible dust is observed leaving the working area, dust suppression techniques will be employed. If dust suppression techniques do not lower particulates to below  $150 \mu\text{g}/\text{m}^3$  or visible dust persists, additional measures, including work suspension if necessary, will be implemented to remedy the situation.

All air monitoring data, meteorological data, and the locations of monitoring equipment will be recorded in the on-site files and will be available for NYSDEC and NYSDOH review.

#### **4.10.2 Volatile Organic Compound Monitoring**

VOCs will be monitored at the downwind perimeter of the immediate work area on a continuous basis. Upwind concentrations will be measured at the start of each workday and periodically thereafter (not less than three times per day) to establish background conditions. The monitoring work will be performed using equipment appropriate to measure the types of contaminants known or suspected to be present (MiniRAE 2000 PID or equivalent). The photoionization detector (PID) using a 10.6 lamp to detect chlorinated VOCs will be used due to the presence of PCE impacts to the site. The equipment will be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment will be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

- If the ambient air concentration of total organic vapors at the downwind perimeter of the work area exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities must be temporarily halted in the area of concern and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.

- If total organic vapor levels at the downwind perimeter of the work area persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities in the area of concern (AOC) must be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level at the downwind perimeter of the work area is below 5 ppm over background for the 15-minute average.
- If the organic vapor level is more than 25 ppm above background at the downwind perimeter of the work area, activities must be halted in the area of concern until corrective measures are identified and implemented to reduce emissions as described above.

All air monitoring data and the locations of monitoring equipment will be recorded in the on-site files and will be available for review. All data will be logged and presented as an appendix to the Investigation Summary Report.

#### **4.11 Investigation Report Preparation**

GF will prepare an investigation report summarizing the investigative findings and presenting recommendations for remedial alternatives. The report will comply with the applicable guidelines established in NYSDEC DER-10. The report will include a quantification and delineation of the subsurface contaminants defining the horizontal and vertical extent of impacted soil. Remedial alternatives will be evaluated based upon pertinent factors including process configuration, estimated remedial timeframe, spatial requirements, disposal options, permit requirements, impacts on fish/wildlife resources, intended/reasonably anticipated future site use, contaminant source removal, and contaminant containment.

## **5.0 QUALITY ASSURANCE AND QUALITY CONTROL (QA/QC) PROCEDURES**

### **5.1 Data Quality Objectives**

The data obtained from the samples collected at the site will be used to provide information to satisfy the data quality objective (DQO) of investigating and delineating the potentially impacted soil, groundwater and soil vapor.

DQOs are based on the concept that different data uses may require different levels of data quality. DQOs are defined with respect to the types, number, and locations of samples that will be collected, and the QA levels associated with the analysis. Soil samples will be analyzed for VOCs, SVOCs, pesticides, PCBs, and metals. Groundwater samples will be analyzed for VOCs, SVOCs, pesticides, PCBs, and metals. Soil gas samples will be analyzed for VOCs.

The overall QA objective is to develop and implement procedures for field measurements, sampling, and analytical testing that will provide data of known quality that is consistent with the intended use of the information. This section defines the objectives by:

- (1) describing the use of the data
- (2) specifying the applicable QC effort (field checks and analytical support levels), and
- (3) defining the QC objectives (data quality acceptance criteria).

### **5.2 Data Usage and Requirements**

The laboratory analyses will be used to support the investigation process. The intended uses of the data from the sample collection are to characterize and delineate on site impacted soil, groundwater and sediments prior to construction activities. The data will be quantitative laboratory analyses.

The soil samples will be collected with a track mounted hollow stem auger rig. All soil samples will be collected as grab samples from the Work Plan specified depth intervals. Additional soil samples may be collected based on field observations (staining, odors, etc.). The groundwater samples will be collected using a submersible or peristaltic pump. The sediment samples will be collected using a bottom dredge sampler tool. All sediment samples will be collected as grab samples. The surface water samples will be collected using a pond water collector.

Soil, soil gas, groundwater, sediment, and surface water samples will be submitted to the laboratory certified by the New York State Department of Health (NYSDOH) Environmental Laboratory Accreditation Program (ELAP) for VOCs, SVOC, pesticides, PCBs, and metals analysis.

Quantification limits for the laboratory analyses will be in conformance with the appropriate EPA methodology for the specified analyses unless dilution or interference effects make it necessary to raise them. The laboratory will make every effort to achieve quantification limits as low as practicable and will report estimated concentration values at less than the detection limit by flagging the value with a “J”.

### **5.3 Level of Quality Control Effort**

The sampling team will collect QA/QC samples including field and trip blank samples to ensure and document the integrity of the sampling procedures, laboratory sample handling procedures, and the validity of the measurement data.

Analyte-free deionized water will be obtained from the laboratory to be used for trip blanks, collecting field blanks, and the final decontamination rinse where required. This water will be prepared and analyzed by the laboratory on a routine basis and a record of this data will be kept on file. Protocols for the handling of trip blanks, collection of field blanks, and decontamination of equipment are provided in the Work Plan. Field blanks will be prepared and analyzed for the same parameters as the samples to determine if cross-contamination has occurred during sampling.



One trip blank, consisting of two 40-ml vials filled with analyte-free deionized water, will be provided by the laboratory for each cooler used to ship and store volatile organic samples during each sampling event. Field blank samples will be collected at a frequency of one per 20 samples collected.

The level of QC effort provided by the laboratory when analyzing the samples collected at the site will conform to standard NYSDEC protocols (NYSDEC 2000).

#### **5.4 Quality Control Objective**

The QC objective for the investigation is to provide data of known and acceptable quality. Several different types of QC check samples will be analyzed and the results will be compared to data quality acceptance criteria and/or QC control limits that are specified for each method. The laboratory will routinely run these QC samples in accordance with the protocols and frequencies specified in the analytical methods. The QC check samples may include the following:

- Blank samples,
- Initial and continuing calibrations,
- Surrogate spikes,
- Matrix spikes/analytical spikes,
- Duplicate samples, and
- Control samples.

The specific types and frequencies of QC checks which will be performed in support of each test method, the calibration procedures for each instrument, and the QC control limits and/or data quality acceptance criteria for each of the types of QC check samples, are specified in the laboratory's QAPP and shall be in accordance with ELAP protocol.

## **5.5 Sampling Methodology**

Sampling Methodology: Samples will be collected in accordance with the Work Plan. The protocols for sampling methodology are described in Section 4.

Decontamination of Sampling Equipment: All non-dedicated sampling equipment will be decontaminated prior to and following sample collection using a phosphate-free detergent wash and then rinsed with water.

Sample Packaging and Shipment. Samples will be shipped to the laboratory at the completion of each day of sampling. Custody of the samples must be maintained through the shipment of samples to the laboratory. Samples will be in the custody of the sampling crew until relinquished directly to the laboratory in person or shipped via overnight courier using the following procedures:

- Place about three inches of inert cushioning material (i.e. bubble wrap) in the bottom of the cooler,
- Place and seal the sample containers in clear, reusable plastic bags and pack the containers in the cooler,
- Place suitable cushioning material around the sample containers,
- Place ice cubes into reusable plastic bags and pack the ice in the cooler; use sufficient ice to maintain 4°C until the samples arrive at the laboratory,
- Sign and retain a copy of the Chain-of-Custody form; place the form into a reusable plastic bag and pack in the cooler,
- Apply signed custody seals to the front and back of the cooler so the seals bridge the cooler and lid,
- Secure the lid by completely wrapping it with clear plastic packaging tape, and
- Attach the completed shipping label to the top of the cooler; retain the shipment tracking number on the copy of the Chain-of Custody form, and ship the cooler via overnight to the laboratory.

## **5.6 Sample Labeling**

Sample labels are required to include the following information:

- Site name,
- Sample number,
- Sample matrix,
- Parameters to be analyzed,
- Date of collection,
- Time of collection,
- Type of preservative, and
- Sampler's name.

## **5.7 Sample Numbering**

A unique sample number will be used to identify a location (e.g. grid node), sample matrix, a sequential number for each sample type, a sample depth, and the date and time the sample was collected. The typical format for designating the sample number will be X/XX/XX-XX/MMDDYY, where:

X = Sample Location

XX = a two-digit sequential number for each sample

XX-XX = sample depth interval (in feet) from which the sample was collected

MMDDYY = month, day, and year of the sample collection

QA/QC samples will be collected at a rate of one per 20 total samples collected. QA/QC samples will be labeled as indicated below:

Blanks = B-XX/MMDDYY

If conditions require re-sampling of a sample location (i.e. the sample is not retrieved properly), the sample will be labeled as described above with a "RS" placed at the end of the sample number.

## **5.8 Chain-of-Custody Record**

The Chain-of-Custody provides an accurate written record that can be used to trace the possession and handling of the sample from the time of collection to analysis. The Chain-of-Custody form will be completed for each sample at the time of collection and will be maintained while shipping the sample to the laboratory. The following information must be entered on the Chain-of-Custody form:

- Project number,
- Project name,
- Signature of sampler,
- Sample number,
- Date and time,
- Sample matrix,
- Parameters for analysis, and
- Remarks, as needed.

All samples will be delivered to the laboratory within 24 hours from time of collection.

## **5.9 Sample Custody**

A chain-of-custody record will be maintained for each sample collected and will provide an accurate written record that can be used to trace the possession of samples from collection through analysis and reporting. Sample bottles to be used for this project will be selected, prepared, and quality controlled according to OSWER Directive #9240-0-005 "Specifications and Guidance for Obtaining Contaminant-Free Sample Containers" (USEPA 1989b).

The procedures that will be followed to provide the chain-of-custody in the field from sample collection through shipment to the laboratory (including sample preservation) are specified in the Work Plan. The procedures that will be used to continue the chain-of-custody for each sample from

its arrival in the laboratory through analysis and reporting will be specified in the laboratory QAPP. The laboratory sample custody procedures will conform to USEPA guidelines. The project samples will be retained by the laboratory for 30 days after completion of analyses.

### **5.10 Analytical Procedures**

Samples will be analyzed by a New York State Department of Health (NYSDOH) Environmental Laboratory Accreditation Program (ELAP)-certified laboratory. The laboratory must maintain current New York State Department of Health (NYSDOH) certifications during the project. All analyses will be performed in accordance with the EPA protocol established for the specified analyses. The specific parameters, quantification limits, and analytical methods to be used for analysis of the samples are provided in Section 5 of the Work Plan.

### **5.11 Data Reduction and Reporting**

Data collected during the remedial investigation, including field and laboratory results, will be reduced, reviewed, summarized, and reported. The reduction of the field data will consist of summarizing the raw field data, which may be presented in the form of tables, logs, illustrations, and graphs, as deemed appropriate by the project manager. The laboratory data will also be reduced and tabulated electronically. The data will then be suitable for inclusion in reports and will be designed to facilitate comparison and evaluation of the results.

## **6.0 PERSONNEL AND ROLES**

The responsibilities of the key project personnel are detailed below.

- The Project Director is responsible for overseeing the implementation of the investigation. To the maximum extent possible, all documents, including reports, approvals and other correspondence concerning the activities performed will be directed through the project director.
- The Project Manager is responsible for the following: sampling QC; overall project coordination; adherence to the project schedules; directing, reviewing, and assessing the adequacy of the performance of the technical staff and subcontractors assigned to the project; implementing corrective action, if warranted; interacting with the project director; preparing reports; and maintaining full and orderly project documentation.
- The Site Investigation Team members include the sampling team, support staff and in-house experts in hydrogeology and engineering who are responsible for the technical direction and adequacy of the work in their respective areas of specialty which are or may be required to meet the project objectives.
- The Project QA/QC Officer is responsible for performing systems auditing, and for providing independent data quality review of project documents and reports.
- The Project Health and Safety Officer is responsible for implementing the site-specific health and safety directives in the HASP and for contingency response.

- The Field Leader is responsible for coordination of the activities of field personnel and subcontractors; adherence of the field work to the procedures specified in the HASP and Work Plan; and rigorous documentation of the field work. The field leader is also designated as the site safety officer.

## **7.0 SCHEDULE**

The proposed RI activities are anticipated to begin on October 19, 2009. Soil, sediment, soil gas, surface water and groundwater samples will be sampled and collected during the weeks of October 19<sup>th</sup> and October 26<sup>th</sup>. The proposed RI activities are anticipated to be completed within a 2-week timeframe which is dependent on weather, field conditions, site restrictions, and any other unforeseen conditions which may be beyond control of GF or the sampling team.

GF anticipates submitting NYSDEC the RI Report on or before November 30, 2009. GF has anticipated a 45 day review by NYSDEC and NYSDOH to review the RI Report. GF intends on submitting NYSDEC the Remedial Alternatives/Remedial Action Work Plan (RA/RAWP) on February 1, 2010.

This proposed schedule was developed assuming no significant environmental concerns will be encountered during the RI field activities and also assumes that NYSDEC and NYSDOH will review each report within a 45 day period.



Frito-Lay, Inc.  
218-222 Morgan Ave  
Brooklyn, New York  
Site No. C224133

**NYSDEC Brownfields Program Schedule  
2009 - 2010**

Task	Duration	Start Date	Finish Date	Oct-09	Nov-09	Dec-09	Jan-10	Feb-10	Mar-10	Apr-10	May-10
Remedial Investigation Work Plan Implementation	10 days	10/19/2009	10/30/2009								
Prepare Remedial Investigation Report	30 days	11/1/2009	11/30/2009								
NYSDEC Remedial Investigation Report Review	30 days	12/1/2009	12/31/2009								
Revision to Remedial Investigation Report as per NYSDEC Comments	10 Days	1/2/2010	1/15/2010								
NYSDEC Final Review of Revised Remedial Investigation Report	15 Days	1/15/2010	1/30/2010								
Prepare Remedial Alternative/Remedial Action Work Plan Report	30 days	1/20/2010	2/20/2010								
NYSDEC Remedial Alternative/Remedial Action Report Review	30 days	2/20/2010	3/20/2010								
Revision to Remedial Alternative/Remedial Action Work Plan as per NYSDEC Comments	10 Days	3/20/2010	3/30/2010								
NYSDEC Final Review of Revised Remedial Alternative/Remedial Action Work Plan	15 Days	4/1/2010	4/15/2010								
Remediation	30 days	4/15/2010	5/15/2010								

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## **TABLES**



**TABLE 1**  
**VOLATILE ORGANIC COMPOUNDS (VOCs)**  
**SURFACE SOIL SAMPLE RESULTS**

**FRITO-LAY, INC.**  
**202-218 MORGAN AVENUE**  
**BROOKLYN, NEW YORK**

Compound	NYSDEC TAGM Recommended Soil Cleanup Objective	NYSDEC Unrestricted Use Soil Cleanup Objectives	NYSDEC Restricted Use Soil Cleanup Objective- Protection of Public Health- Commercial	NYSDEC Restricted Use Soil Cleanup Objectives- Protection of Groundwater	SS-1	SS-2	SS-3
Date:					10/31/2003	10/31/2003	10/31/2003
<i>VOC's (µg/kg) - EPA Method 8260</i>							
1,1 Dichloroethane	200	270	240,000	270	<6	<6.5	<5.9
1,1 Dichloroethene	400	330	500,000	330	<6	<6.5	<5.9
1,2 Dichloroethane	100	20	30,000	20	<6	<6.5	<5.9
1,2 Dichloroethene	330	190	500,000	190	<12	<13	<b>290</b>
1,2 Dichloropropane	---	---	---	---	<6	<6.5	<5.9
1,1,1 Trichloroethane	800	680	500,000	680	<6	<6.5	<5.9
1,1,2 Trichloroethane	---	---	---	---	<6	<6.5	<5.9
1,1,2,2 Tetrachloroethane	600	---	---	---	<6	<6.5	<5.9
2-Butanone	300	---	---	---	<60	<65	<59
2-Hexanone	---	---	---	---	<60	<65	<59
4-Methyl-2-Pentanone	---	---	---	---	<60	<65	<59
Acetone	200	50	500,000	50	<60	<65	<b>260</b>
Benzene*	60 or MDL	60	44,000	60	<6	<6.5	15
Bromodichloromethane	---	---	---	---	<6	<6.5	<5.9
Bromoform	---	---	---	---	<6	<6.5	<5.9
Bromomethane	---	---	---	---	<6	<6.5	<5.9
c-1,3 Dichloropropene	---	---	---	---	<6	<6.5	<5.9
Carbon disulfide	2,700	---	---	---	<6	38	130
Carbon Tetrachloride	600	760	22,000	760	<6	<6.5	<5.9
Chlorobenzene	1,700	1,100	500,000	1,100	<6	<6.5	93
Chlorodibromomethane	---	---	---	---	<6	<6.5	<5.9
Chloroethane	1,900	---	---	---	<6	<6.5	<5.9
Chloroform	300	370	350,000	370	<6	<6.5	<5.9
Chloromethane	---	---	---	---	<6	<6.5	<5.9
Ethyl Benzene*	5,500	1,000	390,000	1,000	<6	19	130
m + p Xylene	1,200	260*	500,000*	1,600**	<12	23	290
Methylene Chloride	100	50	500,000	50	<6	<6.5	<5.9
o Xylene	1,200	260*	500,000*	1,600**	<6	18	280
Styrene	---	---	---	---	<6	19	46
t-1,3Dichloropropene	300	---	---	---	<6	<6.5	<5.9
Tetrachloroethene	1,400	1,300	150,000	1,300	20	88	<b>29,000</b>
Toluene*	1,500	700	500,000	700	<6	12	260
Trichloroethene	700	470	200,000	470	<6	25	<b>1,500</b>
Vinyl Chloride	200	20	13,000	20	<6	<6.5	<b>310</b>

**NOTES:**

All units are µg/kg (parts per billion).

--- No standard available.

Values in **bold** exceed the TAGM Recommended Soil Cleanup Objectives and/or Brownfields Soil Cleanup Objectives.

\* - Compound is on the NYSDEC list of Recommended Soil Cleanup Objectives for gasoline/fuel oil contaminated soil .

\*\* - NYSDEC Brownsfield Soil Cleanup Objective for total xylenes.

**TABLE 1**  
**VOLATILE ORGANIC COMPOUNDS (VOCs)**  
**SURFACE SOIL SAMPLE RESULTS**

**FRITO-LAY, INC.**  
**202-218 MORGAN AVENUE**  
**BROOKLYN, NEW YORK**

Compound	NYSDEC TAGM Recommended Soil Cleanup Objective	NYSDEC Unrestricted Use Soil Cleanup Objectives	NYSDEC Restricted Use Soil Cleanup Objective- Protection of Public Health- Commercial	NYSDEC Restricted Use Soil Cleanup Objectives- Protection of Groundwater	SS-4	SS-5
Date:					10/31/2003	10/31/2003
<i>VOC's (µg/kg) - EPA Method 8260</i>						
1,1 Dichloroethane	200	270	240,000	270	<6.3	<7.2
1,1 Dichloroethene	400	330	500,000	330	<6.3	<7.2
1,2 Dichloroethane	100	20	30,000	20	<6.3	<7.2
1,2 Dichloroethene	330	190	500,000	190	<13	<14
1,2 Dichloropropane	---	---	---	---	<6.3	<7.2
1,1,1 Trichloroethane	800	680	500,000	680	<6.3	<7.2
1,1,2 Trichloroethane	---	---	---	---	<6.3	<7.2
1,1,2,2 Tetrachloroethane	600	---	---	---	<6.3	<7.2
2-Butanone	300	---	---	---	<63	<72
2-Hexanone	---	---	---	---	<63	<72
4-Methyl-2-Pentanone	---	---	---	---	<63	<72
Acetone	200	50	500,000	50	<63	<72
Benzene*	60 or MDL	60	44,000	60	<6.3	<7.2
Bromodichloromethane	---	---	---	---	<6.3	<7.2
Bromoform	---	---	---	---	<6.3	<7.2
Bromomethane	---	---	---	---	<6.3	<7.2
c-1,3 Dichloropropene	---	---	---	---	<6.3	<7.2
Carbon disulfide	2,700	---	---	---	13	<7.2
Carbon Tetrachloride	600	760	22,000	760	<6.3	<7.2
Chlorobenzene	1,700	1,100	500,000	1,100	<6.3	<7.2
Chlorodibromomethane	---	---	---	---	<6.3	<7.2
Chloroethane	1,900	---	---	---	<6.3	<7.2
Chloroform	300	370	350,000	370	<6.3	<7.2
Chloromethane	---	---	---	---	<6.3	<7.2
Ethyl Benzene*	5,500	1,000	390,000	1,000	<6.3	<7.2
m + p Xylene	1,200	260*	500,000*	1,600**	13	<14
Methylene Chloride	100	50	500,000	50	<6.3	<7.2
o Xylene	1,200	260*	500,000*	1,600**	<6.3	<7.2
Styrene	---	---	---	---	<6.3	<7.2
t-1,3Dichloropropene	300	---	---	---	<6.3	<7.2
Tetrachloroethene	1,400	1,300	150,000	1,300	110	25
Toluene*	1,500	700	500,000	700	<6.3	<7.2
Trichloroethene	700	470	200,000	470	<6.3	<7.2
Vinyl Chloride	200	20	13,000	20	<6.3	<7.2

**NOTES:**

All units are µg/kg (parts per billion).

--- No standard available.

Values in **bold** exceed the TAGM Recommended Soil Cleanup Objectives and/or Brownfields Soil Cleanup Objectives.

\* - Compound is on the NYSDEC list of Recommended Soil Cleanup Objectives for gasoline/fuel oil contaminated soil .

\*\* - NYSDEC Brownsfield Soil Cleanup Objective for total xylenes.

**TABLE 2**  
**SEMI VOLATILE ORGANIC COMPOUNDS (SVOCs)**  
**SURFACE SOIL SAMPLE RESULTS**

**FRITO-LAY, INC.**  
**202-218 MORGAN AVENUE**  
**BROOKLYN, NEW YORK**

Compound	NYSDEC TAGM Recommended Soil Cleanup Objective	NYSDEC Unrestricted Use Soil Cleanup Objectives	NYSDEC Restricted Use Soil Cleanup Objective- Protection of Public Health-Commercial	NYSDEC Restricted Use Soil Cleanup Objectives- Protection of Groundwater	SS-1	SS-2	SS-3	SS-4	SS-5
Date:					10/31/2003	10/31/2003	10/31/2003	10/31/2003	10/31/2003
<b>SVOC's (µg/kg) - EPA Method 8270</b>									
1,2 Dichlorobenzene(sv)	---	---	---	---	<360	<390	<350	<380	<43
1,3 Dichlorobenzene(sv)	---	---	---	---	<360	<390	<350	<380	<43
1,4 Dichlorobenzene(sv)	---	---	---	---	<360	<390	<350	<380	<43
1,2,4-Trichlorobenzene (sv)	---	---	---	---	<360	<390	<350	<380	<43
2,4-Dinitrotoluene	---	---	---	---	<360	<390	<350	<380	<43
2,6-Dinitrotoluene	1,000	---	---	---	<360	<390	<350	<380	<43
2-Chloronaphthalene	---	---	---	---	<360	<390	<350	<380	<43
2-Methylnaphthalene	36,400	---	---	---	<360	430	<350	<380	<43
2-Nitroaniline	430 or MDL	---	---	---	<360	<390	<350	<380	<43
3,3'-Dichlorobenzidine	---	---	---	---	<3,600	<3,900	<3,500	<3,800	<430
3-Nitroaniline	500 or MDL	---	---	---	<360	<390	<350	<380	<43
4-Bromophenyl phenyl ether	---	---	---	---	<360	<390	<350	<380	<43
4-Chloroaniline	220 or MDL	---	---	---	<360	<390	<350	<380	<43
4-Chlorophenyl phenyl ether	---	---	---	---	<360	<390	<350	<380	<43
4-Nitroaniline	---	---	---	---	<360	<390	<350	<380	<43
Acenaphthene*	50,000	20,000	500,000	98,000	<360	1,600	<350	<380	<43
Acenaphthylene*	50,000	100,000	500,000	107,000	450	<390	<350	<380	<43
Anthracene*	50,000	100,000	500,000	1,000,00	1,000	2,500	<350	710	<43
Benzo(a)anthracene*	224 or MDL	1,000	5,600	1,000	<b>3,800</b>	<b>4,300</b>	<b>1,600</b>	<b>2,000</b>	<b>170</b>
Benzo(a)pyrene*	61 or MDL	1,000	1,000	22,000	<b>4,500</b>	<b>3,100</b>	<b>1,500</b>	<b>2,500</b>	<b>250</b>
Benzo(b)fluoranthene*	1,100	1,000	5,600	1,700	<b>4,000</b>	<b>3,200</b>	<b>1,900</b>	<b>2,200</b>	260
Benzo(ghi)perylene*	50,000	100,000	500,000	1,000,000	2,600	1,300	1,000	1,500	200
Benzo(k)fluoranthene*	1,100	800	56,000	1,700	<b>4,000</b>	<b>3,200</b>	<b>1,900</b>	<b>2,200</b>	260
BenzylButylPhthalate	50,000	---	---	---	<360	<b>140,000</b>	6,500	3,200	1,100
Bis(2-chloroethoxy)methane	---	---	---	---	<360	<390	<350	<380	<43
Bis(2-chloroethyl)ether	---	---	---	---	<360	<390	<350	<380	<43
Bis(2-chloroisopropyl)ether	---	---	---	---	<360	<390	<350	<380	<43
Bis(2-ethylhexyl)phthalate	50,000	---	---	---	4,500	12,000	19,000	41,000	5,100
Carbazole	---	---	---	---	360	1,700	<350	<380	<43
Chrysene*	400	1,000	56,000	1,000	<b>3,900</b>	<b>4,200</b>	<b>1,800</b>	<b>2,000</b>	200
Di-n-Butyl Phthalate	8,100	---	---	---	<360	6,800	<350	940	86
Di-n-octyl Phthalate	50,000	---	---	---	<360	1,300	860	610	290
Dibenzo(a,h)anthracene*	14 or MDL	330	560	1,000,000	<b>1,300</b>	<b>1,000</b>	<b>620</b>	<b>750</b>	<b>86</b>
Dibenzofuran	6,200	---	---	---	<360	900	<350	<380	<43
Diethyl Phthalate	7,100	---	---	---	<360	<390	<350	<380	<43
Dimethyl Phthalate	2,000	---	---	---	<360	<390	<350	<380	<43
Fluoranthene*	50,000	100,000	500,000	1,000,000	5,000	7,800	2,800	2,900	190
Fluorene*	50,000	30,000	500,000	386,000	450	1,600	<350	<380	<43
Hexachlorobenzene	410	---	---	---	<360	<390	<350	<380	<43
Hexachlorobutadiene	---	---	---	---	<360	<390	<350	<380	<43
Hexachlorocyclopentadiene	---	---	---	---	<3,600	<3,900	3,500	<3,800	430
Hexachloroethane	---	---	---	---	<360	<390	<350	<380	<43
Indeno(1,2,3-cd)pyrene*	3,200	500	5,600	8,200	2,300	1,300	910	1,400	170
Isophorone	4,400	---	---	---	<360	<390	<350	<380	<43
N-Nitrosodi-n-propylamine	---	---	---	---	<360	<390	<350	<380	<43
N-Nitrosodiphenylamine	---	---	---	---	<360	<390	<350	<380	<43
Naphthalene *	13,000	12,000	500,000	12,000	<360	440	<350	<380	<43
Nitrobenzene	200 or MDL	---	---	---	<360	<390	<350	<380	<43
Phenanthrene*	50,000	100,000	500,000	1,000,000	3,800	11,000	<350	2,200	84
Pyrene*	50,000	100,000	500,000	1,000,000	9,300	12,000	5,400	5,300	300

**NOTES:**

All units are µg/kg (parts per billion).

--- No standard available.

Values in **bold** exceed the TAGM Recommended Soil Cleanup Objectives and/or Brownfields Soil Cleanup Objectives.

\* - Compound is on the NYSDEC list of Recommended Soil Cleanup Objectives for fuel oil contaminated soil (rev. 8/22/01).

**TABLE 3**  
**POLYCHLORINATED BIPHENYLS (PCBs)**  
**SURFACE SOIL SAMPLE RESULTS**

**FRITO-LAY, INC.**  
**202-218 MORGAN AVENUE**  
**BROOKLYN, NEW YORK**

Compound	NYSDEC TAGM Recommended Soil Cleanup Objective	Brownfields Unrestricted Use Soil Cleanup Objectives	Brownfields Restricted Use Soil Cleanup Objectives Protection of Public Health- Commercial	Brownfields Soil Cleanup Objectives Protection of Groundwater	SS-1	SS-2	SS-3	SS-4	SS-5
Date:					10/31/2003	10/31/2003	10/31/2003	10/31/2003	10/31/2003
<i>PCB's (µg/kg) - EPA Method 8082</i>									
Aroclor 1016	10,000	1,000	1,000	3,200	<48	<52	<47	<51	58
Aroclor 1221	10,000	1,000	1,000	3,200	<48	<52	<47	<51	58
Aroclor 1232	10,000	1,000	1,000	3,200	<48	<52	<47	<51	58
Aroclor 1242	10,000	1,000	1,000	3,200	<48	<52	<b>8,500</b>	<b>18,000</b>	<b>190,000</b>
Aroclor 1248	10,000	1,000	1,000	3,200	<48	<52	<47	<51	58
Aroclor 1254	10,000	1,000	1,000	3,200	<48	<b>2,900</b>	<47	<51	58
Aroclor 1260	10,000	1,000	1,000	3,200	<b>11,000</b>	<52	<47	<51	58

**NOTES:**

All units are µg/kg (parts per billion).

Values in **bold** exceed the TAGM Recommended Soil Cleanup Objectives and/or Brownfields Soil Cleanup Objectives



**TABLE 4**  
**RCRA METALS**  
**SURFACE SOIL SAMPLE RESULTS**

**FRITO-LAY, INC.**  
**202-218 MORGAN AVENUE**  
**BROOKLYN, NEW YORK**

Compound	NYSDEC TAGM Recommended Soil Cleanup Objective	Brownfields Unrestricted Use Soil Cleanup Objectives	Brownfields Restricted Use Soil Cleanup Objectives Protection of Public Health- Commercial	Brownfields Soil Cleanup Objectives Protection of Groundwater	SS-1	SS-2	SS-3	SS-4	SS-5
Date:					10/31/2003	10/31/2003	10/31/2003	10/31/2003	10/31/2003
<i>RCRA Metals (mg/kg) Method 6010/7471</i>									
Arsenic	7.5 or SB (3-12**)	13	16	16	<b>26</b>	5.7	<b>12</b>	<b>34</b>	<b>13</b>
Barium	300 or SB (15-600)	350	400	820	<b>820</b>	<b>400</b>	<b>420</b>	<b>510</b>	<b>770</b>
Cadmium	1 or SB (0.1-1)	2.5	9	7.5	<b>17</b>	<b>5.2</b>	<b>15</b>	<b>27</b>	<b>54</b>
Chromium	10 or SB (1.5-40**)	1 / 19	400	19	<b>140</b>	<b>38</b>	<b>140</b>	<b>130</b>	<b>200</b>
Lead	200-500	63	1,000	450	<b>50,000</b>	<b>740</b>	<b>1,000</b>	<b>1,300</b>	<b>2,200</b>
Mercury	0.1	0.18	2.8	0.73	<b>20</b>	<b>1.2</b>	<b>4.7</b>	<b>2.8</b>	<b>8</b>
Selenium	2 or SB (0.1-3.9)	3.9	1,500	4	<b>4.2</b>	<b>5.7</b>	<b>5.2</b>	<b>120</b>	1.2
Silver	SB	2	1,500	8.3	<b>4.4</b>	<0.65	1.5	1.8	<b>6.1</b>

**NOTES:**

All units are in mg/kg (parts per million).

SB - Eastern USA Background.

\*\* - New York State Background.

Values in **bold** exceed the TAGM Recommended Soil Cleanup Objectives and/or Brownfields Soil Cleanup Objectives

**TABLE 5**  
**VOLATILE ORGANIC COMPOUNDS (VOCs)**  
**SOIL BORING SAMPLE RESULTS**

**FRITO-LAY, INC.**  
**202-218 MORGAN AVENUE**  
**BROOKLYN, NEW YORK**

Compound	NYSDEC TAGM Recommended Soil Cleanup Objective	NYSDEC Unrestricted Use Soil Cleanup Objectives	NYSDEC Restricted Use Soil Cleanup Objective- Protection of Public Health-Commercial	NYSDEC Restricted Use Soil Cleanup Objectives-Protection of Groundwater	SB-1 (8.0-10.0)	SB-2 (7.5-9.5)	SB-3 (7.0-9.5)
Date:					10/30/2003	10/30/2003	10/30/2003
<i>VOC's (µg/kg) - EPA Method 8260</i>							
1,1 Dichloroethane	200	270	240,000	270	<6	<5.6	<5.7
1,1 Dichloroethene	400	330	500,000	330	<6	<5.6	<5.7
1,2 Dichloroethane	100	20	30,000	20	<6	<5.6	<5.7
1,2 Dichloroethene	330	190	500,000	190	<12	<11	<11
1,2 Dichloropropane	---	---	---	---	<6	<5.6	<5.7
1,1,1 Trichloroethane	800	680	500,000	680	<6	<5.6	<5.7
1,1,2 Trichloroethane	---	---	---	---	<6	<5.6	<5.7
1,1,2,2 Tetrachloroethane	600	---	---	---	<6	<5.6	<5.7
2-Butanone	300	---	---	---	<60	<56	<57
2-Hexanone	---	---	---	---	<60	<56	<57
4-Methyl-2-Pentanone	---	---	---	---	<60	<56	<57
Acetone	200	50	500,000	50	<60	<56	<57
Benzene*	60 or MDL	60	44,000	60	<6	<5.6	<5.7
Bromodichloromethane	---	---	---	---	<6	<5.6	<5.7
Bromoform	---	---	---	---	<6	<5.6	<5.7
Bromomethane	---	---	---	---	<6	<5.6	<5.7
c-1,3 Dichloropropene	---	---	---	---	<6	<5.6	<5.7
Carbon disulfide	2,700	---	---	---	<6	<5.6	10
Carbon Tetrachloride	600	760	22,000	760	<6	<5.6	<5.7
Chlorobenzene	1,700	1,100	500,000	1,100	<6	<5.6	<5.7
Chlorodibromomethane	---	---	---	---	<6	<5.6	<5.7
Chloroethane	1,900	---	---	---	<6	<5.6	<5.7
Chloroform	300	370	350,000	370	<6	<5.6	<5.7
Chloromethane	---	---	---	---	<6	<5.6	<5.7
Ethyl Benzene*	5,500	1,000	390,000	1,000	<6	<5.6	<5.7
m + p Xylene	1,200	260*	500,000*	1,600**	<12	<11	<11
Methylene Chloride	100	50	500,000	50	<6	<5.6	<5.7
o Xylene	1,200	260*	500,000*	1,600**	<6	<5.6	<5.7
Styrene	---	---	---	---	<6	<5.6	<5.7
t-1,3Dichloropropene	300	---	---	---	<6	<5.6	<5.7
Tetrachloroethene	1,400	1,300	150,000	1,300	<6	<5.6	<5.7
Toluene*	1,500	700	500,000	700	<6	<5.6	<5.7
Trichloroethene	700	470	200,000	470	<6	<5.6	<5.7
Vinyl Chloride	1,200	---	---	---	<18	<17	<17

**NOTES:**

All units are µg/kg (parts per billion).

--- No standard available.

Values in **bold** exceed the TAGM Recommended Soil Cleanup Objectives and/or Brownfields Soil Cleanup Objectives.

\* - Compound is on the NYSDEC list of Recommended Soil Cleanup Objectives for gasoline/fuel oil contaminated soil .

\*\* - NYSDEC Brownsfield Soil Cleanup Objective for total xylenes.

**TABLE 5**  
**VOLATILE ORGANIC COMPOUNDS (VOCs)**  
**SOIL BORING SAMPLE RESULTS**

**FRITO-LAY, INC.**  
**202-218 MORGAN AVENUE**  
**BROOKLYN, NEW YORK**

Compound	NYSDEC TAGM Recommended Soil Cleanup Objective	NYSDEC Unrestricted Use Soil Cleanup Objectives	NYSDEC Restricted Use Soil Cleanup Objective- Protection of Public Health-Commercial	NYSDEC Restricted Use Soil Cleanup Objectives-Protection of Groundwater	SB-4 (4.5-6.0)	SB-5 (0.0-4.0)	SB-6 (6.0-8.0)
Date:					10/30/2003	10/31/2003	10/31/2003
<i>VOC's (µg/kg) - EPA Method 8260</i>							
1,1 Dichloroethane	200	270	240,000	270	<13	<13	<12
1,1 Dichloroethene	400	330	500,000	330	<13	<13	<12
1,2 Dichloroethane	100	20	30,000	20	<13	<13	<12
1,2 Dichloroethene	330	190	500,000	190	<b>490</b>	<26	78
1,2 Dichloropropane	---	---	---	---	<13	<13	<12
1,1,1 Trichloroethane	800	680	500,000	680	<13	<13	<12
1,1,2 Trichloroethane	---	---	---	---	<13	<13	<12
1,1,2,2 Tetrachloroethane	600	---	---	---	<13	<13	<12
2-Butanone	300	---	---	---	<130	<130	<120
2-Hexanone	---	---	---	---	<130	<130	<120
4-Methyl-2-Pentanone	---	---	---	---	<130	<130	<120
Acetone	200	50	500,000	50	<b>270</b>	<130	<b>160</b>
Benzene*	60 or MDL	60	44,000	60	<b>160</b>	<13	<b>65</b>
Bromodichloromethane	---	---	---	---	<13	<13	<12
Bromoform	---	---	---	---	<13	<13	<12
Bromomethane	---	---	---	---	<13	<13	<12
c-1,3 Dichloropropene	---	---	---	---	<13	<13	<12
Carbon disulfide	2,700	---	---	---	28	97	51
Carbon Tetrachloride	600	760	22,000	760	<13	<13	<12
Chlorobenzene	1,700	1,100	500,000	1,100	<13	<13	<12
Chlorodibromomethane	---	---	---	---	<13	<13	<12
Chloroethane	1,900	---	---	---	<13	<13	<12
Chloroform	300	370	350,000	370	<13	<13	<12
Chloromethane	---	---	---	---	<13	<13	<12
Ethyl Benzene*	5,500	1,000	390,000	1,000	270	110	<b>1,100</b>
m + p Xylene	1,200	260*	500,000*	1,600**	590	130	4,200
Methylene Chloride	100	50	500,000	50	<13	<13	<12
o Xylene	1,200	260*	500,000*	1,600**	300	130	<b>2,700</b>
Styrene	---	---	---	---	<13	<13	<12
t-1,3Dichloropropene	300	---	---	---	<13	<13	<12
Tetrachloroethene	1,400	1,300	150,000	1,300	<13	28	600
Toluene*	1,500	700	500,000	700	430	140	<b>1,600</b>
Trichloroethene	700	470	200,000	470	<13	37	45
Vinyl Chloride	1,200	---	---	---	900	260	<b>6,900</b>

**NOTES:**

All units are µg/kg (parts per billion).

--- No standard available.

Values in **bold** exceed the TAGM Recommended Soil Cleanup Objectives and/or Brownfields Soil Cleanup Objectives.

\* - Compound is on the NYSDEC list of Recommended Soil Cleanup Objectives for gasoline/fuel oil contaminated soil .

\*\* - NYSDEC Brownfield Soil Cleanup Objective for total xylenes.

**TABLE 5**  
**VOLATILE ORGANIC COMPOUNDS (VOCs)**  
**SOIL BORING SAMPLE RESULTS**

**FRITO-LAY, INC.**  
**202-218 MORGAN AVENUE**  
**BROOKLYN, NEW YORK**

Compound	NYSDEC TAGM Recommended Soil Cleanup Objective	NYSDEC Unrestricted Use Soil Cleanup Objectives	NYSDEC Restricted Use Soil Cleanup Objective- Protection of Public Health-Commercial	NYSDEC Restricted Use Soil Cleanup Objectives-Protection of Groundwater	SB-7 (4.0-5.5)	SB-8 (0.0-3.0)
Date:					10/31/2003	10/31/2003
<i>VOC's (µg/kg) - EPA Method 8260</i>						
1,1 Dichloroethane	200	270	240,000	270	<6.3	<6.1
1,1 Dichloroethene	400	330	500,000	330	<6.3	<6.1
1,2 Dichloroethane	100	20	30,000	20	<6.3	<6.1
1,2 Dichloroethene	330	190	500,000	190	13	22
1,2 Dichloropropane	---	---	---	---	<6.3	<6.1
1,1,1 Trichloroethane	800	680	500,000	680	<6.3	<6.1
1,1,2 Trichloroethane	---	---	---	---	<6.3	<6.1
1,1,2,2 Tetrachloroethane	600	---	---	---	<6.3	<6.1
2-Butanone	300	---	---	---	<b>200</b>	<61
2-Hexanone	---	---	---	---	63	<61
4-Methyl-2-Pentanone	---	---	---	---	63	<61
Acetone	200	50	500,000	50	<b>820</b>	<b>150</b>
Benzene*	60 or MDL	60	44,000	60	35	<6.1
Bromodichloromethane	---	---	---	---	<6.3	<6.1
Bromoform	---	---	---	---	<6.3	<6.1
Bromomethane	---	---	---	---	<6.3	<6.1
c-1,3 Dichloropropene	---	---	---	---	<6.3	<6.1
Carbon disulfide	2,700	---	---	---	110	67
Carbon Tetrachloride	600	760	22,000	760	<6.3	<6.1
Chlorobenzene	1,700	1,100	500,000	1,100	<6.3	<6.1
Chlorodibromomethane	---	---	---	---	<6.3	<6.1
Chloroethane	1,900	---	---	---	<6.3	<6.1
Chloroform	300	370	350,000	370	<6.3	<6.1
Chloromethane	---	---	---	---	<6.3	<6.1
Ethyl Benzene*	5,500	1,000	390,000	1,000	410	120
m + p Xylene	1,200	260*	500,000*	1,600**	820	330
Methylene Chloride	100	50	500,000	50	8.9	8.5
o Xylene	1,200	260*	500,000*	1,600**	710	280
Styrene	---	---	---	---	110	67
t-1,3Dichloropropene	300	---	---	---	<6.3	<6.1
Tetrachloroethene	1,400	1,300	150,000	1,300	25	240
Toluene*	1,500	700	500,000	700	<b>870</b>	100
Trichloroethene	700	470	200,000	470	13	17
Vinyl Chloride	1,200	---	---	---	-	610

**NOTES:**

All units are µg/kg (parts per billion).

--- No standard available.

Values in **bold** exceed the TAGM Recommended Soil Cleanup Objectives and/or Brownfields Soil Cleanup Objectives.

\* - Compound is on the NYSDEC list of Recommended Soil Cleanup Objectives for gasoline/fuel oil contaminated soil .

\*\* - NYSDEC Brownfield Soil Cleanup Objective for total xylenes.

**TABLE 6**  
**SEMI VOLATILE ORGANIC COMPOUNDS (SVOCs)**  
**SOIL BORING SAMPLE RESULTS**

**FRITO-LAY, INC.**  
**202-218 MORGAN AVENUE**  
**BROOKLYN, NEW YORK**

Compound	NYSDEC TAGM Recommended Soil Cleanup Objective	NYSDEC Unrestricted Use Soil Cleanup Objectives	NYSDEC Restricted Use Soil Cleanup Objective- Protection of Public Health- Commercial	NYSDEC Restricted Use Soil Cleanup Objectives- Protection of Groundwater	SB-1 (8.0-10.0)	SB-2 (7.5-9.5)	SB-3 (7.0-9.5)	SB-4 (4.5-6.0)	SB-5 (0.0-4.0)	SB-6 (6.0-8.0)	SB-7 (4.0-5.5)	SB-8 (0.0-3.0)
Date:					10/30/2003	10/30/2003	10/30/2003	10/30/2003	10/31/2003	10/31/2003	10/31/2003	10/31/2003
<i>SVOC's (µg/kg) - EPA Method 8270</i>												
1,2 Dichlorobenzene(sv)	---	---	---	---	<36	<34	<340	<190	<390	<350	<380	<370
1,3 Dichlorobenzene(sv)	---	---	---	---	<36	<34	<340	<190	<390	<350	<380	<370
1,4 Dichlorobenzene(sv)	---	---	---	---	<36	<34	<340	<190	<390	<350	<380	<370
1,2,4-Trichlorobenzene (sv)	---	---	---	---	<36	<34	<340	<190	<390	<350	<380	<370
2,4-Dinitrotoluene	---	---	---	---	<36	<34	<340	<190	<390	<350	<380	<370
2,6-Dinitrotoluene	1,000	---	---	---	<36	<34	<340	<190	<390	<350	<380	<370
2-Chloronaphthalene	---	---	---	---	<36	<34	<340	<190	<390	<350	<380	<370
2-Methylnaphthalene	36,400	---	---	---	<36	<34	<340	2,200	820	840	970	1,000
2-Nitroaniline	430 or MDL	---	---	---	<36	<34	<340	<190	<390	<350	<380	<370
3,3'-Dichlorobenzidine	---	---	---	---	<360	<340	<3,400	<1,900	<3,900	<3,500	<3,800	<3,700
3-Nitroaniline	500 or MDL	---	---	---	<36	<34	<340	<190	<390	<350	<380	<370
4-Bromophenyl phenyl ether	---	---	---	---	<36	<34	<340	<190	<390	<350	<380	<370
4-Chloroaniline	220 or MDL	---	---	---	<36	<34	<340	<190	<390	<350	<380	<370
4-Chlorophenyl phenyl ether	---	---	---	---	<36	<34	<340	<190	<390	<350	<380	<370
4-Nitroaniline	---	---	---	---	<36	<34	<340	<190	<390	<350	<380	<370
Acenaphthene*	50,000	20,000	500,000	98,000	<36	76	<340	870	5,500	2,500	590	1,200
Acenaphthylene*	50,000	100,000	500,000	107,000	<36	<34	<340	<190	<390	<350	<380	<370
Anthracene*	50,000	100,000	500,000	1,000,00	<36	130	610	610	9,500	7,900	1,400	1,800
Benzo(a)anthracene*	224 or MDL	1,000	5,600	1,000	<36	<b>470</b>	<b>900</b>	<b>1,500</b>	<b>20,000</b>	<b>14,000</b>	<b>3,200</b>	<b>4,300</b>
Benzo(a)pyrene*	61 or MDL	1,000	1,000	22,000	<36	<b>460</b>	<b>700</b>	<b>1,400</b>	<b>14,000</b>	<b>12,000</b>	<b>3,300</b>	<b>3,400</b>
Benzo(b)fluoranthene*	1,100	1,000	5,600	1,700	<36	470	630	<b>1,600</b>	<b>15,000</b>	<b>12,000</b>	<b>3,500</b>	<b>3,600</b>
Benzo(ghi)perylene*	50,000	100,000	500,000	1,000,000	<36	210	<340	670	5,700	5,800	1,800	1,600
Benzo(k)fluoranthene*	1,100	800	56,000	1,700	<36	470	630	<b>1,600</b>	<b>15,000</b>	<b>12,000</b>	<b>3,500</b>	<b>3,600</b>
BenzylButylPhthalate	50,000	---	---	---	<36	<34	<340	<190	20,000	3,900	9,200	9,800
Bis(2-chloroethoxy)methane	---	---	---	---	<36	<34	<340	<190	<390	<350	<380	<370
Bis(2-chloroethyl)ether	---	---	---	---	<36	<34	<340	<190	<390	<350	<380	<370
Bis(2-chloroisopropyl)ether	---	---	---	---	<36	<34	<340	<190	<390	<350	<380	<370
Bis(2-ethylhexyl)phthalate	50,000	---	---	---	<36	36	5,600	<190	30,000	14,000	<b>84,000</b>	<b>77,000</b>
Carbazole	---	---	---	---	<36	70	<340	<190	6,800	2,200	480	1,100
Chrysene*	400	1,000	56,000	1,000	<36	<b>430</b>	<b>1,100</b>	<b>1,800</b>	<b>17,000</b>	<b>13,000</b>	<b>3,300</b>	<b>3,900</b>
Di-n-Butyl Phthalate	8,100	---	---	---	<36	<34	<340	<190	<390	<350	3,000	650
Di-n-octyl Phthalate	50,000	---	---	---	<36	<34	<340	<190	<390	450	14,000	2,600
Dibenzo(a,h)anthracene*	14 or MDL	330	560	1,000,000	<36	<b>78</b>	<340	<b>410</b>	<b>2,600</b>	<b>2,500</b>	<b>620</b>	<b>590</b>
Dibenzofuran	6,200	---	---	---	<36	42	<340	340	3,800	1,600	<380	720
Diethyl Phthalate	7,100	---	---	---	<36	<34	<340	<190	<390	<350	<380	<370
Dimethyl Phthalate	2,000	---	---	---	<36	<34	<340	<190	<390	<350	<380	<370
Fluoranthene*	50,000	100,000	500,000	1,000,000	36	940	1,300	2,700	38,000	24,000	4,600	7,200
Fluorene*	50,000	30,000	500,000	386,000	<36	60	380	330	6,400	3,300	680	1,200
Hexachlorobenzene	410	---	---	---	<36	<34	<340	<190	<390	<350	<380	<370
Hexachlorobutadiene	---	---	---	---	<36	<34	<340	<190	<390	<350	<380	<370
Hexachlorocyclopentadiene	---	---	---	---	<360	<340	<3,400	<1,900	<3,900	<3,500	<3,800	<3,700
Hexachloroethane	---	---	---	---	<36	<34	<340	<190	<390	<350	<380	<370
Indeno(1,2,3-cd)pyrene*	3,200	500	5,600	8,200	<36	210	<340	680	<b>6,400</b>	<b>5,500</b>	1,500	1,500
Isophorone	4,400	---	---	---	<36	<34	<340	<190	<390	<350	<380	<370
N-Nitrosodi-n-propylamine	---	---	---	---	<36	<34	<340	<190	<390	<350	<380	<370
N-Nitrosodiphenylamine	---	---	---	---	<36	<34	<340	<190	<390	<350	<380	<370
Naphthalene *	13,000	12,000	500,000	12,000	<36	<34	<340	1,200	1,400	1,400	650	1,100
Nitrobenzene	200 or MDL	---	---	---	<36	<34	<340	<190	<390	<350	<380	<370
Phenanthrene*	50,000	100,000	500,000	1,000,000	<36	750	2,600	1,400	41,000	26,000	4,100	8,200
Pyrene*	50,000	100,000	500,000	1,000,000	37	1,100	3,600	4,200	46,000	32,000	12,000	13,000

**NOTES:**

All units are µg/kg (parts per billion).

--- No standard available.

Values in **bold** exceed the TAGM Recommended Soil Cleanup Objectives and/or Brownfields Soil Cleanup Objectives.

\* - Compound is on the NYSDEC list of Recommended Soil Cleanup Objectives for fuel oil contaminated soil (rev. 8/22/01).

**TABLE 7**  
**POLYCHLORINATED BIPHENYLS (PCBs)**  
**SOIL BORING SAMPLE RESULTS**

**FRITO-LAY, INC.**  
**202-218 MORGAN AVENUE**  
**BROOKLYN, NEW YORK**

Compound	NYSDEC TAGM Recommended Soil Cleanup Objective	Brownfields Unrestricted Use Soil Cleanup Objectives	Brownfields Restricted Use Soil Cleanup Objectives Protection of Public Health- Commercial	Brownfields Soil Cleanup Objectives Protection of Groundwater	SB-1 (8.0-10.0)	SB-2 (7.5-9.5)	SB-3 (7.0-9.5)	SB-4 (4.5-6.0)	SB-5 (0.0-4.0)	SB-6 (6.0-8.0)	SB-7 (4.0-5.5)	SB-8 (0.0-3.0)
Date:					10/30/2003	10/30/2003	10/30/2003	10/30/2003	10/31/2003	10/31/2003	10/31/2003	10/31/2003
<i>PCB's (µg/kg) - EPA Method 8082</i>												
Aroclor 1016	10,000	1,000	1,000	3,200	<48	<45	<45	<51	<53	<47	<51	<49
Aroclor 1221	10,000	1,000	1,000	3,200	<48	<45	<45	<51	<53	<47	<51	<49
Aroclor 1232	10,000	1,000	1,000	3,200	<48	<45	<45	<51	<53	<47	<51	<49
Aroclor 1242	10,000	1,000	1,000	3,200	<48	<45	<b>1,300</b>	<51	<53	<b>32,000</b>	<51	<b>85,000</b>
Aroclor 1248	10,000	1,000	1,000	3,200	<48	<45	<45	<51	<53	<47	<51	<49
Aroclor 1254	10,000	1,000	1,000	3,200	67	<45	<45	<b>1,600</b>	<b>3,400</b>	<47	<b>33,000</b>	<49
Aroclor 1260	10,000	1,000	1,000	3,200	<48	<45	<45	<51	<53	<47	<51	<49

**NOTES:**

All units are µg/kg (parts per billion).

Values in **bold** exceed the TAGM Recommended Soil Cleanup Objectives and/or Brownfields Soil Cleanup Objectives

**TABLE 8**  
**RCRA METALS**  
**SOIL BORING SAMPLE RESULTS**

**FRITO-LAY, INC.**  
**202-218 MORGAN AVENUE**  
**BROOKLYN, NEW YORK**

Compound	NYSDEC TAGM Recommended Soil Cleanup Objective	Brownfields Unrestricted Use Soil Cleanup Objectives	Brownfields Restricted Use Soil Cleanup Objectives Protection of Public Health- Commercial	Brownfields Soil Cleanup Objectives Protection of Groundwater	SB-1 (8.0-10.0)	SB-2 (7.5-9.5)	SB-3 (7.0-9.5)	SB-4 (4.5-6.0)	SB-5 (0.0-4.0)	SB-6 (6.0-8.0)	SB-7 (4.0-5.5)	SB-8 (0.0-3.0)
<i>RCRA Metals (mg/kg) Method 6010/7471</i>												
Date:					10/30/2003	10/30/2003	10/30/2003	10/30/2003	10/31/2003	10/31/2003	10/31/2003	10/31/2003
Arsenic	7.5 or SB (3-12**)	13	16	16	2.4	2.8	<b>11</b>	<b>28</b>	6.2	<b>11</b>	<b>9.9</b>	<b>10</b>
Barium	300 or SB (15-600)	350	400	820	26	45	220	200	280	<b>480</b>	<b>590</b>	<b>440</b>
Cadmium	1 or SB (0.1-1)	2.5	9	7.5	<0.6	<b>1.7</b>	<b>4.7</b>	<b>3</b>	<b>5.9</b>	<b>38</b>	<b>43</b>	<b>17</b>
Chromium	10 or SB (1.5-40**)	1 / 19	400	19	8.1	<b>10</b>	<b>44</b>	<b>30</b>	<b>45</b>	<b>220</b>	<b>120</b>	<b>110</b>
Lead	200-500	63	1,000	450	38	<b>72</b>	<b>700</b>	<b>430</b>	<b>970</b>	<b>8,200</b>	<b>3,700</b>	<b>1,000</b>
Mercury	0.1	0.18	2.8	0.73	<b>0.2</b>	<b>0.43</b>	<b>1.6</b>	<b>0.51</b>	<b>1.2</b>	<b>6.5</b>	<b>9.9</b>	<b>1.6</b>
Selenium	2 or SB (0.1-3.9)	3.9	1,500	4	<0.48	0.47	<b>5.7</b>	<b>3.5</b>	0.61	<b>2.4</b>	0.51	1
Silver	SB	2	1,500	8.3	<0.6	<0.56	<b>3.5</b>	<0.63	<0.66	1.1	<b>2</b>	<b>3</b>

NOTES:

All units are in mg/kg (parts per million).

SB - Eastern USA Background.

\*\* - New York State Background.

Values in **bold** exceed the TAGM Recommended Soil Cleanup Objectives and/or Brownfields Soil Cleanup Objectives

**TABLE 9**  
**VOLATILE ORGANIC COMPOUNDS (VOCs)**  
**GROUNDWATER SAMPLE RESULTS**

**FRITO-LAY, INC.**  
**202-218 MORGAN AVENUE**  
**BROOKLYN, NEW YORK**

Compound	NYSDEC Technical and Operational Guidance Series	GW-1	GW-2	GW-3	GW-4
Date:		10/31/03	10/31/03	10/31/03	10/31/03
<i>VOC's (µg/l) - EPA Method 8260</i>					
1,1 Dichloroethane	5	<1	<1	2	<1
1,1 Dichloroethene	5	<1	<1	3	<1
1,2 Dichloroethane	0.6	<1	<1	<1	<1
1,2 Dichloroethene	5	<2	<2	<b>2,900</b>	<2
1,2 Dichloropropane	1	<1	<1	<1	<1
111 Trichloroethane	5	<1	<1	<1	<1
112 Trichloroethane	5	<1	<1	<1	<1
1122Tetrachloroethane	5	<1	<1	<1	<1
2-Butanone	50*	<10	<10	<10	<10
2-Hexanone	50*	<10	<10	<10	<10
4-Methyl-2-Pentanone	---	<10	<10	<10	<10
Acetone	50*	<10	<10	18	<b>76</b>
Benzene	1	<1	<1	<b>2</b>	<1
Bromodichloromethane	50*	<1	<1	<1	<1
Bromoform	50*	<1	<1	<1	<1
Bromomethane	5	<1	<1	<1	<1
c-1,3Dichloropropene	0.4	<1	<1	<1	<1
Carbon disulfide	---	<1	<1	<1	<1
Carbon Tetrachloride	5	<1	<1	<1	<1
Chlorobenzene	5	<1	<1	<1	<1
Chlorodibromomethane	50*	<1	<1	<1	<1
Chloroethane	5	<1	<1	<1	<1
Chloroform	7	<1	<1	<1	<1
Chloromethane	---	<1	<1	<1	<1
Ethyl Benzene	5	<1	<1	<1	<1
m + p Xylene	5	<2	<2	<2	2
Methylene Chloride	5	<1	<1	<1	<1
o Xylene	5	<1	<1	<1	2
Styrene	5	<1	<1	<1	<1
t-1,3Dichloropropene	0.4	<1	<1	<1	<1
Tetrachloroethene	5	<1	<1	<b>12</b>	<1
Toluene	5	<1	<1	<1	1
Trichloroethene	5	<1	<1	<b>15</b>	<1
Vinyl Chloride	2	<1	<1	<b>2,500</b>	<1
Xylenes	---	<3	<3	<3	4

Notes: All units are µg/l (parts per billion).

\* No standard available. Guidance Value provided.

--- No standard or Guidance Value available.

All NYSDEC TOGS values are for GA Classified Groundwater.

Values in **bold** exceed the NYSDEC Ambient Groundwater Quality Standards or Guidance Values.

TOGS - Technical and Operational Guidance Series.



**TABLE 10**  
**SEMI VOLATILE ORGANIC COMPOUNDS (VOCs)**  
**GROUNDWATER SAMPLE RESULTS**

**FRITO-LAY, INC.**  
**202-218 MORGAN AVENUE**  
**BROOKLYN, NEW YORK**

Compound	NYSDEC Technical and Operational Guidance Series	GW-1	GW-2	GW-3	GW-4
Date:		10/31/03	10/31/03	10/31/03	10/31/03
<i>SVOC's (µg/l) - EPA Method 8270</i>					
1,2 Dichlorobenzene(sv)	3	<1	<1	<1	<3
1,3 Dichlorobenzene(sv)	3	<1	<1	<1	<3
1,4 Dichlorobenzene(sv)	3	<1	<1	<1	<3
124-Trichlorobenzene (sv)	5	<1	<1	<1	<3
2,4-Dinitrotoluene	5	<1	<1	<1	<3
2,6-Dinitrotoluene	5	<1	<1	<1	<3
2-Chloronaphthalene	5	<1	<1	<1	<3
2-Methylnaphthalene	---	<1	<1	<1	<3
2-Nitroaniline	5	<1	<1	<1	<3
3,3'-Dichlorobenzidine	5	<10	<10	<10	<30
3-Nitroaniline	5	<1	<1	<1	<3
4-Bromophenyl phenyl ether	---	<1	<1	<1	<3
4-Chloroaniline	5	<1	<1	<1	<3
4-Chlorophenyl phenyl ether	---	<1	<1	<1	<3
4-Nitroaniline	5	<1	<1	<1	<3
Acenaphthene	20 *	<1	<1	<1	<3
Acenaphthylene	---	<1	<1	<1	<3
Anthracene	50 *	<1	<1	<1	<3
Benzo(a)anthracene	0.002 *	<1	<1	<1	<3
Benzo(a)pyrene	ND	<1	<1	<1	<3
Benzo(b)fluoranthene	0.002 *	<1	<1	<1	<3
Benzo(ghi)perylene	0.002 **	<1	<1	<1	<3
Benzo(k)fluoranthene	0.002 *	<1	<1	<1	<3
BenzylButylPhthalate	50	<1	<1	<1	<3
Bis(2-chloroethoxy)methane	5	<1	<1	<1	<3
Bis(2-chloroethyl)ether	1	<1	<1	<1	<3
Bis(2-chloroisopropyl)ether	---	<1	<1	<1	<3
Bis(2-ethylhexyl)phthalate	5	6	2	2	3
Carbazole	---	<1	<1	<1	<3
Chrysene	.002 *	<1	<1	<1	<3
Di-n-Butyl Phthalate	50	<1	<1	<1	<3
Di-n-octyl Phthalate	50	<1	<1	<1	<3
Dibenzo(a,h)anthracene	50 *	<1	<1	<1	<3
Dibenzofuran	---	<1	<1	<1	<3
Diethyl Phthalate	50	<1	<1	<1	<3
Dimethyl Phthalate	50	<1	<1	<1	<3

**TABLE 10**  
**SEMI VOLATILE ORGANIC COMPOUNDS (VOCs)**  
**GROUNDWATER SAMPLE RESULTS**

**FRITO-LAY, INC.**  
**202-218 MORGAN AVENUE**  
**BROOKLYN, NEW YORK**

Compound	NYSDEC Technical and Operational Guidance Series	GW-1	GW-2	GW-3	GW-4
Date:		10/31/03	10/31/03	10/31/03	10/31/03
<i>SVOC's (µg/l) - EPA Method 8270</i>					
Fluoranthene	50 *	<1	<1	<1	<3
Fluorene	50 *	<1	<1	<1	<3
Hexachlorobenzene	0.04	<1	<1	<1	<3
Hexachlorobutadiene	0.5	<1	<1	<1	<3
Hexachlorocyclopentadiene	5	<10	<10	<10	<30
Hexachloroethane	5	<1	<1	<1	<3
Indeno(1,2,3-cd)pyrene	0.002 *	<1	<1	<1	<3
Isophorone	50	<1	<1	<1	<3
N-Nitrosodi-n-propylamine	50	<1	<1	<1	<3
N-Nitrosodiphenylamine	---	<1	<1	<1	<3
Naphthalene(sv)	10	<1	<1	<1	<3
Nitrobenzene	0.4	<1	<1	<1	<3
Phenanthrene	50 *	<1	<1	<1	<3
Pyrene	50 *	<1	<1	<1	<3

Notes: All units are µg/l (parts per billion).

\* No standard available. Guidance Value provided.

--- No standard or Guidance Value available.

All NYSDEC TOGS values are for GA Classified Groundwater.

Values in **bold** exceed the NYSDEC Ambient Groundwater Standards or Guidance Values.

TOGS - Technical and Operational Guidance Series.

**TABLE 11**  
**RCRA METALS**  
**GROUNDWATER SAMPLE RESULTS**

**FRITO-LAY, INC.**  
**202-218 MORGAN AVENUE**  
**BROOKLYN, NEW YORK**

Compound	NYSDEC Technical and Operational Guidance Series	GW-1	GW-2	GW-3	GW-4
Date:		10/31/2003	10/31/2003	10/31/2003	10/31/2003
<i>RCRA Metals (mg/l) Methods 200.7, 200.9, and 245.2</i>					
Arsenic as As	0.025	0.008	<b>0.031</b>	0.016	<b>0.32</b>
Barium as Ba	1.000	0.25	0.99	0.29	<b>310</b>
Cadmium as Cd	0.005	<0.005	<0.005	<b>0.006</b>	<b>0.13</b>
Chromium as Cr	0.05	<0.005	0.02	0.03	<b>0.8</b>
Lead as Pb	0.025	<b>0.11</b>	<b>0.61</b>	<b>2.7</b>	<b>19</b>
Mercury as Hg	0.0007	<0.001	<b>0.002</b>	<b>0.0018</b>	<b>0.092</b>
Selenium as Se	0.01	0.006	0.005	0.005	<0.04
Silver as Ag	0.05	<0.005	<0.005	0.005	<0.005

Notes: All units are mg/L (parts per billion).

All NYSDEC TOGS values are for GA Classified Groundwater.

Values in **bold** exceed the NYSDEC Ambient Groundwater Quality Standards.

TOGS - Technical and Operational Guidance Series.

**TABLE 12  
VOLATILE ORGANIC COMPOUNDS (VOCs)  
SURFACE SOIL SAMPLE RESULTS**

**FRITO LAY, INC.  
202-218 MORGAN AVENUE  
BROOKLYN, NEW YORK**

COMPOUND	NYSDEC TAGM Recommended Soil Cleanup Objectives	NYSDEC Unrestricted Use Soil Cleanup Objectives	NYSDEC Restricted Use Soil Cleanup Objective-Protection of Public Health- Commercial	NYSDEC Restricted Use Soil Cleanup Objectives- Protection of Groundwater	SS-1	SS-2	SS-3	SS-4	SS-5	SS-6
DATE	2/23/2007	2/23/2007	2/23/2007	2/23/2007	2/23/2007	2/23/2007	2/23/2007	2/23/2007	2/23/2007	2/23/2007
<b>VOC's (µg/kg) - EPA Method 8260</b>										
1,1,1,2-Tetrachloroethane	---	---	---	---	2.9 U	2.8 U	3.0 U	2.6 U	3.5 U	2.8 U
1,1,1-Trichloroethane	800	680	500,000	680	3.0 U	2.9 U	3.0 U	2.6 U	3.5 U	2.8 U
1,1,2,2-Tetrachloroethane	600	---	---	---	2.2 U	2.1 U	2.3 U	1.9 U	2.6 U	2.1 U
1,1,2-Trichloroethane	---	---	---	---	2.1 U	2.0 U	2.1 U	1.8 U	2.5 U	2.0 U
1,1-Dichloroethane	200	270	240,000	270	1.9 U	1.8 U	1.9 U	1.7 U	2.3 U	1.8 U
1,1-Dichloroethene	400	330	500,000	330	4.1 U	3.9 U	4.2 U	3.6 U	4.9 U	3.8 U
1,1-Dichloropropene	---	---	---	---	2.8 U	2.7 U	2.8 U	2.4 U	3.3 U	2.6 U
1,2,3-Trichlorobenzene	---	---	---	---	7.2 U	7.0 U	7.4 U	6.3 U	8.6 U	6.8 U
1,2,3-Trichloropropane	400	---	---	---	2.4 U	2.3 U	2.4 U	2.1 U	2.8 U	2.2 U
1,2,4-Trichlorobenzene	3,400	---	---	---	4.8 U	4.7 U	4.9 U	4.3 U	5.8 U	4.5 U
1,2,4-Trimethylbenzene	---	3,600	190,000	3,600	2.7 U	2.6 J	2.8 U	2.4 U	3.2 U	2.5 U
1,2-Dibromo-3-Chloropropane	---	---	---	---	6.7 U	6.4 U	6.8 U	5.9 U	8.0 U	6.3 U
1,2-Dibromomethane	---	---	---	---	2.8 U	2.7 U	2.9 U	2.5 U	3.4 U	2.7 U
1,2-Dichlorobenzene	7,900	1,100	500,000	1,100	2.7 U	2.6 U	2.8 U	2.4 U	3.3 U	2.6 U
1,2-Dichloroethane	100	120	500,000	120	2.2 U	2.1 U	2.2 U	1.9 U	2.6 U	2.0 U
1,2-Dichloropropane	---	---	---	---	2.8 U	2.7 U	2.9 U	2.5 U	3.4 U	2.6 U
1,3,5-Trimethylbenzene	3,300	8,400	190,000	8,400	3.5 U	3.4 U	3.6 U	3.1 U	4.2 U	3.3 U
1,3-Dichlorobenzene	1,600	2,400	280,000	2,400	3.9 U	3.8 U	4.0 U	3.5 U	4.7 U	3.7 U
1,3-Dichloropropane	300	---	---	---	2.6 U	2.5 U	2.7 U	2.3 U	3.2 U	2.5 U
1,4-Dichlorobenzene	1,000	1,800	130,000	1,800	3.9 U	3.7 U	3.9 U	3.4 U	4.6 U	3.6 U
2,2-Dichloropropane	---	---	---	---	2.4 U	2.3 U	2.4 U	2.1 U	2.8 U	2.2 U
2-Butanone	300	120	500,000	120	20 U	19 U	20 U	18 U	24 U	19 U
2-Chloroethyl vinyl ether	---	---	---	---	11 U	10 U	11 U	9.4 U	13 U	10 U
2-Chlorotoluene	---	---	---	---	2.9 U	2.8 U	3.0 U	2.6 U	3.5 U	2.7 U
2-Hexanone	600	---	---	---	26 U	25 U	26 U	22 U	31 U	24 U
4-Chlorotoluene	---	---	---	---	3.1 U	3.0 U	3.2 U	2.8 U	3.8 U	3.0 U
4-Methyl-2-Pentanone	1,000	---	---	---	14 U	13 U	14 U	12 U	17 U	13 U
Acetone	200	50	500,000	50	24 U	<b>62 J</b>	24 U	<b>110 JB</b>	<b>180 JB</b>	<b>94 JB</b>
Acrolein	---	---	---	---	37 U	35 U	37 U	32 U	44 U	34 U
Acrylonitrile	---	---	---	---	13 U	13 U	14 U	12 U	16 U	13 U
Benzene	60	60	44,000	60	2.8 U	2.7 U	2.9 U	2.5 U	3.4 U	2.7 U
Bromobenzene	600	---	---	---	2.9 U	2.8 U	3.0 U	2.6 U	3.5 U	2.7 U
Bromochloromethane	---	---	---	---	4.1 U	3.9 U	4.2 U	3.6 U	4.9 U	3.8 U
Bromodichloromethane	---	---	---	---	2.4 U	2.3 U	2.4 U	2.1 U	2.8 U	2.2 U
Bromoform	---	---	---	---	2.2 U	2.1 U	2.2 U	1.9 U	2.6 U	2.1 U
Bromomethane	250	---	---	---	14 U	14 U	15 U	13 U	17 U	13 U
Carbon Disulfide	300	---	---	---	2.6 U	2.5 U	2.7 U	2.3 U	3.1 U	2.4 U
Carbon Tetrachloride	600	760	22,000	760	3.1 U	3.0 U	3.2 U	2.8 U	3.8 U	2.9 U
Chlorobenzene	1,700	1,100	500,000	1,100	2.6 U	2.5 U	2.6 U	2.3 U	3.1 U	2.4 U
Chloroethane	1,900	---	---	---	15 U	15 U	15 U	13 U	18 U	14 U
Chloroform	300	370	350,000	370	2.5 U	2.4 U	2.5 U	2.2 U	2.9 U	2.3 U
Chloromethane	---	---	---	---	6.0 U	5.8 U	6.2 U	5.3 U	7.2 U	5.7 U
cis-1,2-Dichloroethene	250	250	500,000	250	2.3 U	2.2 U	<b>260</b>	2.0 U	2.8 U	2.2 U
cis-1,3-Dichloropropene	300	260**	500,000**	1,600**	2.3 U	2.3 U	2.4 U	2.1 U	2.8 U	2.2 U
Dibromochloromethane	---	---	---	---	1.6 U	1.6 U	1.7 U	1.4 U	1.9 U	1.5 U
Dibromomethane	---	---	---	---	1.9 U	1.8 U	1.9 U	1.6 U	2.2 U	1.8 U
Dichlorodifluoromethane	---	---	---	---	6.1 U	5.8 U	6.2 U	5.3 U	7.3 U	5.7 U
Ethyl Benzene*	5,500	1,000	390,000	1,000	2.5 U	2.4 U	2.6 U	2.2 U	3.0 U	2.4 U
Hexachlorobutadiene	---	---	---	---	2.8 U	2.7 U	2.9 U	2.5 U	3.4 U	2.6 U
Isopropylbenzene*	2,300	260**	500,000**	1,600**	2.9 U	2.8 U	3.0 U	2.6 U	3.5 U	2.8 U
m/p-Xylenes*	1,200	260**	500,000**	1,600**	6.1 U	5.9 U	6.3 U	5.4 U	7.3 U	5.8 U
Methyl tert-butyl Ether	---	930	500,000	930	2.6 U	2.5 U	2.7 U	2.3 U	3.1 U	2.4 U
Methylene Chloride	100	50	500,000	50	20 J	24 J	19 J	22 J	21 J	26 J
Naphthalene*	13,000	12,000	500,000	12,000	4.1 U	4.0 U	4.2 U	3.6 U	5.0 U	3.9 U
n-Butylbenzene*	10,000	12,000	500,000	12,000	2.4 U	2.3 U	2.4 U	2.1 U	2.9 U	2.2 U
n-Propylbenzene*	3,700	3,900	500,000	3,900	3.8 U	3.7 U	3.9 U	3.3 U	4.5 U	3.6 U
o-Xylene*	1,200	260**	500,000**	1,600**	2.7 U	2.6 U	2.8 U	2.4 U	3.3 U	2.6 U
p-Isopropyltoluene*	10,000	---	---	---	3.0 U	2.9 U	3.1 U	2.6 U	3.6 U	2.8 U
sec-Butylbenzene*	10,000	11,000	500,000	11,000	3.0 U	2.9 U	3.0 U	2.6 U	3.5 U	2.8 U
Styrene	---	---	---	---	3.3 U	3.1 U	3.3 U	2.9 U	3.9 U	3.1 U
t-1,3-Dichloropropene	300	---	---	---	2.6 U	2.5 U	2.6 U	2.3 U	3.1 U	2.4 U
Tert butyl alcohol	---	---	---	---	12 U	11 U	12 U	10 U	14 U	11 U
tert-Butylbenzene*	10,000	5,900	500,000	5,900	5.1 U	4.9 U	5.2 U	4.4 U	6.1 U	4.8 U
Tetrachloroethene	1,400	1,300	150,000	1,300	5.2 U	5.0 U	<b>11,000 D</b>	25 J	6.2 U	9.6 J
Toluene*	1,500	700	500,000	700	2.9 U	2.8 U	2.9 U	2.5 U	3.4 U	2.7 U
trans-1,2-Dichloroethene	300	190	500,000	190	4.5 U	4.4 U	4.6 U	4.0 U	5.4 U	4.2 U
Trichloroethene	700	470	200,000	470	2.2 U	2.1 U	<b>470</b>	1.9 U	2.6 U	2.0 U
Trichlorofluoromethane	---	---	---	---	8.8 U	42	16 J	7.8 U	11 U	8.3 U
Vinyl Acetate	---	---	---	---	9.2 U	8.9 U	9.5 U	8.1 U	11 U	8.7 U
Vinyl Chloride	200	20	13,000	20	5.8 U	5.6 U	<b>23 J</b>	5.1 U	7.0 U	5.5 U
<b>TOTAL VOCs</b>					<b>20.0</b>	<b>128.0</b>	<b>11,788.0</b>	<b>166.6</b>	<b>201.0</b>	<b>129.6</b>

**NOTES**

NYSDEC - New York State Department of Environmental Conservation

TAGM - Technical and Administrative Guidance Memorandum No. 4046

--- - No standard available

Values in **bold** exceed the NYSDEC TAGM Recommended Soil Cleanup Objectives and/or Brownfields Criteria.

All units are ug/kg (parts per billion)

Concentrations reported on a dry-weight basis

\* - Compound is on the NYSDEC list of Recommended Soil Cleanup

Objectives for gasoline/fuel oil contaminated soil (rev. 8/22/01)

\*\* - NYSDEC Brownfields Soil Cleanup Objective for total xylenes

U -The compound was not detected at the indicated concentration.

J -Data indicates the presence of a compound that meets the identification criteria.

The result is less than the quantitation limit but greater than zero. The concentration given is an approximate value.

B -The analyte was found in the laboratory blank as well as the sample. This indicates possible laboratory contamination.

**TABLE 13**  
**VOLATILE ORGANIC COMPOUNDS (VOCs)**  
**DEBRIS PILE SAMPLE RESULTS**

**FRITO LAY, INC.**  
**202-218 MORGAN AVENUE**  
**BROOKLYN, NEW YORK**

COMPOUND	NYSDEC TAGM Recommended Soil Cleanup Objectives	NYSDEC Unrestricted Use Soil Cleanup Objectives	NYSDEC Restricted Use Soil Cleanup Objective-Protection of Public Health- Commercial	NYSDEC Restricted Use Soil Cleanup Objectives- Protection of Groundwater	DP-1	DP-2	DP-3	DP-5	DP-6
DATE					2/23/2007	2/23/2007	2/23/2007	2/23/2007	2/23/2007
<b>VOC's (ug/kg) - EPA Method 8260</b>									
1,1,1,2-Tetrachloroethane	---	---	---	---	2.8 U	2.6 U	2.7 U	2.6 U	4.0 U
1,1,1-Trichloroethane	800	680	500,000	680	2.8 U	2.6 U	2.7 U	2.7 U	4.0 U
1,1,2,2-Tetrachloroethane	600	---	---	---	2.1 U	2.0 U	2.0 U	2.0 U	3.0 U
1,1,2-Trichloroethane	---	---	---	---	2.0 U	1.9 U	1.9 U	1.9 U	2.8 U
1,1-Dichloroethane	200	270	240,000	270	1.8 U	1.7 U	1.8 U	1.7 U	2.6 U
1,1-Dichloroethene	400	330	500,000	330	3.8 U	3.6 U	3.7 U	3.6 U	5.5 U
1,1-Dichloropropene	---	---	---	---	2.6 U	2.5 U	2.6 U	2.5 U	3.8 U
1,2,3-Trichlorobenzene	---	---	---	---	6.8 U	6.4 U	6.6 U	6.5 U	9.8 U
1,2,3-Trichloropropane	400	---	---	---	2.2 U	2.1 U	2.2 U	2.1 U	3.2 U
1,2,4-Trichlorobenzene	3,400	---	---	---	4.5 U	6.4 U	4.4 U	4.3 U	6.6 U
1,2,4-Trimethylbenzene	---	3,600	190,000	3,600	2.5 U	2.4 U	2.5 U	2.4 U	13 J
1,2-Dibromo-3-Chloropropane	---	---	---	---	6.3 U	6.0 U	6.1 U	6.0 U	9.1 U
1,2-Dibromoethane	---	---	---	---	2.7 U	2.5 U	2.6 U	2.6 U	3.9 U
1,2-Dichlorobenzene	7,900	1,100	500,000	1,100	2.6 U	2.4 U	2.5 U	2.5 U	3.7 U
1,2-Dichloroethane	100	20	30,000	20	2.0 U	2.5 U	2.0 U	2.0 U	3.0 U
1,2-Dichloropropane	---	---	---	---	2.6 U	2.5 U	2.0 U	2.5 U	3.8 U
1,3,5-Trimethylbenzene	3,300	8,400	190,000	8,400	3.3 U	3.1 U	3.2 U	3.1 U	4.8 U
1,3-Dichlorobenzene	1,600	2,400	280,000	2,400	3.7 U	3.5 U	3.6 U	3.6 U	5.4 U
1,3-Dichloropropane	300	---	---	---	2.5 U	2.4 U	2.4 U	2.4 U	3.6 U
1,4-Dichlorobenzene	8,500	1,800	130,000	1,800	3.6 U	3.4 U	3.6 U	3.5 U	5.2 U
2,2-Dichloropropane	---	---	---	---	2.2 U	2.1 U	2.2 U	2.1 U	3.2 U
2-Butanone	300	120	500,000	120	19 U	18 U	18 U	18 U	27 U
2-Chloroethyl vinyl ether	---	---	---	---	10 U	9.6 U	9.9 U	9.6 U	15 U
2-Chlorotoluene	---	---	---	---	2.7 U	2.6 U	2.7 U	2.6 U	3.9 U
2-Hexanone	---	---	---	---	24 U	23 U	24 U	23 U	35 U
4-Chlorotoluene	---	---	---	---	3.0 U	2.8 U	2.9 U	2.8 U	4.3 U
4-Methyl-2-Pentanone	1,000	---	---	---	13 U	12 U	13 U	13 U	19 U
Acetone	200	50	500,000	50	<b>220 B</b>	<b>90 JB</b>	22 U	<b>72 JB</b>	<b>260 B</b>
Acrolein	---	---	---	---	34 U	33 U	34 U	33 U	50 U
Acrylonitrile	---	---	---	---	13 U	12 U	12 U	12 U	18 U
Benzene	60	60	44,000	60	2.7 U	2.5 U	2.6 U	2.5 U	3.8 U
Bromobenzene	600	---	---	---	2.7 U	2.6 U	2.7 U	2.6 U	4.0 U
Bromochloromethane	---	---	---	---	3.8 U	3.6 U	3.7 U	3.7 U	5.5 U
Bromodichloromethane	---	---	---	---	2.2 U	2.1 U	2.2 U	2.1 U	3.2 U
Bromoform	---	---	---	---	2.1 U	2.0 U	2.0 U	2.0 U	3.0 U
Bromomethane	---	---	---	---	13 U	13 U	13 U	13 U	19 U
Carbon Disulfide	2,700	---	---	---	24 U	2.3 U	2.4 U	2.3 U	3.5 U
Carbon Tetrachloride	600	760	22,000	760	2.9 U	2.8 U	2.9 U	2.8 U	4.3 U
Chlorobenzene	1,700	1,100	500,000	1,100	2.4 U	2.3 U	2.4 U	2.3 U	3.5 U
Chloroethane	1,900	---	---	---	14 U	14 U	14 U	14 U	21 U
Chloroform	300	370	350,000	370	2.3 U	2.2 U	2.3 U	2.2 U	3.3 U
Chloromethane	---	---	---	---	5.7 U	5.4 U	5.6 U	5.4 U	8.2 U
cis-1,2-Dichloroethene	250	250	500,000	250	2.2 U	2.1 U	12 J	2.1 U	3.1 U
cis-1,3-Dichloropropene	300	---	---	---	2.2 U	2.1 U	2.2 U	2.1 U	3.2 U
Dibromochloromethane	---	---	---	---	1.5 U	1.5 U	1.5 U	1.5 U	2.2 U
Dibromomethane	---	---	---	---	1.8 U	1.7 U	1.7 U	1.7 U	2.5 U
Dichlorodifluoromethane	---	---	---	---	5.7 U	5.4 U	5.6 U	5.4 U	8.2 U
Ethyl Benzene*	5,500	1,000	390,000	1,000	2.4 U	2.2 U	2.3 U	2.3 U	3.4 U
Hexachlorobutadiene	---	---	---	---	2.6 U	2.5 U	2.6 U	2.5 U	3.8 U
Isopropylbenzene*	2,300	---	---	---	2.8 U	2.6 U	2.7 U	2.6 U	4.0 U
m/p-Xylenes*	1,200	260**	500,000**	1,600**	5.8 U	5.5 U	5.6 U	5.5 U	8.3 U
Methyl tert-butyl Ether	---	930	500,000	930	2.4 U	2.3 U	2.4 U	2.3 U	3.5 U
Methylene Chloride	100	50	500,000	50	20 J	17 J	22 J	15 J	41 J
Naphthalene*	13,000	12,000	500,000	12,000	7.0 J	6.9 U	3.8 U	3.7 U	15 J
n-Butylbenzene*	10,000	12,000	500,000	12,000	2.2 U	2.1 U	2.2 U	2.2 U	3.2 U
n-Propylbenzene*	3,700	3,900	500,000	3,900	3.6 U	3.4 U	3.5 U	3.4 U	5.2 U
o-Xylene*	1,200	260**	500,000**	1,600**	2.6 U	2.4 U	2.5 U	2.4 U	3.7 U
p-Isopropyltoluene*	10,000	---	---	---	2.8 U	2.7 U	2.8 U	2.7 U	4.1 U
sec-Butylbenzene*	10,000	11,000	500,000	11,000	2.8 U	2.6 U	2.7 U	2.7 U	4.0 U
Styrene	---	---	---	---	3.1 U	2.9 U	3.0 U	2.9 U	4.4 U
t-1,3-Dichloropropene	300	---	---	---	2.4 U	2.3 U	2.4 U	2.3 U	3.5 U
Tert butyl alcohol	---	---	---	---	11 U	10 U	11 U	10 U	16 U
tert-Butylbenzene*	10,000	5,900	500,000	5,900	4.8 U	4.5 U	4.7 U	4.6 U	6.9 U
Tetrachloroethene	1,400	1,300	150,000	1,300	36	9.1 J	16 J	4.6 U	7.0 U
Toluene*	1,500	700	500,000	700	2.7 U	2.6 U	2.6 U	2.6 U	11 J
trans-1,2-Dichloroethene	300	190	500,000	190	4.2 U	4.0 U	4.2 U	4.1 U	6.1 U
Trichloroethene	700	470	200,000	470	2.0 U	1.9 U	2.0 U	2.0 U	3.0 U
Trichlorofluoromethane	---	---	---	---	8.3 U	7.9 U	8.1 U	7.9 U	12 U
Vinyl Acetate	---	---	---	---	8.7 U	8.3 U	8.5 U	8.3 U	13 U
Vinyl Chloride	200	20	13,000	20	5.5 U	6.8 U	5.4 U	5.2 U	7.9 U
TOTAL VOCs					283.0	129.8	50.0	87.0	340.0

**NOTES**

NYSDEC - New York State Department of Environmental Conservation

TAGM - Technical and Administrative Guidance Memorandum No. 4046

--- - No standard available

Values in **bold** exceed the NYSDEC TAGM Recommended Soil Cleanup Objectives and/or Brownfields Criteria.

All units are ug/kg (parts per billion)

Concentrations reported on a dry-weight basis

\* - Compound is on the NYSDEC list of Recommended Soil Cleanup

Objectives for gasoline/fuel oil contaminated soil (rev. 8/22/01)

\*\* - NYSDEC Brownfields Soil Cleanup Objective for total xylenes

U - The compound was not detected at the indicated concentration.

J - Data indicates the presence of a compound that meets the identification criteria.

The result is less than the quantitation limit but greater than zero. The concentration given is an approximate value.

B - The analyte was found in the laboratory blank as well as the sample. This indicates possible laboratory contamination.

**TABLE 14  
SEMI VOLATILE ORGANIC COMPOUNDS (SVOCs)  
SURFACE SOIL SAMPLE RESULTS**

**FRITO LAY, INC.  
202-218 MORGAN AVENUE  
BROOKLYN, NEW YORK**

Compound	NYSDEC TAGM Recommended Soil Cleanup Objectives	NYSDEC Unrestricted Use Soil Cleanup Objectives	NYSDEC Restricted Use Soil Cleanup Objective-Protection of Public Health- Commercial	NYSDEC Restricted Use Soil Cleanup Objectives-Protection of Groundwater	SS-1	SS-2	SS-3	SS-4	SS-5	SS-6
DATE					2/23/2007	2/23/2007	2/23/2007	2/23/2007	2/23/2007	2/23/2007
<b>SVOC's (µg/kg) - EPA Method 8270</b>										
1,2,4-Trichlorobenzene	3,400	---	---	---	1,600 U	7,600 U	8,200 U	3,600 U	1,900 U	1,500 U
1,2-Dichlorobenzene	7,900	1,100	500,000	1,100	1,400 U	6,700 U	7,200 U	3,200 U	1,700 U	1,400 U
1,3-Dichlorobenzene	1,600	2,400	280,000	2,400	1,500 U	7,000 U	7,500 U	3,300 U	1,700 U	1,400 U
1,4-Dichlorobenzene	8,500	1,800	130,000	1,800	1,700 U	7,800 U	8,400 U	3,700 U	2,000 U	1,600 U
2,2-oxybis(1-Chloropropane)	---	---	---	---	1,500 U	7,200 U	7,700 U	3,400 U	1,800 U	1,500 U
2,4,5-Trichlorophenol	100	---	---	---	1,400 U	6,800 U	7,300 U	3,200 U	1,700 U	1,400 U
2,4,6-Trichlorophenol	---	---	---	---	1,400 U	6,500 U	7,000 U	3,100 U	1,600 U	1,300 U
2,4-Dichlorophenol	400	---	---	---	1,700 U	8,200 U	8,900 U	3,900 U	2,100 U	1,700 U
2,4-Dimethylphenol	---	---	---	---	1,500 U	7,100 U	7,600 U	3,300 U	1,800 U	1,400 U
2,4-Dinitrophenol	200 or MDL	---	---	---	8,000 U	38,000 U	41,000 U	18,000 U	9,500 U	7,700 U
2,4-Dinitrotoluene	---	---	---	---	1,400 U	6,500 U	7,000 U	3,100 U	1,600 U	1,300 U
2,6-Dinitrotoluene	1,000	---	---	---	1,300 U	6,300 U	6,800 U	3,000 U	1,600 U	1,300 U
2-Chloronaphthalene	---	---	---	---	1,600 U	7,400 U	7,900 U	3,500 U	1,800 U	1,500 U
2-Chlorophenol	800	---	---	---	1,500 U	7,100 U	7,600 U	3,400 U	1,800 U	1,400 U
2-Methylnaphthalene	36,400	---	---	---	1,600 U	7,400 U	8,000 U	3,500 U	5,800 J	1,500 U
2-Methylphenol	100 or MDL	---	---	---	1,600 U	7,400 U	8,000 U	3,500 U	1,900 U	1,500 U
2-Nitroaniline	430 or MDL	---	---	---	1,200 U	5,600 U	6,100 U	2,700 U	1,400 U	1,100 U
2-Nitrophenol	330 or MDL	---	---	---	1,400 U	6,800 U	7,400 U	3,200 U	1,700 U	1,400 U
3,3-Dichlorobenzidine	---	---	---	---	1,600 U	7,600 U	8,200 U	3,600 U	1,900 U	1,500 U
3+4-Methylphenols	900	---	---	---	1,500 U	7,000 U	7,600 U	3,300 U	1,800 U	1,400 U
3-Nitroaniline	500 or MDL	---	---	---	1,200 U	5,800 U	6,200 U	2,700 U	1,500 U	1,200 U
4,6-Dinitro-2-methylphenol	---	---	---	---	1,800 U	8,600 U	9,300 U	4,100 U	2,200 U	1,800 U
4-Bromophenyl-phenylether	---	---	---	---	1,400 U	6,600 U	7,100 U	3,100 U	1,700 U	1,400 U
4-Chloro-3-methylphenol	240 or MDL	---	---	---	1,300 U	6,100 U	6,600 U	2,900 U	1,500 U	1,300 U
4-Chloroaniline	220 or MDL	---	---	---	1,100 U	5,300 U	5,700 U	2,500 U	1,300 U	1,100 U
4-Chlorophenyl-phenylether	---	---	---	---	1,500 U	7,000 U	7,600 U	3,300 U	1,800 U	1,400 U
4-Nitroaniline	---	---	---	---	1,600 U	7,600 U	8,200 U	3,600 U	1,900 U	1,500 U
4-Nitrophenol	100 or MDL	---	---	---	1,200 U	5,500 U	5,900 U	2,600 U	1,400 U	1,100 U
Acenaphthene	50,000	20,000	500,000	98,000	1,700 U	7,900 U	8,500 U	3,700 U	8,100 J	1,600 U
Acenaphthylene	41,000	100,000	500,000	107,000	1,500 U	7,200 U	7,800 U	3,400 U	1,800 U	1,500 U
Anthracene	50,000	100,000	500,000	1,000,000	1,400 U	6,700 U	7,200 U	3,200 U	17,000	1,400 U
Azobenzene	---	---	---	---	1,900 U	9,000 U	9,700 U	4,200 U	2,300 U	1,800 U
Benzo(a)anthracene	224 or MDL	1,000	5,600	1,000	1,300 U	6,200 U	6,700 U	2,900 U	<b>16,000</b>	1,300 U
Benzo(a)pyrene	61 or MDL	1,000	1,000	22,000	1,500 U	7,100 U	7,700 U	3,400 U	<b>21,000</b>	1,400 U
Benzo(b)fluoranthene	110	1,000	5,600	1,700	1,000 U	4,900 U	5,300 U	2,300 U	<b>12,000</b>	1,000 U
Benzo(g,h,i)perylene	50,000	100,000	500,000	1,000,000	1,600 U	7,400 U	7,900 U	3,500 U	<b>51,000</b>	1,500 U
Benzo(k)fluoranthene	110	800	56,000	1,700	2,100 U	9,800 U	11,000 U	4,600 U	<b>4,000 J</b>	2,000 U
Benzoic acid	50,000	---	---	---	2,200 U	11,000 U	11,000 U	5,000 U	2,700 U	2,200 U
Benzyl Alcohol	---	---	---	---	980 U	4,600 U	5,000 U	2,200 U	1,200 U	940 U
bis(2-Chloroethoxy)methane	---	---	---	---	1,500 U	7,300 U	7,900 U	3,500 U	1,800 U	1,500 U
bis(2-Chloroethyl)ether	---	---	---	---	1,500 U	7,000 U	7,600 U	3,300 U	1,800 U	1,400 U
bis(2-Ethylhexyl)phthalate	50,000	---	---	---	23,000	<b>140,000</b>	<b>100,000</b>	34,000	2,200 J	1,700 U
Butylbenzylphthalate	50,000	---	---	---	1,600 J	7,200 U	12,000 J	49,000	1,800 U	<b>87,000 JD</b>
Chrysene	400	1,000	56,000	1,000	1,700 U	8,000 U	8,600 U	3,800 U	<b>15,000</b>	1,600 U
Dibenz(a,h)anthracene	14 or MDL	330	560	1,000,000	1,200 U	5,600 U	6,000 U	2,600 U	<b>5,200 J</b>	1,100 U
Dibenzofuran	6,200	---	---	---	1,600 U	7,400 U	7,900 U	3,500 U	<b>9,000 J</b>	1,500 U
Diethylphthalate	7,100	---	---	---	1,600 U	7,700 U	8,300 U	3,600 U	1,900 U	1,600 U
Dimethylphthalate	2,000	---	---	---	1,500 U	7,200 U	7,700 U	3,400 U	1,800 U	1,500 U
Di-n-butylphthalate	8,100	---	---	---	1,400 U	6,800 U	7,300 U	3,200 U	1,700 U	1,400 U
Di-n-octyl phthalate	50,000	---	---	---	1,600 U	7,600 U	8,100 U	3,600 U	1,900 U	1,500 U
Fluoranthene	50,000	100,000	500,000	1,000,000	1,400 U	6,600 U	7,100 U	3,100 U	47,000	1,800 J
Fluorene	50,000	30,000	500,000	386,000	1,600 U	7,500 U	8,100 U	3,500 U	6,800 J	1,500 U
Hexachlorobenzene	410	---	---	---	1,500 U	7,100 U	7,700 U	3,400 U	1,800 U	1,400 U
Hexachlorobutadiene	---	---	---	---	1,400 U	6,800 U	7,400 U	3,200 U	1,700 U	1,400 U
Hexachlorocyclopentadiene	---	---	---	---	1,500 U	7,100 U	7,600 U	3,400 U	1,800 U	1,400 U
Hexachloroethane	---	---	---	---	1,600 U	7,600 U	8,100 U	3,600 U	1,900 U	1,500 U
Indeno(1,2,3-cd)pyrene	3,200	500	5,600	8,200	1,200 U	5,600 U	6,100 U	2,700 U	<b>18,000</b>	1,100 U
Isophorone	4,400	---	---	---	1,400 U	6,700 U	7,200 U	3,200 U	1,700 U	1,400 U
Naphthalene	13,000	12,000	500,000	12,000	1,600 U	7,600 U	8,200 U	3,600 U	<b>16,000</b>	1,500 U
Nitrobenzene	200 or MDL	---	---	---	2,000 U	9,700 U	10,000 U	4,600 U	2,400 U	2,000 U
N-Nitroso-di-n-propylamine	---	---	---	---	1,600 U	7,400 U	7,900 U	3,500 U	1,800 U	1,500 U
N-Nitrosodiphenylamine	---	---	---	---	1,500 U	7,300 U	7,900 U	3,500 U	1,800 U	1,500 U
Pentachlorophenol	1,000 or MDL	800	6,700	800	2,200 U	10,000 U	11,000 U	4,900 U	2,600 U	2,100 U
Phenanthrene	50,000	100,000	500,000	1,000,000	1,500 U	7,100 U	7,600 U	3,300 U	<b>74,000 D</b>	3,000 J
Phenol	30 or MDL	330	500,000	330	1,400 U	6,700 U	<b>13,000 J</b>	3,200 U	1,700 U	1,400 U
Pyrene	50,000	100,000	500,000	1,000,000	2,900 J	7,900 U	8,500 U	3,700 U	43,000 JD	5,700 J
TOTAL SVOCs					27,500	140,000	125,000	83,000	538,100	97,500

**NOTES**

NYSDEC - New York State Department of Environmental Conservation

TAGM - Technical and Administrative Guidance Memorandum No. 4046

--- - No standard available

Values in **bold** exceed the NYSDEC TAGM Recommended Soil Cleanup Objectives and/or Brownfields Criteria.

All units are ug/kg (parts per billion)

Concentrations reported on a dry-weight basis

U -The compound was not detected at the indicated concentration.

J -Data indicates the presence of a compound that meets the identification criteria.

The result is less than the quantitation limit but greater than zero. The concentration given is an approximate value.

B -The analyte was found in the laboratory blank as well as the sample. This indicates possible laboratory contamination.

**TABLE 15  
SEMI VOLATILE ORGANIC COMPOUNDS (SVOCs)  
DEBRIS PILE SAMPLE RESULTS**

**FRITO LAY, INC.  
202-218 MORGAN AVENUE  
BROOKLYN, NEW YORK**

COMPOUND	NYSDEC TAGM Recommended Soil Cleanup Objectives	NYSDEC Unrestricted Use Soil Cleanup Objectives	NYSDEC Restricted Use Soil Cleanup Objective-Protection of Public Health- Commercial	NYSDEC Restricted Use Soil Cleanup Objectives-Protection of Groundwater	DP-1	DP-2	DP-3	DP-5	DP-6
DATE					2/23/2007	2/23/2007	2/23/2007	2/23/2007	2/23/2007
<b>SVOC's (µg/kg) - EPA Method 8270</b>									
1,2,4-Trichlorobenzene	3,400	---	---	---	1,500 U	U	3,700 U	730 U	110 U
1,2-Dichlorobenzene	7,900	1,100	500,000	1,100	1,300 U	3,100 U	3,300 U	640 U	95 U
1,3-Dichlorobenzene	1,600	2,400	280,000	2,400	1,400 U	3,300 U	3,400 U	670 U	99 U
1,4-Dichlorobenzene	8,500	1,800	130,000	1,800	1,600 U	3,700 U	3,800 U	750 U	110 U
2,2-oxybis(1-Chloropropane)	---	---	---	---	1,400 U	3,300 U	3,500 U	690 U	100 U
2,4,5-Trichlorophenol	100	---	---	---	1,400 U	3,200 U	3,300 U	650 U	96 U
2,4,6-Trichlorophenol	---	---	---	---	1,300 U	3,100 U	3,200 U	630 U	93 U
2,4-Dichlorophenol	400	---	---	---	1,700 U	3,800 U	4,000 U	790 U	120 U
2,4-Dimethylphenol	---	---	---	---	1,400 U	3,300 U	3,400 U	680 U	100 U
2,4-Dinitrophenol	200 or MDL	---	---	---	7,700 U	18,000 U	19,000 U	3,600 U	540 U
2,4-Dinitrotoluene	---	---	---	---	1,300 U	3,100 U	3,200 U	630 U	93 U
2,6-Dinitrotoluene	1,000	---	---	---	1,300 U	2,900 U	3,100 U	600 U	89 U
2-Chloronaphthalene	---	---	---	---	1,500 U	3,400 U	3,600 U	710 U	100 U
2-Chlorophenol	800	---	---	---	1,400 U	3,300 U	3,500 U	680 U	100 U
2-Methylnaphthalene	36,400	---	---	---	1,500 U	3,500 U	3,600 U	710 U	220 J
2-Methylphenol	100 or MDL	---	---	---	1,500 U	3,500 U	3,600 U	710 U	100 U
2-Nitroaniline	430 or MDL	---	---	---	1,100 U	2,600 U	2,700 U	540 U	80 U
2-Nitrophenol	330 or MDL	---	---	---	1,400 U	3,200 U	3,300 U	650 U	97 U
3,3-Dichlorobenzidine	---	---	---	---	1,500 U	3,600 U	3,700 U	730 U	110 U
3+4-Methylphenols	900	---	---	---	1,400 U	3,300 U	3,400 U	670 U	99 U
3-Nitroaniline	500 or MDL	---	---	---	1,200 U	2,700 U	2,800 U	550 U	82 U
4,6-Dinitro-2-methylphenol	---	---	---	---	1,700 U	4,000 U	4,200 U	830 U	120 U
4-Bromophenyl-phenylether	---	---	---	---	1,300 U	3,100 U	3,200 U	640 U	94 U
4-Chloro-3-methylphenol	240 or MDL	---	---	---	1,200 U	2,900 U	3,000 U	590 U	87 U
4-Chloroaniline	220 or MDL	---	---	---	1,100 U	2,500 U	2,600 U	510 U	75 U
4-Chlorophenyl-phenylether	---	---	---	---	1,400 U	3,300 U	3,400 U	670 U	100 U
4-Nitroaniline	---	---	---	---	1,500 U	3,500 U	3,700 U	730 U	110 U
4-Nitrophenol	100 or MDL	---	---	---	1,100 U	2,600 U	2,700 U	530 U	78 U
Acenaphthene	50,000	20,000	500,000	98,000	1,600 U	3,700 U	3,900 U	760 U	110 U
Acenaphthylene	41,000	100,000	500,000	107,000	1,500 U	3,400 U	3,500 U	690 U	100 U
Anthracene	50,000	100,000	500,000	1,000,000	1,400 U	3,100 U	3,300 U	640 U	95 U
Azobenzene	---	---	---	---	1,800 U	4,200 U	4,400 U	860 U	130 U
Benzo(a)anthracene	224 or MDL	1,000	5,600	1,000	1,300 U	2,900 U	3,000 U	600 U	88 U
Benzo(a)pyrene	61 or MDL	1,000	1,000	22,000	1,400 U	3,300 U	3,500 U	680 U	100 U
Benzo(b)fluoranthene	110	1,000	5,600	1,700	990 U	<b>3,700 J</b>	2,400 U	470 U	69 U
Benzo(g,h,i)perylene	50,000	100,000	500,000	1,000,000	1,500 U	4,300 J	3,600 U	700 U	100 U
Benzo(k)fluoranthene	110	800	56,000	1,700	2,000 U	4,600 U	4,800 U	940 U	140 U
Benzoic acid	50,000	---	---	---	2,100 U	5,000 U	5,200 U	1,000 U	150 U
Benzyl Alcohol	---	---	---	---	930 U	2,200 U	2,200 U	440 U	65 U
bis(2-Chloroethoxy)methane	---	---	---	---	1,500 U	3,400 U	3,600 U	700 U	100 U
bis(2-Chloroethyl)ether	---	---	---	---	1,400 U	3,300 U	3,400 U	670 U	100 U
bis(2-Ethylhexyl)phthalate	50,000	---	---	---	14,000	4,200 J	48,000	16,000	170 J
Butylbenzylphthalate	50,000	---	---	---	5,000 J	14,000 J	3,500 U	<b>56,000 D</b>	100 U
Chrysene	400	1,000	56,000	1,000	1,600 U	3,700 U	3,900 U	760 U	110 U
Dibenz(a,h)anthracene	14 or MDL	330	560	1,000,000	1,100 U	2,600 U	2,700 U	530 U	79 U
Dibenzofuran	6,200	---	---	---	1,500 U	3,400 U	3,600 U	700 U	100 U
Diethylphthalate	7,100	---	---	---	1,500 U	3,600 U	3,700 U	730 U	110 U
Dimethylphthalate	2,000	---	---	---	1,400 U	3,300 U	3,500 U	680 U	100 U
Di-n-butylphthalate	8,100	---	---	---	1,400 U	3,200 U	3,300 U	7,400	96 U
Di-n-octyl phthalate	50,000	---	---	---	1,500 U	3,500 U	3,700 U	720 U	110 U
Fluoranthene	50,000	100,000	500,000	1,000,000	1,300 U	3,100 U	3,200 U	630 U	94 U
Fluorene	50,000	30,000	500,000	386,000	1,500 U	3,500 U	3,600 U	720 U	110 U
Hexachlorobenzene	410	---	---	---	1,400 U	3,300 U	3,500 U	680 U	100 U
Hexachlorobutadiene	---	---	---	---	1,400 U	3,200 U	3,300 U	650 U	97 U
Hexachlorocyclopentadiene	---	---	---	---	1,400 U	3,300 U	3,500 U	680 U	100 U
Hexachloroethane	---	---	---	---	1,500 U	3,500 U	3,700 U	720 U	110 U
Indeno(1,2,3-cd)pyrene	3,200	500	5,600	8,200	1,100 U	2,600 U	2,700 U	540 U	80 U
Isophorone	4,400	---	---	---	1,300 U	3,100 U	3,200 U	640 U	95 U
Naphthalene	13,000	12,000	500,000	12,000	1,500 U	3,500 U	3,700 U	730 U	120 J
Nitrobenzene	200 or MDL	---	---	---	2,000 U	4,500 U	4,700 U	930 U	140 U
N-Nitroso-di-n-propylamine	---	---	---	---	1,500 U	3,400 U	3,600 U	700 U	100 U
N-Nitrosodiphenylamine	---	---	---	---	1,500 U	3,400 U	3,600 U	700 U	100 U
Pentachlorophenol	1,000 or MDL	800	6,700	800	2,100 U	4,800 U	5,000 U	990 U	150 U
Phenanthrene	50,000	100,000	500,000	1,000,000	1,400 U	3,300 U	3,400 U	680 U	100 U
Phenol	30 or MDL	330	500,000	330	1,400 U	3,100 U	3,300 U	640 U	95 U
Pyrene	50,000	100,000	500,000	1,000,000	2,800 J	6,900 J	3,900 J	750 U	170 J
<b>TOTAL SVOCs</b>					<b>21,800</b>	<b>33,100</b>	<b>69,000</b>	<b>79,400</b>	<b>680</b>

**NOTES**

NYSDEC - New York State Department of Environmental Conservation

TAGM - Technical and Administrative Guidance Memorandum No. 4046

--- - No standard available

Values in **bold** exceed the NYSDEC TAGM Recommended Soil Cleanup Objectives and/or Brownfields Criteria.

All units are ug/kg (parts per billion)

Concentrations reported on a dry-weight basis

U -The compound was not detected at the indicated concentration.

J -Data indicates the presence of a compound that meets the identification criteria.

The result is less than the quantitation limit but greater than zero. The concentration given is an approximate value.

B -The analyte was found in the laboratory blank as well as the sample. This indicates possible laboratory contamination.

**TABLE 16**  
**POLYCHLORINATED BIPHENYLS (PCBs)**  
**SURFACE SOIL SAMPLE RESULTS**

**FRITO LAY, INC.**  
**202-218 MORGAN AVENUE**  
**BROOKLYN, NEW YORK**

COMPOUND	NYSDEC Recommended Soil Cleanup Objectives	NYSDEC Unrestricted Use Soil Cleanup Objectives	NYSDEC Restricted Use Soil Cleanup Objective-Protection of Public Health- Commercial	NYSDEC Restricted Use Soil Cleanup Objectives- Protection of Groundwater	SS-1	SS-2	SS-3	SS-4	SS-5	SS-6
DATE					2/23/2007	2/23/2007	2/23/2007	2/23/2007	2/23/2007	2/23/2007
<i>PCBs's (µg/kg) - EPA Method 8082</i>										
AROCLOR 1016	10,000*	100*	1,000*	3,200*	180 U	670 U	180 U	160 U	210 U	340 U
AROCLOR 1221	10,000*	100*	1,000*	3,200*	280 U	1,000 U	280 U	250 U	330 U	530 U
AROCLOR 1232	10,000*	100*	1,000*	3,200*	410 U	1,600 U	420 U	380 U	490 U	800 U
AROCLOR 1242	10,000*	100*	1,000*	3,200*	370 U	1,400 U	380 U	330 U	440 U	710 U
AROCLOR 1248	10,000*	100*	1,000*	3,200*	<b>10,000 P</b>	<b>75,000 P</b>	<b>8,900 P</b>	<b>20,000 P</b>	<b>8,200 P</b>	<b>15,000</b>
AROCLOR 1254	10,000*	100*	1,000*	3,200*	120 U	440 U	120 U	110 U	140 U	220 U
AROCLOR 1260	10,000*	100*	1,000*	3,200*	300 U	<b>7,400 P</b>	300 U	270 U	350 U	<b>4,400</b>

**NOTES**

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--- - No standard available

Values in **bold** exceed the NYSDEC TAGM Recommended Soil Cleanup Objectives and/or Brownfields Criteria.

\*-Applies to the sum of these compounds

All units are ug/kg (parts per billion)

Concentrations reported on a dry-weight basis

U -The compound was not detected at the indicated concentration.

J -Data indicates the presence of a compound that meets the identification criteria.

The result is less than the quantitation limit but greater than zero. The concentration given is an approximate value.

B -The analyte was found in the laboratory blank as well as the sample. This indicates possible laboratory contamination.

P -For dual column analysis, the percent difference between the quantitated concentrations on the two columns is greater than 40%.

NR - Not analyzed



TABLE 17  
POLYCHLORINATED BIPHENYLS (PCBs)  
DEBRIS PILE SAMPLE RESULTS

FRITO LAY, INC.  
202-218 MORGAN AVENUE  
BROOKLYN, NEW YORK

COMPOUND	NYSDEC Recommended Soil Cleanup Objectives	NYSDEC Unrestricted Use Soil Cleanup Objectives	NYSDEC Restricted Use Soil Cleanup Objective-Protection of Public Health- Commercial	NYSDEC Restricted Use Soil Cleanup Objectives- Protection of Groundwater	DP-1	DP-2	DP-3	DP-5	DP-6
DATE					2/23/2007	2/23/2007	2/23/2007	2/23/2007	2/23/2007
PCBs's (µg/kg) - EPA Method 8082									
AROCLOR 1016	10,000*	100*	1,000*	3,200*	170 U	160 U	330 U	330 U	5 U
AROCLOR 1221	10,000*	100*	1,000*	3,200*	270 U	250 U	510 U	510 U	8 U
AROCLOR 1232	10,000*	100*	1,000*	3,200*	400 U	370 U	770 U	760 U	11 U
AROCLOR 1242	10,000*	100*	1,000*	3,200*	350 U	330 U	680 U	668 U	10 U
AROCLOR 1248	10,000*	100*	1,000*	3,200*	<b>11,000 P</b>	<b>10,000 P</b>	<b>28,000 P</b>	<b>15,000 P</b>	<b>580 P</b>
AROCLOR 1254	10,000*	100*	1,000*	3,200*	110 U	100 U	220 U	210 U	3 U
AROCLOR 1260	10,000*	100*	1,000*	3,200*	290 U	270 U	550 U	<b>4,200</b>	8 U

**NOTES**

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--- - No standard available

Values in **bold** exceed the NYSDEC TAGM Recommended Soil Cleanup Objectives and/or Brownfields Criteria.

\*-Applies to the sum of these compounds

All units are ug/kg (parts per billion)

Concentrations reported on a dry-weight basis

U -The compound was not detected at the indicated concentration.

J -Data indicates the presence of a compound that meets the identification criteria.

The result is less than the quantitation limit but greater than zero. The concentration given is an approximate value.

B -The analyte was found in the laboratory blank as well as the sample. This indicates possible laboratory contamination.

P -For dual column analysis, the percent difference between the quantitated concentrations on the two columns is greater than 40%.

NR - Not analyzed

**TABLE 18**  
**RCRA METALS**  
**SURFACE SOIL SAMPLE RESULTS**

**FRITO LAY, INC.**  
**202-218 MORGAN AVENUE**  
**BROOKLYN, NEW YORK**

	NYSDEC Recommended Soil Cleanup Objectives	NYSDEC Unrestricted Use Soil Cleanup Objectives	NYSDEC Restricted Use Soil Cleanup Objective-Protection of Public Health- Commercial	NYSDEC Restricted Use Soil Cleanup Objectives- Protection of Groundwater	SS-1	SS-2	SS-3	SS-4	SS-5	SS-6
COMPOUND										
DATE					2/23/2007	2/23/2007	2/23/2007	2/23/2007	2/23/2007	2/23/2007
<i>RCRA Metals (mg/kg) - EPA Method 6010/7471</i>										
Arsenic	7.5 or SB	13	16	16	<b>22</b>	<b>52.6</b>	<b>9.4</b>	<b>10.6</b>	<b>12</b>	<b>28.6</b>
Barium	300 or SB	350	400	820	<b>658</b>	<b>1,360</b>	<b>784</b>	<b>873</b>	<b>1,840</b>	<b>942</b>
Cadmium	1 or SB	2.5	9.3	7.5	<b>35.2</b>	<b>34.1</b>	<b>38.2</b>	<b>16.9</b>	<b>3.8</b>	<b>82</b>
Chromium	10 or SB	1/30*	400/1,500*	19/---*	<b>152</b>	<b>121</b>	<b>336</b>	<b>146</b>	<b>47.6</b>	<b>798</b>
Lead	SB	63	1,000	450	<b>3,470</b>	<b>9,790</b>	<b>2,880</b>	<b>1,650</b>	<b>1,400</b>	<b>3,040</b>
Mercury	0.1 or SB	0.18	2.8	0.73	<b>2.2</b>	<b>9.3</b>	<b>6.9</b>	<b>1.4</b>	<b>2.7</b>	<b>11.1</b>
Selenium	2 or SB	3.9	1,500	4	<b>26.5</b>	<b>56.2</b>	0.261 U	1.850	1.770	<b>21.9</b>
Silver	SB	2	1,500	8	<b>12.9</b>	<b>11.6</b>	<b>12.4</b>	<b>5.3</b>	0.851	<b>12.6</b>

**NOTES**

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TAGM - Technical and Administrative Guidance Memorandum No. 4046

--- - No standard available

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All units are mg/kg (parts per million)

Concentrations reported on a dry-weight basis

U -The compound was not detected at the indicated concentration.

J -Data indicates the presence of a compound that meets the identification criteria.

The result is less than the quantitation limit but greater than zero. The concentration given is an approximate value.

B -The analyte was found in the laboratory blank as well as the sample. This indicates possible laboratory contamination.

P -For dual column analysis, the percent difference between the quantitated concentrations on the two columns is greater than 40%.

\* -For dual column analysis, the lowest quantitated concentration is being reported due to coeluting interference.

NR - Not analyzed

**TABLE 19  
RCRA METALS  
DEBRIS PILE SAMPLE RESULTS**

**FRITO LAY, INC.  
202-218 MORGAN AVENUE  
BROOKLYN, NEW YORK**

	NYSDEC Recommended Soil Cleanup Objectives	NYSDEC Unrestricted Use Soil Cleanup Objectives	NYSDEC Restricted Use Soil Cleanup Objective-Protection of Public Health- Commercial	NYSDEC Restricted Use Soil Cleanup Objectives- Protection of Groundwater	DP-1	DP-2	DP-3	DP-5	DP-6
COMPOUND									
DATE					2/23/2007	2/23/2007	2/23/2007	2/23/2007	2/23/2007
<i>RCRA Metals (mg/kg) - EPA Method 6010/7471</i>									
Arsenic	7.5 or SB	13	16	16	<b>12.9</b>	<b>7.9</b>	<b>12.1</b>	6.6	<b>12.1</b>
Barium	300 or SB	350	400	820	<b>655</b>	<b>464</b>	<b>692</b>	<b>608</b>	<b>4,580</b>
Cadmium	1 or SB	2.5	9.3	7.5	<b>31.7</b>	<b>18.9</b>	<b>29.4</b>	<b>7.4</b>	<b>7.2</b>
Chromium	10 or SB	1/30*	400/1,500*	19/---*	<b>169</b>	<b>107</b>	<b>192</b>	<b>50.0</b>	<b>83.6</b>
Lead	SB	63	1,000	450	<b>1,530</b>	<b>1,040</b>	<b>2,110</b>	<b>930</b>	<b>6,810</b>
Mercury	0.1 or SB	0.18	2.8	0.73	<b>2.6</b>	<b>1.6</b>	<b>4.9</b>	<b>2.3</b>	<b>0.27</b>
Selenium	2 or SB	3.9	1,500	4	1.23 J	0.227 U	0.772 J	<b>47.4</b>	1.09 J
Silver	SB	2	1,500	8	<b>9.4</b>	<b>6.7</b>	<b>7.6</b>	1.5	<b>5.4</b>

**NOTES**

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All units are mg/kg (parts per million)

Concentrations reported on a dry-weight basis

U -The compound was not detected at the indicated concentration.

J -Data indicates the presence of a compound that meets the identification criteria.

The result is less than the quantitation limit but greater than zero. The concentration given is an approximate value.

B -The analyte was found in the laboratory blank as well as the sample. This indicates possible laboratory contamination.

P -For dual column analysis, the percent difference between the quantitated concentrations on the two columns is greater than 40%.

\* -For dual column analysis, the lowest quantitated concentration is being reported due to coeluting interference.

NR - Not analyzed

TABLE 20  
VOLATILE ORGANIC COMPOUNDS (VOCs)  
SOIL BORING ANALYTICAL RESULTS

FRITO-LAY  
202-218 MORGAN AVENUE  
BROOKLYN, NEW YORK

Compound	NYSDEC TAGM Recommended Soil Cleanup Objectives	NYSDEC Unrestricted Use Soil Cleanup Objectives	NYSDEC Restricted Use Soil Cleanup Objective- Protection of Public Health Commercial	NYSDEC Restricted Use Soil Cleanup Objectives- Protection of Groundwater	SB-1		SB-2			SB-3			S-4			SB-5			SB-6		
					SB-1 (0-5)	SB-1 (7-9)	SB-2 (0-5)	SB-2 (5-7)	SB-2 (9-11)	SB-3 (0-5)	SB-3 (5-7)	SB-3 (11-11.5)	SB-4 (0-5)	SB-4 (5-7)	SB-4 (9-11)	SB-5 (0-5)	SB-5 (5-7)	SB-5 (11-11.5)	SB-6 (0-5)	SB-6 (5-7)	SB-6 (7-9)
Date					12/10/2007	12/10/2007	12/10/2007	12/10/2007	12/10/2007	12/10/2007	12/10/2007	12/10/2007	12/10/2007	12/10/2007	12/10/2007	12/10/2007	12/10/2007	12/10/2007	12/11/2007	12/11/2007	12/11/2007
VOC's (µg/kg) - EPA Method 8260																					
1,1,1,2-Tetrachloroethane	---	---	---	---	2.6 U	2.5 U	2.4 U	2.3 U	2.4 U	2.4 U	2.9 U	3.4 U	2.4 U	2.3 U	2.6 U	2.6 U	2.9 U	2.8 U	2.5 U	2.5 U	2.5 U
1,1,1-Trichloroethane	800	680	500,000	680	2.7 U	2.5 U	2.4 U	2.3 U	2.4 U	2.4 U	2.9 U	3.5 U	2.4 U	2.3 U	2.6 U	2.7 U	2.9 U	2.8 U	2.5 U	2.5 U	2.5 U
1,1,2,2-Tetrachloroethane	600	---	---	---	2 U	1.9 U	1.8 U	1.7 U	1.8 U	1.8 U	2.2 U	2.6 U	1.8 U	1.7 U	1.9 U	2 U	2.2 U	2.1 U	1.9 U	1.9 U	1.9 U
1,1,2-Trichloroethane	---	---	---	---	1.9 U	1.8 U	1.7 U	1.6 U	1.7 U	1.7 U	2 U	2.4 U	1.6 U	1.7 U	1.6 U	1.8 U	1.9 U	2.0 U	1.8 U	1.8 U	1.8 U
1,1-Dichloroethane	200	270	240,000	270	1.7 U	1.6 U	1.6 U	1.5 U	1.5 U	1.6 U	1.9 U	2.2 U	1.5 U	1.5 U	1.7 U	1.7 U	1.9 U	1.8 U	1.6 U	1.6 U	1.6 U
1,1-Dichloroethene	400	330	500,000	330	3.6 U	3.4 U	3.3 U	3.2 U	3.3 U	3.3 U	4 U	4.8 U	3.3 U	3.2 U	3.6 U	3.7 U	4 U	3.9 U	3.4 U	3.4 U	3.4 U
1,1-Dichloropropene	---	---	---	---	2.5 U	2.3 U	2.3 U	2.2 U	2.2 U	2.3 U	2.7 U	3.3 U	2.3 U	2.2 U	2.5 U	2.5 U	2.7 U	2.7 U	2.4 U	2.3 U	2.3 U
1,2,3-Trichlorobenzene	---	---	---	---	6.5 U	6.1 U	5.9 U	5.7 U	5.8 U	5.9 U	7 U	8.5 U	5.9 U	5.7 U	6.4 U	6.5 U	7.1 U	6.9 U	6.1 U	6.1 U	6.1 U
1,2,3-Trichloropropane	400	---	---	---	2.1 U	2 U	1.9 U	1.9 U	1.9 U	1.9 U	2.3 U	2.8 U	1.9 U	1.9 U	2.1 U	2.1 U	2.3 U	2.3 U	2 U	2 U	2 U
1,2,4-Trichlorobenzene (v)	3,400	---	---	---	4.3 U	4.1 U	3.9 U	3.8 U	3.9 U	4 U	4.7 U	5.7 U	3.9 U	3.8 U	4.3 U	4.4 U	4.8 U	4.6 U	22 J	4.1 U	4.1 U
1,2,4-Trimethylbenzene*	---	3,600	190,000	3,600	2.4 U	70	34	2.1 U	2.2 U	2.2 U	2.6 U	3.2 U	2.2 U	2.1 U	2.4 U	220	160	2.6 U	420	18 J	2.3 U
1,2-Dibromo-3-Chloropropane	---	---	---	---	6 U	5.6 U	5.4 U	5.2 U	5.4 U	5.5 U	6.5 U	7.8 U	5.4 U	5.2 U	5.9 U	6 U	6.6 U	6.4 U	5.7 U	5.6 U	5.6 U
1,2-Dibromoethane	---	---	---	---	2.6 U	2.4 U	2.3 U	2.2 U	2.3 U	2.3 U	2.8 U	3.4 U	2.3 U	2.2 U	2.5 U	2.6 U	2.8 U	2.7 U	2.4 U	2.4 U	2.4 U
1,2-Dichlorobenzene (v)	7,900	1,100	500,000	1,100	2.4 U	2.3 U	2.2 U	2.1 U	2.2 U	2.3 U	2.7 U	3.2 U	2.2 U	2.2 U	2.4 U	2.5 U	2.7 U	2.6 U	2.3 U	2.3 U	2.3 U
1,2-Dichloroethane	100	20	30,000	20	1.9 U	1.8 U	1.8 U	1.7 U	1.7 U	1.8 U	2.1 U	2.6 U	1.8 U	1.7 U	1.9 U	2 U	2.1 U	2.1 U	1.8 U	1.8 U	1.8 U
1,2-Dichloropropane	---	---	---	---	2.5 U	2.4 U	2.3 U	2.2 U	2.3 U	2.3 U	2.7 U	3.3 U	2.3 U	2.2 U	2.5 U	2.5 U	2.8 U	2.7 U	2.4 U	2.4 U	2.4 U
1,3,5-Trimethylbenzene*	3,300	8,400	190,000	8,400	3.1 U	23 J	2.8 U	2.7 U	2.8 U	2.9 U	3.4 U	4.1 U	2.8 U	2.8 U	3.1 U	42	130	3.4 U	160	3 U	2.9 U
1,3-Dichlorobenzene (v)	1,600	2,400	280,000	2,400	3.5 U	3.3 U	3.2 U	3.1 U	3.2 U	3.3 U	3.9 U	4.6 U	3.2 U	3.1 U	3.5 U	3.6 U	3.9 U	3.8 U	3.4 U	3.3 U	3.3 U
1,3-Dichloropropane	300	---	---	---	2.4 U	2.2 U	2.2 U	2.1 U	2.1 U	2.2 U	2.6 U	3.1 U	2.1 U	2.1 U	2.4 U	2.6 U	2.5 U	2.2 U	2.2 U	2.2 U	2.2 U
1,4-Dichlorobenzene (v)	8,500	1,800	130,000	1,800	3.5 U	19 J	3.1 U	3 U	3.1 U	3.2 U	3.8 U	4.5 U	3.1 U	3 U	3.4 U	3.5 U	3.8 U	3.7 U	3.3 U	3.3 U	3.3 U
2,2-Dichloropropane	---	---	---	---	2.1 U	2.0 U	1.9 U	1.9 U	1.9 U	2 U	2.3 U	2.8 U	1.9 U	1.9 U	2.1 U	2.1 U	2.3 U	2.3 U	2 U	2 U	2 U
2-Butanone	300	120	500,000	120	18 U	17.0 U	16 U	16 U	16 U	16 U	20 U	190 J	16 U	16 U	18 U	18 U	20 U	19 U	130 J	150 J	17 U
2-Chloroethyl vinyl ether	---	---	---	---	9.6 U	9.0 U	8.7 U	8.4 U	8.6 U	8.8 U	10 U	13 U	8.7 U	8.4 U	9.5 U	9.7 U	11 U	10 U	9.1 U	9.1 U	9 U
2-Chlorotoluene	---	---	---	---	2.6 U	2.4 U	2.4 U	2.3 U	2.3 U	2.4 U	2.8 U	3.4 U	2.4 U	2.3 U	2.6 U	2.6 U	2.9 U	2.8 U	2.5 U	2.5 U	2.4 U
2-Hexanone	---	---	---	---	23 U	22 U	21 U	20 U	20 U	21 U	25 U	30 U	21 U	20 U	23 U	23 U	25 U	24 U	79 J	22 U	22 U
4-Chlorotoluene	---	---	---	---	2.8 U	2.7 U	2.6 U	2.5 U	2.6 U	2.6 U	3.1 U	3.7 U	2.6 U	2.5 U	2.8 U	2.8 U	3.0 U	2.7 U	2.7 U	2.7 U	2.7 U
4-Methyl-2-Pentanone	1,000	---	---	---	13 U	12 U	11 U	11 U	12 U	12 U	14 U	16 U	11 U	11 U	12 U	13 U	14 U	13 U	80 J	12 U	12 U
Acetone	200	50	500,000	50	21 U	130 J	270	170	130 J	190	23 U	630	120 J	140	440	420	270	390	640	20 U	20 U
Acrolein	---	---	---	---	33 U	31 U	30 U	29 U	29 U	30 U	36 U	43 U	30 U	29 U	32 U	33 U	36 U	35 U	31 U	31 U	31 U
Acrylonitrile	---	---	---	---	12 U	11 U	11 U	11 U	11 U	11 U	13 U	16 U	11 U	11 U	12 U	12 U	13 U	13 U	11 U	11 U	11 U
Benzene*	60 or MDL	60	44,000	60	2.5 U	2.4 U	2.3 U	2.2 U	2.3 U	2.3 U	2.8 U	3.3 U	2.3 U	2.2 U	2.5 U	2.5 U	2.8 U	2.7 U	16 J	2.4 U	2.4 U
Bromobenzene	600	---	---	---	2.6 U	2.5 U	2.4 U	2.3 U	2.3 U	2.4 U	2.8 U	3.4 U	2.4 U	2.3 U	2.6 U	2.6 U	2.9 U	2.8 U	2.5 U	2.5 U	2.5 U
Bromochloromethane	---	---	---	---	3.6 U	3.4 U	3.3 U	3.2 U	3.3 U	3.4 U	4 U	4.8 U	3.3 U	3.2 U	3.6 U	3.7 U	4 U	3.9 U	3.5 U	3.4 U	3.4 U
Bromodichloromethane	---	---	---	---	2.1 U	2 U	1.9 U	1.9 U	1.9 U	2 U	2.3 U	2.8 U	1.9 U	1.9 U	2.1 U	2.1 U	2.3 U	2.3 U	2 U	2 U	2 U
Bromoform	---	---	---	---	2 U	1.8 U	1.8 U	1.7 U	1.8 U	1.8 U	2.1 U	2.6 U	1.8 U	1.7 U	1.9 U	2 U	2.2 U	2.1 U	1.9 U	1.9 U	1.8 U
Bromomethane	---	---	---	---	13 U	12 U	12 U	11 U	12 U	12 U	14 U	17 U	12 U	11 U	13 U	13 U	14 U	14 U	12 U	12 U	12 U
Carbon Disulfide	2,700	---	---	---	2.3 U	40 U	41	2 U	2.1 U	28 J	2.5 U	3.1 U	24 J	2 U	2.3 U	51	46	2.5 U	170	48	2.2 U
Carbon Tetrachloride	600	760	22,000	760	2.8 U	2.6 U	2.6 U	2.5 U	2.5 U	2.6 U	3.1 U	3.7 U	2.6 U	2.5 U	2.8 U	2.8 U	3.1 U	3.0 U	2.7 U	2.6 U	2.6 U
Chlorobenzene	1,700	1,100	500,000	1,100	2.3 U	2.2 U	2.1 U	2 U	2.1 U	2.1 U	2.5 U	3 U	2.1 U	2 U	2.3 U	2.3 U	2.5 U	2.5 U	2.2 U	2.2 U	2.2 U
Chloroethane	1,900	---	---	---	14 U	13 U	12 U	12 U	12 U	12 U	15 U	18 U	12 U	12 U	13 U	14 U	15 U	14 U	13 U	13 U	13 U
Chloroform	300	370	350,000	370	2.2 U	2.1 U	2 U	1.9 U	2 U												

TABLE 20 VOLATILE ORGANIC COMPOUNDS (VOCs) SOIL BORING ANALYTICAL RESULTS																					
FRITO-LAY 202-218 MORGAN AVENUE BROOKLYN, NEW YORK																					
Compound	NYSDEC TAGM Recommended Soil Cleanup Objectives	NYSDEC Unrestricted Use Soil Cleanup Objectives	NYSDEC Restricted Use Soil Cleanup Objective- Protection of Public Health- Commercial	NYSDEC Restricted Use Soil Cleanup Objectives- Protection of Groundwater	SB-7		SB-8			SB-9			SB-10			SB-11			SB-12		
					SB-7 (0-5)	SB-7 (9-11)	SB-8 (0-5)	SB-8 (5-7)	SB-8 (9-11)	SB-9 (0-5)	SB-9 (7-8)	SB-9 (11-12)	SB-10 (0-5)	SB-10 (5-7)	S-10 (9-11)	SB-11 (0-5)	SB-11 (5-7)	SB-11 (9-11)	SB-12 (0-5)	SB-12 (5-7)	
Date					12/11/2007	12/11/2007	12/11/2007	12/11/2007	12/11/2007	12/11/2007	12/11/2007	12/11/2007	12/11/2007	12/11/2007	12/11/2007	12/11/2007	12/11/2007	12/11/2007	12/11/2007	12/11/2007	
VOC's (µg/kg) - EPA Method 8260																					
1,1,1,2-Tetrachloroethane	---	---	---	---	2.5 U	2.5 U	2.5 U	2.9 U	2.5 U	2.5 U	2.4 U	2.5 U	2.6 U	2.9 U	2.5 U	2.5 U	2.4 U	2.9 U	2.7 U	2.7 U	
1,1,1-Trichloroethane	800	680	500,000	680	2.5 U	2.5 U	2.5 U	2.9 U	2.5 U	2.5 U	2.5 U	2.6 U	2.6 U	2.9 U	2.5 U	2.6 U	2.4 U	2.9 U	2.7 U	2.7 U	
1,1,2,2-Tetrachloroethane	600	---	---	---	1.9 U	1.9 U	1.9 U	2.2 U	1.9 U	1.9 U	1.8 U	1.9 U	2 U	2.2 U	1.9 U	23 J	1.8 U	2.2 U	2 U	2 U	
1,1,2-Trichloroethane	---	---	---	---	1.8 U	1.8 U	1.8 U	2.1 U	1.8 U	1.8 U	1.7 U	1.8 U	1.9 U	2.1 U	1.8 U	1.8 U	1.7 U	2 U	1.9 U	1.9 U	
1,1-Dichloroethane	200	270	240,000	270	1.6 U	1.6 U	1.6 U	1.9 U	1.6 U	1.6 U	1.6 U	1.6 U	1.7 U	1.9 U	1.6 U	1.6 U	1.6 U	1.9 U	1.7 U	1.7 U	
1,1-Dichloroethene	400	330	500,000	330	3.4 U	3.5 U	3.5 U	4 U	3.5 U	3.5 U	3.4 U	3.5 U	3.6 U	4 U	3.5 U	22 J	3.3 U	4 U	3.7 U	3.7 U	
1,1-Dichloropropene	---	---	---	---	2.3 U	2.4 U	2.4 U	2.8 U	2.4 U	2.4 U	2.3 U	2.4 U	2.5 U	2.8 U	2.4 U	2.4 U	2.3 U	2.7 U	2.6 U	2.5 U	
1,2,3-Trichlorobenzene	---	---	---	---	6.1 U	6.2 U	6.2 U	7.1 U	6.1 U	6.1 U	6 U	6.2 U	6.4 U	7.1 U	6.2 U	6.2 U	5.9 U	7 U	6.6 U	6.6 U	
1,2,3-Trichloropropane	400	---	---	---	2 U	2 U	2 U	2.3 U	2 U	2 U	2 U	2 U	2.1 U	2.3 U	2 U	2 U	1.9 U	2.3 U	2.2 U	2.1 U	
1,2,4-Trichlorobenzene (v)	3,400	---	---	---	39	4.1 U	100	43	4.1 U	4.1 U	4 U	4.2 U	4.3 U	4.8 U	4.2 U	4.2 U	3.9 U	4.7 U	4.4 U	4.4 U	
1,2,4-Trimethylbenzene*	---	3,600	190,000	3,600	17 U	2.3 U	4,800 D	320 U	320	3,700 D	2.2 U	2.3 U	170	190	63	100	270	320	410	170	
1,2-Dibromo-3-Chloropropane	---	---	---	---	5.6 U	5.7 U	5.7 U	6.6 U	5.7 U	5.7 U	5.5 U	5.8 U	6 U	6.6 U	5.7 U	5.8 U	5.4 U	6.5 U	6.1 U	6.1 U	
1,2-Dibromoethane	---	---	---	---	2.4 U	2.4 U	2.4 U	2.8 U	2.4 U	2.4 U	2.4 U	2.5 U	2.5 U	2.8 U	2.5 U	2.5 U	2.3 U	2.8 U	2.6 U	2.6 U	
1,2-Dichlorobenzene (v)	7,900	1,100	500,000	1,100	2.3 U	2.3 U	32	2.7 U	2.3 U	4,700 D	2.3 U	2.4 U	2.4 U	2.7 U	2.4 U	2.4 U	2.2 U	27 J	22 J	2.5 U	
1,2-Dichloroethane	100	20	30,000	20	1.8 U	1.9 U	1.9 U	2.1 U	1.8 U	1.8 U	1.8 U	1.9 U	1.9 U	2.2 U	1.9 U	1.9 U	1.8 U	2.1 U	2 U	2 U	
1,2-Dichloropropane	---	---	---	---	2.4 U	2.4 U	2.4 U	2.8 U	2.4 U	2.4 U	2.3 U	2.4 U	2.5 U	2.8 U	2.4 U	2.4 U	2.3 U	2.7 U	2.6 U	2.6 U	
1,3,5-Trimethylbenzene*	3,300	8,400	190,000	8,400	2.9 U	3 U	1200 U	140	150	760	2.9 U	3 U	59	81	70	44	120	120	130	79	
1,3-Dichlorobenzene (v)	1,600	2,400	280,000	2,400	3.3 U	3.4 U	78	3.9 U	3.4 U	3.4 U	3.3 U	3.4 U	3.5 U	3.9 U	3.4 U	3.4 U	3.2 U	3.9 U	3.6 U	3.6 U	
1,3-Dichloropropane	300	---	---	---	2.2 U	2.3 U	2.3 U	2.6 U	2.2 U	2.2 U	2.2 U	2.3 U	2.4 U	2.6 U	2.3 U	2.3 U	2.2 U	2.6 U	2.4 U	2.4 U	
1,4-Dichlorobenzene (v)	8,500	1,800	130,000	1,800	45	3.3 U	300	3.8 U	3.3 U	3.3 U	3.2 U	3.3 U	3.4 U	3.8 U	3.3 U	22 J	3.1 U	3.8 U	3.5 U	3.5 U	
2,2-Dichloropropane	---	---	---	---	2 U	2 U	2 U	2.3 U	2 U	2 U	2 U	2 U	2.1 U	2.3 U	2 U	2.1 U	1.9 U	2.3 U	2.2 U	2.2 U	
2-Butanone	300	120	500,000	120	17 U	17 U	310	120 J	17 U	17 U	17 U	17 U	18 U	20 U	17 U	95 J	140 J	20 U	18 U	18 U	
2-Chloroethyl vinyl ether	---	---	---	---	9 U	9.2 U	9.2 U	11 U	9.1 U	9.1 U	8.9 U	9.3 U	9.6 U	11 U	9.2 U	59 J	8.8 U	10 U	9.8 U	9.7 U	
2-Chlorotoluene	---	---	---	---	2.4 U	110	2.5 U	2.9 U	2.5 U	2.5 U	2.4 U	2.5 U	2.6 U	2.9 U	2.5 U	2.5 U	2.4 U	2.8 U	2.7 U	2.6 U	
2-Hexanone	---	---	---	---	22 U	22 U	22 U	59 J	22 U	22 U	21 U	22 U	23 U	25 U	22 U	83 J	21 U	25 U	23 U	23 U	
4-Chlorotoluene	---	---	---	---	2.7 U	65	2.7 U	3.1 U	2.7 U	2.7 U	2.6 U	2.7 U	2.8 U	3.1 U	2.7 U	2.7 U	2.6 U	3.1 U	2.9 U	2.9 U	
4-Methyl-2-Pentanone	1,000	---	---	---	12 U	12 U	12 U	150 J	12 U	400 U	12 U	12 U	12 U	14 U	25 J	83 J	79 J	14 U	13 U	13 U	
Acetone	200	50	500,000	50	170	20 U	1,500	720 U	430	1,100	21 U	280	24 U	20 U	20 U	180	1,900	23 U	22 U	22 U	
Acrolein	---	---	---	---	31 U	31 U	31 U	36 U	31 U	31 U	30 U	32 U	33 U	36 U	31 U	32 U	30 U	36 U	34 U	33 U	
Acrylonitrile	---	---	---	---	11 U	11 U	11 U	13 U	11 U	11 U	11 U	12 U	12 U	13 U	12 U	62 J	11 U	13 U	12 U	12 U	
Benzene*	60 or MDL	60	44,000	60	2.4 U	2.4 U	150	2.8 U	18 J	2.4 U	2.3 U	2.4 U	2.5 U	2.8 U	2.4 U	2.4 U	2.3 U	2.8 U	2.6 U	2.6 U	
Bromobenzene	600	---	---	---	2.5 U	2.5 U	2.5 U	2.9 U	2.5 U	2.5 U	2.4 U	2.5 U	2.6 U	2.9 U	2.5 U	2.5 U	2.4 U	2.8 U	2.7 U	2.6 U	
Bromochloromethane	---	---	---	---	3.4 U	3.5 U	3.5 U	4 U	3.5 U	3.5 U	3.4 U	3.5 U	3.6 U	4 U	3.5 U	3.5 U	3.3 U	4 U	3.7 U	3.7 U	
Bromodichloromethane	---	---	---	---	2 U	2 U	2 U	2.3 U	2 U	2 U	2 U	2.1 U	2.1 U	2.3 U	2 U	2.1 U	1.9 U	2.3 U	2.2 U	2.2 U	
Bromoform	---	---	---	---	1.8 U	1.9 U	1.9 U	2.2 U	1.9 U	1.9 U	1.8 U	1.9 U	2 U	2.2 U	1.9 U	1.9 U	1.8 U	2.1 U	2 U	2 U	
Bromomethane	---	---	---	---	12 U	12 U	12 U	14 U	12 U	12 U	12 U	12 U	13 U	14 U	12 U	12 U	12 U	14 U	13 U	13 U	
Carbon Disulfide	2,700	---	---	---	44	2.2 U	61	35 J	87	96	2.2 U	2.3 U	140	310	2.2 U	40	91	84	2.4 U	2.4 U	
Carbon Tetrachloride	600	760	22,000	760	2.6 U	2.7 U	2.7 U	3.1 U	2.7 U	2.7 U	2.6 U	2.7 U	2.8 U	3.1 U	2.7 U	2.7 U	2.6 U	3.1 U	2.9 U	2.8 U	
Chlorobenzene	1,700	1,100	500,000	1,100	2.2 U	2.2 U	2.2 U	2.5 U	2.2 U	2.2 U	2.1 U	2.2 U	2.3 U	2.5 U	2.2 U	2.2 U	2.1 U	2.5 U	2.4 U	2.3 U	
Chloroethane	1,900	---	---	---	13 U	13 U	13 U	15 U	13 U	13 U	13 U	13 U	14 U	15 U	13 U	13 U	12 U	15 U	14 U	14 U	
Chloroform	300	370	350,000	370	2.1 U	2.1 U	2.1 U	2.4 U	2.1 U	2.1 U	2 U	2.1 U	2.2 U	2.4 U	2.1 U	2.1 U	2 U	2.4 U	2.3 U	2.2 U	
Chloromethane	---	---	---	---	5.1 U	5.2 U	5.2 U	6 U	5.1 U	5.1 U	5 U	5.2 U	5.4 U	6 U	5.2 U	5.2 U	4.9 U	5.9 U	5.5 U	5.5 U	
cis-1,2-Dichloroethene																					

TABLE 20  
VOLATILE ORGANIC COMPOUNDS (VOCs)  
SOIL BORING ANALYTICAL RESULTS

FRITO-LAY  
202-218 MORGAN AVENUE  
BROOKLYN, NEW YORK

Compound	NYSDEC TAGM Recommended Soil Cleanup Objectives	NYSDEC Unrestricted Use Soil Cleanup Objectives	NYSDEC Restricted Use Soil Cleanup Objective- Protection of Public Health- Commercial	NYSDEC Restricted Use Soil Cleanup Objectives- Protection of Groundwater	SB-13		S-14			S-15		
					SB-13 (0-5)	SB-13 (9-11)	SB-14 (0-5)	SB-14 (7-9)	SB-14 (9-11)	SB-15 (0-5)	SB-15 (7-9)	S-15 (9-11)
Date					12/11/2007	12/11/2007	12/11/2007	12/11/2007	12/11/2007	12/11/2007	12/11/2007	12/11/2007
VOC's (µg/kg) - EPA Method 8260												
1,1,1,2-Tetrachloroethane	---	---	---	---	2.9 U	2.8 U	2.7 U	2.3 U	2.6 U	3.2 U	2.5 U	2.4 U
1,1,1-Trichloroethane	800	680	500,000	680	2.9 U	2.8 U	2.8 U	2.3 U	2.7 U	3.2 U	2.5 U	2.4 U
1,1,2,2-Tetrachloroethane	600	---	---	---	2.2 U	2.1 U	2 U	1.7 U	2 U	2.4 U	1.9 U	1.8 U
1,1,2-Trichloroethane	---	---	---	---	2.1 U	2 U	1.9 U	1.6 U	1.9 U	2.3 U	1.8 U	1.7 U
1,1-Dichloroethane	200	270	240,000	270	1.9 U	1.8 U	1.8 U	1.5 U	1.7 U	2.1 U	1.6 U	1.6 U
1,1-Dichloroethene	400	330	500,000	330	4 U	3.8 U	3.8 U	3.2 U	3.7 U	4.4 U	3.4 U	3.3 U
1,1-Dichloropropene	---	---	---	---	2.8 U	2.6 U	2.6 U	2.2 U	2.5 U	3 U	2.3 U	2.3 U
1,2,3-Trichlorobenzene	---	---	---	---	7.2 U	6.8 U	6.7 U	5.7 U	6.5 U	7.9 U	6.1 U	5.9 U
1,2,3-Trichloropropane	400	---	---	---	2.4 U	2.2 U	2.2 U	1.9 U	2.1 U	2.6 U	2 U	1.9 U
1,2,4-Trichlorobenzene (v)	3,400	---	---	---	4.8 U	4.6 U	4.5 U	3.8 U	4.4 U	5.3 U	4.1 U	3.9 U
1,2,4-Trimethylbenzene*	---	3,600	190,000	3,600	76	310	50	47	27 J	2.9 U	2.3 U	2.2 U
1,2-Dibromo-3-Chloropropane	---	---	---	---	6.6 U	6.3 U	6.2 U	5.2 U	6 U	7.3 U	5.6 U	5.4 U
1,2-Dibromoethane	---	---	---	---	2.8 U	2.7 U	2.6 U	2.2 U	2.6 U	3.1 U	2.4 U	2.3 U
1,2-Dichlorobenzene (v)	7,900	1,100	500,000	1,100	2.7 U	2.6 U	2.5 U	2.1 U	2.5 U	3 U	2.3 U	2.2 U
1,2-Dichloroethane	100	20	30,000	20	2.2 U	2.1 U	2 U	1.7 U	2 U	2.4 U	1.8 U	1.8 U
1,2-Dichloropropane	---	---	---	---	2.8 U	2.7 U	2.6 U	2.2 U	2.5 U	3.1 U	2.4 U	2.3 U
1,3,5-Trimethylbenzene*	3,300	8,400	190,000	8,400	50	230	47	19 J	3.2 U	3.8 U	2.9 U	2.9 U
1,3-Dichlorobenzene (v)	1,600	2,400	280,000	2,400	3.9 U	3.7 U	3.7 U	3.1 U	3.6 U	4.3 U	3.3 U	3.2 U
1,3-Dichloropropane	300	---	---	---	2.6 U	2.5 U	2.5 U	2.1 U	2.4 U	2.9 U	2.2 U	2.2 U
1,4-Dichlorobenzene (v)	8,500	1,800	130,000	1,800	3.8 U	3.7 U	3.6 U	3 U	3.5 U	4.2 U	3.3 U	3.1 U
2,2-Dichloropropane	---	---	---	---	2.4 U	2.2 U	2.2 U	1.9 U	2.1 U	2.6 U	2 U	1.9 U
2-Butanone	300	120	500,000	120	20 U	19 U	19 U	16 U	18 U	22 U	17 U	16 U
2-Chloroethyl vinyl ether	---	---	---	---	11 U	10 U	10 U	8.4 U	9.7 U	12 U	9 U	8.8 U
2-Chlorotoluene	---	---	---	---	2.9 U	2.8 U	2.7 U	2.3 U	2.6 U	3.2 U	2.4 U	2.4 U
2-Hexanone	---	---	---	---	25 U	24 U	24 U	20 U	23 U	28 U	22 U	21 U
4-Chlorotoluene	---	---	---	---	3.1 U	3 U	2.9 U	2.5 U	2.8 U	3.4 U	2.7 U	2.6 U
4-Methyl-2-Pentanone	1,000	---	---	---	14 U	13 U	13 U	11 U	13 U	15 U	12 U	11 U
Acetone	200	50	500,000	50	24 U	23 U	22 U	19 U	21 U	<b>190 J</b>	<b>130 J</b>	19 U
Acrolein	---	---	---	---	36 U	35 U	34 U	29 U	33 U	40 U	31 U	30 U
Acrylonitrile	---	---	---	---	13 U	13 U	12 U	11 U	12 U	15 U	11 U	11 U
Benzene*	60 or MDL	60	44,000	60	2.8 U	2.7 U	2.6 U	2.2 U	2.5 U	3.1 U	2.4 U	2.3 U
Bromobenzene	600	---	---	---	2.9 U	2.8 U	2.7 U	2.3 U	2.6 U	3.2 U	2.5 U	2.4 U
Bromochloromethane	---	---	---	---	4 U	3.9 U	3.8 U	3.2 U	3.7 U	4.4 U	3.4 U	3.3 U
Bromodichloromethane	---	---	---	---	2.4 U	2.2 U	2.2 U	1.9 U	2.1 U	2.6 U	2 U	1.9 U
Bromoform	---	---	---	---	2.2 U	2.1 U	2 U	1.7 U	2 U	2.4 U	1.8 U	1.8 U
Bromomethane	---	---	---	---	14 U	14 U	13 U	11 U	13 U	16 U	12 U	12 U
Carbon Disulfide	2,700	---	---	---	2.6 U	2.5 U	2.4 U	2 U	2.4 U	21 J	2.2 U	2.1 U
Carbon Tetrachloride	600	760	22,000	760	3.1 U	3 U	2.9 U	2.5 U	2.8 U	3.4 U	2.6 U	2.6 U
Chlorobenzene	1,700	1,100	500,000	1,100	2.5 U	2.4 U	2.4 U	2 U	2.3 U	2.8 U	2.2 U	2.1 U
Chloroethane	1,900	---	---	---	15 U	14 U	14 U	12 U	14 U	16 U	13 U	12 U
Chloroform	300	370	350,000	370	2.5 U	2.3 U	2.3 U	1.9 U	2.2 U	2.7 U	2.1 U	2 U
Chloromethane	---	---	---	---	6 U	5.7 U	5.6 U	4.7 U	5.4 U	6.6	5.1 U	4.9 U
cis-1,2-Dichloroethene	250	250	500,000	250	37	62	52	<b>310</b>	58	70	<b>730</b>	56
cis-1,3 Dichloropropene	300	---	---	---	2.3 U	2.2 U	2.2 U	1.8 U	2.1 U	2.6 U	2 U	1.9 U
Dibromochloromethane	---	---	---	---	1.6 U	1.5 U	1.5 U	1.3 U	1.5 U	1.8 U	1.4 U	1.3 U
Dibromomethane	---	---	---	---	1.9 U	1.8 U	1.7 U	1.5 U	1.7 U	2 U	1.6 U	1.5 U
Dichlorodifluoromethane	---	---	---	---	6 U	5.7 U	5.6 U	4.8 U	5.5 U	42	5.1 U	4.9 U
Ethyl Benzene*	5,500	1,000	390,000	1,000	150	42	27 J	19 J	2.3 U	2.7 U	2.1 U	2 U
Hexachlorobutadiene	---	---	---	---	2.8 U	2.7 U	2.6 U	2.2 U	2.5 U	3.1 U	2.4 U	2.3 U
Isopropylbenzene*	2,300	---	---	---	100	86	34	2.3 U	2.7 U	3.2 U	2.5 U	2.4 U
m+p Xylene	1,200	260**	500,000**	1,600**	83	66 J	5.7 U	19 J	5.5 U	6.7 U	5.2 U	5 U
Methyl tert-butyl Ether*	---	930	500,000	930	2.6 U	2.5 U	2.4 U	2 U	2.4 U	2.8 U	2.2 U	2.1 U
Methylene Chloride	100	50	500,000	50	22 B JB	31 B JB	32 JB	<b>51 B</b>	32 B	<b>51 B</b>	43 B	19 JB
Naphthalene*	13,000	12,000	500,000	12,000	200	300	1,100	<b>5,400 D</b>	510	380 U	3.5 U	3.4 U
n-Butylbenzene*	10,000	12,000	500,000	12,000	2.4 U	2.3 U	2.2 U	1.9 U	2.2 U	2.6 U	2 U	2 U
n-Propylbenzene*	3,700	3,900	500,000	3,900	20 J	36	3.5 U	3 U	3.4 U	4.1 U	3.2 U	3.1 U
o Xylene	1,200	260**	500,000**	1,600**	79	83	2.5 U	16 J	2.5 U	3 U	2.3 U	2.2 U
p-Isopropyltoluene*	10,000	---	---	---	60	330	58	15 J	54	44	2.5 U	2.5 U
sec- Butylbenzene*	10,000	11,000	500,000	11,000	2.9 U	53	28 J	2.3 U	2.7 U	59	2.5 U	2.4 U
Styrene	---	---	---	---	53	3.1 U	3 U	2.6 U	2.9 U	3.5 U	2.7 U	2.7 U
t-1,3 Dichloropropene	300	---	---	---	2.6 U	2.4 U	2.4 U	2 U	2.3 U	2.8 U	2.2 U	2.1 U
Tert butyl alcohol	---	---	---	---	12 U	11 U	11 U	9.1 U	10 U	13 U	9.8 U	9.5 U
tert- Butylbenzene*	10,000	5,900	500,000	5,900	5 U	4.8 U	4.7 U	4 U	4.6 U	22 J	4.3 U	4.1 U
Tetrachloroethene	1,400	1,300	150,000	1,300	140	150	100	170	150	340 U	240	36
Toluene*	1,500	700	500,000	700	23 J	23 J	2.7 U	2.3 U	2.6 U	3.1 U	2.4 U	2.3 U
trans-1,2-Dichloroethene	300	190	500,000	190	4.5 U	4.3 U	4.2 U	3.6 U	4.1 U	4.9 U	3.8 U	3.7 U
Trichloroethene	700	470	200,000	470	2.2 U	2.1 U	2 U	25 J	2 U	2.4 U	1.8 U	1.8 U
Trichlorofluoromethane	---	---	---	---	8.8 U	8.4 U	8.2 U	6.9 U	8 U	9.6 U	7.4 U	7.2 U
Vinyl Acetate	---	---	---	---	9.2 U	8.8 U	8.6 U	7.3 U	8.3 U	10 U	7.8 U	7.5 U
Vinyl Chloride	200	20	13,000	20	5.8 U	5.5 U	5.4 U	4.6 U	5.3 U	6.3 U	<b>120</b>	4.8 U
TOTAL VOCS	---	20	13,000	20								

NOTES:

NYSDEC - New York State Department of Environmental Conservation  
TAGM - Technical and Administrative Guidance Memorandum #4046  
--- - No standard available

Samples analysis by Chemtech Laboratories of Mountainside, NJ

All units are mg/kg (parts per billion)

Concentrations reported on a dry-weight basis

Values in **bold** exceed the TAGM Recommended Soil Cleanup Objectives and/or Brownfields Soil Cleanup Objectives

\* - Compound is on the NYSDEC list of Recommended Soil Cleanup Objectives for gasoline/fuel oil contaminated soil

\*\* - NYSDEC Brownfield Soil Cleanup Objective for total xylenes

U = Not Detected      ND = Not Detected  
D = Diluted Sample    E = Exceedence  
J = Estimated Value  
B = Analyte Found In  
MDL = Method Detection Limit

TABLE 21  
SEMI VOLATILE ORGANIC COMPOUNDS (SVOCs)  
SOIL BORING ANALYTICAL RESULTS

FRITO-LAY  
202-218 MORGAN AVENUE  
BROOKLYN, NEW YORK

Compound	NYSDEC TAGM Recommended Soil Cleanup Objectives	NYSDEC Unrestricted Use Soil Cleanup Objectives	NYSDEC Restricted Use Soil Cleanup Objective- Protection of Public Health- Commercial	NYSDEC Restricted Use Soil Cleanup Objectives- Protection of Groundwater	SB-1		SB-2			SB-3			SB-4			SB-5			SB-6		
					SB-1 (0-5)	SB-1 (7-9)	SB-2 (0-5)	SB-2 (5-7)	SB-2 (9-11)	SB-3 (0-5)	SB-3 (5-7)	SB-3 (11-11.5)	SB-4 (0-5)	SB-4 (5-7)	SB-4 (9-11)	SB-5 (0-5)	SB-5 (5-7)	SB-5 (11-11.5)	SB-6 (0-5)	SB-6 (5-7)	SB-6 (7-9)
Date					12/10/2007	12/10/2007	12/10/2007	12/10/2007	12/10/2007	12/10/2007	12/10/2007	12/10/2007	12/10/2007	12/10/2007	12/10/2007	12/10/2007	12/10/2007	12/10/2007	12/11/2007	12/11/2007	12/11/2007
SVOC's (µg/kg) - EPA Method 8270																					
2,2-oxybis(1-Chloropropane)	---	---	---	---	17 U	82 U	400 U	15 U	15 U	160 U	19 U	23 U	79 U	77 U	17 U	36 U	19 U	19 U	81 U	83 U	16 U
2,4,5-Trichlorophenol	100	---	---	---	12 U	59 U	290 U	11 U	11 U	120 U	13 U	16 U	57 U	55 U	12 U	26 U	13 U	13 U	59 U	60 U	12 U
2,4,6-Trichlorophenol	---	---	---	---	9.8 U	46 U	230 U	8.6 U	8.7 U	91 U	10 U	13 U	45 U	43 U	9.6 U	20 U	13 U	11 U	46 U	47 U	9.2 U
2,4-Dichlorophenol	400	---	---	---	10 U	47 U	230 U	8.8 U	8.9 U	93 U	11 U	13 U	46 U	44 U	9.8 U	21 U	11 U	11 U	47 U	48 U	9.4 U
2,4-Dimethylphenol	---	---	---	---	13 U	59 U	290 U	11 U	11 U	120 U	13 U	16 U	57 U	56 U	12 U	26 U	14 U	14 U	59 U	60 U	12 U
2,4-Dinitrophenol	200 or MDL	---	---	---	22 U	110 U	520 U	20 U	20 U	210 U	24 U	29 U	100 U	99 U	22 U	46 U	24 U	24 U	110 U	110 U	21 U
2,4-Dinitrotoluene	---	---	---	---	14 U	66 U	320 U	12 U	12 U	130 U	15 U	18 U	63 U	62 U	14 U	29 U	15 U	15 U	66 U	67 U	13 U
2,6-Dinitrotoluene	1,000	---	---	---	15 U	71 U	350 U	13 U	13 U	140 U	16 U	20 U	68 U	67 U	15 U	31 U	16 U	16 U	71 U	72 U	14 U
2-Chloronaphthalene	---	---	---	---	10 U	48 U	240 U	9 U	9.1 U	95 U	11 U	13 U	47 U	45 U	10 U	21 U	11 U	11 U	48 U	49 U	9.6 U
2-Chlorophenol	800	---	---	---	11 U	54 U	260 U	10 U	10 U	110 U	12 U	15 U	52 U	51 U	11 U	24 U	12 U	12 U	54 U	54 U	11 U
2-Methylnaphthalene	36,400	---	---	---	390 J	1,200 J	2,100 J	450	130 J	110 U	73 J	15 U	820 J	240 J	160 J	170 J	260 J	13 U	56 U	57 U	58 J
2-Methylphenol (o-cresol)	100 or MDL	330	500,000	330	11 U	53 U	260 U	9.9 U	10 U	100 U	12 U	15 U	51 U	50 U	11 U	23 U	12 U	12 U	53 U	53 U	11 U
2-Nitroaniline	430 or MDL	---	---	---	20 U	93 U	460 U	17 U	18 U	180 U	21 U	26 U	90 U	88 U	19 U	41 U	21 U	21 U	93 U	94 U	19 U
2-Nitrophenol	330 or MDL	---	---	---	15 U	73 U	360 U	14 U	14 U	140 U	17 U	20 U	70 U	68 U	15 U	32 U	17 U	17 U	73 U	74 U	15 U
3,3-Dichlorobenzidine	---	---	---	---	32 U	150 U	730 U	28 U	28 U	300 U	34 U	41 U	140 U	140 U	31 U	65 U	34 U	34 U	150 U	150 U	30 U
3+4-Methylphenols	900	330	500,000	330	13 U	60 U	300 U	60 J	11 U	120 U	86 J	370 J	58 U	57 U	13 U	26 U	14 U	14 U	60 U	61 U	12 U
3-Nitroaniline	500 or MDL	---	---	---	28 U	130 U	650 U	25 U	25 U	260 U	30 U	36 U	130 U	120 U	27 U	58 U	30 U	30 U	130 U	130 U	26 U
4,6-Dinitro-2-methylphenol	---	---	---	---	57 U	270 U	1,300 U	50 U	51 U	530 U	61 U	74 U	260 U	250 U	56 U	120 U	61 U	61 U	270 U	270 U	54 U
4-Bromophenyl phenyl ether	---	---	---	---	19 U	90 U	440 U	17 U	17 U	180 U	21 U	25 U	87 U	85 U	19 U	40 U	21 U	21 U	90 U	92 U	18 U
4-Chloro-3-methylphenol	240 or MDL	---	---	---	12 U	58 U	290 U	11 U	11 U	120 U	13 U	16 U	56 U	55 U	12 U	25 U	13 U	13 U	58 U	59 U	12 U
4-Chloroaniline	220 or MDL	---	---	---	28 U	130 U	640 U	24 U	25 U	260 U	30 U	36 U	130 U	120 U	27 U	57 U	30 U	30 U	130 U	130 U	26 U
4-Chlorophenyl phenyl ether	---	---	---	---	16 U	76 U	370 U	14 U	14 U	150 U	17 U	21 U	73 U	71 U	16 U	33 U	17 U	17 U	75 U	77 U	15 U
4-Nitroaniline	---	---	---	---	33 U	160 U	770 U	29 U	30 U	310 U	35 U	43 U	150 U	150 U	33 U	68 U	36 U	36 U	160 U	160 U	31 U
4-Nitrophenol	100 or MDL	---	---	---	25 U	120 U	580 U	22 U	22 U	230 U	27 U	32 U	110 U	110 U	25 U	51 U	27 U	27 U	120 U	120 U	24 U
Acenaphthene*	50,000	20,000	500,000	98,000	430	520 J	2,200 J	840	230 J	85 U	160 J	12 U	1,100 J	290 J	240 J	220 J	200 J	9.8 U	560 J	370 J	120 J
Acenaphthylene*	50,000	100,000	500,000	107,000	83 J	690 J	2,300 J	300 J	60 J	57 U	82 J	8 U	230 J	27 U	89 J	120 J	78 J	6.6 U	29 U	270 J	160 J
Anthracene*	50,000	100,000	500,000	1,000,000	730 U	1,700 J	6,000 J	1,500	450 U	490 J	350 J	66 J	2,600	800 J	530	540 J	440 J	15 U	1,200 J	760 J	340 J
Azobenzene	---	---	---	---	15 U	69 U	340 U	13 U	13 U	140 U	16 U	19 U	67 U	65 U	14 U	30 U	16 U	16 U	69 U	70 U	14 U
Benzo(a)anthracene*	224 or MDL	1,000	5,600	1,000	1,400	3,800	11,000	3,200 D	810	1,100 J	1,000	170 J	4,500	1,500 J	1,200	1,200	1,000	11 U	2,400	1,500 J	1,300
Benzo(a)pyrene*	61 or MDL	1,000	1,000	22,000	1,200	3,500	9,100 J	2,600	700	1,000 J	900	140 J	3,600	1,300 J	1,000	960	800	13 U	1,900 J	59 U	900
Benzo(b)fluoranthene*	1,100	1,000	5,600	1,700	1,500	4,900	11,000	3,200 D	860	1,300 J	1,200	180 J	4,700	1,700 J	1,300	1,300	1,100	33 U	2,800	140 U	930
Benzo(ghi)perylene*	50,000	100,000	500,000	1,000,000	740	1,900 J	5,300 J	1,600 U	400	720 J	920	92 J	2300 U	830 J	620	590 J	440 J	33 U	1,400 J	150 U	700
Benzo(k)fluoranthene*	1,100	800	56,000	1700	490	1,300 J	3,300 J	970	230 J	460 J	340 J	69 J	1,500 J	560 J	420	480 J	330 J	21 U	640 J	92 U	770
Benzoic acid	---	---	---	---	52 U	240 U	1,200 U	46 U	46 U	480 U	55 U	67 U	240 U	230 U	51 U	110 U	55 U	56 U	240 U	250 U	49 U
Benzyl Alcohol	---	---	---	---	30 U	140 U	690 U	26 U	26 U	280 U	32 U	39 U	140 U	130 U	29 U	61 U	32 U	32 U	140 U	140 U	28 U
Bis(2-chloroethoxy)methane	---	---	---	---	9.7 U	46 U	220 U	8.5 U	8.6 U	90 U	10 U	13 U	44 U	43 U	9.5 U	20 U	10 U	10 U	45 U	46 U	9.1 U
Bis(2-chloroethyl)ether	---	---	---	---	5.5 U	26 U	130 U	4.8 U	4.9 U	51 U	5.9 U	7.2 U	25 U	24 U	5.4 U	11 U	5.9 U	5.9 U	26 U	26 U	5.2 U
Bis(2-ethylhexyl)phthalate	50,000	---	---	---	16 U	720	23,000 U	560	110 J	510 J	17 U	72 J	4,800	5,400 U	560	2,000	3,500	17 U	3,400	5,900	1,600
Butylbenzylphthalate	50,000	---	---	---	27 U	130 U	2,200 J	23 U	24 U	250 U	29 U	35 U	120 U	660 J	26 U	3,400	3,200	29 U	130 U	130 U	25 U
Chrysene*	400	1,000	56,000	1,000	1,500	4,400	11,000	3,300 D	880	1,200 J	1,100	170 J	4,500	1,500 J	1,300	1,300	1,100	8.4 U	2,500	1,500 J	1,300
Dibenzo(a,h)anthracene*	14 or MDL	330	560	1,000,000	73 J	150 U	710 U	170 J	28 U	290 U	65 J	40 U	240 J	140 U	60 J	64 U	33 U	33 U	150 U	150 U	29 U
Dibenzofuran	6,200	---	---	---	260 J	380 J	1,400 J	610 U	170 J	120 U	120 J	17 U	760 U	210 J	170 J	140 J	130 J	14 U	300 J	220 J	57 J
Diethyl Phthalate	7,100	---	---	---	14 U	68 U															

TABLE 21  
SEMI VOLATILE ORGANIC COMPOUNDS (SVOCs)  
SOIL BORING ANALYTICAL RESULTS

FRITO-LAY  
202-218 MORGAN AVENUE  
BROOKLYN, NEW YORK

Compound	NYSDEC TAGM Recommended Soil Cleanup Objectives	NYSDEC Unrestricted Use Soil Cleanup Objectives	NYSDEC Restricted Use Soil Cleanup Objective- Protection of Public Health- Commercial	NYSDEC Restricted Use Soil Cleanup Objectives- Protection of Groundwater	SB-7		SB-8			SB-9			SB-10			SB-11			SB-12	
					SB-7 (0-5)	SB-7 (9-11)	SB-8 (0-5)	SB-8 (5-7)	SB-8 (9-11)	SB-9 (0-5)	SB-9 (7-8)	SB-9 (11-12)	SB-10 (0-5)	SB-10 (5-7)	SB-10 (9-11)	SB-11 (0-5)	SB-11 (5-7)	SB-11 (9-11)	SB-12 (0-5)	SB-12 (5-7)
Date					12/11/2007	12/11/2007	12/11/2007	12/11/2007	12/11/2007	12/11/2007	12/11/2007	12/11/2007	12/11/2007	12/11/2007	12/11/2007	12/11/2007	12/11/2007	12/11/2007	12/11/2007	12/11/2007
SVOC's ( µg /kg) - EPA Method 8270																				
2,2-oxybis(1-Chloropropane)	---	---	---	---	160 U	84 U	840 U	19 U	820 U	82 U	79 U	17 U	170 U	470 U	83 U	85 U	810 U	19 U	440 U	350 U
2,4,5-Trichlorophenol	100	---	---	---	120 U	60 U	600 U	14 U	590 U	59 U	57 U	12 U	120 U	340 U	60 U	61 U	580 U	13 U	320 U	250 U
2,4,6-Trichlorophenol	---	---	---	---	92 U	47 U	470 U	11 U	460 U	46 U	44 U	9.6 U	97 U	260 U	47 U	48 U	460 U	10 U	250 U	200 U
2,4-Dichlorophenol	400	---	---	---	94 U	48 U	480 U	11 U	470 U	47 U	45 U	9.8 U	99 U	270 U	48 U	49 U	470 U	11 U	250 U	200 U
2,4-Dimethylphenol	---	---	---	---	120 U	61 U	610 U	170 J	590 U	59 U	57 U	12 U	120 U	340 U	60 U	61 U	590 U	13 U	320 U	250 U
2,4-Dinitrophenol	200 or MDL	---	---	---	210 U	110 U	1,100 U	25 U	1,100 U	110 U	100 U	22 U	220 U	610 U	110 U	110 U	1,000 U	24 U	570 U	450 U
2,4-Dinitrotoluene	---	---	---	---	130 U	67 U	670 U	16 U	660 U	66 U	63 U	14 U	140 U	380 U	67 U	68 U	650 U	15 U	350 U	280 U
2,6-Dinitrotoluene	1,000	---	---	---	140 U	73 U	730 U	17 U	710 U	71 U	68 U	15 U	150 U	410 U	72 U	73 U	700 U	16 U	380 U	300 U
2-Chloronaphthalene	---	---	---	---	96 U	49 U	490 U	11 U	480 U	48 U	46 U	10 U	100 U	280 U	49 U	50 U	480 U	11 U	260 U	210 U
2-Chlorophenol	800	---	---	---	110 U	55 U	550 U	13 U	540 U	54 U	52 U	11 U	110 U	310 U	55 U	56 U	530 U	12 U	290 U	230 U
2-Methylnaphthalene	36,400	---	---	---	5,200	1,000 J	43,000	2,000	560 U	12,000	580 J	140 J	800 J	6,500 J	1,100 J	1,000 J	550 U	110 J	2,700 J	950 J
2-Methylphenol (o-cresol)	100 or MDL	330	500,000	330	110 U	54 U	540 U	110 J	530 U	53 U	51 U	11 U	110 U	300 U	53 U	55 U	520 U	12 U	300 U	230 U
2-Nitroaniline	430 or MDL	---	---	---	190 U	95 U	960 U	22 U	930 U	93 U	90 U	19 U	200 U	530 U	94 U	97 U	920 U	21 U	500 U	400 U
2-Nitrophenol	330 or MDL	---	---	---	150 U	74 U	750 U	17 U	730 U	73 U	70 U	15 U	150 U	420 U	74 U	75 U	720 U	17 U	390 U	310 U
3,3-Dichlorobenzidine	---	---	---	---	300 U	150 U	1,500 U	36 U	1,500 U	150 U	140 U	31 U	320 U	860 U	150 U	160 U	1,500 U	34 U	810 U	640 U
3+4-Methylphenols	900	330	500,000	330	420 J	62 U	2,300 J	240 J	600 U	60 U	58 U	13 U	130 U	350 U	330 J	62 U	600 U	14 U	320 U	260 U
3-Nitroaniline	500 or MDL	---	---	---	260 U	130 U	1,400 U	31 U	1,300 U	130 U	130 U	27 U	280 U	750 U	130 U	140 U	1,300 U	30 U	710 U	570 U
4,6-Dinitro-2-methylphenol	---	---	---	---	540 U	270 U	2,800 U	64 U	2,700 U	270 U	260 U	56 U	570 U	1,500 U	270 U	280 U	2,700 U	61 U	1,400 U	1,200 U
4-Bromophenyl phenyl ether	---	---	---	---	180 U	93 U	930 U	21 U	900 U	91 U	87 U	19 U	190 U	520 U	92 U	94 U	890 U	21 U	490 U	390 U
4-Chloro-3-methylphenol	240 or MDL	---	---	---	120 U	60 U	600 U	14 U	580 U	58 U	56 U	12 U	120 U	330 U	59 U	60 U	580 U	13 U	310 U	250 U
4-Chloroaniline	220 or MDL	---	---	---	260 U	130 U	1,300 U	31 U	1,300 U	130 U	130 U	27 U	280 U	750 U	130 U	140 U	1,300 U	30 U	700 U	560 U
4-Chlorophenyl phenyl ether	---	---	---	---	150 U	77 U	780 U	18 U	760 U	76 U	73 U	16 U	160 U	430 U	77 U	78 U	750 U	17 U	410 U	320 U
4-Nitroaniline	---	---	---	---	310 U	160 U	1,600 U	37 U	1,600 U	160 U	150 U	32 U	330 U	890 U	160 U	160 U	1,500 U	35 U	840 U	670 U
4-Nitrophenol	100 or MDL	---	---	---	240 U	120 U	1,200 U	28 U	1,200 U	120 U	110 U	24 U	250 U	670 U	120 U	120 U	1,200 U	27 U	630 U	510 U
Acenaphthene*	50,000	20,000	500,000	98,000	3,000 J	1,100 J	18,000 J	950	430 U	3,000	270 J	93 J	610 J	34,000 J	1,400 J	2,700	420 U	69 J	8,000 J	2,600 J
Acenaphthylene*	50,000	100,000	500,000	107,000	3,400 J	430 J	15,000 J	550	290 U	1800 J	610 J	6 U	61 U	170 U	260 J	590 J	290 U	180 J	160 U	120 U
Anthracene*	50,000	100,000	500,000	1,000,000	7,500	2,700 U	56,000	1,900	3,900 J	5,200	760 J	190 J	1,400 J	58,000 J	3,000	5,800	660 U	270 J	17,000 J	5,700 J
Azobenzene	---	---	---	---	140 U	71 U	710 U	16 U	690 U	69 U	66 U	14 U	150 U	390 U	70 U	72 U	680 U	16 U	370 U	300 U
Benzo(a)anthracene*	224 or MDL	1,000	5,600	1,000	12,000	4,800	75,000	3,100	8,600 J	9,600	1,900	260 J	2,900 J	100,000 D	6,600	14,000	6,800 J	880	28,000	14,000
Benzo(a)pyrene*	61 or MDL	1,000	1,000	22,000	10,000	3,700	47,000	2,100	6,900 J	7,000	1,900 J	230 J	2,400 J	75,000	5,200	10,000	7,100 J	650	21,000	9,700
Benzo(b)fluoranthene*	1,100	1,000	5,600	1,700	12,000	5,000	57,000	2,800	8,700 J	10,000	2,600	260 J	3,000 J	110,000 D	7,100	15,000	7,600 J	720	28,000	13,000
Benzo(ghi)perylene*	50,000	100,000	500,000	1,000,000	5,500	2,100 U	22,000	1,300 U	4,300 J	4,400 U	1,600 J	160 J	1,600 J	36,000	2,800 U	5,000	5,100 J	370 J	12,000	4,300 J
Benzo(k)fluoranthene*	1,100	800	56,000	1700	4,000	1,300 J	21,000	820	3,400 J	2,800	830 J	110 J	1,100 J	33,000	2,300	4,100	2,400 J	200 J	8,000 J	5,000 J
Benzoic acid	---	---	---	---	490 U	250 U	2,500 U	58 U	24,00 U	240 U	230 U	51 U	510 U	1,400 U	250 U	250 U	2,400 U	55 U	1,300 U	1,000 U
Benzyl Alcohol	---	---	---	---	280 U	140 U	1,400 U	33 U	1,400 U	140 U	130 U	29 U	290 U	800 U	140 U	150 U	1,400 U	32 U	750 U	600 U
Bis(2-chloroethoxy)methane	---	---	---	---	91 U	47 U	470 U	11 U	460 U	46 U	44 U	9.5 U	96 U	260 U	46 U	47 U	450 U	10 U	250 U	200 U
Bis(2-chloroethyl)ether	---	---	---	---	52 U	27 U	270 U	6.2 U	260 U	26 U	25 U	5.4 U	55 U	150 U	26 U	27 U	260 U	5.9 U	140 U	110 U
Bis(2-ethylhexyl)phthalate	50,000	---	---	---	33,00 J	60,000 D	72,000 J	100,000 D	29,000	52,000 D	1,700 J	720	110,000 D	29,000	59,000 D	16,000	27,000	570	47,000	11,000
Butylbenzylphthalate	50,000	---	---	---	94,000 D	5,200 U	46,000	30 U	6,500 J	2,900 U	510 J	220 J	26,000	3,300 J	96,000 D	9,500	3,500 J	490	48,000	540 U
Chrysene*	400	1,000	56,000	1,000	12,000	4,700	75,000 J	3,000	9,100 J	9,800	2,200	270 J	3,100 J	97,000 D	6,700	13,000	8,400 J	890	26,000	13,000
Dibenzo(a,h)anthracene*	14 or MDL	330	560	1,000,000	520 J	150 U	2,400 J	130 J	1,500 U	390 J	140 U	30 U	310 U	3,700 J	260 J	450 J	1,400 U	33 U	1,400 J	630 U
Dibenzofuran	6,200	---	---	---	3,000 J	820 J	12,000 J	680	610 U	2,200	420 J	64 J								



TABLE 21  
SEMI VOLATILE ORGANIC COMPOUNDS (SVOCs)  
SOIL BORING ANALYTICAL RESULTS

FRITO-LAY  
202-218 MORGAN AVENUE  
BROOKLYN, NEW YORK

Compound	NYSDEC TAGM Recommended Soil Cleanup Objectives	NYSDEC Unrestricted Use Soil Cleanup Objectives	NYSDEC Restricted Use Soil Cleanup Objective- Protection of Public Health- Commercial	NYSDEC Restricted Use Soil Cleanup Objectives- Protection of Groundwater	SB-13		SB-14			SB-15		
					SB-13 (0-5)	SB-13 (9-11)	SB-14 (0-5)	SB-14 (7-9)	SB-14 (9-11)	SB-15 (0-5)	SB-15 (7-9)	SB-15 (9-11)
Date					12/11/2007	12/11/2007	12/11/2007	12/11/2007	12/11/2007	12/11/2007	12/11/2007	12/11/2007
SVOC's ( µg /kg ) - EPA Method 8270												
2,2-oxybis(1-Chloropropane)	---	---	---	---	480 U	460 U	440 U	380 U	180 U	110 U	16 U	16 U
2,4,5-Trichlorophenol	100	---	---	---	340 U	330 U	320 U	270 U	130 U	78 U	12 U	12 U
2,4,6-Trichlorophenol	---	---	---	---	270 U	260 U	250 U	210 U	100 U	61 U	9.2 U	9.1 U
2,4-Dichlorophenol	400	---	---	---	270 U	270 U	260 U	220 U	100 U	62 U	9.4 U	9.3 U
2,4-Dimethylphenol	---	---	---	---	350 U	340 U	320 U	280 U	130 U	78 U	12 U	12 U
2,4-Dinitrophenol	200 or MDL	---	---	---	620 U	600 U	580 U	490 U	230 U	140 U	21 U	21 U
2,4-Dinitrotoluene	---	---	---	---	380 U	370 U	360 U	310 U	140 U	87 U	13 U	13 U
2,6-Dinitrotoluene	1,000	---	---	---	410 U	400 U	390 U	330 U	150 U	94 U	14 U	14 U
2-Chloronaphthalene	---	---	---	---	280 U	270 U	260 U	220 U	110 U	64 U	9.6 U	9.5 U
2-Chlorophenol	800	---	---	---	310 U	300 U	290 U	250 U	120 U	71 U	11 U	11 U
2-Methylnaphthalene	36,400	---	---	---	330 U	320 U	300 U	1,600 J	760 J	400 J	11 U	11 U
2-Methylphenol (o-cresol)	100 or MDL	330	500,000	330	310 U	300 U	290 U	250 U	120 U	70 U	11 U	10 U
2-Nitroaniline	430 or MDL	---	---	---	540 U	530 U	510 U	430 U	200 U	120 U	19 U	18 U
2-Nitrophenol	330 or MDL	---	---	---	420 U	410 U	400 U	340 U	160 U	96 U	15 U	14 U
3,3-Dichlorobenzidine	---	---	---	---	870 U	850 U	810 U	700 U	330 U	200 U	30 U	30 U
3+4-Methylphenols	900	330	500,000	330	350 U	340 U	330 U	280 U	130 U	80 U	12 U	12 U
3-Nitroaniline	500 or MDL	---	---	---	770 U	750 U	720 U	610 U	290 U	170 U	26 U	26 U
4,6-Dinitro-2-methylphenol	---	---	---	---	1,600 U	1,500 U	1,500 U	1,200 U	590 U	350 U	54 U	53 U
4-Bromophenyl phenyl ether	---	---	---	---	530 U	510 U	490 U	420 U	200 U	120 U	18 U	18 U
4-Chloro-3-methylphenol	240 or MDL	---	---	---	340 U	330 U	320 U	270 U	130 U	77 U	12 U	12 U
4-Chloroaniline	220 or MDL	---	---	---	760 U	740 U	710 U	610 U	290 U	170 U	26 U	26 U
4-Chlorophenyl phenyl ether	---	---	---	---	440 U	430 U	410 U	350 U	170 U	100 U	15 U	15 U
4-Nitroaniline	---	---	---	---	910 U	880 U	850 U	730 U	340 U	210 U	31 U	31 U
4-Nitrophenol	100 or MDL	---	---	---	690 U	670 U	640 U	550 U	260 U	160 U	23 U	23 U
Acenaphthene*	50,000	20,000	500,000	98,000	250 U	240 U	6,500 J	5,200 J	2,000 J	2,400 J	8.6 U	8.5 U
Acenaphthylene*	50,000	100,000	500,000	107,000	170 U	160 U	160 U	140 U	63 U	290 J	5.8 U	5.7 U
Anthracene*	50,000	100,000	500,000	1,000,000	1,800 J	380 U	16,000	8,200 J	4,600	4,300	41 J	64 J
Azobenzene	---	---	---	---	400 U	390 U	380 U	320 U	150 U	91 U	14 U	14 U
Benzo(a)anthracene*	224 or MDL	1,000	5,600	1,000	<b>4,800 J</b>	<b>2,800 J</b>	<b>37,000</b>	<b>23,000</b>	<b>9,800</b>	<b>9,100</b>	140 J	140 J
Benzo(a)pyrene*	61 or MDL	1,000	1,000	22,000	<b>4,400 J</b>	<b>2,800 J</b>	<b>28,000</b>	<b>17,000</b>	<b>7,600</b>	<b>6,500</b>	<b>150 J</b>	<b>110 J</b>
Benzo(b)fluoranthene*	1,100	1,000	5,600	1,700	<b>6,200 J</b>	<b>3,900 J</b>	<b>39,000</b>	<b>27,000</b>	<b>10,000</b>	<b>8,800</b>	190 J	140 J
Benzo(ghi)perylene*	50,000	100,000	500,000	1,000,000	2,800 J	2,000 J	15,000	9,500	4,100 J	3,100	90 J	70 J
Benzo(k)fluoranthene*	1,100	800	56,000	1700	<b>1,900 J</b>	<b>1,200 J</b>	<b>12,000</b>	<b>6,900 J</b>	<b>3,800 J</b>	<b>3,100</b>	69 J	58 J
Benzoic acid	---	---	---	---	1,400 U	1,400 U	1,300 U	1,100 U	530 U	320 U	49 U	48 U
Benzyl Alcohol	---	---	---	---	820 U	790 U	760 U	650 U	310 U	180 U	28 U	28 U
Bis(2-chloroethoxy)methane	---	---	---	---	270 U	260 U	250 U	210 U	100 U	60 U	9.1 U	9 U
Bis(2-chloroethyl)ether	---	---	---	---	150 U	150 U	140 U	120 U	57 U	34 U	5.2 U	5.1 U
Bis(2-ethylhexyl)phthalate	50,000	---	---	---	30,000	<b>450,000 D</b>	32,000	33,000	<b>57,000 D</b>	<b>70,000 D</b>	470	220 J
Butylbenzylphthalate	50,000	---	---	---	1,800 J	710 U	34,000	5,000 J	5,500	4,900	140 J	54 J
Chrysene*	400	1,000	56,000	1,000	<b>5,400 J</b>	<b>3,200 J</b>	<b>36,000</b>	<b>23,000</b>	<b>9,700</b>	<b>8,400</b>	160 J	150 J
Dibenzo(a,h)anthracene*	14 or MDL	330	560	1,000,000	850 U	830 U	<b>1,100 J</b>	<b>960 J</b>	320 U	<b>310 J</b>	29 U	29 U
Dibenzofuran	6,200	---	---	---	360 U	350 U	5,200 J	2,700 J	1,500 J	1,700 J	12 U	12 U
Diethyl Phthalate	7,100	---	---	---	390 U	380 U	370 U	310 U	150 U	89 U	13 U	13 U
Dimethyl Phthalate	2,000	---	---	---	340 U	330 U	320 U	270 U	130 U	77 U	64 J	11 U
Di-n-Butyl Phthalate	8,100	---	---	---	2,700 J	530 U	3,300 J	2,700 J	800 J	120 U	19 U	18 U
Di-n-octyl Phthalate	50,000	---	---	---	410 U	390 U	380 U	320 U	34,000	92 U	14 U	14 U
Fluoranthene*	50,000	100,000	500,000	1,000,000	9,800 J	5,400 J	<b>71,000</b>	43,000	20,000	20,000	240 J	330 J
Fluorene*	50,000	30,000	500,000	386,000	310 U	300 U	9,500 J	5,300 J	2,700 J	3,400	11 U	11 U
Hexachlorobenzene	410	---	---	---	350 U	340 U	330 U	280 U	130 U	79 U	12 U	12 U
Hexachlorobutadiene	---	---	---	---	470 U	460 U	440 U	370 U	180 U	110 U	16 U	16 U
Hexachlorocyclopentadiene	---	---	---	---	590 U	580 U	550 U	470 U	220 U	130 U	20 U	20 U
Hexachloroethane	---	---	---	---	380 U	370 U	350 U	300 U	140 U	86 U	13 U	13 U
Indeno(1,2,3-cd)pyrene*	3,200	500	5,600	8,200	<b>2,400 J</b>	<b>1,700 J</b>	<b>15,000</b>	<b>7,900 J</b>	<b>3,800 J</b>	<b>3,000</b>	77 J	64 J
Isophorone	4,400	---	---	---	380 U	370 U	350 U	300 U	140 U	86 U	13 U	13 U
Naphthalene*	13,000	12,000	500,000	12,000	280 U	270 U	2,600 J	3,300 J	1,700 J	960 J	9.6 U	9.5 U
Nitrobenzene	200 or MDL	---	---	---	270 U	260 U	250 U	220 U	100 U	62 U	9.3 U	9.2 U
N-Nitrosodi-n-propylamine	---	---	---	---	420 U	410 U	390 U	330 U	160 U	95 U	14 U	14 U
N-Nitrosodiphenylamine	---	---	---	---	870 U	840 U	810 U	690 U	330 U	200 U	30 U	29 U
Pentachlorophenol (ms)	1,000 or MDL	800	6,700	800	1,300 U	1,300 U	1,200 U	1,000 U	490 U	300 U	45 U	44 U
Phenanthrene*	50,000	100,000	500,000	1,000,000	7,600 J	3,400 J	49,000	32,000	16,000	9,200	99 J	170 J
Phenol	30 or MDL	330	500,000	330	320 U	<b>3,000 J</b>	300 U	260 U	120 U	73 U	11 U	11 U
Pyrene*	50,000	100,000	500,000	1,000,000	9,600 J	5,700 J	<b>65,000</b>	48,000	19,000	17,000	290 J	300 J

NOTES:

NYSDEC - New York State Department of Environmental Conservation  
TAGM - Technical and Administrative Guidance Memorandum No. 4046  
All units are mg/kg (parts per billion)  
Concentrations reported on a dry-weight basis  
--- - No standard available

Samples analysis by Chemtech Laboratories of Mountainside, NJ

\* - Compound is on the NYSDEC list of Recommended Soil Cleanup Objectives for fuel oil contaminated soil (rev. 8/22/01)

Values in **bold** exceed the NYSDEC TAGM Recommended Soil Cleanup Objectives and/or Brownfields Soil Cleanup Objectives

1-Estimated due to matrix interference

2-Estimated due to method restrictions

U = Not Detected  
D = Diluted Sample  
J = Estimated Value  
B = Analyte Found In Associated Method Blank  
MDL = Method Detection Limit  
ND = Not Detected  
E = Exceedence

TABLE 22  
POLYCHLORINATED BIPHENYLS (PCBs)  
SOIL BORING ANALYTICAL RESULTS

FRITO-LAY  
202-218 MORGAN AVENUE  
BROOKLYN, NEW YORK

Compound	NYSDEC TAGM Recommended Soil Cleanup Objectives	Brownfields Unrestricted Use Soil Cleanup Objectives	Brownfields Restricted Use Soil Cleanup Objectives Protection of Public Health- Commercial	Brownfields Soil Cleanup Objectives Protection of Groundwater	SB-1		SB-2			SB-3			SB-4			SB-5			SB-6			SB-7		SB-8			
					SB-1 (0-5)	SB-1 (7-9)	SB-2 (0-5)	SB-2 (5-7)	SB-2 (9-11)	SB-3 (0-5)	SB-3 (5-7)	SB-3 (11-11.5)	SB-4 (0-5)	SB-4 (5-7)	SB-4 (9-11)	SB-5 (0-5)	SB-5 (5-7)	SB-5 (11-11.5)	SB-6 (0-5)	SB-6 (5-7)	SB-6 (7-9)	SB-7 (0-5)	SB-7 (9-11)	SB-8 (0-5)	SB-8 (5-7)	SB-8 (9-11)	
Date					12/10/2007	12/10/2007	12/10/2007	12/10/2007	12/10/2007	12/10/2007	12/10/2007	12/10/2007	12/10/2007	12/10/2007	12/10/2007	12/10/2007	12/10/2007	12/10/2007	12/11/2007	12/11/2007	12/11/2007	12/11/2007	12/11/2007	12/11/2007	12/11/2007	12/11/2007	
PCB's (µg/kg) - EPA Method 8082																											
Aroclor 1016	10,000	1,000	1,000	3,200	3.2 U	3.0 U	3.0 U	2.8 U	2.9 U	3.0 U	3.5 U	4.2 U	2.9 U	2.9 U	3.2 U	3.3 U	3.5 U	3.5 U	3.0 U	3.1 U	3.0 U	3.0 U	62 U	3.1 U	3.6 U	3.0 U	
Aroclor 1221	10,000	1,000	1,000	3,200	5.0 U	4.7 U	4.6 U	4.4 U	4.5 U	4.7 U	5.4 U	6.5 U	4.6 U	4.5 U	4.9 U	5.2 U	5.4 U	5.4 U	4.7 U	4.8 U	4.7 U	4.7 U	96 U	4.9 U	5.6 U	4.7 U	
Aroclor 1232	10,000	1,000	1,000	3,200	7.5 U	7.1 U	6.9 U	6.6 U	6.7 U	7.0 U	8.0 U	9.8 U	6.8 U	6.7 U	7.4 U	7.7 U	8.1 U	8.0 U	7.1 U	7.2 U	7.1 U	7.1 U	140 U	7.3 U	8.4 U	7.1 U	
Aroclor 1242	10,000	1,000	1,000	3,200	6.7 U	6.3 U	13,000 D	5.9 U	5.9 U	6.2 U	7.2 U	8.7 U	6.1 U	880 D	6.5 U	1,500 D	1,100 D	7.1 U	6.3 U	6.4 U	6.3 U	6.3 U	130 U	73,000 DP	5,600 D	11,000 D	
Aroclor 1248	10,000	1,000	1,000	3,200	3.3 U	3.1 U	3.0 U	2.9 U	2.9 U	3.0 U	3.5 U	4.2 U	3.0 U	2.9 U	3.2 U	3.3 U	3.5 U	3.5 U	3.1 U	3.1 U	3.1 U	3.1 U	62 U	3.1 U	3.6 U	3.1 U	
Aroclor 1254	10,000	1,000	1,000	3,200	2.1 U	2.0 U	9,700 D	1.9 U	1.9 U	2.0 U	2.3 U	2.8 U	1.9 U	390 D	2.1 U	1,300 D	1,200 D	2.3 U	7,600 D	33,000 D	2,700 D	11,000 D	27,000 D	2,500 D	10,000 D		
Aroclor 1260	10,000	1,000	1,000	3,200	170	440 D	4.9 U	4.7 U	4.8 U	5.0 U	5.8 U	7.0 U	46 P	4.8 U	5.3 U	5.5 U	5.8 U	5.7 U	5.1 U	5.1 U	5.1 U	1,600 D	100 U	5.2 U	6.0 U	5.1 U	
Total Arochlors	10,000	1,000	1,000	3,200	170	440	22,700	ND	ND	ND	ND	ND	46	1,270	ND	2,800	2,300	ND	7,600	33,000	2,700	1,600	11,000	100,000	8,100	21,000	

Compound	NYSDEC TAGM Recommended Soil Cleanup Objectives	Brownfields Unrestricted Use Soil Cleanup Objectives	Brownfields Restricted Use Soil Cleanup Objectives Protection of Public Health- Commercial	Brownfields Soil Cleanup Objectives Protection of Groundwater	SB-9			SB-10			SB-11			SB-12		SB-13		SB-14			SB-15			
					SB-9 (0-5)	SB-9 (7-8)	SB-9 (11-12)	SB-10 (0-5)	SB-10 (5-7)	SB-10 (9-11)	SB-11 (0-5)	SB-11 (5-7)	SB-11 (9-11)	SB-12 (0-5)	SB-12 (5-7)	SB-13 (0-5)	SB-13 (9-11)	SB-14 (0-5)	SB-14 (7-9)	SB-14 (9-11)	SB-15 (0-5)	SB-15 (7-9)	SB-15 (9-11)	
Date					12/11/2007	12/11/2007	12/11/2007	12/11/2007	12/11/2007	12/11/2007	12/11/2007	12/11/2007	12/11/2007	12/11/2007	12/11/2007	12/11/2007	12/11/2007	12/11/2007	12/11/2007	12/11/2007	12/11/2007	12/11/2007		
PCB's ( µg /kg ) - EPA Method 8082																								
Aroclor 1016	10,000	1,000	1,000	3,200	30 U	3.0 U	3.2 U	3.2 U	3.5 U	3.1 U	3.1 U	3.0 U	3.5 U	3.3 U	3.3 U	3.6 U	3.5 U	3.3 U	2.8 U	3.3 U	4 U	6.1 U	30 U	
Aroclor 1221	10,000	1,000	1,000	3,200	47 U	4.6 U	4.9 U	5.0 U	5.4 U	4.8 U	4.9 U	4.7 U	5.4 U	5.1 U	5.1 U	5.5 U	5.4 U	5.2 U	4.4 U	5.2 U	6.3 U	9.5 U	45 U	
Aroclor 1232	10,000	1,000	1,000	3,200	71 U	6.9 U	7.3 U	7.5 U	8.1 U	7.2 U	7.3 U	7.0 U	8.1 U	7.6 U	7.6 U	8.3 U	8.0 U	7.7 U	6.6 U	7.7 U	9.3 U	14 U	69 U	
Aroclor 1242	10,000	1,000	1,000	3,200	63 U	6.1 U	6.5 U	6.6 U	7.2 U	6.4 U	6.5 U	6.2 U	7.2 U	6.8 U	6.8 U	7.4 U	7.1 U	6.9 U	5.9 U	6.9 U	8.3 U	13 U	62 U	
Aroclor 1248	10,000	1,000	1,000	3,200	22,000 D	3.0 U	3.2 U	2,900 D	3.5 U	5,900 D	4,600 D	3.0 U	310 P	3.3 U	3.3 U	3.6 U	22,000 D	3.3 U	2.9 U	3.3 U	140	8,800 D	11,000 D	
Aroclor 1254	10,000	1,000	1,000	3,200	20 U	1.9 U	2.1 U	2.1 U	760 D	2.0 U	2.1 U	2.0 U	2.3 U	2.2 U	2.1 U	2.3 U	2.3 U	23,000 D	9,500 D	2.2 U	2.6 U	4.0 U	20 U	
Aroclor 1260	10,000	1,000	1,000	3,200	51 U	740 D	5.3 U	5.3 U	5.8 U	5.1 U	5.2 U	170 P	5.8 U	150	720 D	410	5.7 U	5.5 U	4.7 U	5.5 U	6.7 U	10 U	50 U	
Total Arochlors	10,000	1,000	1,000	3,200	22,000	740	ND	2,900	760	5,900	4,600	170	310	150	720	410	22,000	23,000	9,500	ND	140	8,800	11,000	

NOTES  
Samples analysis by Chemtech Laboratories of Mountainside, NJ  
Values in **bold** exceed the NYSDEC TAGM Recommended Soil Cleanup Objectives and/or Brownfields Soil Cleanup Objectives  
\* Standard applies to the total arochlors  
All units are µg/kg  
U = Not Detected      ND = Not Detected  
D = Diluted Sample    E = Excedence  
J = Estimated Value

**TABLE 23  
TAL METALS  
SOIL BORING ANALYTICAL RESULTS**

**FRITO-LAY  
202-218 MORGAN AVENUE  
BROOKLYN, NY**

Compound	NYSDEC Recommended Soil Cleanup Objectives (RSCOs)	NYSDEC Brownfields Unrestricted Use Soil Cleanup Objective	NYSDEC Brownfields Restricted Use Protection of Public Health-Commercial Soil Cleanup Objective	NYSDEC Brownfields Restricted Use Protection of Groundwater Soil Cleanup Objective	SB-1		SB-2			SB-3		
					SB-1 (0-5)	SB-1 (7-9)	SB-2 (0-5)	SB-2 (5-7)	SB-2 (9-11)	SB-3 (0-5)	SB-3 (5-7)	SB-3 (11-11.5)
Date					12/10/2007	12/10/2007	12/10/2007	12/10/2007	12/10/2007	12/10/2007	12/10/2007	12/10/2007
<i>TAL Metals (mg/kg) Method 6010/7471</i>												
Aluminum	SB	---	---	---	10300	447	2650	9560	5210	5300	6180	5650
Antimony	SB	---	---	---	63.2	2070	0.268 U	1.85 U	0.257 U	0.269 U	142	33.7
Arsenic	7.5 or SB	13	16	16	<b>168</b>	<b>31.6</b>	<b>7.86</b>	<b>7.68</b>	4.88	2.49	<b>36.9</b>	<b>25.3</b>
Barium	300 or SB	350	400	820	<b>875</b>	74.6	<b>498</b>	210	128	67.9	<b>1160</b>	253
Beryllium	0.16 (HEAST) or	7.2	590	47	<b>0.919</b>	0.044 J	<b>0.257</b>	<b>0.488</b>	<b>0.305</b>	<b>0.286</b>	<b>0.341</b>	<b>0.438</b>
Cadmium	1 or SB	2.5	9	7.5	<b>5.66</b>	0.74 J	<b>4.99</b>	<b>1.08</b>	0.045 U	0.423 J	<b>1.31</b>	<b>2.05</b>
Calcium	SB	---	---	---	25400	4220	17500	12100	7080	51800	48000	11400
Chromium	10 or SB	1 / 19*	400	19	<b>41.5</b>	<b>12.0</b>	<b>37.6</b>	<b>30.1</b>	<b>20.6</b>	<b>13.0</b>	<b>13.3</b>	<b>24.6</b>
Cobalt	30 or SB	---	---	---	14.4	1.23	3.94	7.79	5.70	6.70	4.99	8.05
Copper	25 or SB	50	270	1720	<b>1580</b>	<b>433</b>	<b>639</b>	<b>184</b>	<b>58.8</b>	<b>403</b>	<b>617</b>	<b>518</b>
Iron	2,000 or SB	---	---	---	<b>38200</b>	<b>8880</b>	<b>21300</b>	<b>27900</b>	<b>13100</b>	<b>14700</b>	<b>16800</b>	<b>28500</b>
Lead	SB *	63	1000	450	<b>3020</b>	<b>6670</b>	<b>1300</b>	<b>570</b>	224	98.2	<b>2800</b>	<b>4330</b>
Magnesium	SB	---	---	---	2700	475	3250	3090	1330	26600	3050	1370
Manganese	SB	1600	10000	2000	554	64.6	182	351	194	208	449	438
Mercury	0.1	0.18	2.8	0.73	<b>7.5 D</b>	<b>8.5 D</b>	<b>3.6 D</b>	<b>1.8 D</b>	<b>0.537 D</b>	<b>0.262 D</b>	<b>5.1 D</b>	<b>5.3 D</b>
Nickel	13 or SB	30	310	130	<b>51.5</b>	11.6	<b>70.7</b>	<b>25.0</b>	<b>15.3</b>	<b>14.7</b>	<b>24.8</b>	<b>18.7</b>
Potassium	SB	---	---	---	3050	64.3 J	508	1060	637	840	861	1130
Selenium	2 or SB	3.9	1500	4	<b>50.0</b>	0.302 J	0.142 U	0.133 U	0.136 U	0.142 U	0.484 J	1.480
Silver	SB	2	1500	8.3	5.58	0.863	0.142 U	0.133 U	0.136 U	0.142 U	2.320	6.350
Sodium	SB	---	---	---	1930	108	1090	537	321	326	490	1890
Thallium	SB	---	---	---	3.200	1.520 U	1.490 U	1.400 U	1.430 U	1.490 U	1.720 U	2.110 U
Vanadium	150 or SB	---	---	---	47.0	5.090	32.2	38.2	20.4	52.0	15.6	25.2
Zinc	20 or SB	109	10000	2480	<b>1710</b>	<b>336</b>	<b>2770</b>	<b>1080</b>	<b>267</b>	<b>161</b>	<b>698</b>	<b>885</b>

**NOTES**

NYSDEC - New York State Department of Environmental Conservation

Sample analysis by Chemtech Laboratories in Mountainside, New Jersey

All units are in milligrams per kilogram (mg/kg) - parts per million (ppm)

Values in **bold** exceed the NYSDEC Recommended Soil Cleanup Objectives

\* = Background levels for Lead vary widely between undeveloped areas and metropolitan areas

SB = Soil Background

U = Analyte not detected

J = The reported value was obtained from a reading that was less than the Contract Required Detection Limit,

but greater than or equal to the Instrument Detection Limit

N = Spiked sample recovery not within control limits

D = The reported value is from a secondary analysis with a dilution factor. The original analysis exceeded the calibration range

OR = Indicates the analyte's concentration exceeds the calibrated range of the instrument for that specific analysis

**TABLE 23  
TAL METALS  
SOIL BORING ANALYTICAL RESULTS**

**FRITO-LAY  
202-218 MORGAN AVENUE  
BROOKLYN, NY**

Compound	NYSDEC Recommended Soil Cleanup Objectives (RSCOs)	NYSDEC Brownfields Unrestricted Use Soil Cleanup Objective	NYSDEC Brownfields Restricted Use Protection of Public Health-Commercial Soil Cleanup Objective	NYSDEC Brownfields Restricted Use Protection of Groundwater Soil Cleanup Objective	SB-4			SB-5			SB-6		
					SB-4 (0-5)	SB-4 (5-7)	SB-4 (9-11)	SB-5 (0-5)	SB-5 (5-7)	SB-5 (11-11.5)	SB-6 (0-5)	SB-6 (5-7)	SB-6 (7-9)
Date					12/10/2007	12/10/2007	12/10/2007	12/10/2007	12/10/2007	12/10/2007	12/11/2007	12/11/2007	12/11/2007
<i>TAL Metals (mg/kg) Method 6010/7471</i>													
Aluminum	SB	---	---	---	7710	8950	7090	934	1440	1550	5890	5840	9670
Antimony	SB	---	---	---	0.264 U	0.257 U	0.280 U	0.298 U	0.311 U	0.310 U	0.273 U	0.276 U	0.269 U
Arsenic	7.5 or SB	13	16	16	<b>14.8</b>	<b>13.1</b>	<b>8.82</b>	1.62	3.74	4.44	<b>8.31</b>	<b>9.72</b>	<b>8.50</b>
Barium	300 or SB	350	400	820	<b>326</b>	237	161	120	169	21.9	278	<b>928</b>	295
Beryllium	0.16 (HEAST) or	7.2	590	47	<b>0.387</b>	<b>0.560</b>	<b>0.407</b>	0.072 J	0.137 J	0.127 J	<b>0.306</b>	<b>0.320</b>	<b>0.481</b>
Cadmium	1 or SB	2.5	9	7.5	<b>2.41</b>	<b>1.91</b>	0.658 J	<b>3.0</b>	<b>3.41</b>	0.055 U	<b>3.79</b>	<b>5.07</b>	0.335 J
Calcium	SB	---	---	---	53700	8480	34300	3520	5980	1500	70200	56200	7270
Chromium	10 or SB	1 / 19*	400	19	<b>39.1</b>	<b>40.9</b>	<b>22.3</b>	<b>38.0</b>	<b>38.9</b>	4.350	<b>69.0</b>	<b>85.8</b>	<b>20.6</b>
Cobalt	30 or SB	---	---	---	6.27	9.11	6.13	1.99	3.93	1.270 J	6.830 N	7.120 N	5.360 N
Copper	25 or SB	50	270	1720	<b>822</b>	<b>325</b>	<b>148</b>	<b>93.7</b>	<b>287</b>	<b>41.9</b>	<b>581</b>	<b>367</b>	<b>68.5</b>
Iron	2,000 or SB	---	---	---	<b>29500</b>	<b>26700</b>	<b>14300</b>	<b>9850</b>	<b>15300</b>	<b>2890</b>	<b>27100</b>	<b>30100</b>	<b>16500</b>
Lead	SB *	63	1000	450	<b>904</b>	449	449	<b>651</b>	<b>810</b>	41.0	<b>1190</b>	<b>4630</b>	<b>1720</b>
Magnesium	SB	---	---	---	5550	3620	8840	542	952	381	17100	10400	1920
Manganese	SB	1600	10000	2000	294	286	539	79.9	125	30.3	247	376	143
Mercury	0.1	0.18	2.8	0.73	<b>2.2 D</b>	<b>1.4 D</b>	<b>1.5 D</b>	<b>11.2 D</b>	<b>3.5 D</b>	0.053	<b>2.9 D</b>	<b>1.9 D</b>	<b>2.4 D</b>
Nickel	13 or SB	30	310	130	<b>30.2</b>	<b>26.8</b>	<b>19.0</b>	<b>21.1</b>	<b>25.8</b>	4.910	<b>38.8 N</b>	<b>44.6 N</b>	<b>13.6 N</b>
Potassium	SB	---	---	---	1820	1190	970	85.1 J	142 J	263	852	882	863
Selenium	2 or SB	3.9	1500	4	0.140 U	0.136 U	0.379 J	0.158 U	0.164 U	0.762 J	0.145 U	0.146 U	0.142 U
Silver	SB	2	1500	8.3	6.400	0.136 U	0.148 U	0.158 U	0.164 U	0.184 J	0.145 U	0.146 U	0.142 U
Sodium	SB	---	---	---	1130	430	629	261	311	322	440	696	257
Thallium	SB	---	---	---	1,470 U	1,430 U	1,560 U	1,660 U	1,730 U	1,720 U	1,520 U	1,540 U	1,490 U
Vanadium	150 or SB	---	---	---	31.4	37.7	21.4	10.2	14.4	6.690	25.7	31.8	28.2
Zinc	20 or SB	109	10000	2480	<b>1000</b>	<b>691</b>	<b>305</b>	<b>639</b>	<b>675</b>	<b>36.7</b>	<b>964</b>	<b>1590</b>	<b>326</b>

**NOTES**

NYSDEC - New York State Department of Environmental Conservation

Sample analysis by Chemtech Laboratories in Mountainside, New Jersey

All units are in milligrams per kilogram (mg/kg) - parts per million (ppm)

Values in **bold** exceed the NYSDEC Recommended Soil Cleanup Objectives

\* = Background levels for Lead vary widely between undeveloped areas and metropolitan areas

SB = Soil Background

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N = Spiked sample recovery not within control limits

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OR = Indicates the analyte's concentration exceeds the calibrated range of the instrument for that specific analysis

**TABLE 23**  
**TAL METALS**  
**SOIL BORING ANALYTICAL RESULTS**

**FRITO-LAY**  
**202-218 MORGAN AVENUE**  
**BROOKLYN, NY**

Compound	NYSDEC Recommended Soil Cleanup Objectives (RSCOs)	NYSDEC Brownfields Unrestricted Use Soil Cleanup Objective	NYSDEC Brownfields Restricted Use Protection of Public Health-Commercial Soil Cleanup Objective	NYSDEC Brownfields Restricted Use Protection of Groundwater Soil Cleanup Objective	SB-7		SB-8			SB-9		
					SB-7 (0-5)	SB-7 (9-11)	SB-8 (0-5)	SB-8 (5-7)	SB-8 (9-11)	SB-9 (0-5)	SB-9 (7-8)	SB-9 (11-12)
Date					12/11/2007	12/11/2007	12/11/2007	12/11/2007	12/11/2007	12/11/2007	12/11/2007	12/11/2007
<i>TAL Metals (mg/kg) Method 6010/7471</i>												
Aluminum	SB	---	---	---	6820	4870	11800	11000	8490	10700	5400	8150
Antimony	SB	---	---	---	0.272 U	0.278 U	0.280 U	0.324 U	0.274 U	0.270 U	0.263 U	0.284 U
Arsenic	7.5 or SB	13	16	16	<b>12.1</b>	<b>13.0</b>	<b>42.8</b>	<b>20.5</b>	<b>13.9</b>	<b>14.6</b>	<b>18.6</b>	<b>11.4</b>
Barium	300 or SB	350	400	820	<b>482</b>	<b>369</b>	<b>1590</b>	<b>1510</b>	<b>736</b>	<b>966</b>	<b>581</b>	<b>382</b>
Beryllium	0.16 (HEAST) or	7.2	590	47	<b>0.349</b>	<b>0.427</b>	<b>0.549</b>	<b>1.150</b>	<b>0.548</b>	<b>0.706</b>	<b>0.496</b>	<b>0.398</b>
Cadmium	1 or SB	2.5	9	7.5	<b>8.49</b>	<b>5.29</b>	<b>45.2</b>	<b>37.3</b>	<b>10.8</b>	<b>22.1</b>	<b>10.1</b>	<b>7.36</b>
Calcium	SB	---	---	---	32900	20000	37900	34700	37000	28100	26600	22100
Chromium	10 or SB	1 / 19*	400	19	<b>92.0</b>	<b>84.5</b>	<b>441</b>	<b>347</b>	<b>155</b>	<b>454</b>	<b>99.4</b>	<b>147</b>
Cobalt	30 or SB	---	---	---	9.880 N	6.390 N	30.2	24.0	13.0	<b>35.0 N</b>	9.730 N	25.3 N
Copper	25 or SB	50	270	1720	<b>500</b>	<b>346</b>	<b>1610</b>	<b>1090</b>	<b>786</b>	<b>2330</b>	<b>2430</b>	<b>595</b>
Iron	2,000 or SB	---	---	---	<b>45800</b>	<b>26500</b>	<b>148162.1 OR</b>	<b>103278.1 OR</b>	<b>72100</b>	<b>69700</b>	<b>48100</b>	<b>35600</b>
Lead	SB *	63	1000	450	<b>2070</b>	<b>1740</b>	<b>7760</b>	<b>9020</b>	<b>3100</b>	<b>3660</b>	<b>1530</b>	<b>1300</b>
Magnesium	SB	---	---	---	4340	3140	5690	6110	7120	5660	4760	4360
Manganese	SB	1600	10000	2000	545	252	2730	888	709	598	435	356
Mercury	0.1	0.18	2.8	0.73	<b>2.1 D</b>	<b>4.1 D</b>	<b>8.7 D</b>	<b>8.4 D</b>	<b>6.8 D</b>	<b>5.7 D</b>	<b>2.0 D</b>	<b>4.9 D</b>
Nickel	13 or SB	30	310	130	<b>95.6 N</b>	<b>49.3 N</b>	<b>235</b>	<b>186</b>	<b>98.6</b>	<b>565 N</b>	<b>93.7 N</b>	<b>214 N</b>
Potassium	SB	---	---	---	1370	641	1190	1740	1350	1030	1010	1040
Selenium	2 or SB	3.9	1500	4	0.144 U	0.215 J	0.148 U	0.172 U	0.145 U	0.143 U	0.139 U	0.151 U
Silver	SB	2	1500	8.3	0.144 U	0.390 J	3.11	1.400	0.552	0.143 U	0.643	0.601
Sodium	SB	---	---	---	1250	920	2350	4020	1390	1740	1110	1150
Thallium	SB	---	---	---	1,510 U	1,550 U	1,560 U	1,800 U	1,520 U	1,500 U	1,460 U	1,580 U
Vanadium	150 or SB	---	---	---	59.7	45.6	135	102	80.3	<b>291</b>	49.5	48.5
Zinc	20 or SB	109	10000	2480	<b>3500</b>	<b>1300</b>	<b>6047.2 OR</b>	<b>6592.0 OR</b>	<b>3250</b>	<b>4003.2 OR</b>	<b>2260</b>	<b>1810</b>

**NOTES**

NYSDEC - New York State Department of Environmental Conservation

Sample analysis by Chemtech Laboratories in Mountainside, New Jersey

All units are in milligrams per kilogram (mg/kg) - parts per million (ppm)

Values in **bold** exceed the NYSDEC Recommended Soil Cleanup Objectives

\* = Background levels for Lead vary widely between undeveloped areas and metropolitan areas

SB = Soil Background

U = Analyte not detected

J = The reported value was obtained from a reading that was less than the Contract Required Detection Limit,

but greater than or equal to the Instrument Detection Limit

N = Spiked sample recovery not within control limits

D = The reported value is from a secondary analysis with a dilution factor. The original analysis exceeded the calibration range

OR = Indicates the analyte's concentration exceeds the calibrated range of the instrument for that specific analysis

**TABLE 23  
TAL METALS  
SOIL BORING ANALYTICAL RESULTS**

**FRITO-LAY  
202-218 MORGAN AVENUE  
BROOKLYN, NY**

Compound	NYSDEC Recommended Soil Cleanup Objectives (RSCOs)	NYSDEC Brownfields Unrestricted Use Soil Cleanup Objective	NYSDEC Brownfields Restricted Use Protection of Public Health-Commercial Soil Cleanup Objective	NYSDEC Brownfields Restricted Use Protection of Groundwater Soil Cleanup Objective	SB-10			SB-11			SB-12	
					SB-10 (0-5)	SB-10 (5-7)	SB-10 (9-11)	SB-11 (0-5)	SB-11 (5-7)	SB-11 (9-11)	SB-12 (0-5)	SB-12 (5-7)
Date					12/11/2007	12/11/2007	12/11/2007	12/11/2007	12/11/2007	12/11/2007	12/11/2007	12/11/2007
TAL Metals (mg/kg) Method 6010/7471												
Aluminum	SB	---	---	---	8400	8270	6350	9200	6020	4000	4920	5350
Antimony	SB	---	---	---	0.288 U	0.314 U	0.278 U	0.285 U	0.270 U	0.308 U	0.291 U	0.294 U
Arsenic	7.5 or SB	13	16	16	19.2	12.1	29.1	9.14	7.89	10.5	6.06	9.43
Barium	300 or SB	350	400	820	603	550	297	537	277	330	309	430
Beryllium	0.16 (HEAST) or	7.2	590	47	0.302	0.488	0.577	0.423	0.258	0.306	0.295	0.219 J
Cadmium	1 or SB	2.5	9	7.5	5.80	2.63	4.23	11.4	6.12	5.87	2.63	12.7
Calcium	SB	---	---	---	47000	59800	11800	54800	27500	14100	32100	23200
Chromium	10 or SB	1 / 19*	400	19	106	243	38.8	175	114	103	38.7	104
Cobalt	30 or SB	---	---	---	10.1 N	10.2 N	8.120 N	12.8 N	7.270 N	5.630 N	4.460	11.1
Copper	25 or SB	50	270	1720	386	198	209	549	416	281	219	459
Iron	2,000 or SB	---	---	---	44100	27000	36500	48200	33400	27100	20100	65100
Lead	SB *	63	1000	450	935	866	624	2880	929	1680	1520	2980
Magnesium	SB	---	---	---	4950	6090	1850	7420	3610	2350	4530	4580
Manganese	SB	1600	10000	2000	454	349	944	465	305	226	233	492
Mercury	0.1	0.18	2.8	0.73	2.4 D	2.6 D	1.5 D	7 D	4.3 D	2.7 D	2.4 D	9.9 D
Nickel	13 or SB	30	310	130	77.6 N	198 N	37.7 N	143 N	58.8 N	44.7 N	32.2	130
Potassium	SB	---	---	---	1770	1690	975	1400	591	475	724	2510
Selenium	2 or SB	3.9	1500	4	11.1	1.24	0.147 U	0.151 U	0.143 U	0.163 U	0.154 U	0.156 U
Silver	SB	2	1500	8.3	2.51	1.66 U	0.147 U	10.7	0.143 U	0.163 U	0.154 U	0.156 U
Sodium	SB	---	---	---	1450	2140	1150	1520	985	954	638	1570
Thallium	SB	---	---	---	1.600 U	1.750 U	1.540 U	1.580 U	1.500 U	1.710 U	1.620 U	1.640 U
Vanadium	150 or SB	---	---	---	27.6	46.8	29.1	62.7	20.3	35.7	28.3	103
Zinc	20 or SB	109	10000	2480	1580	995	816	3390	2690	1970	937	3420

**NOTES**

NYSDEC - New York State Department of Environmental Conservation

Sample analysis by Chemtech Laboratories in Mountainside, New Jersey

All units are in milligrams per kilogram (mg/kg) - parts per million (ppm)

Values in **bold** exceed the NYSDEC Recommended Soil Cleanup Objectives

\* = Background levels for Lead vary widely between undeveloped areas and metropolitan areas

SB = Soil Background

U = Analyte not detected

J = The reported value was obtained from a reading that was less than the Contract Required Detection Limit,

but greater than or equal to the Instrument Detection Limit

N = Spiked sample recovery not within control limits

D = The reported value is from a secondary analysis with a dilution factor. The original analysis exceeded the calibration range

OR = Indicates the analyte's concentration exceeds the calibrated range of the instrument for that specific analysis

**TABLE 23  
TAL METALS  
SOIL BORING ANALYTICAL RESULTS**

**FRITO-LAY  
202-218 MORGAN AVENUE  
BROOKLYN, NY**

Compound	NYSDEC Recommended Soil Cleanup Objectives (RSCOs)	NYSDEC Brownfields Unrestricted Use Soil Cleanup Objective	NYSDEC Brownfields Restricted Use Protection of Public Health-Commercial Soil Cleanup Objective	NYSDEC Brownfields Restricted Use Protection of Groundwater Soil Cleanup Objective	SB-13		SB-14			SB-15		
					SB-13 (0-5)	SB-13 (9-11)	SB-14 (0-5)	SB-14 (7-9)	SB-14 (9-11)	SB-15 (0-5)	SB-15 (7-9)	SB-15 (9-11)
Date					12/11/2007	12/11/2007	12/11/2007	12/11/2007	12/11/2007	12/11/2007	12/11/2007	12/11/2007
<i>TAL Metals (mg/kg) Method 6010/7471</i>												
Aluminum	SB	---	---	---	1480	7600	2960	2830	3360	4010	3920	4880
Antimony	SB	---	---	---	0.318 U	11.6	4.410	0.255 U	0.299 U	0.345 U	0.274 U	0.270 U
Arsenic	7.5 or SB	13	16	16	1.50	<b>32.3</b>	3.04	1.79	5.80	6.36	3.64	1.61
Barium	300 or SB	350	400	820	137	76.0	220	136	163	284	51.2	29.8
Beryllium	0.16 (HEAST) or	7.2	590	47	0.086 J	<b>8.53</b>	<b>0.223 J</b>	0.100 J	<b>0.234 J</b>	<b>0.261 J</b>	<b>0.208 J</b>	<b>0.236 J</b>
Cadmium	1 or SB	2.5	9	7.5	<b>5.40</b>	<b>7.83</b>	<b>1.07</b>	<b>4.72</b>	<b>2.13</b>	<b>4.22</b>	0.364 J	0.048 U
Calcium	SB	---	---	---	6240	1130	26700	8020	10800	29400	6930	1370
Chromium	10 or SB	1 / 19*	400	19	<b>21.3</b>	<b>29.8</b>	<b>20.4</b>	<b>56.9</b>	<b>27.4</b>	<b>85.0</b>	6.930	8.570
Cobalt	30 or SB	---	---	---	2.580	17.0	4.150	2.820	3.660	7.770 N	2.270 N	3.890 N
Copper	25 or SB	50	270	1720	<b>403</b>	23.7	<b>186</b>	<b>967</b>	<b>187</b>	<b>653</b>	<b>41.5</b>	12.4
Iron	2,000 or SB	---	---	---	<b>10300</b>	<b>13500</b>	<b>8800</b>	<b>9550</b>	<b>11900</b>	<b>31500</b>	<b>5130</b>	<b>8170</b>
Lead	SB *	63	1000	450	281	42.6	<b>2960</b>	269	<b>503</b>	<b>1180</b>	71.0	26.5
Magnesium	SB	---	---	---	997	4870	2200	1050	1550	4070	1250	1250
Manganese	SB	1600	10000	2000	88.3	113	131	99.4	142	275	109	107
Mercury	0.1	0.18	2.8	0.73	<b>5.0 D</b>	<b>5.0 D</b>	<b>4.2 D</b>	<b>4.8 D</b>	<b>2.5 D</b>	<b>3.9 D</b>	<b>0.351</b>	0.090
Nickel	13 or SB	30	310	130	<b>21.5</b>	<b>38.2</b>	<b>19.5</b>	<b>26.4</b>	<b>21.0</b>	<b>86.6 N</b>	7.760 N	8.240 N
Potassium	SB	---	---	---	109 J	5730	484	119 J	413	482	553	626
Selenium	2 or SB	3.9	1500	4	0.168 U	<b>71.1</b>	0.156 U	0.135 U	0.158 U	0.187 U	0.145 U	0.143 U
Silver	SB	2	1500	8.3	0.414 J	2.74	0.369 J	0.721	0.158 U	0.187 U	0.145 U	0.143 U
Sodium	SB	---	---	---	421	241	409	528	466	1070	589	151
Thallium	SB	---	---	---	1.770 U	84.0	1.640 U	1.420 U	1.660 U	1.970 U	1.520 U	1.500 U
Vanadium	150 or SB	---	---	---	3.320	28.9	19.9	4.950	13.2	104	10.4	13.3
Zinc	20 or SB	109	10000	2480	<b>1290</b>	<b>56.2</b>	<b>399</b>	<b>1820</b>	<b>892</b>	<b>3650</b>	<b>176</b>	<b>29.4</b>

**NOTES**

NYSDEC - New York State Department of Environmental Conservation

Sample analysis by Chemtech Laboratories in Mountainside, New Jersey

All units are in milligrams per kilogram (mg/kg) - parts per million (ppm)

Values in **bold** exceed the NYSDEC Recommended Soil Cleanup Objectives

\* = Background levels for Lead vary widely between undeveloped areas and metropolitan areas

SB = Soil Background

U = Analyte not detected

J = The reported value was obtained from a reading that was less than the Contract Required Detection Limit,

but greater than or equal to the Instrument Detection Limit

N = Spiked sample recovery not within control limits

D = The reported value is from a secondary analysis with a dilution factor. The original analysis exceeded the calibration range

OR = Indicates the analyte's concentration exceeds the calibrated range of the instrument for that specific analysis

TABLE 24  
VOLATILE ORGANIC COMPOUNDS (VOCs)  
GROUNDWATER ANALYTICAL RESULTS

FRITO-LAY  
202-218 MORGAN AVENUE  
BROOKLYN, NEW YORK

Compound	NYSDEC Technical and Operational Guidance Series	MW-1	MW-2	MW-3	MW-4	MW-5
Date		12/26/2007	12/26/2007	12/26/2007	12/26/2007	12/26/2007
VOC's ( µg/l ) - EPA Method 8260						
1,1,1,2-Tetrachloroethane	5	5 U	5 U	5 U	5 U	5 U
1,1,1-Trichloroethane	5	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U
1,1,2,2-Tetrachloroethane	5	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U
1,1,2-Trichloroethane	1	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U
1,1-Dichloroethane	5	2.8 J	3.2 J	0.28 U	2.4 J	0.28 U
1,1-Dichloroethene	5	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
1,1-Dichloropropene	5	5 U	5 U	5 U	5 U	5 U
1,2,3-Trichlorobenzene	5	5 U	5 U	5 U	5 U	5 U
1,2,3-Trichloropropane	5	5 U	5 U	5 U	5 U	5 U
1,2,4-Trichlorobenzene (v)	5	5 U	5 U	5 U	5 U	5 U
1,2,4-Trimethylbenzene*	5	5 U	5 U	5 U	5 U	5 U
1,2-Dibromo-3-Chloropropane	5	5 U	5 U	5 U	5 U	5 U
1,2-Dibromoethane	5	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
1,2-Dichlorobenzene (v)	3	0.67 U	0.67 U	0.67 U	0.67 U	0.67 U
1,2-Dichloroethane	0.6	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U
1,2-Dichloropropane	1	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U
1,3,5-Trimethylbenzene*	5	5 U	5 U	5 U	5 U	5 U
1,3-Dichlorobenzene (v)	5	0.65 U	0.65 U	0.65 U	0.65 U	0.65 U
1,3-Dichloropropane	5	5 U	5 U	5 U	5 U	5 U
1,4-Dichlorobenzene (v)	5	0.79 U	0.79 U	0.79 U	0.79 U	0.79 U
2,2-Dichloropropane	5	5 U	5 U	5 U	5 U	5 U
2-Butanone	50	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U
2-Chloroethyl vinyl ether	---	6.2 U	6.2 U	6.2 U	6.2 U	6.2 U
2-Chlorotoluene	5	5 U	5 U	5 U	5 U	5 U
2-Hexanone	50	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U
4-Chlorotoluene	5	5 U	5 U	5 U	5 U	5 U
4-Methyl-2-Pentanone	---	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U
Acetone	50	6.8 U	6.8 U	6.8 U	6.8 U	6.8 U
Acrolein	5	3.6 U	3.6 U	3.6 U	3.6 U	3.6 U
Acrylonitrile	5	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U
Benzene*	0.7	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U
Bromobenzene	5	5 U	5 U	5 U	5 U	5 U
Bromodichloromethane	50	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Bromoform	50	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U
Bromomethane	5	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U
Carbon Disulfide	---	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U
Carbon Tetrachloride	5	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U
Chlorobenzene	5	0.47 U	0.47 U	0.47 U	0.47 U	0.47 U
Chloroethane	50	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U
Chloroform	7	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
Chloromethane	5	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U
cis-1,2 Dichloroethene	5	0.28 U	<b>12</b>	0.28 U	0.28 U	0.28 U
cis-1,3 Dichloropropene	0.4**	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U
Dibromochloropropane	0.04	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U
Dibromomethane	5	5 U	5 U	5 U	5 U	5 U
Dichlorodifluoromethane	5	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U
Ethyl Benzene*	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Hexachlorobutadiene	0.5	5 U	5 U	5 U	5 U	5 U
Isopropylbenzene*	5	5 U	5 U	5 U	5 U	5 U
m+p Xylene	5	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U
Methyl tert-butyl Ether*	10	0.23 U	5.9	4.8 J J	<b>12</b>	<b>28</b>
Methylene Chloride	5	0.98 U	0.98 U	0.98 U	0.98 U	0.98 U
Naphthalene*	10	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U
n-Butylbenzene*	5	5 U	5 U	5 U	5 U	5 U
n-Propylbenzene*	5	5 U	5 U	5 U	5 U	5 U
o Xylene	5	0.47 U	0.47 U	0.47 U	0.47 U	0.47 U
sec- Butylbenzene*	5	5 U	5 U	5 U	5 U	5 U
Styrene	5	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U
tert- Butylbenzene*	5	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U
Tetrachloroethene	5	5 U	5 U	5 U	5 U	5 U
Toluene*	5	0.74 U	0.74 U	0.74 U	0.74 U	0.74 U
trans-1,2-Dichloroethene	5	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U
trans-1,3 Dichloropropene	0.4**	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
Trichloroethene	5	0.59 U	0.59 U	0.59 U	0.59 U	0.59 U
Trichlorofluoromethane	5	0.58 U	0.58 U	0.58 U	0.58 U	0.58 U
Vinyl Acetate	---	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U
Vinyl Chloride	2	<b>12</b>	<b>13</b>	0.62 U	0.62 U	0.62 U

NOTES:  
NYSDEC - New York State Department of Environmental Conservation  
\*- Compound is on the NYSDEC Spill Technology and Remediation Series (STARS) list  
\*\*-Applies to the sum of cis- and trans-1,3-dichloropropene  
--- - No standard available  
Samples analysis by Chemtech Laboratories of Mountainside, NJ  
Values in **bold** exceed the NYSDEC Guidance Values  
All units are micrograms per liter (µg/l)- parts per billion (ppb)  
U = Not Detected  
D = Diluted Sample  
J = Estimated Value



TABLE 25  
SEMI VOLATILE ORGANIC COMPOUNDS (SVOCs)  
GROUNDWATER ANALYTICAL RESULTS

FRITO-LAY  
202-218 MORGAN AVENUE  
BROOKLYN, NEW YORK

Compound	NYSDEC Technical and Operational Guidance Series	MW-1	MW-2	MW-3	MW-4	MW-5
Date		12/26/2007	12/26/2007	12/26/2007	12/26/2007	12/26/2007
SVOC's ( µg/l ) - EPA Method 8270						
2,2-oxybis(1-Chloropropane)	--	0.45 U	0.45 U	0.47 U	0.46 U	0.42 U
2,4,5-Trichlorophenol	1**	0.71 U	0.71 U	0.75 U	0.72 U	0.67 U
2,4,6-Trichlorophenol	1**	0.38 U	0.38 U	0.4 U	0.39 U	0.36 U
2,4-Dichlorophenol	1**	0.48 U	0.48 U	0.51 U	0.49 U	0.45 U
2,4-Dimethylphenol	50	0.56 U	0.56 U	0.59 U	0.57 U	0.53 U
2,4-Dinitrophenol	10	0.84 U	0.84 U	0.87 U	0.84 U	0.78 U
2,4-Dinitrotoluene	5	0.48 U	0.48 U	0.51 U	0.49 U	0.45 U
2,6-Dinitrotoluene	5	0.45 U	0.45 U	0.47 U	0.46 U	0.42 U
2-Chloronaphthalene	10	0.47 U	0.47 U	0.49 U	0.48 U	0.44 U
2-Chlorophenol	1**	0.53 U	0.53 U	0.55 U	0.53 U	0.49 U
2-Methylnaphthalene	--	0.46 U	0.46 U	0.48 U	0.47 U	0.43 U
2-Methylphenol	1**	0.46 U	0.46 U	0.48 U	0.47 U	0.43 U
2-Nitroaniline	5	0.38 U	0.38 U	0.4 U	0.39 U	0.36 U
2-Nitrophenol	1**	0.57 U	0.57 U	0.6 U	0.58 U	0.54 U
3,3-Dichlorobenzidine	--	1 U	1 U	1 U	1 U	0.94 U
3+4-Methylphenols	1**	0.43 U	0.43 U	0.45 U	0.43 U	0.4 U
3-Nitroaniline	5	0.73 U	0.73 U	0.76 U	0.73 U	0.68 U
4,6-Dinitro-2-methylphenol	1**	0.76 U	0.76 U	0.79 U	0.77 U	0.71 U
4-Bromophenyl-phenylether	--	0.56 U	0.56 U	0.59 U	0.57 U	0.53 U
4-Chloro-3-methylphenol	1**	0.55 U	0.55 U	0.57 U	0.56 U	0.52 U
4-Chloroaniline	5	0.55 U	0.55 U	0.57 U	0.56 U	0.52 U
4-Chlorophenyl-phenylether	--	0.57 U	0.57 U	0.6 U	0.58 U	0.54 U
4-Nitroaniline	5	0.63 U	0.63 U	0.66 U	0.63 U	0.59 U
4-Nitrophenol	1**	0.38 U	0.38 U	0.4 U	0.39 U	0.36 U
Acenaphthene*	20	0.53 U	0.53 U	0.55 U	0.62 U	0.49 U
Acenaphthylene*	--	0.54 U	0.54 U	0.56 U	0.54 U	0.51 U
Anthracene*	50	0.51 U	0.51 U	0.53 U	0.51 U	0.47 U
Azobenzene	5	0.51 U	0.51 U	0.53 U	0.51 U	0.47 U
Benzo (a)anthracene*	0.002	0.57 U	0.57 U	0.6 U	0.58 U	0.54 U
Benzo (a)pyrene*	0.002	0.52 U	0.52 U	0.54 U	0.52 U	0.48 U
Benzo (b)fluoranthene*	0.002	0.66 U	0.66 U	0.69 U	0.67 U	0.62 U
Benzo (ghi) perylene*	--	0.68 U	0.68 U	0.71 U	0.69 U	0.64 U
Benzo (k)fluoranthene*	0.002	0.59 U	0.59 U	0.62 U	0.6 U	0.56 U
Benzoic Acid	--	0.35 U	0.35 U	0.37 U	0.36 U	0.33 U
Benzyl Alcohol	--	0.47 U	0.47 U	0.49 U	0.48 U	0.44 U
Bis(2-chloroethoxy)methane	5	0.56 U	0.56 U	0.59 U	0.57 U	0.53 U
Bis(2-chloroethyl)ether	1	0.59 U	0.59 U	0.62 U	0.6 U	0.56 U
Bis(2-ethylhexyl)phthalate	5	0.6 U	0.6 U	0.63 U	0.61 U	0.61 U
Butylbenzylphthalate	50	0.67 U	0.67 U	0.7 U	0.68 U	0.63 U
Chrysene*	0.002	0.67 U	0.67 U	0.7 U	0.68 U	0.63 U
Dibenzo (a,h) anthracene*	--	0.91 U	0.91 U	0.95 U	0.92 U	0.86 U
Dibenzofuran	--	0.52 U	0.52 U	0.54 U	0.52 U	0.48 U
Diethylphthalate	50	0.49 U	2.1 J	0.52 U	0.5 U	0.46 U
Dimethylphthalate	50	0.44 U	0.44 U	0.46 U	0.44 U	0.41 U
Di-n-Butylphthalate	50	0.56 U	0.56 U	0.59 U	0.57 U	0.53 U
Di-n-octylphthalate	50	0.3 U	0.3 U	0.31 U	0.3 U	0.28 U
Fluoranthene*	50	0.46 U	0.46 U	0.48 U	0.47 U	0.43 U
Fluorene*	50	0.44 U	0.44 U	0.46 U	0.44 U	0.41 U
Hexachlorobenzene	0.04	0.54 U	0.54 U	0.56 U	0.54 U	0.51 U
Hexachlorobutadiene	0.5	0.34 U	0.34 U	0.36 U	0.34 U	0.32 U
Hexachlorocyclopentadiene	5	0.31 U	0.31 U	0.32 U	0.31 U	0.29 U
Hexachloroethane	5	0.42 U	0.42 U	0.44 U	0.42 U	0.39 U
Indeno (1,2,3-cd) pyrene*	0.002	0.54 U	0.54 U	0.56 U	0.54 U	0.51 U
Isophorone	50	0.58 U	0.58 U	0.61 U	0.59 U	0.55 U
Naphthalene*	10	0.63 J	0.45 U	0.47 U	0.46 U	0.42 U
Nitrobenzene	0.4	0.59 U	0.59 U	0.62 U	0.6 U	0.56 U
N-Nitrosodi-n-propylamine	--	0.56 U	0.56 U	0.59 U	0.57 U	0.53 U
N-Nitrosodiphenylamine	50	1.1 U	1.1 U	1.1 U	1.1 U	0.99 U
Pentachlorophenol (ms)	1**	0.76 U	0.76 U	0.79 U	0.77 U	0.71 U
Phenanthrene*	50	0.89 J	0.52 U	0.54 U	0.52 U	0.48 U
Phenol	1**	0.14 U	0.14 U	0.15 U	0.14 U	0.13 U
Pyrene*	50	0.65 U	0.65 U	0.68 U	0.66 U	0.61 U

NOTES:  
NYSDEC - New York State Department of Environmental Conservation  
\*- Compound is on the NYSDEC Spill Technology and Remediation Series (STARS) list  
\*\*- Guidance Value applies to the sum of all phenols (total phenols)  
--- - No standard available  
Samples analysis by Chemtech Laboratories of Mountainside, NJ  
Values in **bold** exceed the NYSDEC Guidance Values  
All units are micrograms per liter (ug/l)- parts per billion (ppb)  
U = Not Detected  
D = Diluted Sample  
J = Estimated Value

**TABLE 26**  
**TAL METALS**  
**GROUNDWATER ANALYTICAL RESULTS**  
**FRITO-LAY**  
**202-218 MORGAN AVENUE**  
**BROOKLYN, NEW YORK**

Compound	NYSDEC Technical and Operational Guidance Series	MW-1	MW-2	MW-3	MW-4	MW-5
Date		12/26/2007	12/26/2007	12/26/2007	12/26/2007	12/26/2007
<i>TAL Metals (µg/l) Method 200.7</i>						
Aluminum	100	<b>129</b>	<b>244</b>	<b>485</b>	<b>251</b>	<b>239</b>
Antimony	3	8.1 U	8.1 U	8.1 U	<b>15.6 J</b>	8.1 U
Arsenic	25	2.8 U	3.5 J	2.8 U	2.8 U	5 J
Barium	1,000	63.1	88.2 U	143	55.5	108
Beryllium	3	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Cadmium	5	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U
Calcium	NS	103,000	72,100	131,000	311,000	185,000
Chromium	50	3.9 J	1.5 J	2.4 J	5.2	2.2 J
Cobalt	NS	2 U	2 U	2 U	3.6 J	2 U
Copper	200	3.4 U	3.4 U	5.9 J	10.7	4.6 J
Iron	300	<b>723</b>	<b>1,790</b>	<b>1,020</b>	<b>528</b>	<b>412</b>
Lead	25	2.2 U	2.2 U	11.7	<b>25.2</b>	6.6 J
Magnesium	35,000	17,500	21,700	18,800	<b>62,400</b>	30,100
Manganese	300	<b>1,820</b>	<b>449</b>	<b>1,320</b>	155	<b>360</b>
Mercury	0.7	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U
Nickel	100	22.9	3.6 U	7.6 J	7.7 J	11.2 J
Potassium	NS	16,200	20,200	24,700	69,600	42,400
Selenium	10	3.6 U	4.9 J	3.6 U	3.6 U	3.6 U
Silver	50	2.2 U	2.2 U	2.2 U	4.3 J	2.2 U
Sodium	20,000	<b>171,000</b>	<b>175,000</b>	<b>203,000</b>	<b>182,000</b>	<b>165,000</b>
Thallium	0.5	<b>9.7 J</b>	8.1 U	<b>11.7 J</b>	8.1 U	8.1 U
Vanadium	NS	2.3 U	2.3 U	3.3 U	4.5 J	4.5 J
Zinc	2000	36.3	36.9	52.4	104	55.9

**NOTES:**

NYSDEC - New York State Department of Environmental Conservation

NS - No Standard

Samples analysis by Chemtech Laboratories of Mountainside, NJ

Values in **bold** exceed the NYSDEC Guidance Values

All units are micrograms per liter (µg/l)- parts per billion (ppb)

U = Not Detected

D = Diluted Sample

J = Estimated Value

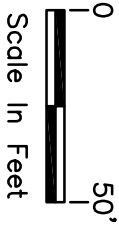
## **FIGURES**





## LOCATION MAP

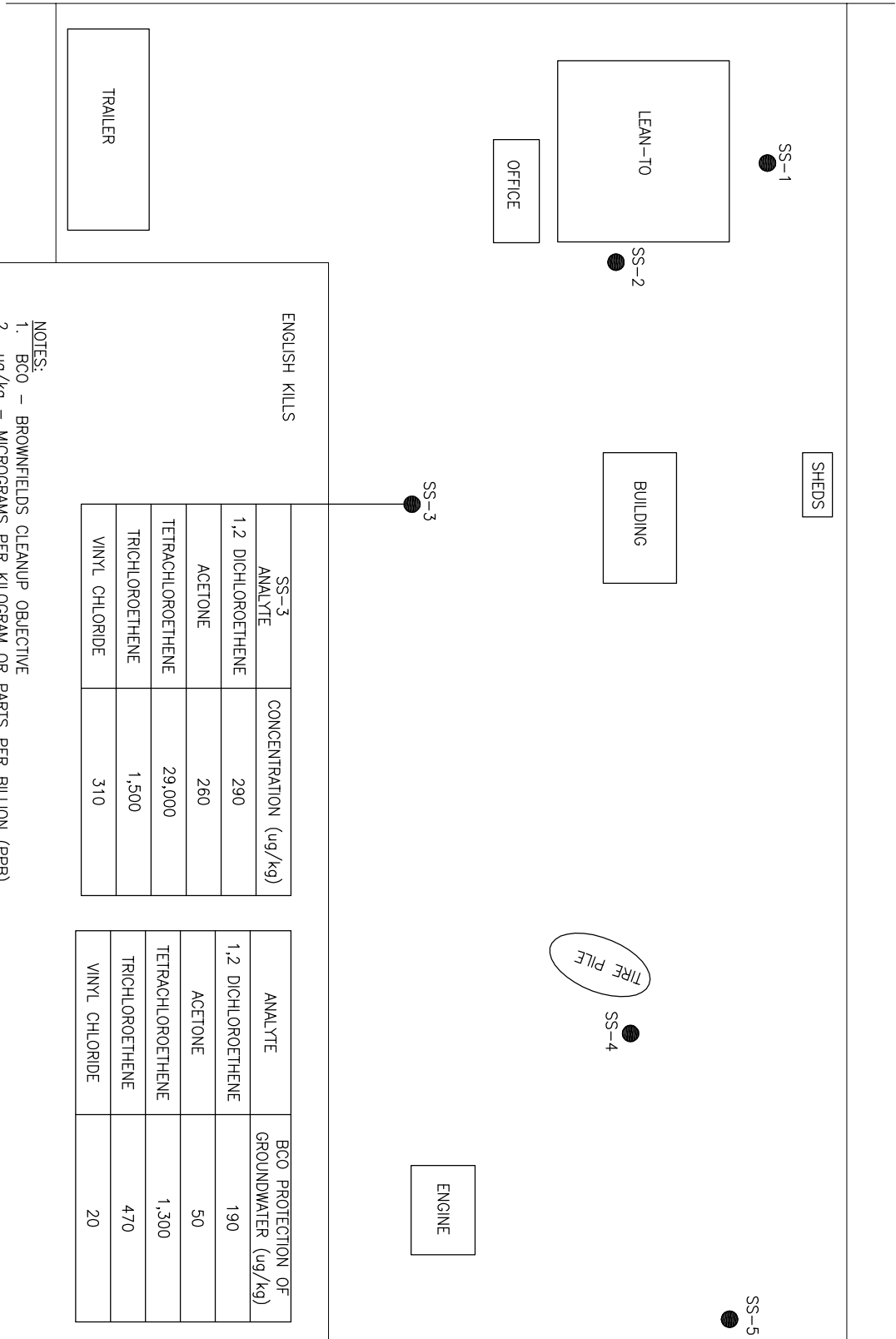




FRITO LAY  
202-218 MORGAN AVENUE, BROOKLYN, NEW YORK



MORGAN AVENUE



- NOTES:
- 1. BCO – BROWNFIELDS CLEANUP OBJECTIVE
  - 2. ug/kg – MICROGRAMS PER KILOGRAM OR PARTS PER BILLION (PPB)
  - 3. SAMPLES COLLECTED ON OCTOBER 30-31, 2003
  - 4. BCO FOR 1,2 DICHLOROETHENE IS THE BCO FOR TRANS-1,2 DICHLOROETHENE

LEGEND

SS-1 ● SURFICAL SOIL SAMPLE

SURFICIAL SOIL ANALYTICAL EXCEEDANCES OF THE BROWNFIELDS PROTECTION OF GROUNDWATER CLEANUP OBJECTIVES FOR VOLATILE ORGANIC COMPOUNDS (VOCs)

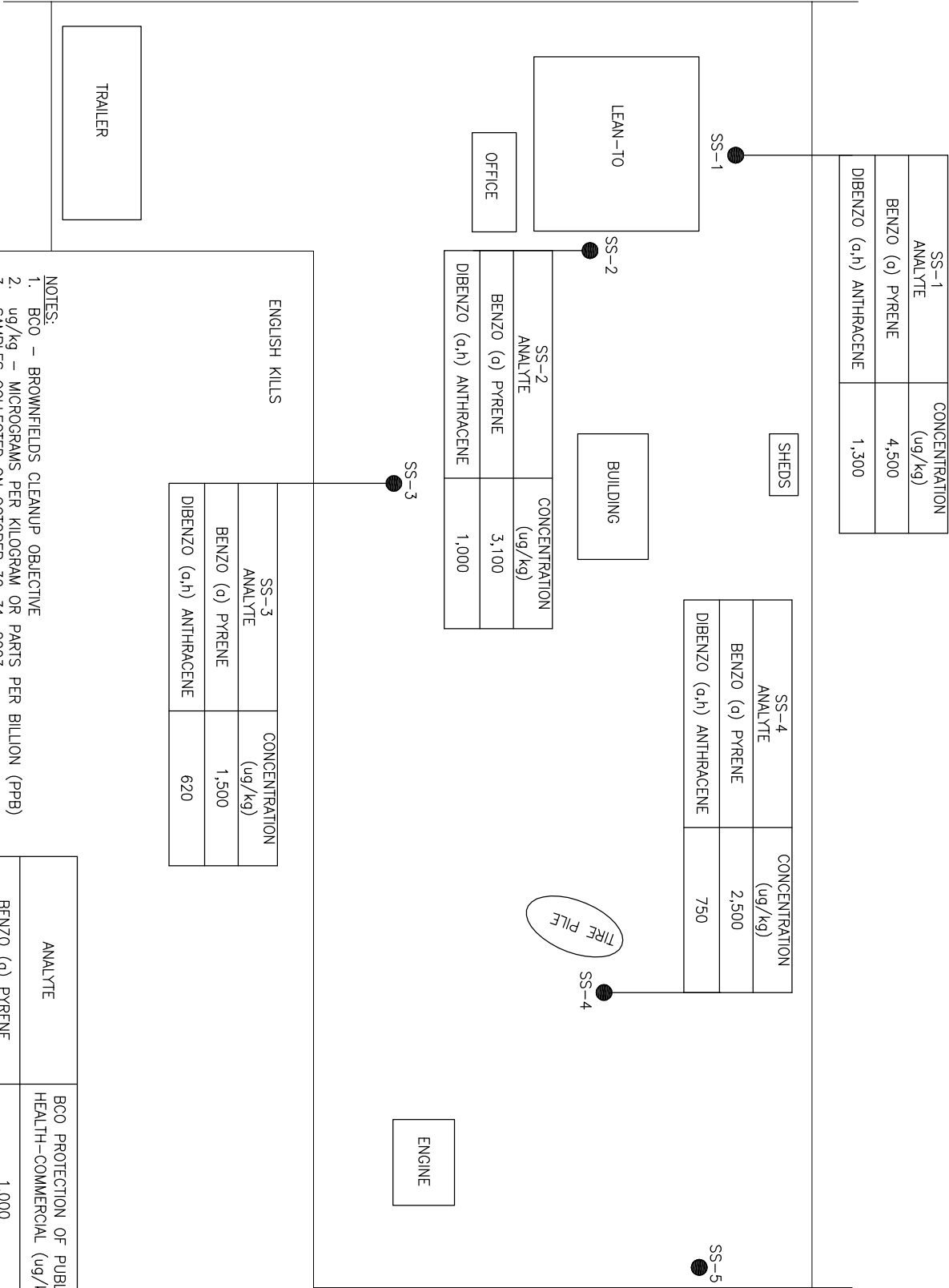
FRITO-LAY, INC.

NOT TO SCALE

ENGLISH KILLS



MORGAN AVENUE



SURFICIAL SOIL ANALYTICAL EXCEEDANCES OF THE BROWNFIELDS PROTECTION OF PUBLIC HEALTH-COMMERCIAL CLEANUP OBJECTIVES FOR SEMI-VOLATILE ORGANIC COMPOUNDS (SVOCs)

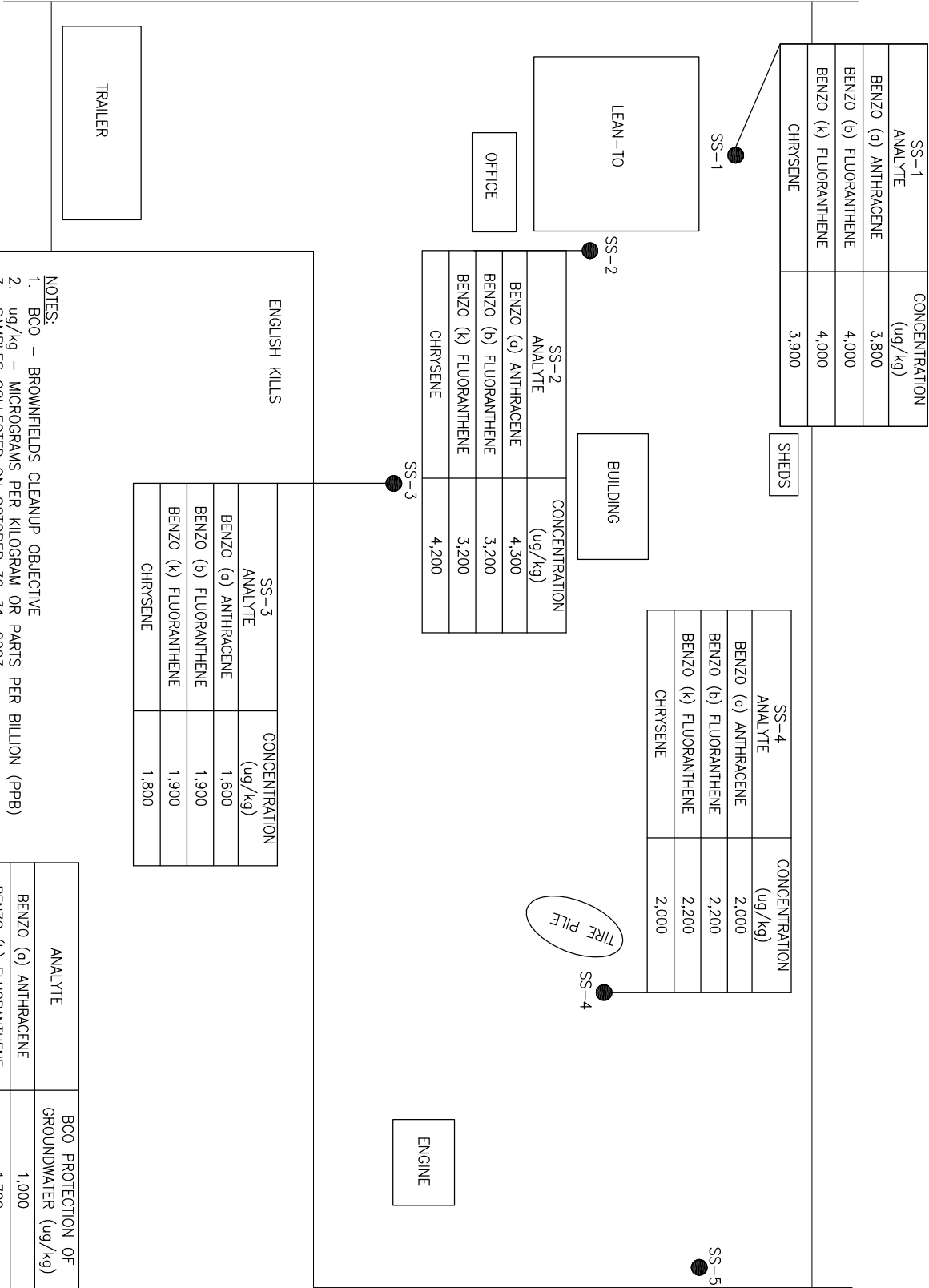
NOT TO SCALE

FRITO-LAY, INC.  
202-218 MORGAN AVENUE, BROOKLYN, NEW YORK





MORGAN AVENUE



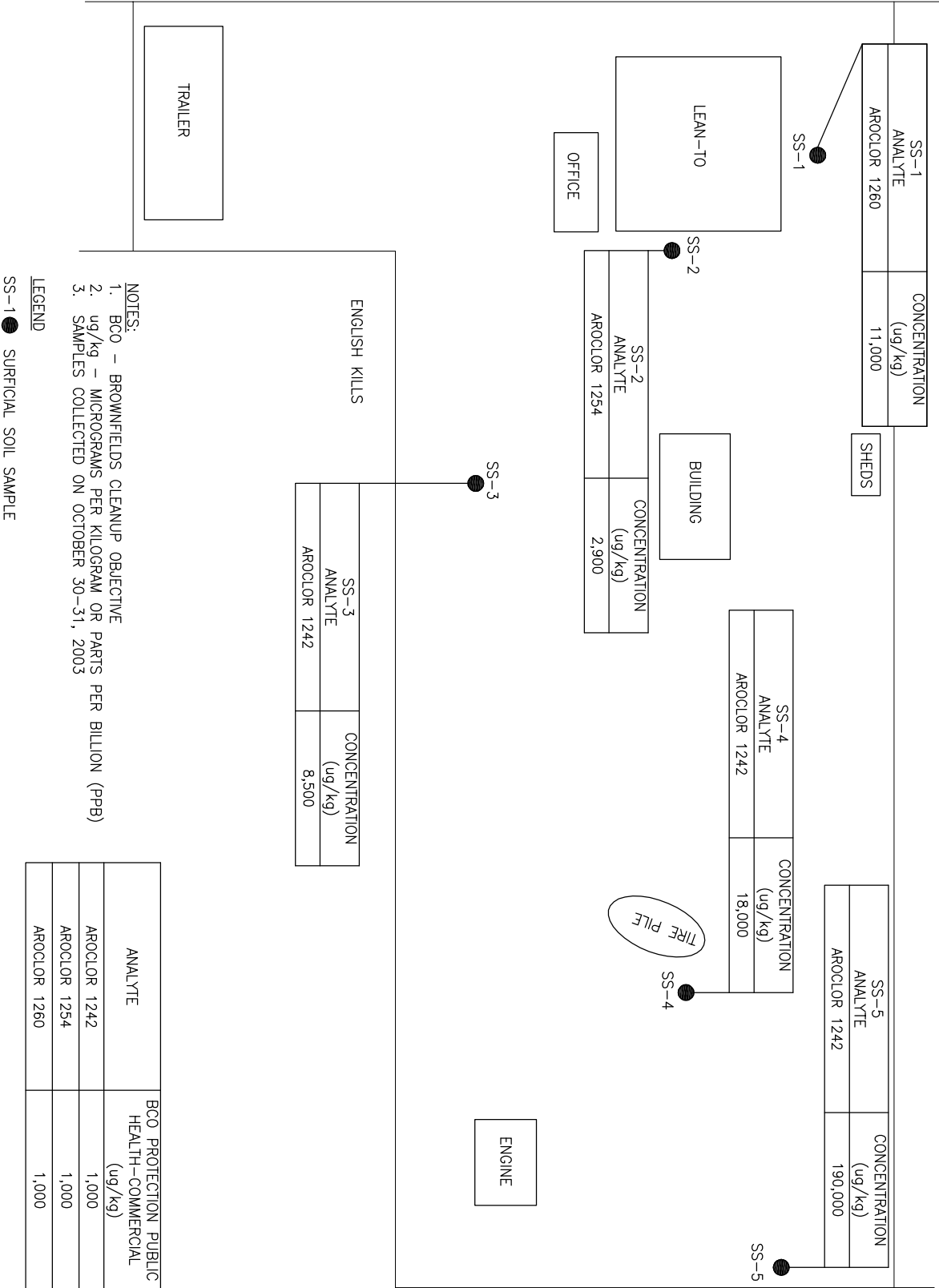
SURFICIAL SOIL ANALYTICAL EXCEEDANCES OF THE BROWNFIELDS PROTECTION OF GROUNDWATER CLEANUP OBJECTIVES FOR SEMI-VOLATILE ORGANIC COMPOUNDS (SVOCs)

NOT TO SCALE

FRITO-LAY, INC.  
202–218 MORGAN AVENUE, BROOKLYN, NEW YORK



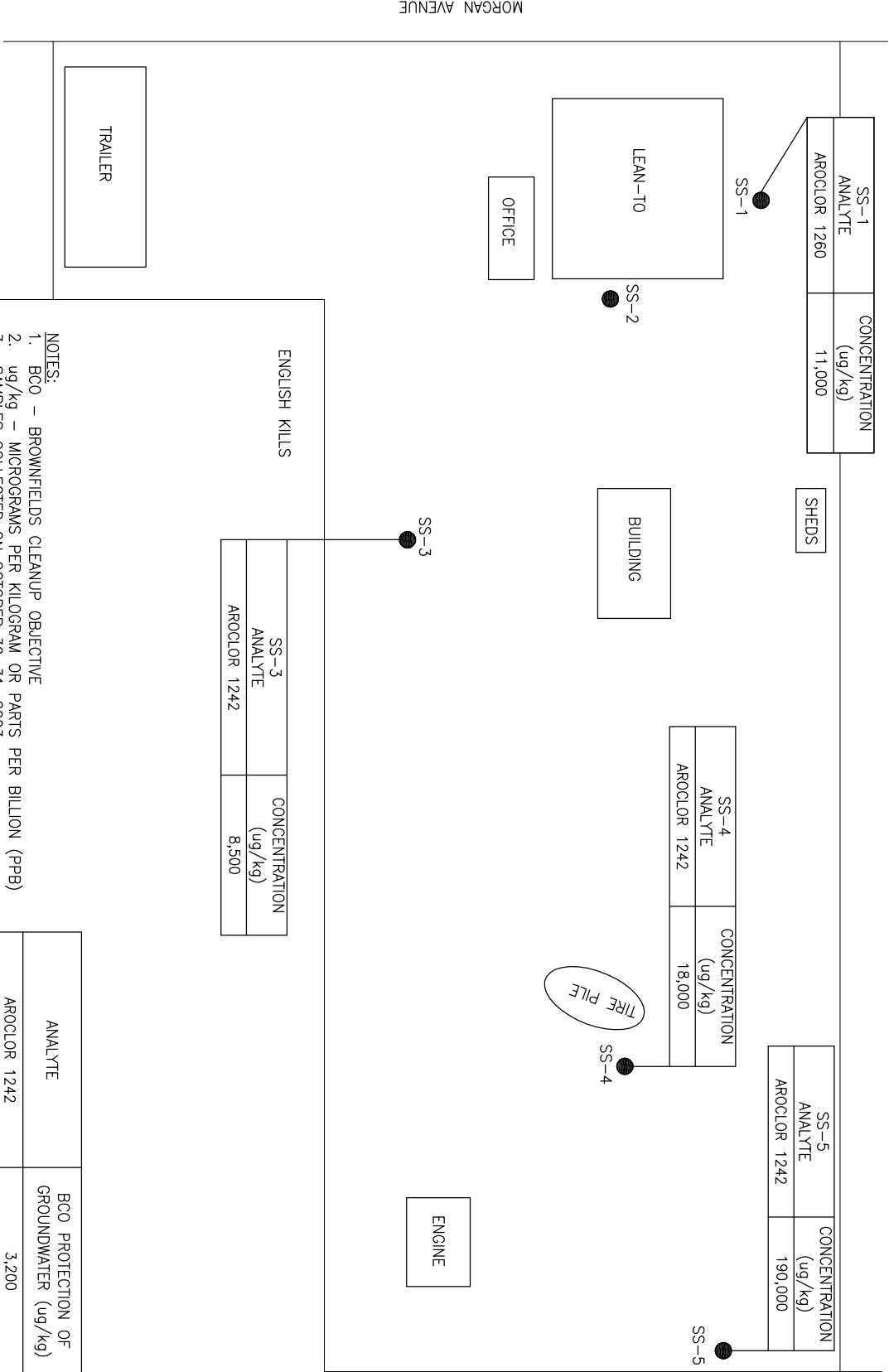
MORGAN AVENUE



SURFICIAL SOIL ANALYTICAL EXCEEDANCES OF THE BROWNFIELDS PROTECTION OF PUBLIC HEALTH – COMMERCIAL CLEANUP OBJECTIVES FOR POLYCHLORINATED BIPHENYLS (PCBs)

NOT TO SCALE

FRITO-LAY, INC.  
202–218 MORGAN AVENUE, BROOKLYN, NEW YORK



MORGAN AVENUE

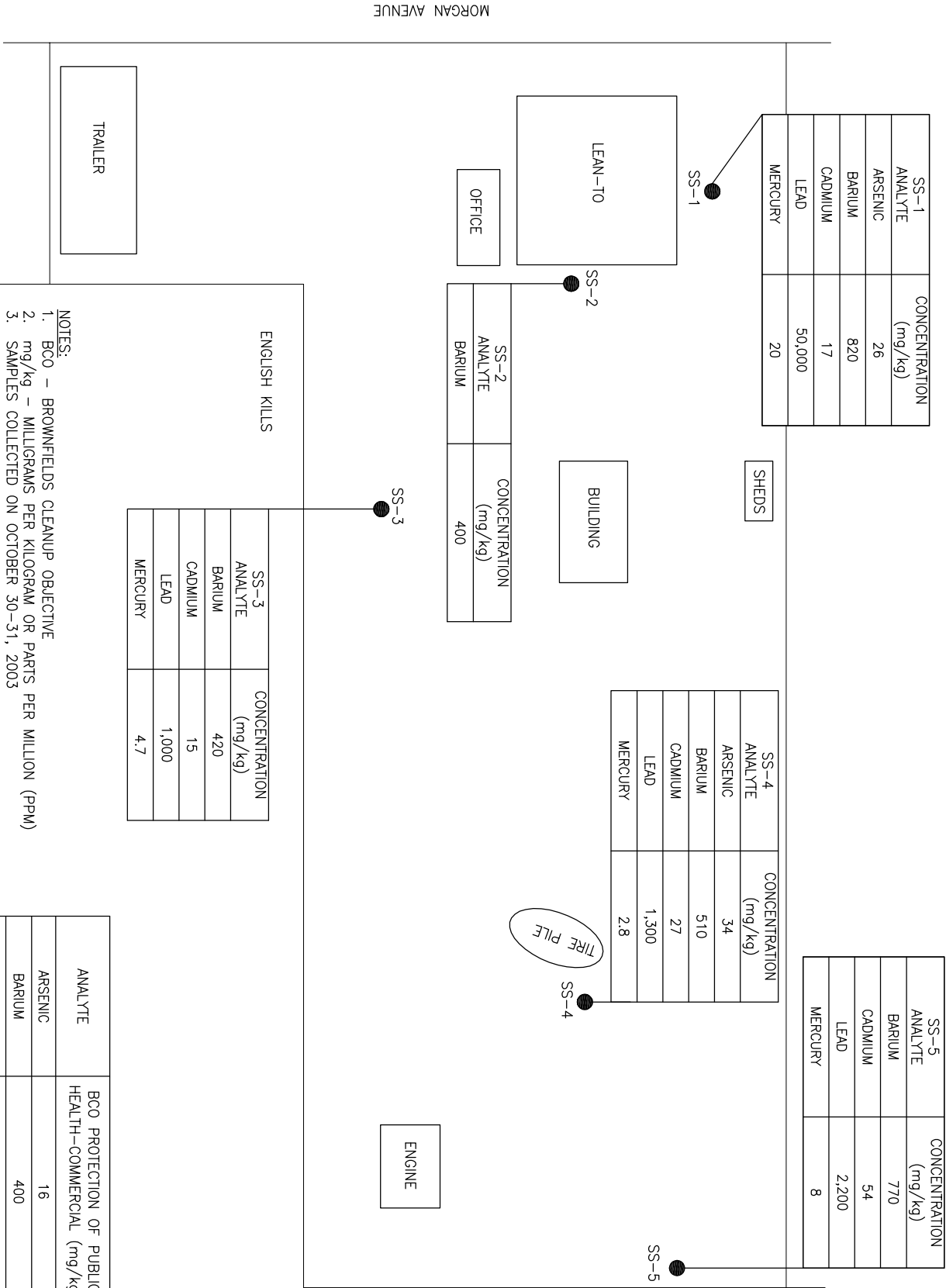
ENGLISH KILLS

**SURFICIAL SOIL ANALYTICAL EXCEEDANCES OF THE BROWNFIELDS PROTECTION OF GROUNDWATER CLEANUP OBJECTIVES FOR POLYCHLORINATED BIPHENYLS (PCBS)**

FRITO-LAY, INC.

NOT TO SCALE

202-218 MORGAN AVENUE, BROOKLYN, NEW YORK



MORGAN AVENUE

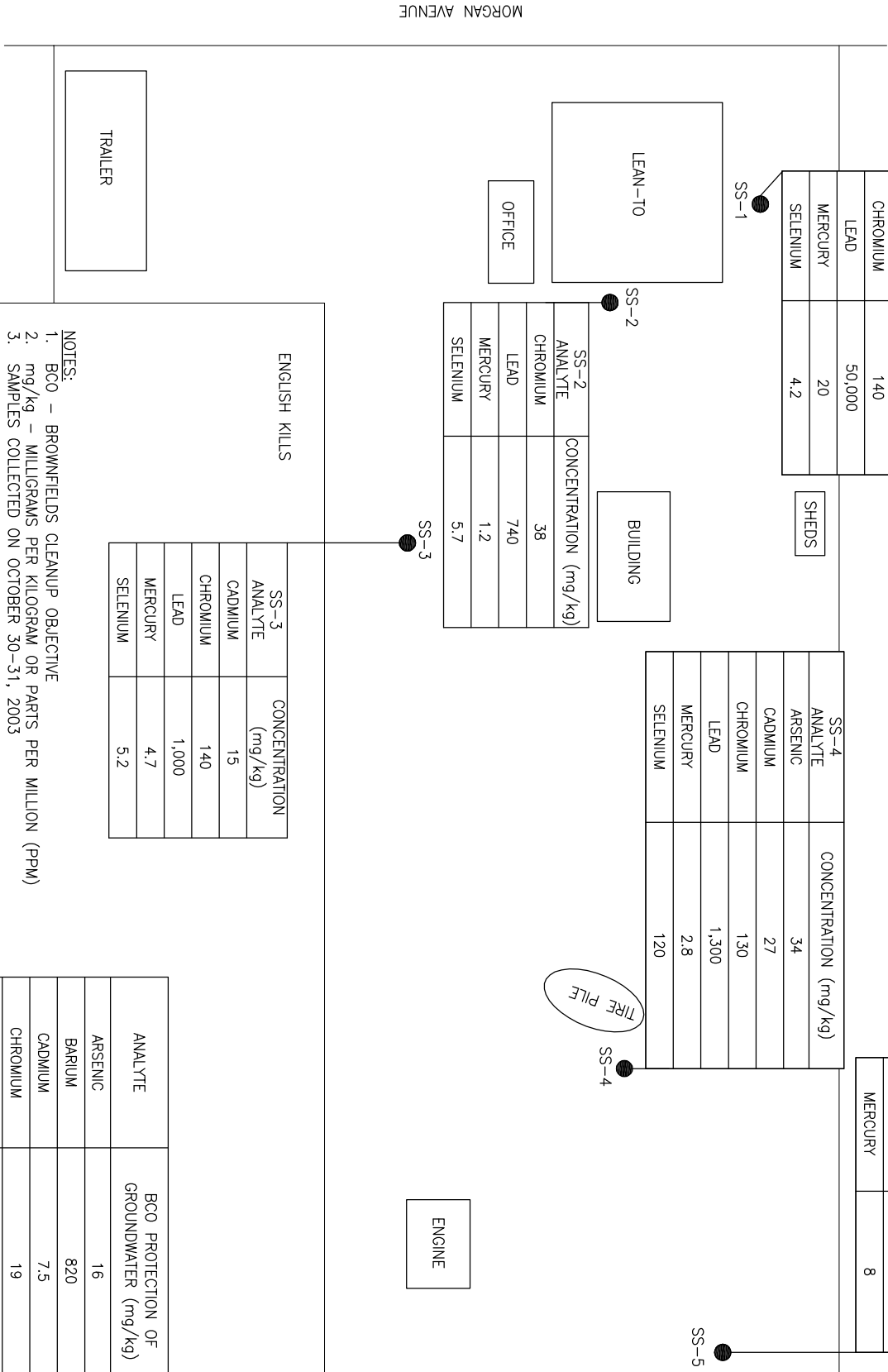
ENGLISH KILLS

SURFICIAL SOIL ANALYTICAL EXCEEDANCES OF THE BROWNFIELDS PROTECTION OF PUBLIC HEALTH – COMMERCIAL CLEANUP OBJECTIVES FOR METALS

FRITO-LAY, INC.

NOT TO SCALE

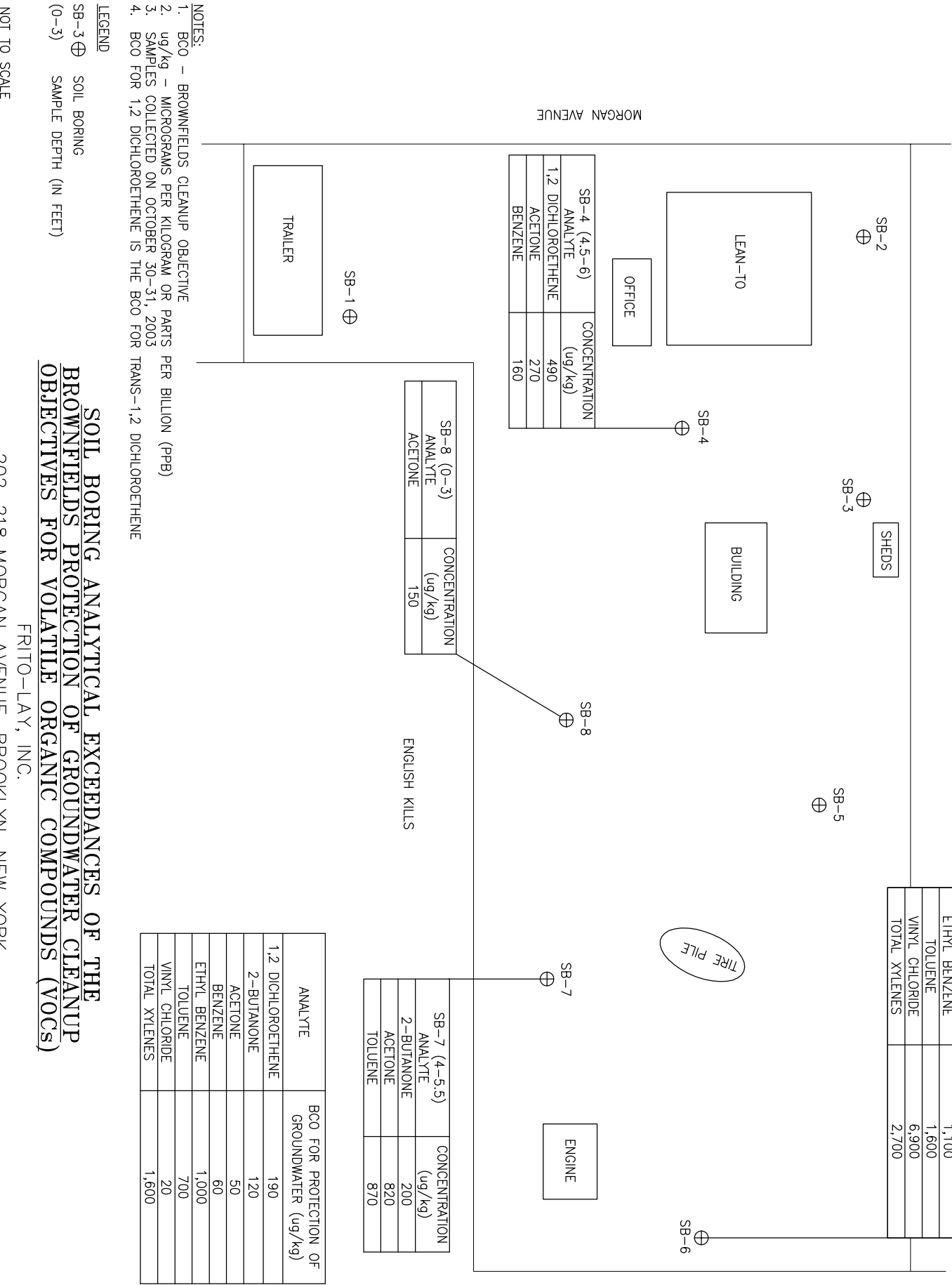
202–218 MORGAN AVENUE, BROOKLYN, NEW YORK

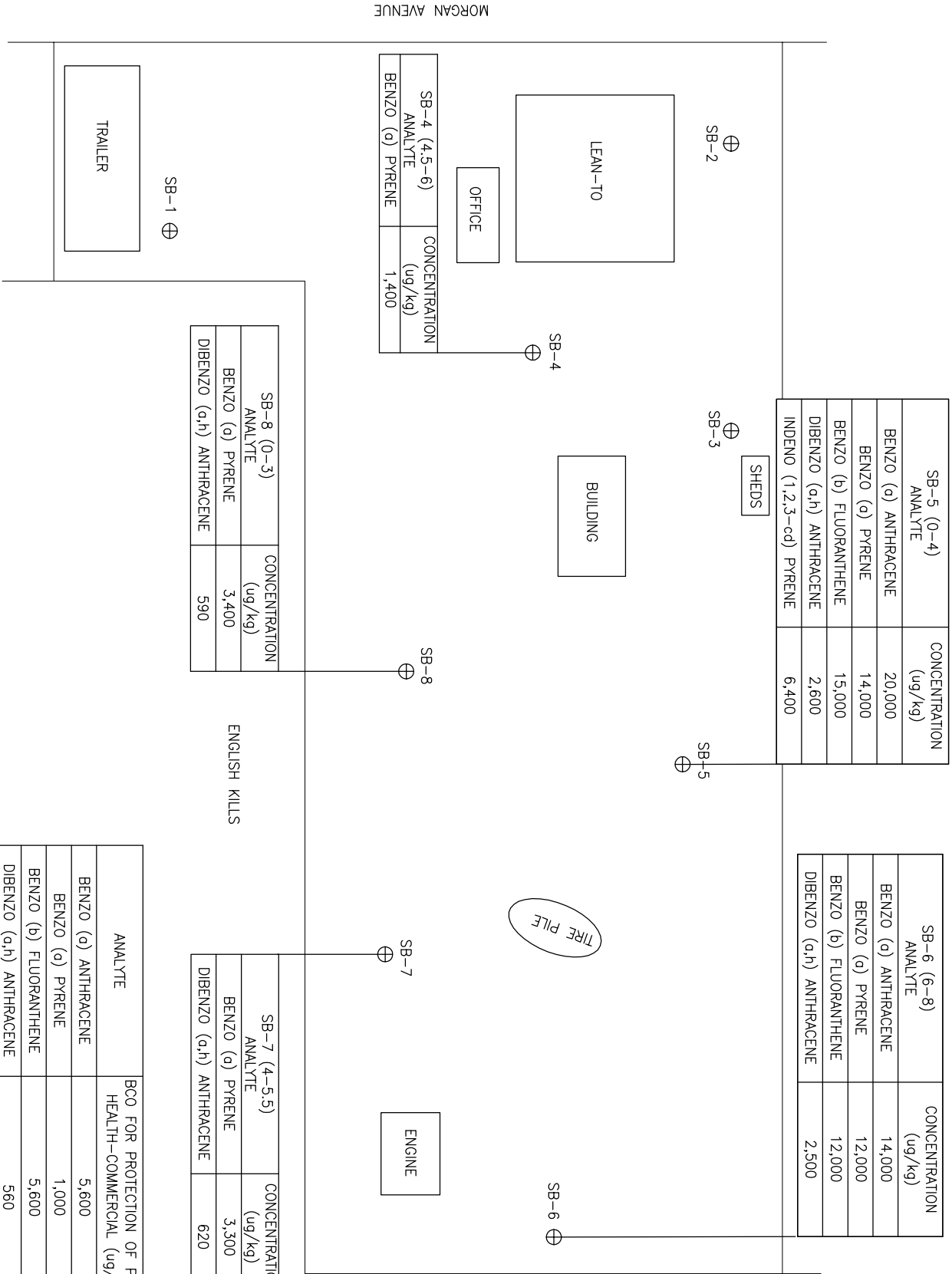


MORGAN AVENUE

ENGLISH KILLS

SURFICIAL SOIL ANALYTICAL EXCEEDANCES OF THE BROWNFIELDS PROTECTION OF GROUNDWATER CLEANUP OBJECTIVES FOR METALS





- NOTES:
1. BCO – BROWNFIELDS CLEANUP OBJECTIVE
  2. ug/kg – MICROGRAMS PER KILOGRAM OR PARTS PER BILLION (PPB)
  3. SAMPLES COLLECTED ON OCTOBER 30-31, 2003

LEGEND

SB-3 ⊕ SOIL BORING

(0-3) SAMPLE DEPTH (IN FEET)

SOIL BORING ANALYTICAL EXCEEDANCES OF THE  
BROWNFIELDS PROTECTION OF PUBLIC HEALTH – COMMERCIAL  
CLEANUP OBJECTIVES FOR SEMI-VOLATILE ORGANIC COMPOUNDS (SVOCs)

FRITO-LAY, INC.

NOT TO SCALE

202-218 MORGAN AVENUE, BROOKLYN, NEW YORK



SB-5 (0-4)		CONCENTRATION (ug/kg)			
ANALYTE					
BENZO (a) ANTHRACENE		20,000			
BENZO (b) FLUORANTHENE		15,000			
BENZO (k) FLUORANTHENE		15,000			
CHRYSENE		17,000			

SB-6 (6-8)		CONCENTRATION (ug/kg)	
ANALYTE			
BENZO (a) ANTHRACENE		14,000	
BENZO (b) FLUORANTHENE		12,000	
BENZO (k) FLUORANTHENE		12,000	
CHRYSENE		13,000	

SHEDS

BUILDING

LEAN-TO

OFFICE

ENGINE

TIRE PILE

SB-4 (4.5-6)		CONCENTRATION (ug/kg)	
ANALYTE			
BENZO (a) ANTHRACENE		1,500	
CHRYSENE		1,800	

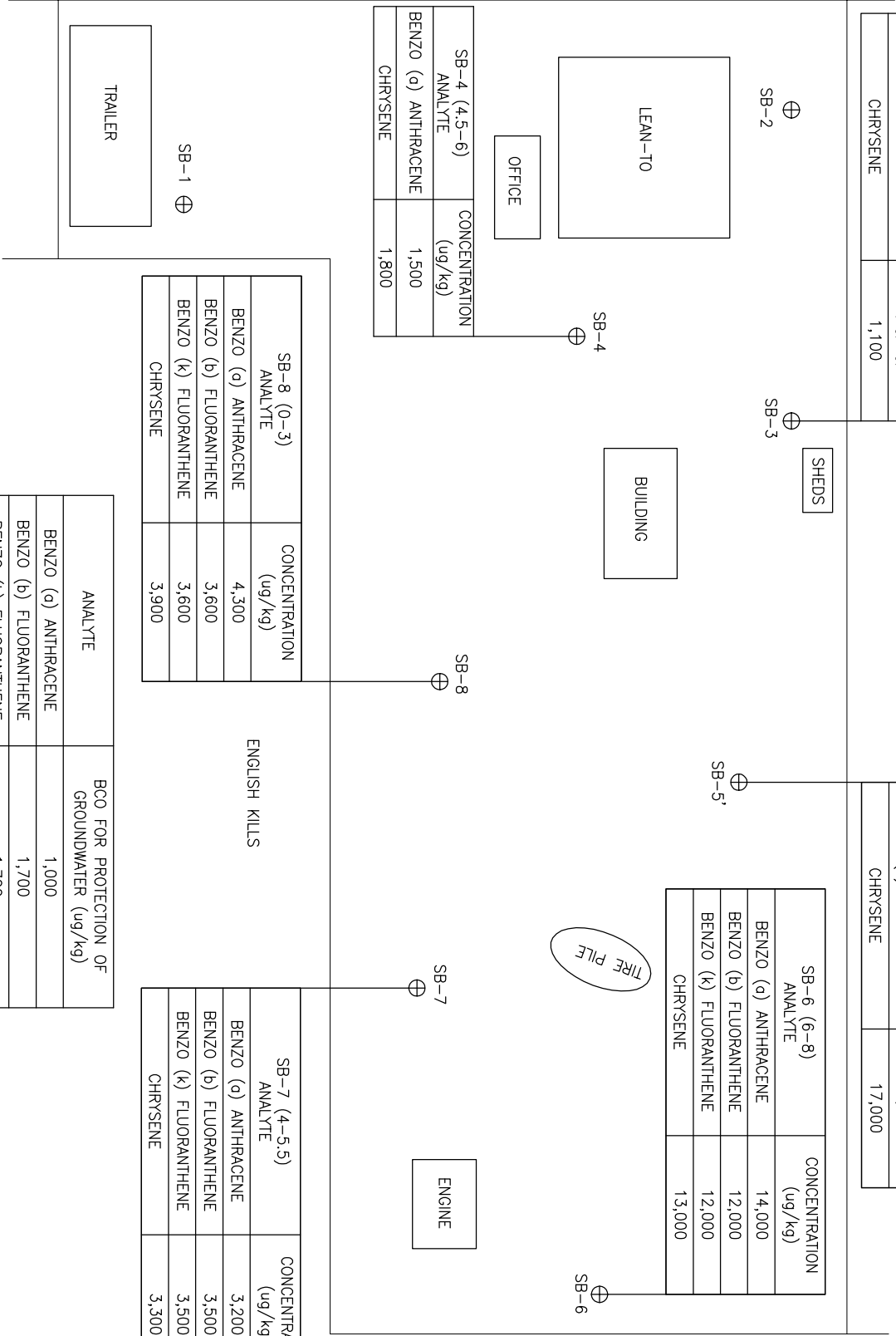
SB-8 (0-3)		CONCENTRATION (ug/kg)	
ANALYTE			
BENZO (a) ANTHRACENE		4,300	
BENZO (b) FLUORANTHENE		3,600	
BENZO (k) FLUORANTHENE		3,600	
CHRYSENE		3,900	

SB-7 (4-5.5)		CONCENTRATION (ug/kg)	
ANALYTE			
BENZO (a) ANTHRACENE		3,200	
BENZO (b) FLUORANTHENE		3,500	
BENZO (k) FLUORANTHENE		3,500	
CHRYSENE		3,300	

TRAILER

ANALYTE		BCO FOR PROTECTION OF GROUNDWATER (ug/kg)	
BENZO (a) ANTHRACENE		1,000	
BENZO (b) FLUORANTHENE		1,700	
BENZO (k) FLUORANTHENE		1,700	
CHRYSENE		1,000	

SB-3 (7-9.5)		CONCENTRATION (ug/kg)	
ANALYTE			
CHRYSENE		1,100	



- NOTES:
- 1. BCO – BROWNFIELDS CLEANUP OBJECTIVE
  - 2. ug/kg – MICROGRAMS PER KILOGRAM OR PARTS PER BILLION (PPB)
  - 3. SAMPLES COLLECTED ON OCTOBER 30-31, 2003

LEGEND

SB-3 ⊕ SOIL BORING

(0-3) SAMPLE DEPTH (IN FEET)

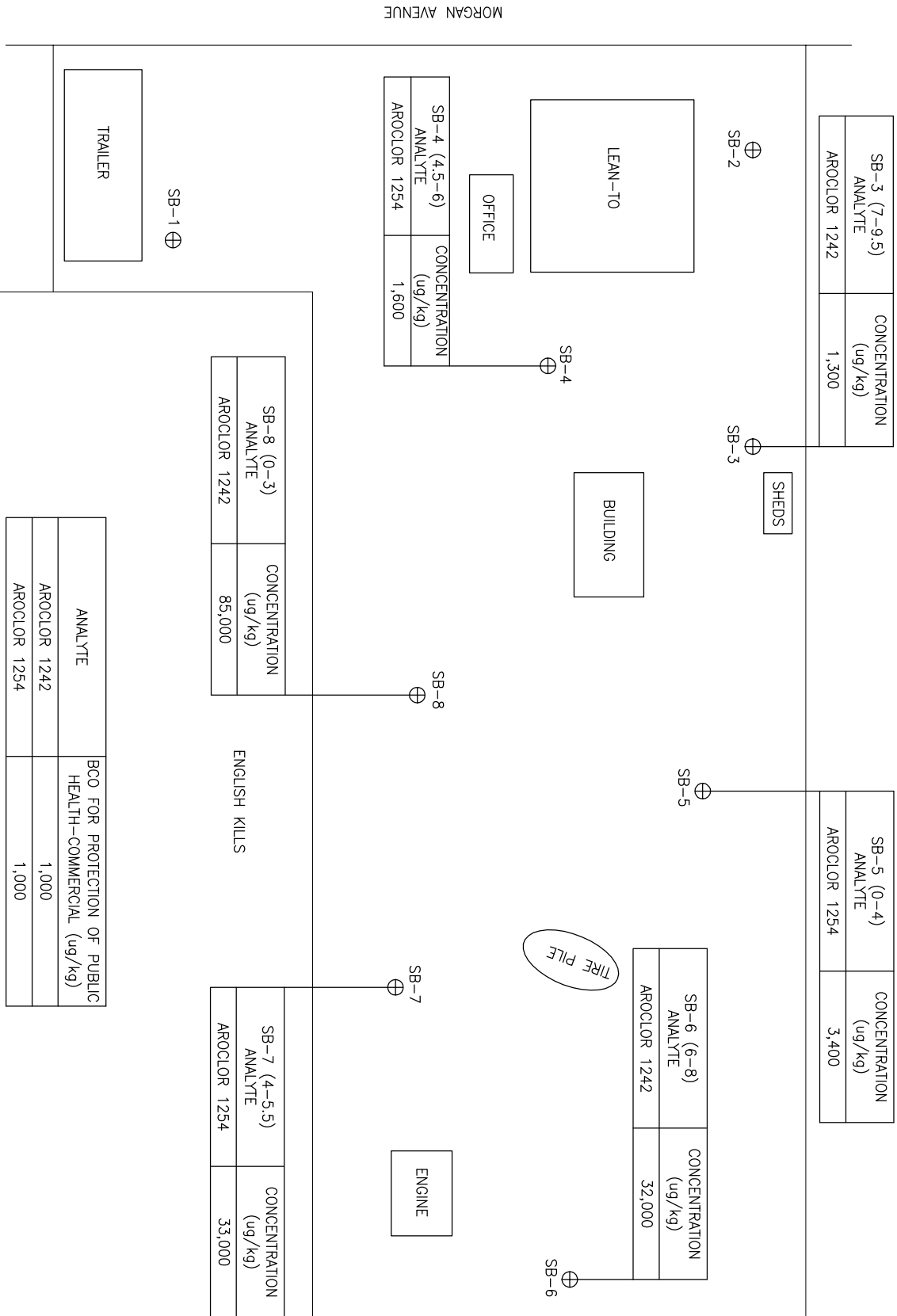
SOIL BORING ANALYTICAL EXCEEDANCES OF THE BROWNFIELDS PROTECTION OF GROUNDWATER CLEANUP OBJECTIVES FOR SEMI-VOLATILE ORGANIC COMPOUNDS (SVOCs)

FRITO-LAY, INC.

NOT TO SCALE

202-218 MORGAN AVENUE, BROOKLYN, NEW YORK





NOTES:  
1. BCO – BROWNFIELDS CLEANUP OBJECTIVE  
2. ug/kg – MICROGRAMS PER KILOGRAM OR PARTS PER BILLION (PPB)  
3. SAMPLES COLLECTED ON OCTOBER 30-31, 2003

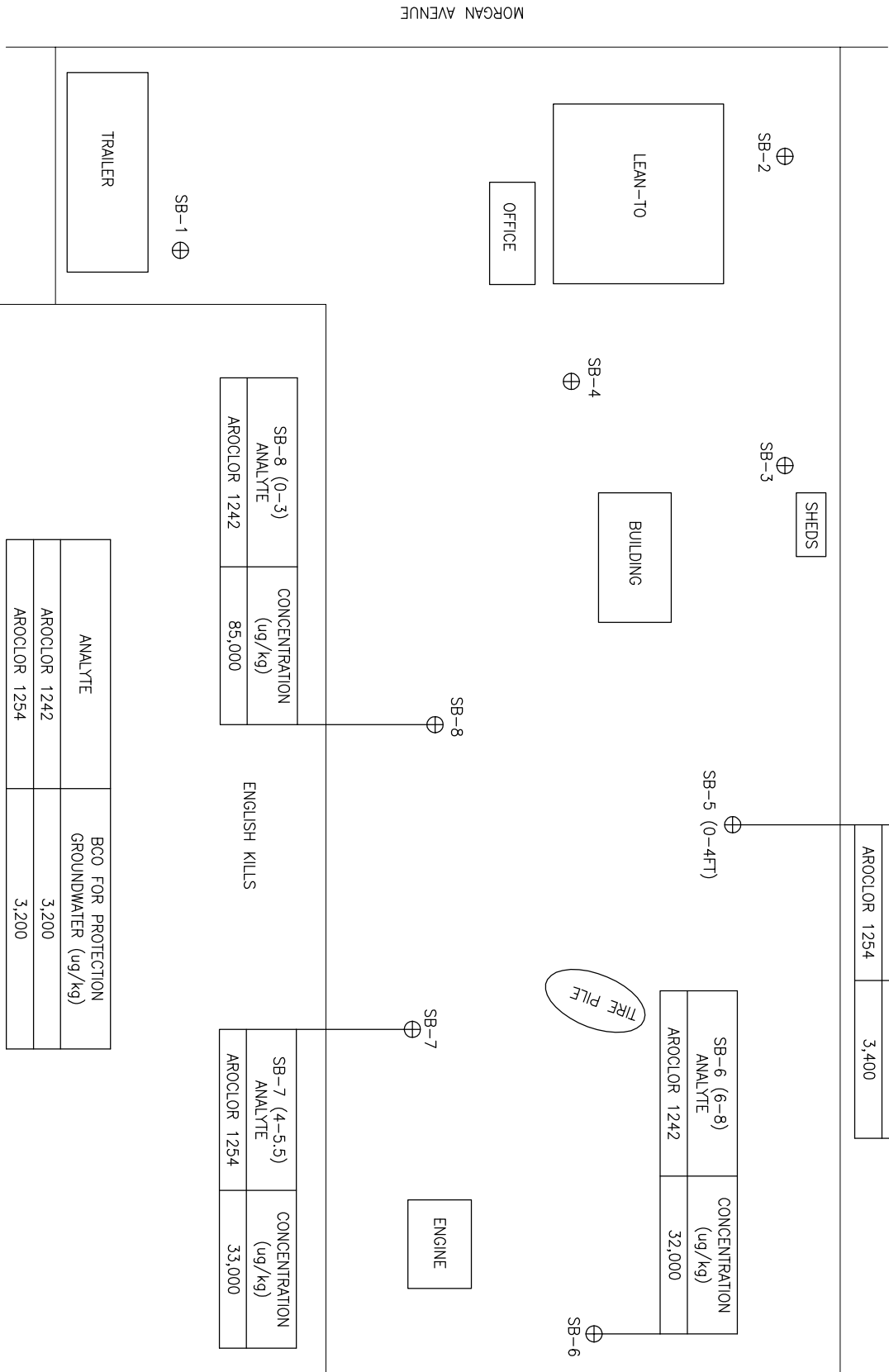
LEGEND  
SB-3 ⊕ SOIL BORING  
(0-3) SAMPLE DEPTH (IN FEET)

NOT TO SCALE

SOIL BORING ANALYTICAL EXCEEDANCES OF THE  
BROWNFIELDS PROTECTION OF PUBLIC HEALTH – COMMERCIAL  
CLEANUP OBJECTIVES FOR POLYCHLORINATED BIPHENYLS (PCBs)

FRITO-LAY, INC.

202-218 MORGAN AVENUE, BROOKLYN, NEW YORK



NOTES:

1. BCO – BROWNFIELDS CLEANUP OBJECTIVE
2. ug/kg – MICROGRAMS PER KILOGRAM OR PARTS PER BILLION (PPB)
3. SAMPLES COLLECTED ON OCTOBER 30-31, 2003

LEGEND

SB-3 ⊕ SOIL BORING

(0-3) SAMPLE DEPTH (IN FEET)

NOT TO SCALE

SOIL BORING ANALYTICAL EXCEEDANCES OF THE BROWNFIELDS PROTECTION OF GROUNDWATER CLEANUP OBJECTIVES FOR POLYCHLORINATED BIPHENYLS (PCBs)

FRITO-LAY, INC.

202-218 MORGAN AVENUE, BROOKLYN, NEW YORK



SB-4 (4.5-6) ANALYTE	CONCENTRATION (mg/kg)
ARSENIC	28

SB-6 (6-8) ANALYTE	CONCENTRATION (mg/kg)
BARIUM	480
CADMIUM	38
LEAD	8,200
MERCURY	6.5

SB-4

SB-2

SB-3

SB-5

SB-8

SB-7

SB-6

TIRE PILE

MORGAN AVENUE

LEAN-TO

OFFICE

BUILDING

SHEDS

ENGINE

TRAILER

SB-8 (0-3) ANALYTE	CONCENTRATION (mg/kg)
BARIUM	440
CADMIUM	17
LEAD	1,000

ENGLISH KILLS

SB-7 (4-5.5) ANALYTE	CONCENTRATION (mg/kg)
BARIUM	590
CADMIUM	43
LEAD	3,700
MERCURY	9.9

- NOTES:
1. BCO – BROWNFIELDS CLEANUP OBJECTIVE
  2. mg/kg – MILLIGRAMS PER KILOGRAM OR PARTS PER MILLION (PPM)
  3. SAMPLES COLLECTED ON OCTOBER 30-31, 2003

ANALYTE	BCO FOR PROTECTION OF PUBLIC HEALTH – COMMERCIAL (mg/kg)
ARSENIC	16
BARIUM	400
CADMIUM	9.3
LEAD	1,000
MERCURY	2.8

LEGEND

SB-3 ⊕ SOIL BORING  
(0-3) SAMPLE DEPTH (IN FEET)

NOT TO SCALE

SOIL BORING ANALYTICAL EXCEEDANCES OF THE  
BROWNFIELDS PROTECTION OF PUBLIC HEALTH-  
COMMERCIAL CLEANUP OBJECTIVES FOR METALS

FRITO-LAY, INC.

202-218 MORGAN AVENUE, BROOKLYN, NEW YORK



SB-3 (7-9.5) ANALYTE	CONCENTRATION (mg/kg)
CHROMIUM	44
LEAD	700
MERCURY	1.6
SELENIUM	5.7

SB-5 (0-4) ANALYTE	CONCENTRATION (mg/kg)
CHROMIUM	45
LEAD	970
MERCURY	1.2

SHEDS

⊕  
SB-2

⊕  
SB-3

⊕  
SB-5

SB-6 (6-8) ANALYTE	CONCENTRATION (mg/kg)
CADMIUM	38
CHROMIUM	220
LEAD	8,200
MERCURY	6.5

⊕  
SB-6

TIRE PILE

BUILDING

⊕  
SB-4

OFFICE

SB-4 (4.5-6) ANALYTE	CONCENTRATION (mg/kg)
ARSENIC	28
CHROMIUM	30

⊕  
SB-8

ENGINE

MORGAN AVENUE

ENGLISH KILLS

SB-8 (0-3) ANALYTE	CONCENTRATION (mg/kg)
CADMIUM	17
CHROMIUM	110
LEAD	1,000
MERCURY	1.6

SB-7 (4-5.5) ANALYTE	CONCENTRATION (mg/kg)
CADMIUM	43
CHROMIUM	120
LEAD	3,700
MERCURY	9.9

TRAILER

⊕  
SB-1

ANALYTE	BCO FOR PROTECTION OF GROUNDWATER (mg/kg)
ARSENIC	16
CADMIUM	7.5
CHROMIUM	19
LEAD	450
MERCURY	0.73
SELENIUM	4

- NOTES:
1. BCO – BROWNFIELDS CLEANUP OBJECTIVE
  2. mg/kg – MILLIGRAMS PER KILOGRAM OR PARTS PER MILLION (PPM)
  3. SAMPLES COLLECTED ON OCTOBER 30-31, 2003

LEGEND

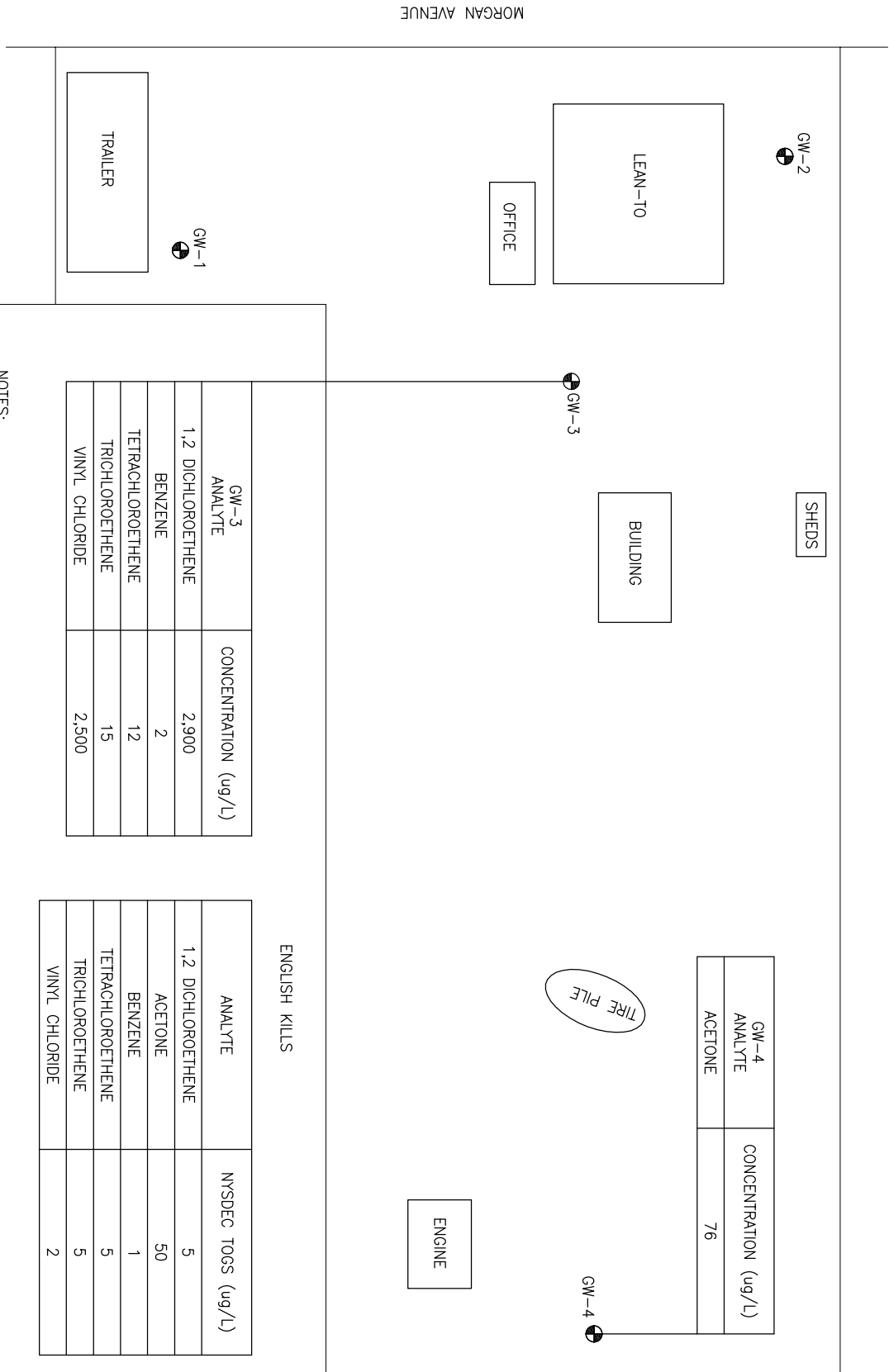
SB-3 ⊕ SOIL BORING  
(0-3) SAMPLE DEPTH (IN FEET)

SOIL BORING ANALYTICAL EXCEEDANCES OF THE  
BROWNFIELDS PROTECTION OF GROUNDWATER  
CLEANUP OBJECTIVES FOR METALS

FRITO-LAY, INC.

NOT TO SCALE

202-218 MORGAN AVENUE, BROOKLYN, NEW YORK



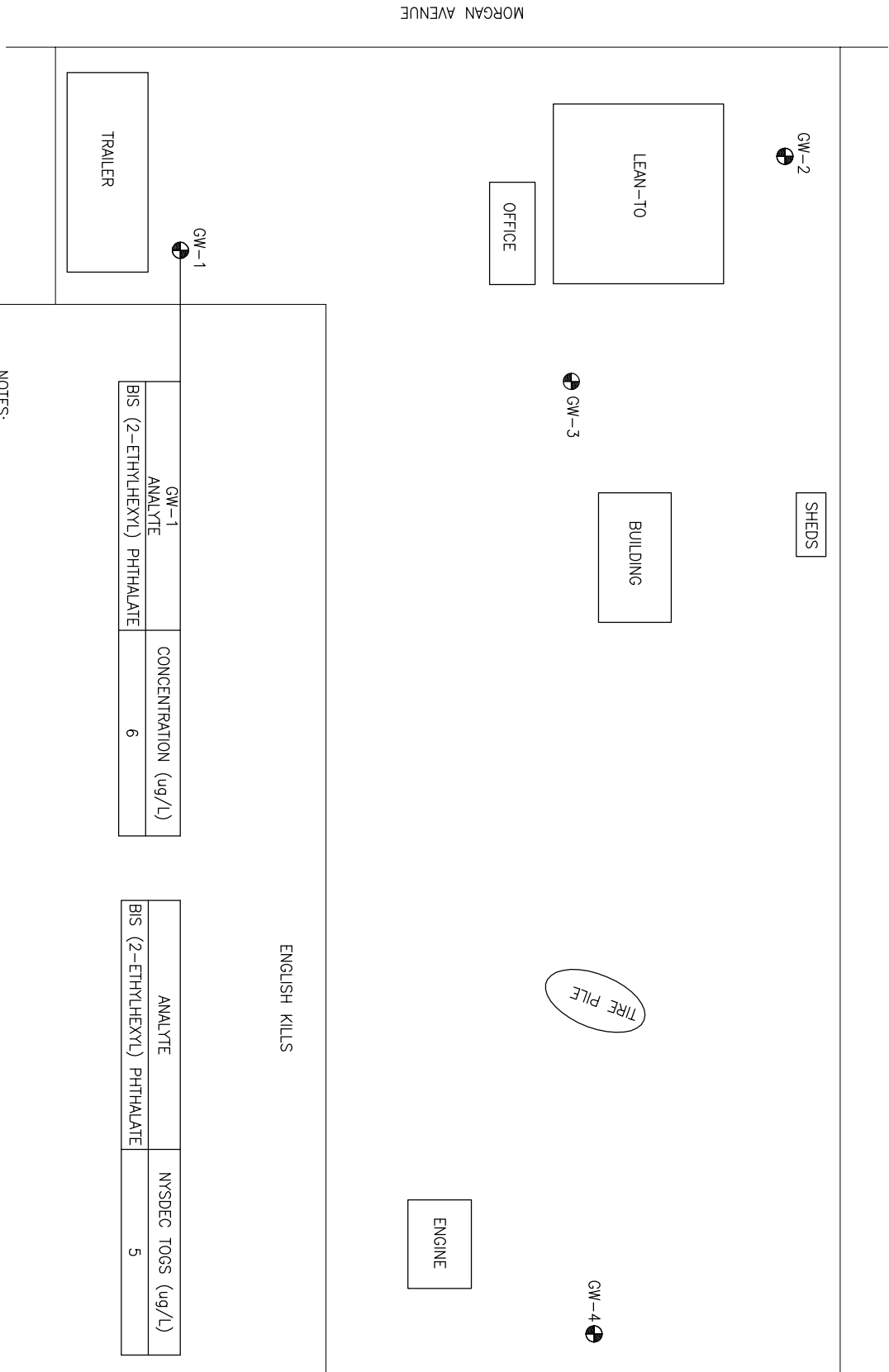
- NOTES:
- 1. ug/L – MICROGRAMS PER LITER OR PARTS PER BILLION (PPB)
  - 2. NYSDEC – NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
  - 3. TOGS – TECHNICAL AND OPERATIONAL GUIDANCE SERIES
  - 4. ALL NYSDEC TOGS VALUES ARE FOR GA CLASSIFIED GROUNDWATER
  - 5. SAMPLES COLLECTED ON OCTOBER 31, 2003

LEGEND

GW-1 TEMPORARY WELL

GROUNDWATER ANALYTICAL EXCEEDANCES OF THE NYSDEC AMBIENT  
GROUNDWATER QUALITY STANDARDS FOR VOLATILE ORGANIC COMPOUNDS (VOCs)

FRITO-LAY, INC.  
202-218 MORGAN AVENUE, BROOKLYN, NEW YORK



GW-1 ANALYTE	CONCENTRATION (ug/L)
BIS (2-ETHYLBENYL) PHTHALATE	6

ANALYTE	NYSDEC TOGS (ug/L)
BIS (2-ETHYLBENYL) PHTHALATE	5

- NOTES:
- 1. ug/L – MICROGRAMS PER LITER OR PARTS PER BILLION (PPB)
  - 2. NYSDEC – NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
  - 3. TOGS –TECHNICAL AND OPERATIONAL AND GUIDANCE SERIES
  - 4. ALL NYSDEC TOGS VALUES ARE FOR GA CLASSIFIED GROUNDWATER
  - 5. SAMPLES COLLECTED ON OCTOBER 31, 2003
- LEGEND
- GW-1 TEMPORARY WELL

GROUNDWATER ANALYTICAL EXCEEDANCES OF THE NYSDEC AMBIENT  
GROUNDWATER QUALITY STANDARDS FOR SEMI-VOLATILE ORGANIC COMPOUNDS (SVOCs)



GW-2 ANALYTE	CONCENTRATION (mg/L)
ARSENIC	0.031
LEAD	0.61
MERCURY	0.002

SHEDS

GW-2

LEAN-TO

OFFICE

BUILDING

GW-3

GW-3 ANALYTE	CONCENTRATION (mg/L)
CADMIUM	0.006
LEAD	2.70
MERCURY	0.0018

TIRE PILE

GW-4

GW-4 ANALYTE	CONCENTRATION (mg/L)
ARSENIC	0.32
BARIUM	310
CADMIUM	0.13
CHROMIUM	0.8
LEAD	19
MERCURY	0.092

ENGINE

MORGAN AVENUE

ENGLISH KILLS

GW-1

GW-1 ANALYTE	CONCENTRATION (mg/L)
LEAD	0.11

TRAILER

ANALYTE	NYSDEC TOGS (mg/L)
ARSENIC	0.25
BARIUM	1,000
CADMIUM	0.005
CHROMIUM	0.050
LEAD	0.025
MERCURY	0.0007

NOTES:

- 1. mg/L – MILLIGRAMS PER LITER OR PARTS PER MILLION (PPM)
- 2. NYSDEC – NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
- 3. TOGS –TECHNICAL AND OPERATIONAL AND GUIDANCE SERIES
- 4. ALL NYSDEC TOGS VALUES ARE FOR GA CLASSIFIED GROUNDWATER
- 5. SAMPLES COLLECTED ON OCTOBER 31, 2003

LEGEND  
GW-1  
TEMPORARY WELL

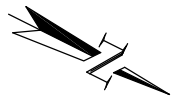
NOT TO SCALE

GROUNDWATER ANALYTICAL EXCEEDANCES OF THE NYSDEC  
AMBIENT GROUNDWATER QUALITY STANDARDS FOR METALS

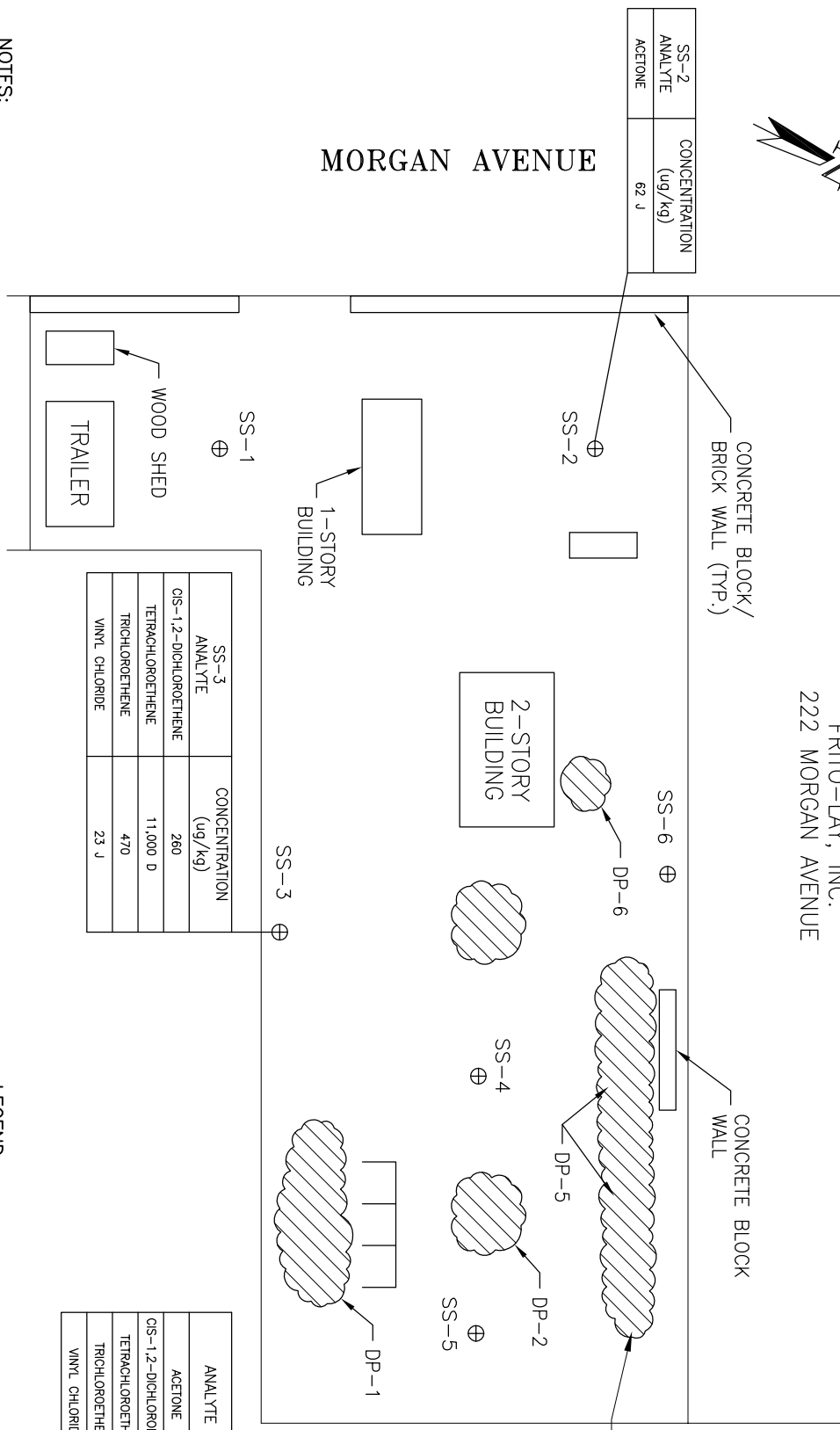
FRITO-LAY, INC.

202-218 MORGAN AVENUE, BROOKLYN, NEW YORK

FRITO-LAY, INC.  
222 MORGAN AVENUE



SS-2	CONCENTRATION
ANALYTE	(ug/kg)
ACETONE	62 J



SS-3	ANALYTE	CONCENTRATION
	(ug/kg)	
	CIS-1,2-DICHLOROETHENE	260
	TETRACHLOROETHENE	11,000 D
	TRICHLOROETHENE	470
	VINYL CHLORIDE	23 J

ANALYTE	BCO PROTECTION OF GROUNDWATER (ug/kg)
ACETONE	50
CIS-1,2-DICHLOROETHENE	250
TETRACHLOROETHENE	1,300
TRICHLOROETHENE	470
VINYL CHLORIDE	20

- NOTES:**
- 1. BCO – BROWNFIELDS CLEANUP OBJECTIVE
  - 2. ug/kg – MICROGRAMS PER KILOGRAM OR PARTS PER BILLION (PPB)
  - 3. J – ESTIMATED VALUE
  - 4. D – DILUTED
  - 5. ACETONE EXCEEDANCES WITH 'B' QUALIFIER ARE NOT INCLUDED AS THIS ANALYTE WAS ALSO FOUND IN LABORATORY BLANK.
  - 6. SAMPLES COLLECTED FEBRUARY 23, 2007

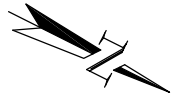
- LEGEND:**
- ⊕ SURFICIAL SOIL SAMPLE LOCATION
  - ☼ DEBRIS PILE SAMPLE LOCATION

**SURFICIAL SOIL AND DEBRIS PILE ANALYTICAL EXCEEDANCES  
OF THE BROWNFIELDS PROTECTION OF GROUNDWATER  
CLEANUP OBJECTIVES FOR VOLATILE ORGANIC COMPOUNDS (VOCs)**

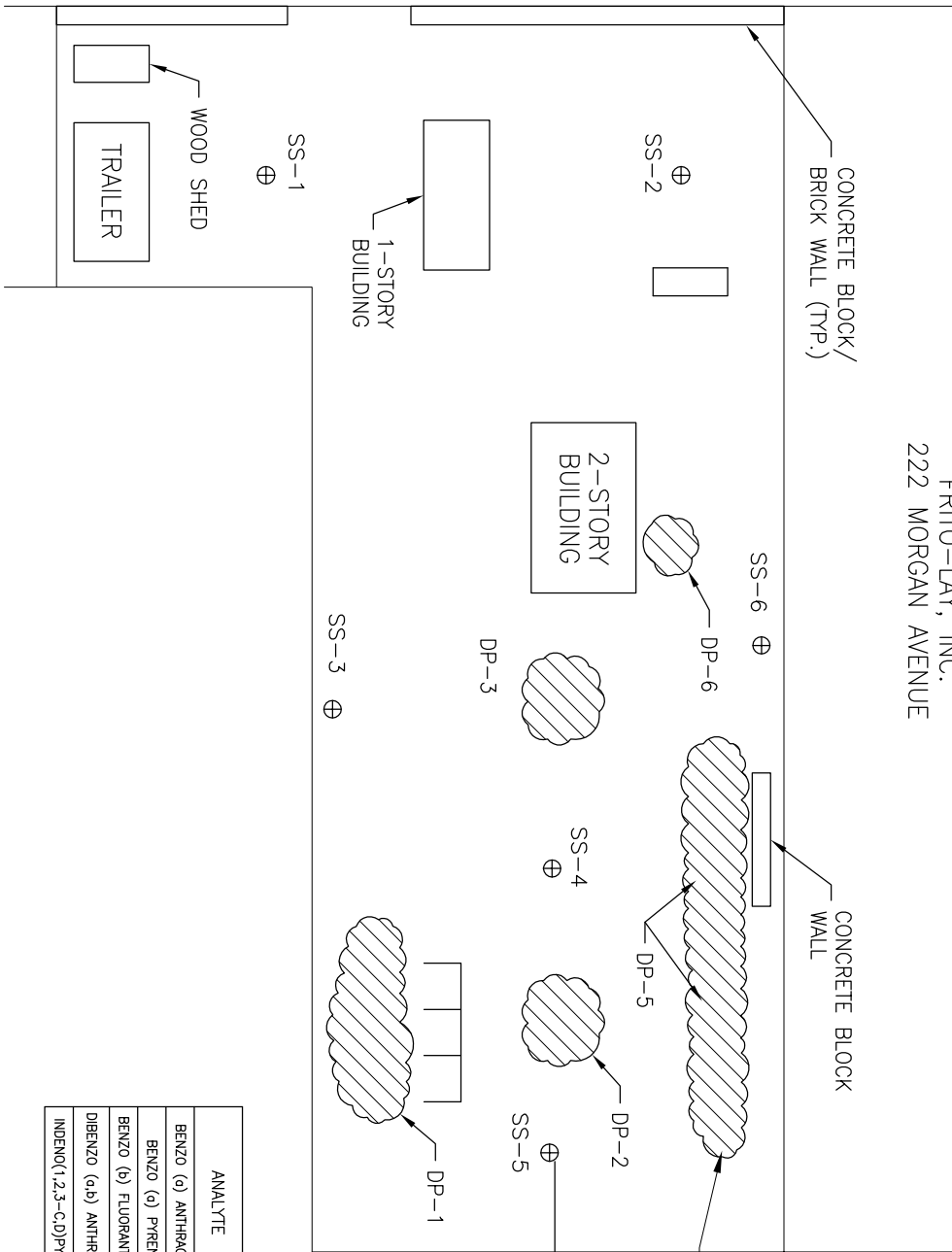
FRITO-LAY, INC.  
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MORGAN AVENUE



SS-5 ANALYTE	CONCENTRATION (ug/kg)
BENZO (a) ANTHRACENE	16,000
BENZO (a) PYRENE	21,000
BENZO (b) FLUORANTHENE	12,000
DIBENZO (a,b) ANTHRACENE	5,200 J
INDENO(1,2,3-C,D)PYRENE	18,000

ANALYTE	BCO PROTECTION OF PUBLIC HEALTH - COMMERCIAL (ug/kg)
BENZO (a) ANTHRACENE	5,600
BENZO (a) PYRENE	1,000
BENZO (b) FLUORANTHENE	5,600
DIBENZO (a,b) ANTHRACENE	560
INDENO(1,2,3-C,D)PYRENE	5,600

NOTES:

- 1. BCO – BROWNFIELDS CLEANUP OBJECTIVE
- 2. ug/kg – MICROGRAMS PER KILOGRAM OR PARTS PER BILLION (PPB)
- 3. J – ESTIMATED VALUE
- 4. SAMPLES COLLECTED FEBRUARY 23, 2007

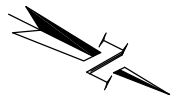
LEGEND:

- ⊕ SURFICIAL SOIL SAMPLE LOCATION
- ⊗ DEBRIS PILE SAMPLE LOCATION

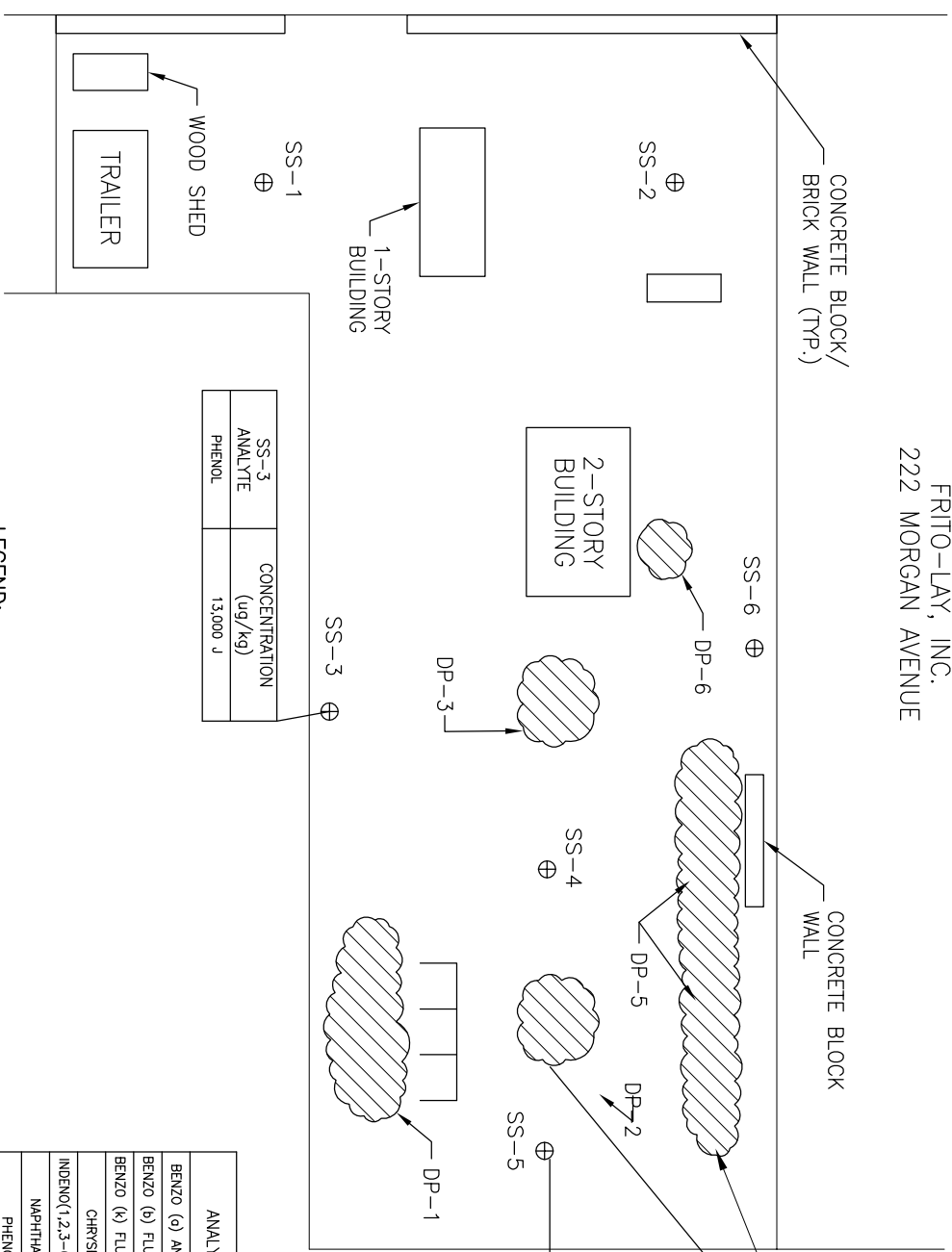
SURFICIAL SOIL AND DEBRIS PILE ANALYTICAL EXCEEDANCES OF THE BROWNFIELDS PROTECTION OF PUBLIC HEALTH – COMMERCIAL CLEANUP OBJECTIVES FOR SEMI-VOLATILE ORGANIC COMPOUNDS (SVOCs)

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MORGAN AVENUE



DP-2 ANALYTE	CONCENTRATION (ug/kg)
BENZO(b) FLUORANTHENE	3,700 J

SS-5 ANALYTE	CONCENTRATION (ug/kg)
BENZO (a) ANTHRACENE	16,000
BENZO (b) FLUORANTHENE	12,000
BENZO (k) FLUORANTHENE	4,000 J
CHRYSENE	15,000
INDENO(1,2,3-c,d)PYRENE	18,000
NAPHTHALENE	16,000

SS-3 ANALYTE	CONCENTRATION (ug/kg)
PHENOL	13,000 J

ANALYTE	BCO PROTECTION OF GROUNDWATER (ug/kg)
BENZO (a) ANTHRACENE	1,000
BENZO (b) FLUORANTHENE	1,700
BENZO (k) FLUORANTHENE	1,700
CHRYSENE	1,000
INDENO(1,2,3-c,d)PYRENE	8,200
NAPHTHALENE	12,000
PHENOL	330

NOTES:

- 1. BCO – BROWNFIELDS CLEANUP OBJECTIVE
- 2. ug/kg – MICROGRAMS PER KILOGRAM OR PARTS PER BILLION (PPB)
- 3. J – ESTIMATED VALUE
- 4. SAMPLES COLLECTED FEBRUARY 23, 2007

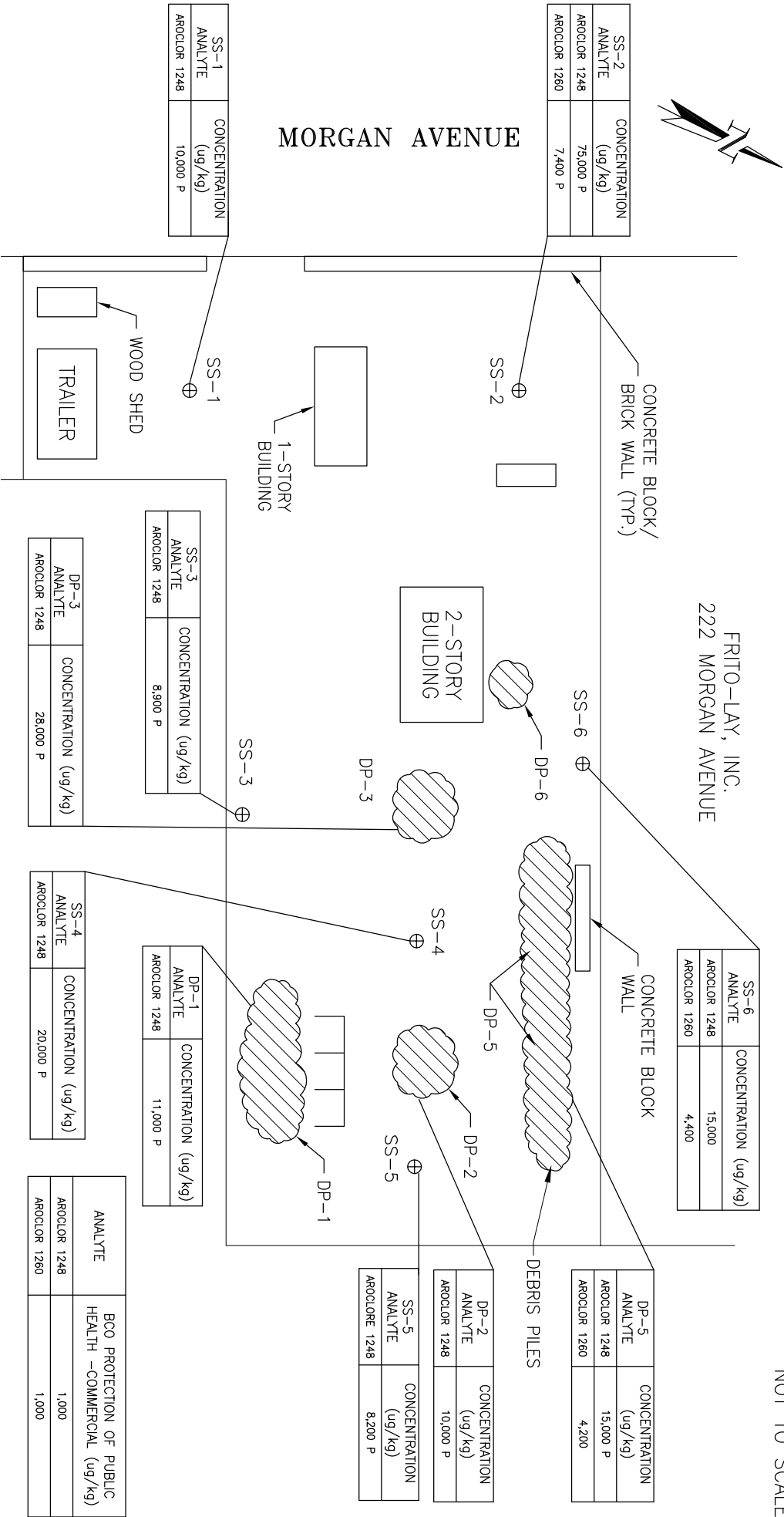
LEGEND:

- ⊕ SURFICIAL SOIL SAMPLE LOCATION
- ⊗ DEBRIS PILE SAMPLE LOCATION

SURFICIAL SOIL AND DEBRIS PILE ANALYTICAL EXCEEDANCES OF THE BROWNFIELDS PROTECTION OF GROUNDWATER CLEANUP OBJECTIVES FOR SEMI-VOLATILE ORGANIC COMPOUNDS (SVOCs)

FRITO-LAY, INC.  
202-218 MORGAN AVENUE, BROOKLYN, NEW YORK

NOT TO SCALE



SURFICIAL SOIL AND DEBRIS PILE ANALYTICAL EXCEEDANCES OF THE BROWNFIELDS PROTECTION OF PUBLIC HEALTH – COMMERCIAL CLEANUP OBJECTIVES FOR POLYCHLORINATED BIPHENYLS (PCBS)

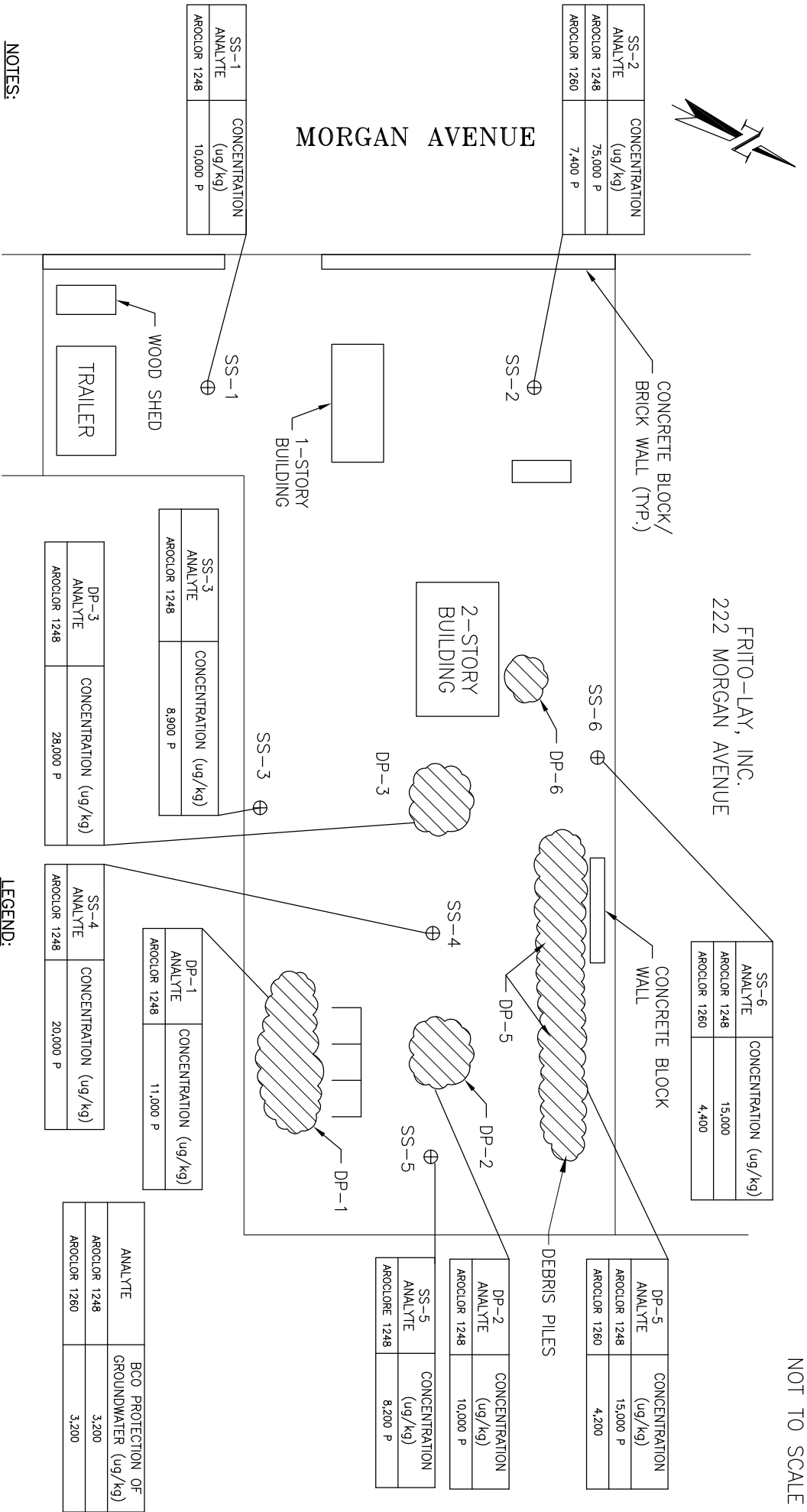
FRITO-LAY, INC.  
202-218 MORGAN AVENUE, BROOKLYN, NEW YORK

FRITO-LAY, INC.  
202-218 MORGAN AVENUE, BROOKLYN, NEW YORK

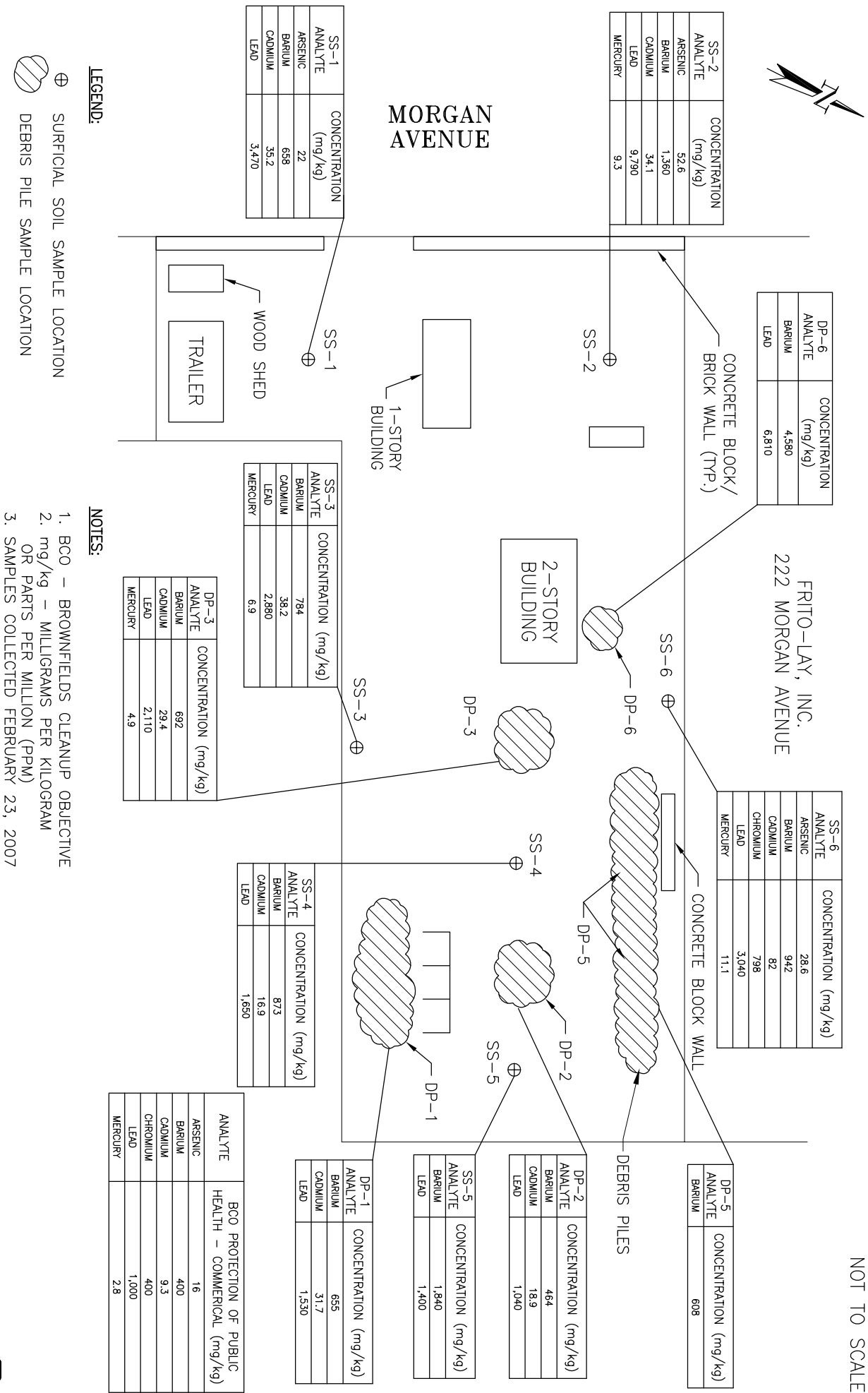
**SURFICIAL SOIL AND DEBRIS PILE ANALYTICAL  
EXCEEDANCES OF THE BROWNFIELDS PROTECTION OF GROUNDWATER  
CLEANUP OBJECTIVES FOR POLYCHLORINATED BIPHENYLS (PCBS)**

- NOTES:**
1. BCO – BROWNFIELDS CLEANUP OBJECTIVE
  2. ug/kg – MICROGRAMS PER KILOGRAM OR PARTS PER BILLION (PPB)
  3. P – FOR DUAL COLUMN ANALYSIS, THE PERCENT DIFFERENCE BETWEEN THE QUANTITATED CONCENTRATIONS ON THE TWO COLUMNS IS GREATER THAN 50%.
  4. SAMPLES COLLECTED FEBRUARY 23, 2007

- LEGEND:**
- ⊕ SURFICIAL SOIL SAMPLE LOCATION
  - ☼ DEBRIS PILE SAMPLE LOCATION

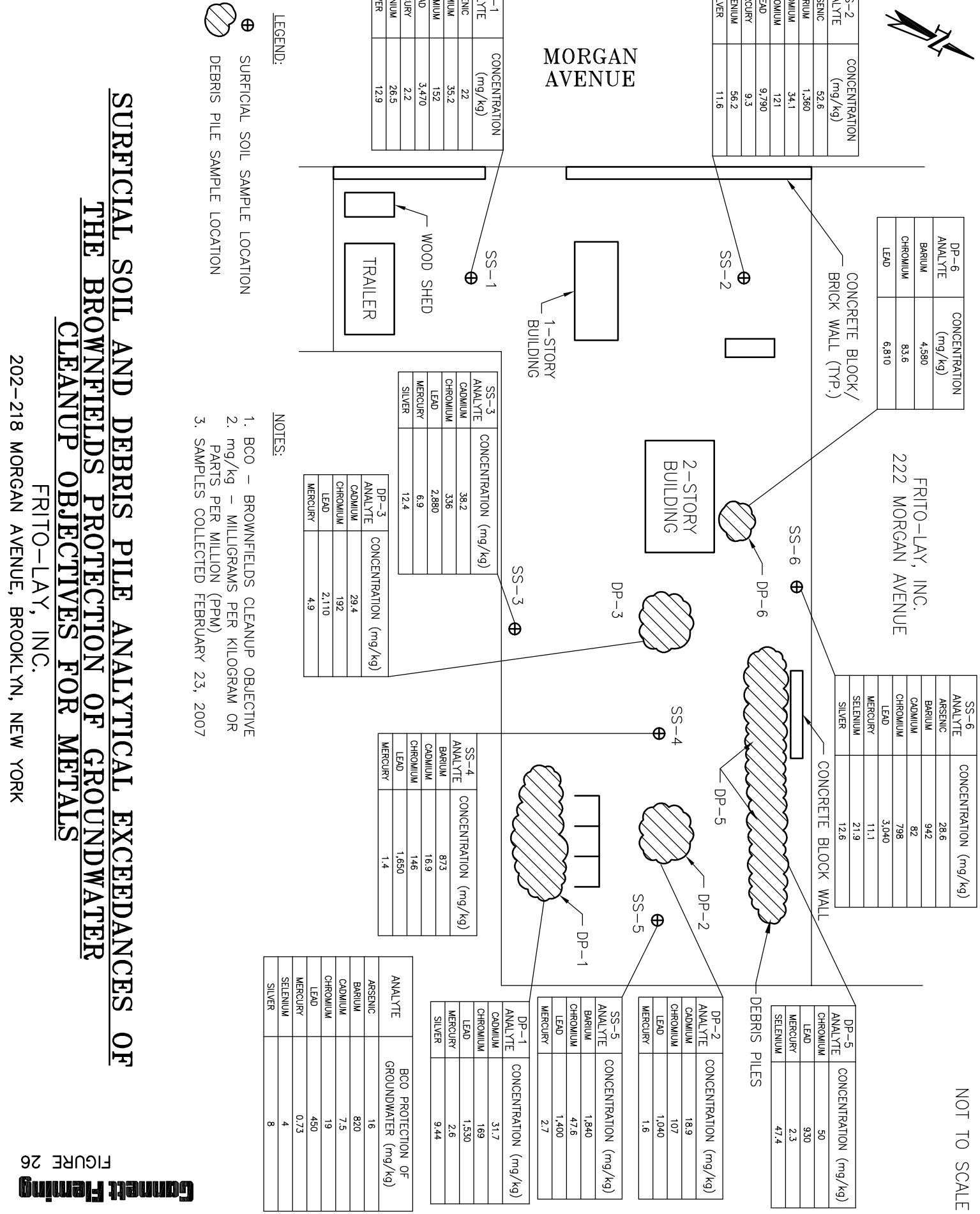


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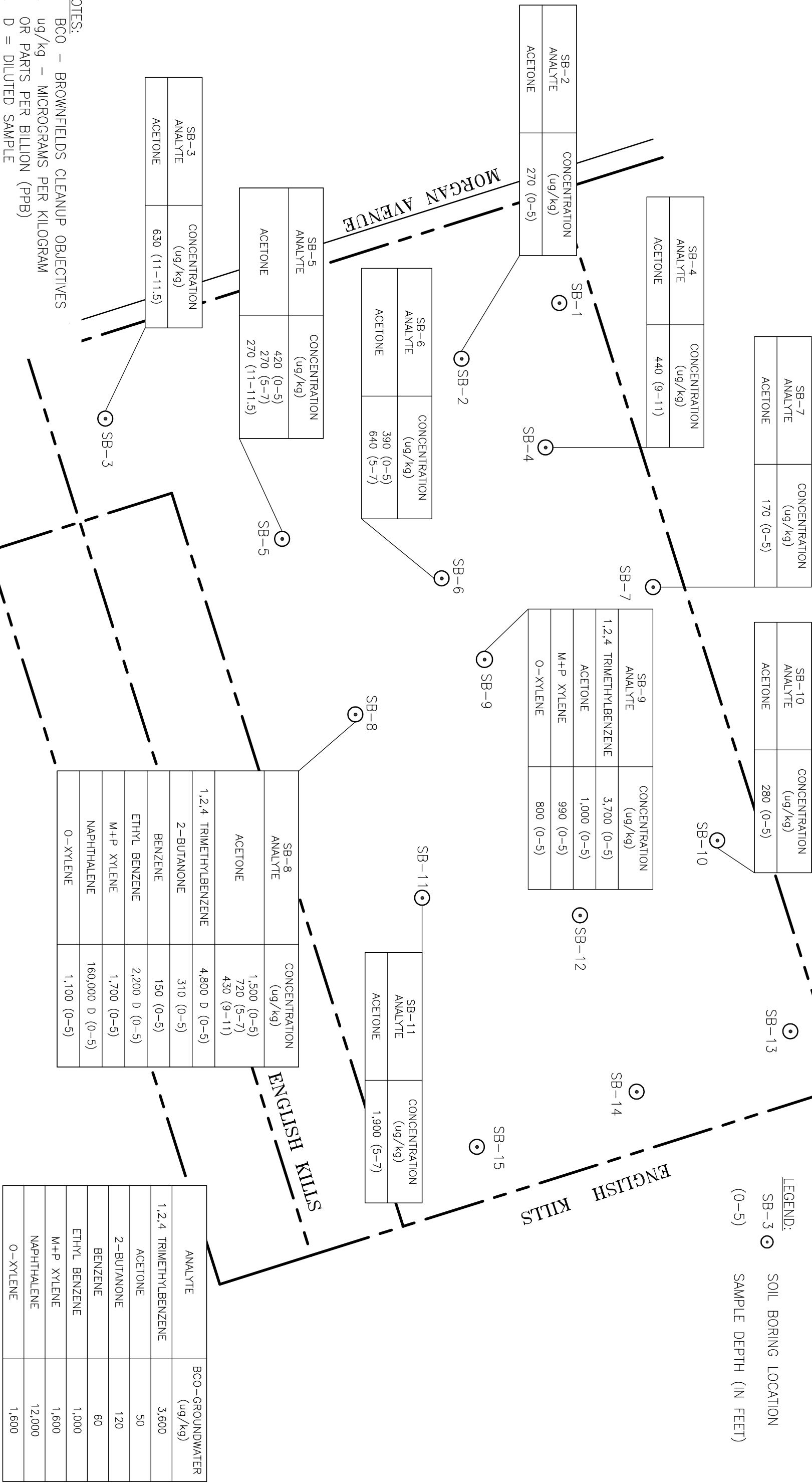
**SURFICIAL SOIL AND DEBRIS PILE ANALYTICAL EXCEEDANCES OF  
THE BROWNIELDS PROTECTION OF PUBLIC HEALTH –  
COMMERCIAL CLEANUP OBJECTIVES FOR METALS**

FRITO-LAY, INC.  
202-218 MORGAN AVENUE, BROOKLYN, NEW YORK

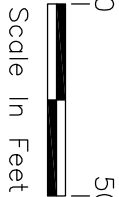


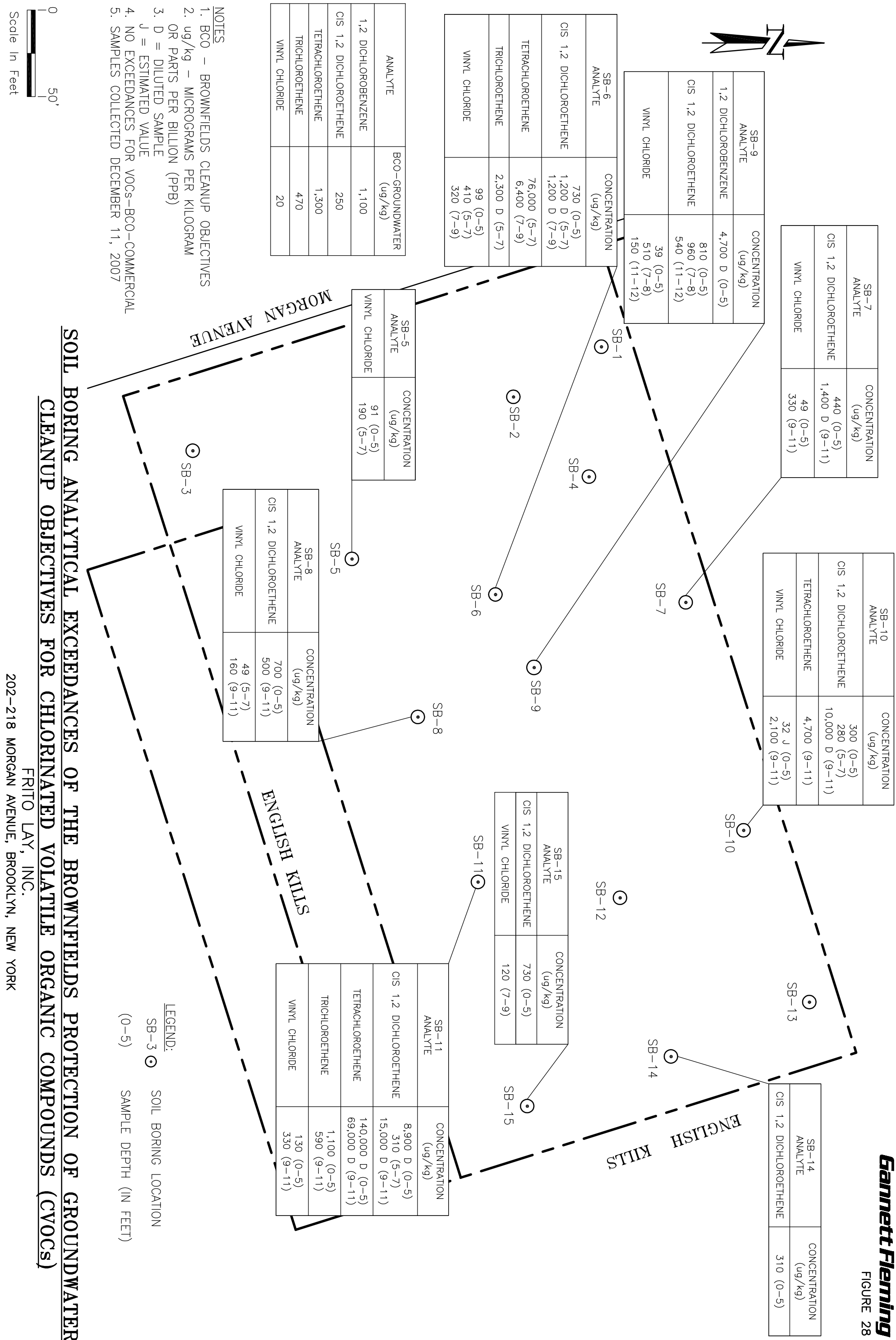
**SURFICIAL SOIL AND DEBRIS PILE ANALYTICAL EXCEEDANCES OF THE BROWNFIELDS PROTECTION OF GROUNDWATER CLEANUP OBJECTIVES FOR METALS**

FRITO-LAY, INC.  
202-218 MORGAN AVENUE, BROOKLYN, NEW YORK

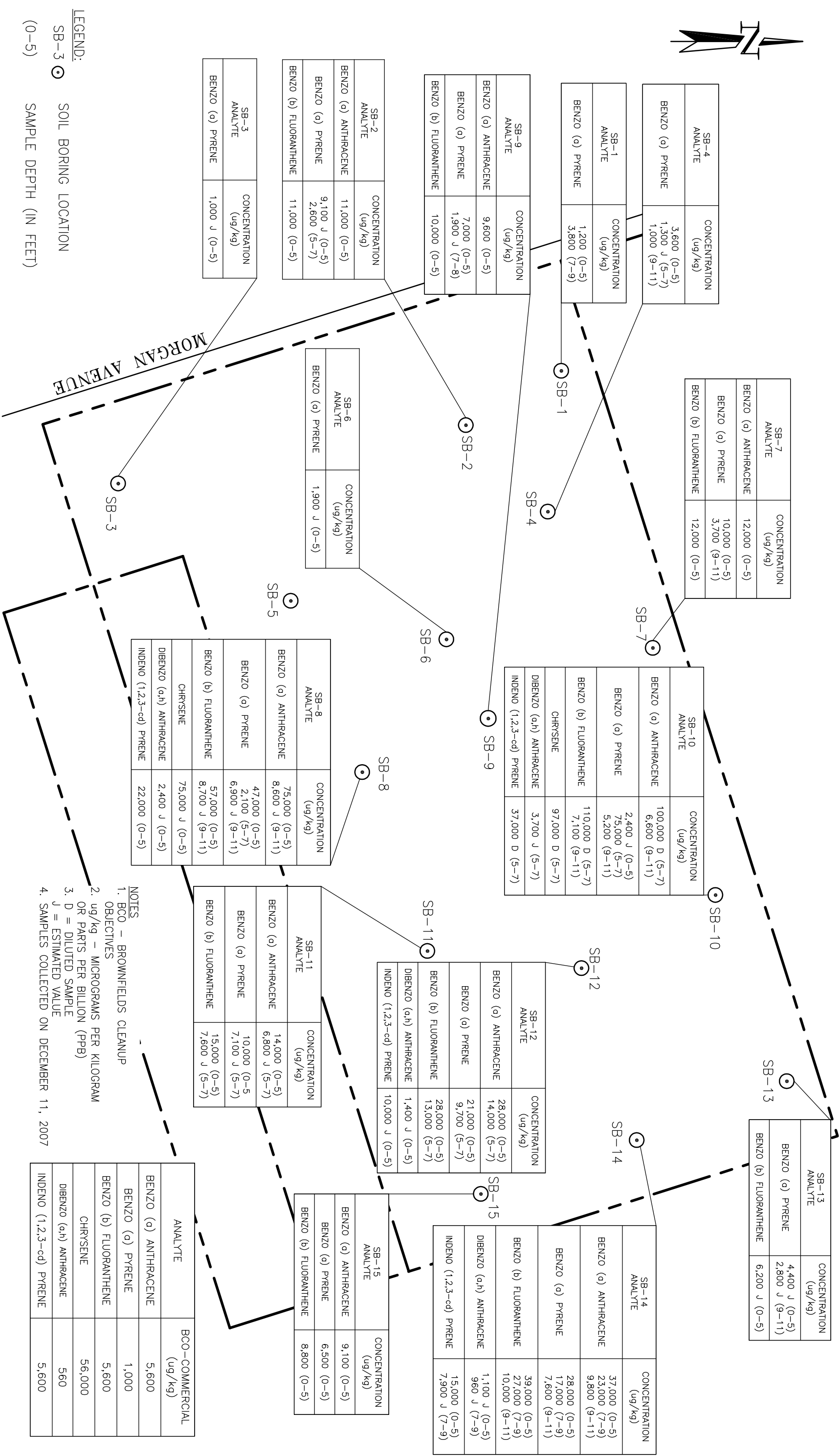


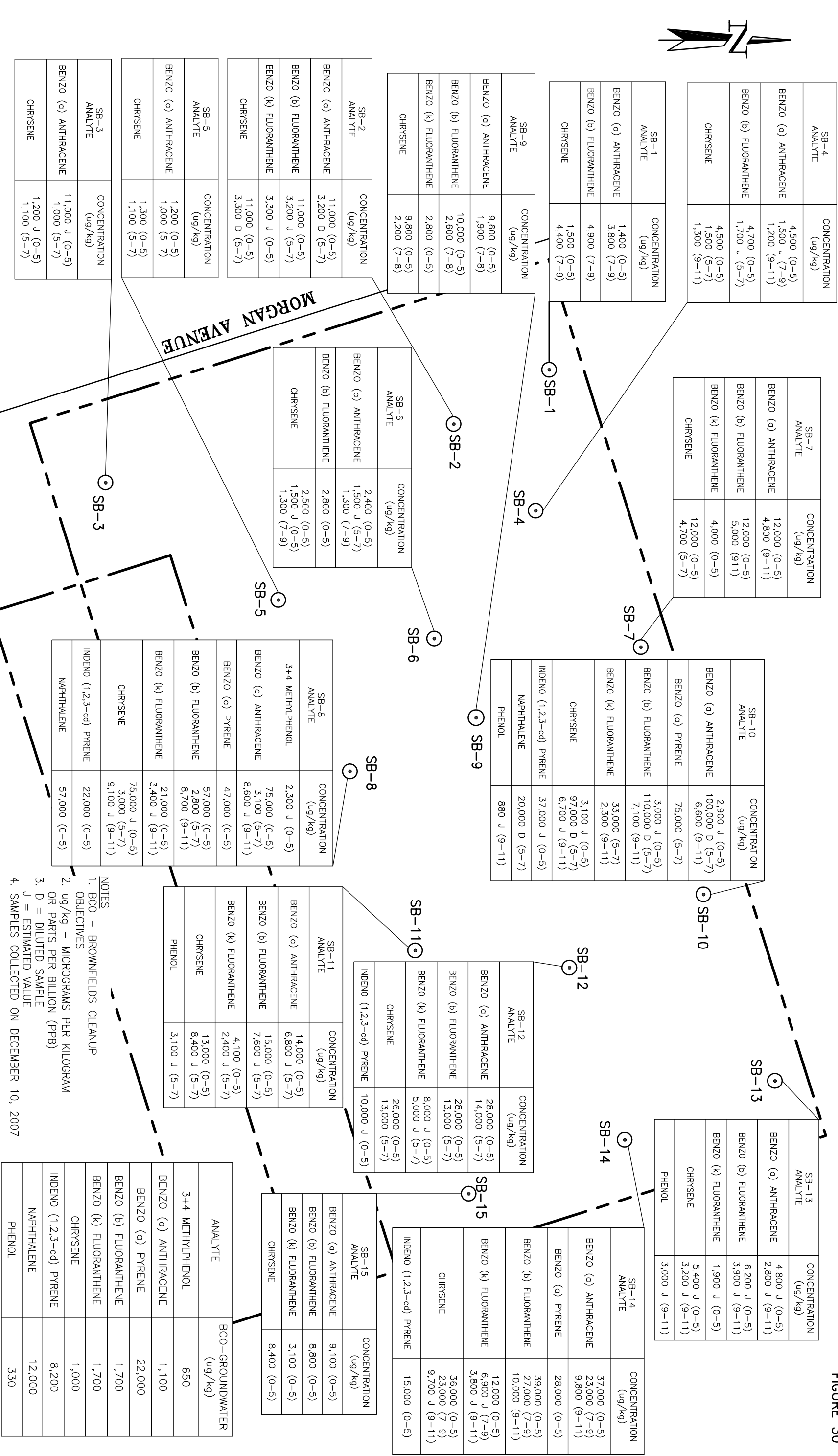
SOIL BORING ANALYTICAL EXCEEDANCES OF THE BROWNFIELDS PROTECTION OF GROUNDWATER CLEANUP OBJECTIVES FOR NON-CHLORINATED VOLATILE ORGANIC COMPOUNDS (VOCs)

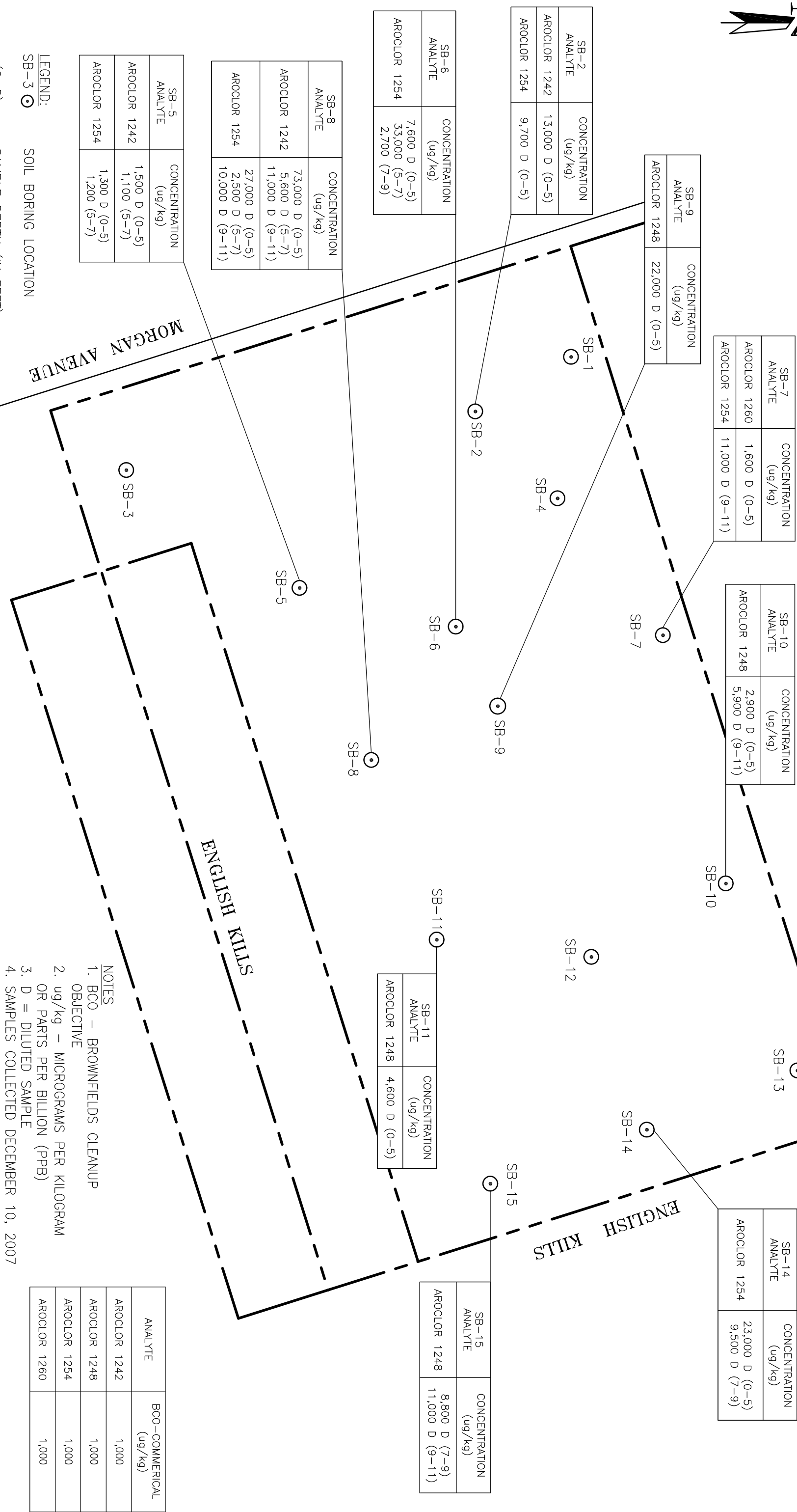








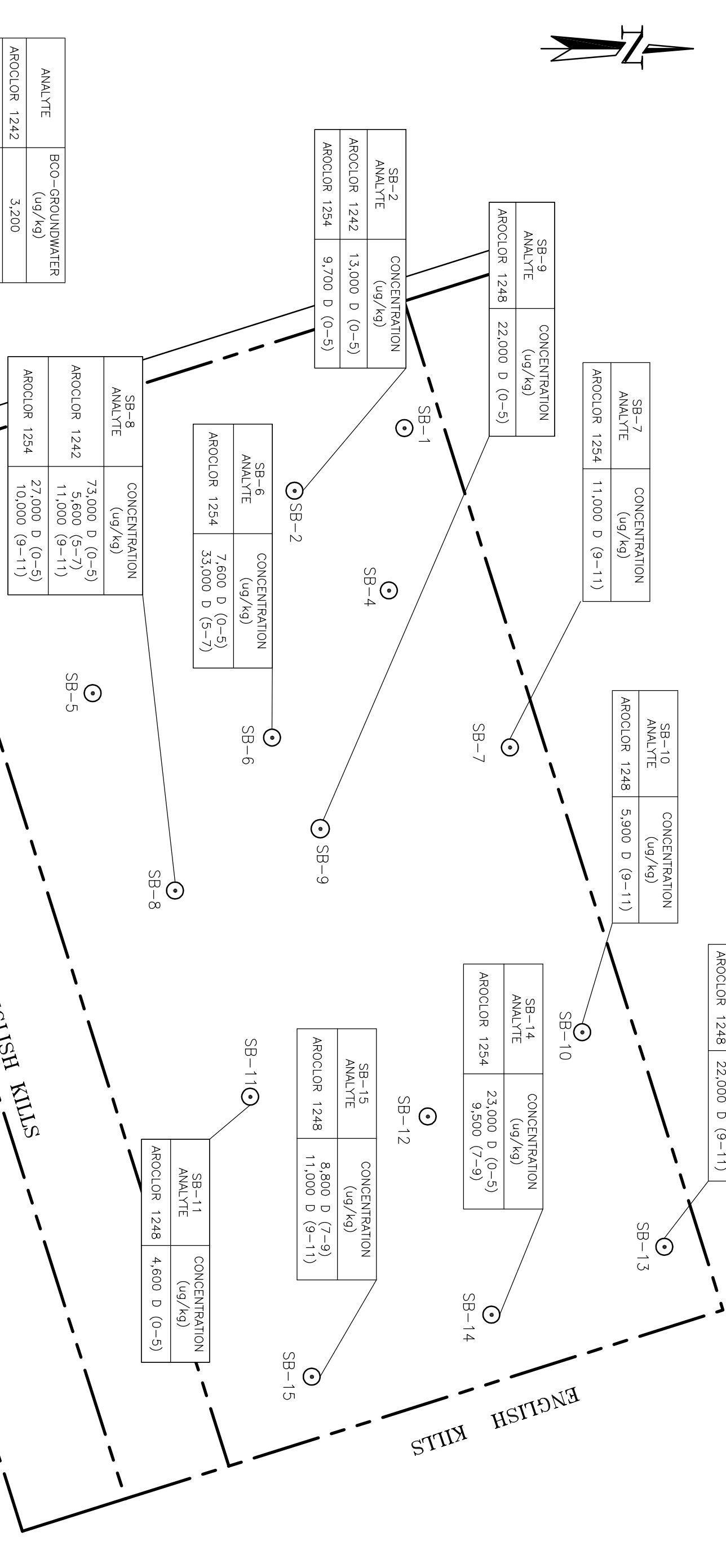




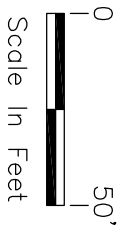
SOIL BORING ANALYTICAL EXCEEDANCES OF THE BROWNFIELDS PROTECTION OF PUBLIC HEALTH-COMMERCIAL CLEANUP OBJECTIVES FOR POLYCHLORINATED BIPHENYLS (PCBs)

FRITO LAY, INC.

202-218 MORGAN AVENUE, BROOKLYN, NEW YORK

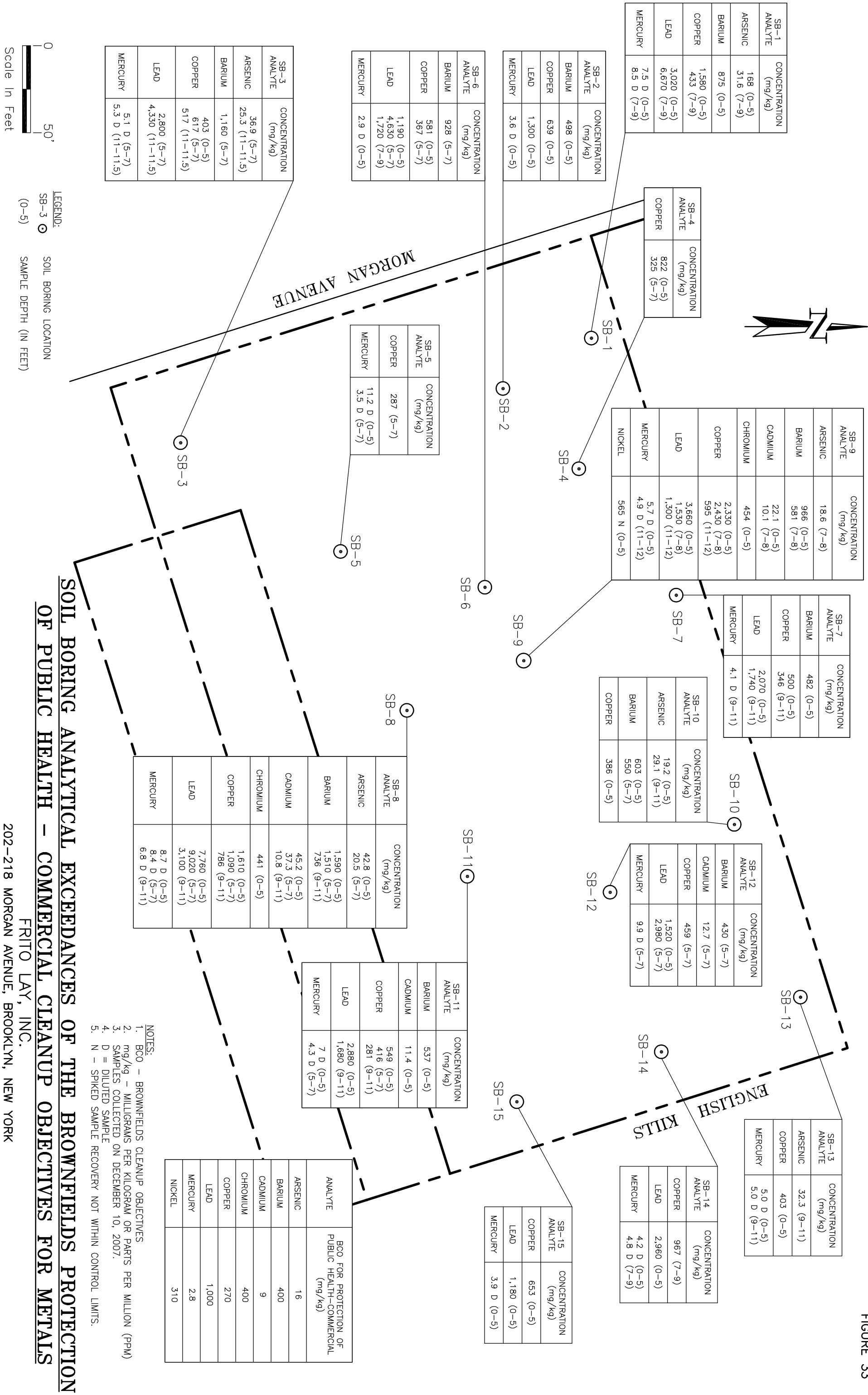


- NOTES
1. BCO – BROWNFIELDS CLEANUP OBJECTIVES
  2. ug/kg – MICROGRAMS PER KILOGRAM OR PARTS PER BILLION (PPB)
  3. D = DILUTED SAMPLE
  4. SAMPLES COLLECTED DECEMBER 10, 2007

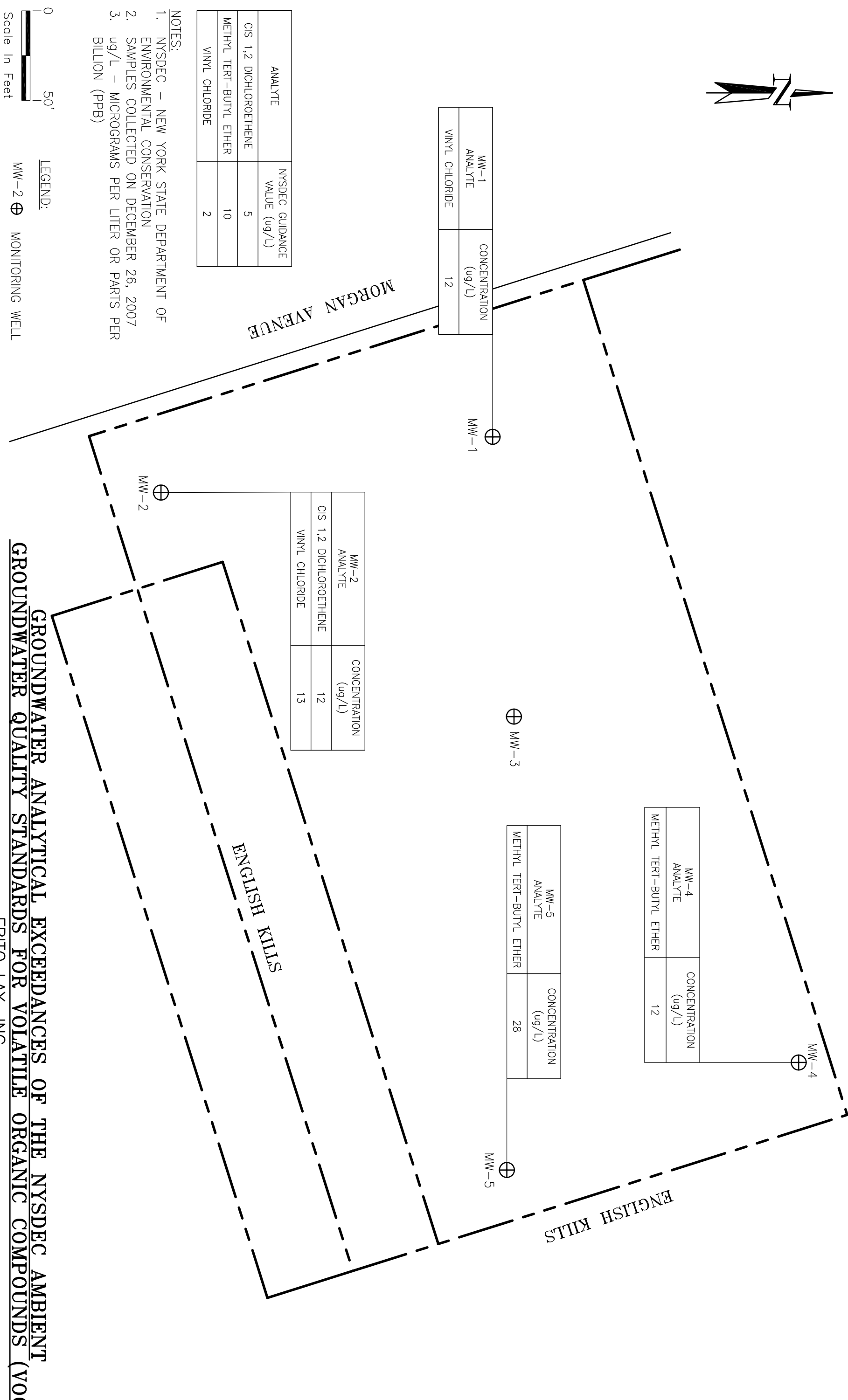


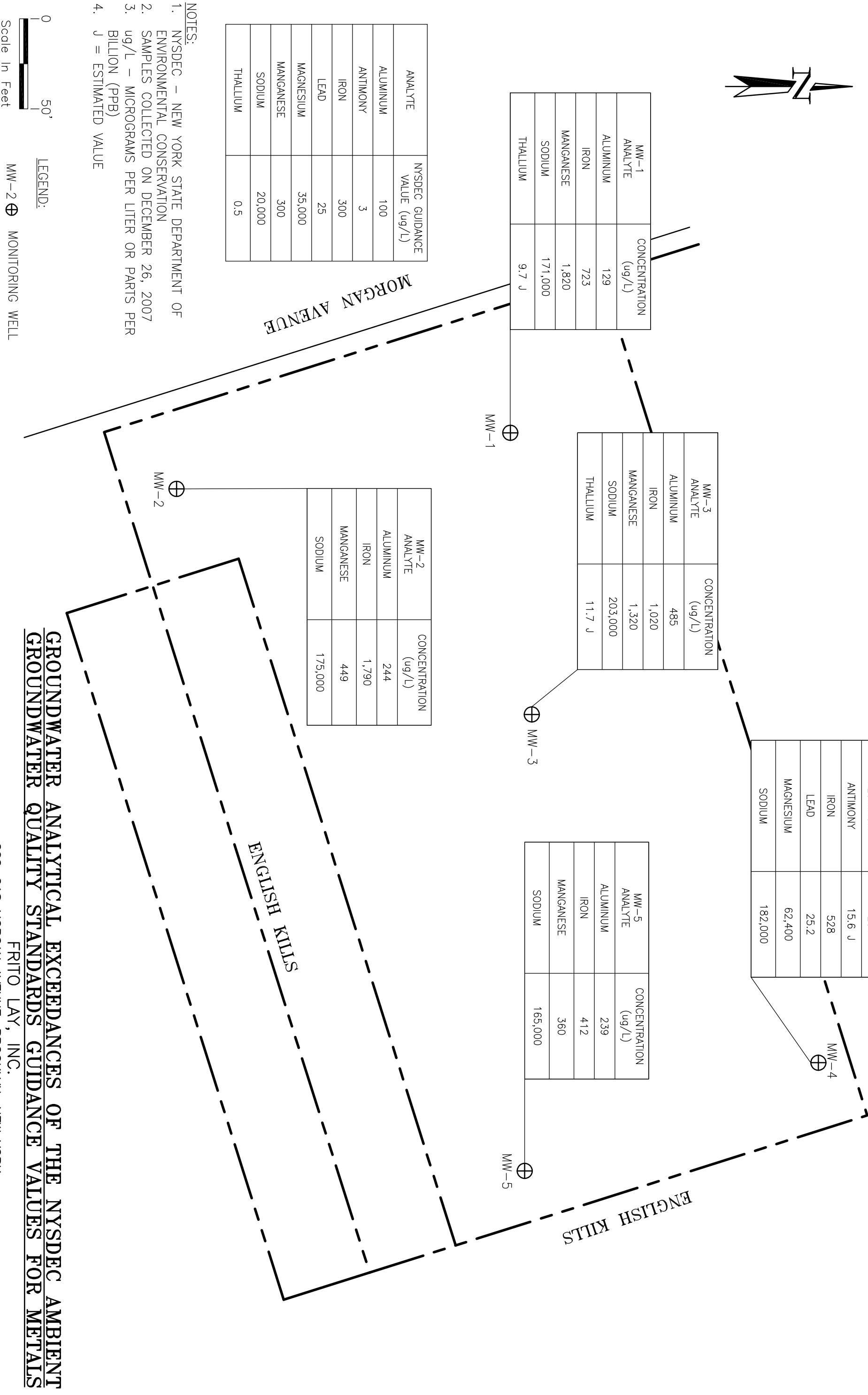
SOIL BORING ANALYTICAL EXCEEDANCES OF THE BROWNFIELDS PROTECTION OF GROUNDWATER CLEANUP OBJECTIVES FOR POLYCHLORINATED BIPHENYLS (PCBS)

FRITO LAY, INC.  
202-218 MORGAN AVENUE, BROOKLYN, NEW YORK









GROUNDWATER ANALYTICAL EXCEEDANCES OF THE NYSDC AMBIENT GROUNDWATER QUALITY STANDARDS GUIDANCE VALUES FOR METALS



- ▲

PROPOSED SOIL GAS PROBE LOCATION
- ▽

PROPOSED SURFACE WATER SAMPLE LOCATION
- ✕

PROPOSED SEDIMENT SAMPLE LOCATION
- ◆

PROPOSED SOIL BORING LOCATION
- PROPOSED MONITORING WELL LOCATION
- EXISTING SOIL BORING LOCATION
- ⊕

EXISTING MONITORING WELL LOCATION

LEGEND



EXISTING AND PROPOSED BORING/MONITORING WELL/ SOIL GAS  
SEDIMENT/SURFACE WATER SAMPLING LOCATIONS



**APPENDIX A**

**SITE SPECIFIC HEALTH AND SAFETY PLAN AND HOSPITAL ROUTE AND MAP**



HEALTH AND SAFETY PLAN  
FRITO-LAY, INC.

# ***HEALTH AND SAFETY PLAN***

**FRITO-LAY, INC.  
REMEDIAL INVESTIGATION  
202-218 MORGAN AVENUE  
BROOKLYN, NEW YORK**

**JANUARY 2007**

***Prepared for:***

**FRITO-LAY, INC.**

***Prepared by:***

**GANNETT FLEMING ENGINEERS, P.C.  
LOCUST VALLEY, NEW YORK**

HEALTH AND SAFETY PLAN  
FRITO-LAY, INC.

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- APPENDIX B - Initial HASP Training Log**
- APPENDIX C - Hospital Directions**
- APPENDIX D - Project Contacts**
- APPENDIX E - Accident / Incident Report**



HEALTH AND SAFETY PLAN  
FRITO-LAY, INC.

**1.0     PROJECT HEALTH AND SAFETY POLICY**

The maintenance of a safe and healthy work environment for Gannett Fleming employees is of utmost importance for the successful operation of our business. To this end, health and safety requirements must be considered fundamental to all aspects of the firm's operations.

To achieve our objectives, it is essential that our personnel be trained to follow procedures consistent with applicable safety standards. However, employees must be constantly alert to their personal obligation to comply with safe operating procedures. The continued cooperation of all our personnel is required to support and sustain an effective safety program.

Willful or consistent disregard of the safety provisions of this Health and Safety Plan (HASP) by a Gannett Fleming Engineers, P.C. (GF) employee will subject that employee to disciplinary action, up to and including discharge.

GF employees are required to follow the procedures specified in this HASP for applicable operations. If employees are required to engage in work activities that in their judgment would involve a threat to their personal safety, they shall immediately notify their Department Head and refrain from any exposure to the unsafe condition. The Department Head and the employee shall arrange for and verify that the unsafe condition has been eliminated or that proper safety measures are in place to protect the employee before resuming the work activity.

If employees are planning to engage in work activities that are not covered in this HASP, or if they are uncertain about the safety requirements for a specific work activity, they shall contact their Department Head before proceeding with the work. Also, if employees have any questions about the safety training requirements for their jobs or when and where to obtain safety training, they shall contact their Department Head. Any questions concerning safety procedures, safety equipment or safety training that cannot otherwise be resolved shall be referred by the Department Head to the Project Manager and Corporate Health and Safety Manager.

HEALTH AND SAFETY PLAN  
FRITO-LAY, INC.

**2.0     SCOPE AND APPLICABILITY**

This HASP is designed to provide safe procedures and practices for GF engaged in performing site reviews, investigations and inspections at 202-218 Morgan Avenue, Brooklyn, New York. This HASP will also be made available to GF subcontractors and subconsultants as a safety reference. The requirements of Part 1910- General Industry Standards, Part 1926- Construction Standards of the Code of Federal Regulations, the New York State Department of Labor (NYDOL) regulations, and New York State Department of Transportation (NYSDOT) regulations apply to these activities. If there is a conflict, the provision more protective of employee safety and health shall apply.

The HASP is based on available information concerning possible hazards that exist, or may exist, at the project sites. If more information concerning the nature of possible health and physical hazards become available, the HASP will be modified accordingly. Modifications will be made by the GF Site Safety and Health Supervisor (SSHS) and approved by the GF Project Manager and GF Health and Safety Manager. All modifications will be documented on a written memorandum by the SSHS. Additionally, a copy of this HASP shall be available for review by all personnel prior to their initial entry onto the site and be maintained on-site by the SSHS.

HEALTH AND SAFETY PLAN  
FRITO-LAY, INC.

### **3.0 KEY PERSONNEL AND RESPONSIBILITIES**

This section establishes the authority and responsibility for site health and safety and lists key project personnel. Any changes in key site personnel must receive prior approval by the GF Project Manager and Health and Safety Manager. A listing of project contacts is included as Appendix D.

<b>Key Personnel</b>	<b>Title</b>
Vincent Frisina, P.E.	Project Manager
Designated Field Personnel	Site Safety & Health Supervisor
Thomas Gingrich	Corporate Safety Manager

#### **3.1 GF Project Manager**

- Verify that health and safety provisions as defined in this HASP are implemented at the project site.
- Advise the Site Safety and Health Supervisor (SSHS) of his/her safety, health and environmental responsibilities and hold them accountable for their assigned site activities.
- Approve all changes of key site personnel.
- Design and manage site operations to minimize environmental, safety, and human health impacts and provide workplaces that control recognized safety hazards.
- Review and evaluate site performance in safety, health, and environmental protection.
- Consult with the GF Health and Safety Manager and Corporate Safety Manager as required to resolve health and safety issues arising at the project site.

#### **3.2 GF Health and Safety Manager**

- Assume responsibility as GF Safety Representative to the Frito-Lay, Inc. representative.
- Designate professional staff to support site safety, health, and environmental control activities.
- Verify that personnel receive the necessary training for conducting an effective site health and safety program.
- Approve all changes of key health and safety personnel.
- Provide consultation to the SSHS for the resolution of site health and safety issues.

HEALTH AND SAFETY PLAN  
FRITO-LAY, INC.

**3.3 GF Site Safety and Health Supervisor**

- Overall responsibility for verifying that GF site activities are conducted in accordance with the provisions contained in this HASP.
- Provide oversight of health and safety issues that affect GF project activities at the site.
- Advise the Project Manager on health and safety issues that affect project activities at the site.
- Verify that Personal Protective Equipment (PPE), monitoring equipment, sanitation facilities, etc., are adequate to support an effective health and safety program at the site.
- Arrange for site personnel to be informed of potential health and safety hazards associated with their assigned tasks and verify that safe work practices and procedures are instituted, including the proper wearing of PPE.
- Direct site emergency response activities with respect to GF employees.
- Enforce health and safety provisions applicable to GF personnel at the project site as applicable.
- The primary site duty and responsibility is to implement and direct the health and safety program at the site in accordance with the provisions contained in this HASP.
- Verify that GF site activities are conducted in a safe manner.
- Authority to stop any operation that threatens the health or safety of GF site personnel or the surrounding populace or has the potential for a significant adverse impact to the environment.
- Be present on-site as required during site work activities.
- Maintain a Daily Safety Log summarizing daily GF health and safety activities, as applicable. The logbook shall include, as a minimum, the following information: instrument field calibration data (if applicable), air monitoring results (if applicable), weather conditions, names of personnel present at the site (including visitors), PPE utilized at site activities, any unusual events, accidents or breaches of procedure. The Daily Safety Log Book shall be turned over to the Project Manager at the conclusion of field activities for inclusion in the project files.
- Maintain Daily Air Monitoring Reports (if applicable) to include instrument utilized for air monitoring, instrument calibration data, air monitoring results from each work location prior to the initiation of each day's activities, periodically throughout the day and the end of each day's activities.
- Conduct initial site safety briefings and daily safety meetings for all GF site personnel when on site.

HEALTH AND SAFETY PLAN  
FRITO-LAY, INC.

- Modify the HASP as necessary as on-site activities and events change. All HASP modifications shall be presented in a written memorandum to the Project Manager and GF Health and Safety Manager.
- Consult with the GF Health and Safety Manager to resolve site health and safety issues.

**3.4 GF Corporate Safety Manager**

- Provide employees with training, safety equipment and personal protective equipment as requested.
- Assist the Project Manager, Health & Safety Manager, and SSHS in identifying and minimizing safety and health hazards at the site.

**3.5 Site Personnel**

- Take reasonable precautions to prevent injury to themselves and to their fellow employees.
- Perform only those tasks that they believe they can do safely, and immediately report any accidents and/or unsafe conditions to the SSHS.
- Notify the SSHS of any special medical problems or medical restrictions and make certain that all on-site personnel are aware of any such problems.

HEALTH AND SAFETY PLAN  
FRITO-LAY, INC.

**4.0     PROJECT BACKGROUND INFORMATION**

GF has been retained by Frito-Lay, Inc. to perform data collection of debris piles currently on site and testing and install soil borings to investigate the soil and groundwater at 202-218 Morgan Avenue, Brooklyn, New York for volatile organic compounds (VOCs), base neutral compounds (BNs), Metals, and Polychlorinated Biphenyls (PCBs). This work will be used to quantify and delineate impacted soil/sediment and assess groundwater quality and to develop remedial alternatives and/or site monitoring.

Anticipated on-site activities include the following:

- Site reconnaissance
- Visual inspection of areas for surficial staining and indications of potential impact
- Surficial debris and soil sampling
- Oversight of surface pile disposal and building demolition
- Geophysical survey
- Boundary and baseline survey
- Installing soil borings
- Collecting soil and groundwater samples from new borings
- Collecting soil gas samples

HEALTH AND SAFETY PLAN  
FRITO-LAY, INC.

## **5.0     HAZARD ASSESSMENT AND CONTROL**

This section identifies potential physical and health hazards that may be encountered while performing site investigation tasks. Additionally, control measures are provided that will be implemented to reduce the risk associated with the identified hazards. If the nature of the project tasks change or additional hazards are identified, this section will be amended as appropriate.

### **5.1     Hazardous Materials**

Currently the project tasks will require GF employees to handle, or work around potential VOCs, BNs, PCBs, and metals impacted material at the facilities. In the event that previously unidentified hazardous materials or site contamination is encountered during the course of site activities, the work will cease and the SSHS will notify the GF Project Manager who will in turn notify the Frito-Lay representative.

The GF Health and Safety Manager will ensure that personnel involved in sampling of hazardous materials and potential VOCs, BNs, PCBs, and metals impacted material have undergone Occupational Safety & Health Administration (OSHA) Hazardous Waste Operations and Emergency Response (HAZWOPER) 40-hour training. All personnel involved in sampling will also have reviewed the GF, Inc. Standard Operating Procedure Number 1: Respiratory Protection Program (Appendix A). Additionally, Personal Protective Equipment (PPE) appropriate to the nature and condition of the material (as determined by the inspector) will be worn by field inspectors. Minimum PPE requirements for sampling include:

- Disposable latex gloves
- Disposable Tyvek coverall (optional)
- Reflective safety vest
- Safety shoes
- Hard hat

Hazardous materials brought on-site by GF or its subcontractors will be stored in the appropriate containers and labeled as to its contents and hazard potential in accordance with 29 CFR 1910.1200. Additionally, Material Safety Data Sheets (MSDS) will be maintained by the SSHS and reviewed with affected site personnel. Four copies of each MSDS will be sent to Frito-Lay, Inc. along with the anticipated quantities to be used, methods of use, storage methods and storage location prior to using the materials on-site.

### **5.2     Physical Hazards**

The following physical hazards are anticipated during site investigation activities at each of the sites:

- Slips, trips and falls
- Eye hazards

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- Heat stress/cold stress
- Severe weather
- Vehicular traffic
- Trenches and excavation
- Contaminant Exposure

**5.2.1 Slips, Trips, and Falls**

The potential for slips, trips and falls are posed by working on uneven and/or wet/icy walking/working surfaces. Site personnel should remain cognizant of uneven walking/working surfaces; wet snow or ice conditions, protruding and/or scattered debris or materials and stored equipment. Site personnel will be required to wear appropriate safety footwear for the facility conditions.

**5.2.2 Eye Hazards**

The potential for physical and chemical injury to the eyes is inherent with site investigation work. Therefore, site personnel are required to wear ANSI-approved safety glasses with side shields or safety goggles while performing site activities.

**5.2.3 Heat Stress/Cold Stress**

*Heat stress* may occur in summer activities, and the SSHS will institute a visual monitoring program when ambient temperatures exceed 70°F. The monitoring program will consist of the following:

- Encourage the routine intake of non-caffeinated fluids
- Monitor employees for visual signs of heat-related illness symptoms
- Establish work/rest regimes in accordance with ACGIH guidelines
- Establish a “buddy system” to ensure that employees are not working alone during activities that pose a potential heat stress concern

*Cold stress* may occur during winter site activities. The SSHS shall be cognizant of weather conditions and remind employees to dress appropriately with adequate insulating dry clothing to maintain core body temperatures above 96.8°F when air temperatures are below 40°F. The SSHS will visually monitor GF site workers for the symptoms of cold-related injuries. If continuous work is to be performed in the cold at air temperatures below 19.4°F, the SSHS will institute a work-warming regimen in accordance with the ACGIH guidelines.

**5.2.4 Severe Weather**

Exterior work will not be permitted when severe weather conditions exist. Severe weather conditions include electrical storms, tornadoes, hurricanes, floods, high winds, heavy rain or snow that creates unsuitable walking/working surfaces, and excessive heat or cold indices.

**5.2.5 Vehicular Traffic**

The nature of the work to be performed by GF and subcontractor personnel may expose personnel to on site vehicular traffic. All personnel will be required to wear safety vests consisting of fluorescent orange, pink or green material with safety reflective material and hard hat when working on site. Additionally, traffic control shall be established in accordance with the GF's Safety Manual



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for Field Operations, Section II.F, Traffic Control Standards and Guidelines (See Appendix A) and the NYSDOT Manual of Uniform Traffic Control Devices to reduce the risk of site personnel being struck by traffic.

**5.2.6 Trenches and Excavation**

GF personnel are not permitted to enter or work near open trenches or excavations greater than 4 feet in depth. In the event that it becomes necessary for GF personnel to enter trenches or excavations greater than 4 feet in depth, the SSHS will evaluate the trench/excavation to ensure that proper protective systems (i.e., shoring, sloping, shielding) in accordance with 29 CFR 1926.652 are in place and atmospheric monitoring for oxygen, flammability and other potential hazard materials has been performed.

**5.2.7 Confined Space Entry**

Confined space entries by GF personnel are not anticipated during site activities and, therefore, GF personnel are not permitted to enter confined spaces. If entry into a confined space becomes necessary, the SSHS must modify this HASP and obtain approval from the GF Project Manager and Health and Safety Manager prior to entry. Upon authorization, the entry may proceed with appropriately trained personnel and under procedures in accordance with the GF, Inc. Standard Operating Procedure Number 10: Confined Space Entry Program (See Appendix A).

**5.2.8 Contaminant Exposure**

GF personnel may encounter areas contaminated with VOCs, BNs, PCBs, and metals impacted material. Exposure to such contamination may occur through inhalation, dermal contact, or ingestion. Sampling and testing of media for contaminants must be conducted in accordance with training, certification, and PPE requirements outlined in Section 5.1 of this HASP, and the medical requirements described in Section 7.0 of this HASP. Additionally, air monitoring shall be conducted during intrusive field operations using a calibrated, photo ionization detector (PID). A PID reading of 5 parts per million (ppm) above the ambient or background measurements shall require the SSHS to evaluate the need for respiratory protection.

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**6.0     SAFETY AND HEALTH TRAINING**

In accordance with 29 CFR 1910.1200, Hazard Communication, the SSHS will provide a daily initial site awareness briefing when on-site. The briefing will include a review of this HASP with particular attention to potential hazards, control measures, PPE use and limitations, and emergency response procedures. All personnel will be required to sign the Initial HASP Training Log (Appendix B).

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**7.0 MEDICAL REQUIREMENTS**

All GF and subcontractor personnel involved in the site inspections and investigations and who may be required to wear a respirator shall have a current medical certification in accordance with 29 CFR 1910.134(b)(10).

**7.1 Medical Treatment For Site Accidents/Incidents**

Prior to the start of work at the site, the SSHS shall identify the nearest medical facility emergency room, obtain the phone number and driving directions. Additionally, the SSHS will obtain other local emergency numbers such as the police, fire, and ambulance.

The SSHS shall be informed of any site-related injury, exposure and/or medical condition resulting from activity on the site. All employees are entitled to medical evaluation and treatment in the event of a site accident or incident. If requiring medical attention, injured employees will be evacuated to nearby hospitals. Hospital directions and route maps are provided in Appendix C.

**7.2 Universal Precautions**

Universal Precautions shall be followed on site to minimize the risk from blood-borne pathogens. The universal precautions consist of treating all human blood and certain human body fluids as if being infectious for HIV, HBV and other blood borne pathogens. Clothing and first-aid materials, visibly contaminated with blood, will be collected by the SSHS and placed into a biohazard bag. Individuals providing first aid should wear latex gloves. If providing CPR, a one-way valve CPR device should be used (these will be included in on-site first-aid kits).

Work areas visibly contaminated with blood or body fluids shall be cleaned up using a 1:10 dilution of household bleach.

**7.3 First-Aid Kits**

A first-aid kit shall be available, readily accessible and fully stocked at the site.

**7.4 Accident/Incident Reports**

An Accident/Incident Report (Appendix E) shall be completed by the SSHS following the provision of any first-aid treatment at the site or medical evaluation. A copy of the report shall be provided to the Project Manager and Health and Safety Manager within 24 hours. The Project Manager and the Health and Safety Manager shall be notified by telephone as soon as possible after the event.

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## **8.0 GENERAL SITE SAFETY REQUIREMENTS**

### **8.1 Safe Work Practices**

The following safe work practices are to be incorporated into work activities at 202-218 Morgan Avenue, Brooklyn, New York:

- The SSHS will be on-site as required during project activities.
- On-site personnel are required to wear hard hat, reflective vest and safety shoes during all project site activities.
- Medical monitoring, respiratory fit test, and training documentation information, as needed, will be kept on site by the SSHS.
- Ground Fault Interrupt (GFI) circuits shall be used for cord and plug equipment in areas where water may be encountered.
- No open flames, fires, or portable kerosene or propane space heaters are permitted on site or within project trailers.
- On-site personnel required to wear respiratory protection devices are not allowed to have facial hair that interferes with a satisfactory fit of the respirator-to-face seal.
- All site personnel must have a respiratory fit test certificate issued within the past six months prior to the use of respiratory protection.
- Adequate quantities of potable drinking water should be available.
- Hazardous Materials brought on site shall be labeled in accordance with 29 CFR 1910.1200 and stored in accordance with 29 CFR 1910.106.
- Compressed gas cylinders brought on-site shall be stored in a designated location, upright, with valve caps secured in place and in secure racks or chained securely to a wall.
- No firearms or knives (except utility knives required for work tasks) will be permitted on-site.

### **8.2 Housekeeping Requirements**

In accordance with 29 CFR 1910.141 and 29 CFR 1926.25 work areas (as applicable) should be kept in a neat and orderly condition. Work areas should be kept dry and free of obstacles or protrusions.

### **8.3 Posting**

In accordance with 29 CFR 1903.2, the OSHA poster, informing employees of the protection and obligations provided for in the OSHA Act, shall be available, as applicable.

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Emergency phone numbers and directions to the designated site hospitals (Appendix C) shall be maintained in this HASP document. Copies of this HASP will be available to site personnel and at least one copy will be on-site at all times during field activities.

**8.4     Material Safety Data Sheets**

Copies of MSDS for all chemical materials brought on site (if any) shall be maintained on site by the SSHS.

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**9.0     EMERGENCY RESPONSE**

**9.1     Emergency Contacts**

The following organizations are to be contacted for the provision of emergency services:

<b>Agency</b>	<b>Telephone</b>
Police Department	911
Fire Department	911
Poison Control	(800) 222-1222
Project Manager Vincent Frisina, P.E.	(516) 671-8440 ext. 1323 (office) (631) 456-1555 (Cell) (631) 361-8994 (residence)
Insurance Manager Craig Campbell	717-763-7211, ext. 2794
Corporate Safety Manager Thomas Gingrich	717-763-7211, ext. 2087 717-545-0454 (residence)

**9.2     Emergency Signal for Site Operations**

Prior to start of work at a specific site, the SSHS shall designate an assembly location, preferably uphill and upwind of the work area.

Verbal communications between personnel shall be used to signal on-site GF personnel to safely discontinue work and immediately leave their location and meet at the pre-designated assembly location.

**9.3     Emergency Standard Operating Procedures**

The following standard operating procedures are to be implemented by on-site personnel in the event of an emergency. The SSHS shall be notified and shall conduct response actions.

## HEALTH AND SAFETY PLAN FRITO-LAY, INC.

Upon notification of a personnel injury, the designated emergency signal shall be sounded. All personnel are to terminate their work activities. The SSHS, if necessary, shall notify the ambulance service and hospital emergency room of the situation. If the injury is minor, but requires medical attention, the SSHS shall transport the victim to the hospital by an on-site vehicle. The SSHS shall accompany the victim to the hospital and provide assistance in describing the circumstances of the accident to the attending physician.

Upon notification of an equipment failure or accident, the SSHS shall determine the effect of the failure or accident on-site operations. If the failure or accident affects the safety of personnel or prevents completion of the scheduled operations, all work shall be stopped until the situation is evaluated and appropriate actions taken.

Upon notification of a natural disaster such as tornadoes, high winds, floods, thunderstorms or earthquakes, all work activities are to be terminated by the SSHS and all personnel are to evacuate the area.

Upon discovery of previously unidentified hazardous materials or contamination, the SSHS should evacuate the work area and contact the Project Manager.

### **9.4 Emergency Response Follow-Up Actions**

Following activation of the Emergency Response Plan, the SSHS shall notify the Project Manager by telephone and the following individuals as appropriate: Insurance Manager, Safety Manager, and the Health and Safety Manager. The SSHS shall submit a written report documenting the incident within one working day.

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**APPENDIX A**

**Gannett Fleming Corporate Safety Manual for Field Operations**



SAFETY MANUAL #

I Acknowledge that a copy of Gannett Fleming's "Safety Manual for Field Operations" has been issued to me for my use.

Name \_\_\_\_\_  
(Please Print)

Employee No. \_\_\_\_\_

Signature \_\_\_\_\_

Date \_\_\_\_\_

SAFETY MANUAL  
FOR  
FIELD OPERATIONS

GANNETT FLEMING  
ENGINEERING COMPANIES

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## **INTRODUCTION**

This manual has been developed by Gannett Fleming for use by Gannett Fleming Engineering Companies' employees. It is not intended to be used by any client or subcontractor of the Gannett Fleming Engineering Companies.

## **INTENT AND USE OF MANUAL**

The maintenance of a safe and healthy working environment for our employees is of the utmost importance for the successful operation of our business. To this end, safety requirements must be considered fundamental to all aspects of the firm's operations.

To achieve our objectives, it is essential that our personnel be trained to follow procedures consistent with applicable safety standards. However, employees must be constantly alert to their personal obligation to comply with safe operating procedures. The continued cooperation of all our personnel is required to support and sustain an effective safety program.

Willful or consistent disregard of the safety provisions of this manual by any Gannett Fleming employee will subject that employee to disciplinary action, up to and including discharge.

This manual is not intended to be all inclusive or to address all health and safety issues. The health and safety procedures of this manual are intended only for the applications cited herein. In addition, they may require supplementation with Standard Operating Procedures or site specific health and safety plans more specific to the nature of the work being performed.

Gannett Fleming employees are required to follow the procedures specified in this manual for applicable company field operations. If employees are required to engage in work

activities that in their judgment would involve a threat to their personal safety, they shall immediately notify their supervisor and refrain from any exposure to the unsafe condition. The supervisor and the employee shall arrange for and verify that the unsafe condition has been eliminated or that proper safety measures are in place to protect the employee before resuming the work activity.

If employees are planning to engage in work activities that are not covered in this manual, or if they are uncertain about the safety requirements for a specific work activity, they shall contact their supervisor before proceeding with the work. Also, if employees have any questions about the safety training requirements for their jobs or when and where to obtain safety training, they shall contact their Supervisor. Any questions concerning safety procedures, safety equipment or safety training that cannot otherwise be resolved shall be referred by the Supervisor to the Safety Manager.

Modification of the procedures contained in this manual can be made on a case by case basis only after consulting with and obtaining the written approval of the Safety Manager. Questions concerning the implementation of this manual should be directed to the Safety Manager.

**PART I**  
**DEFINITIONS**



## DEFINITIONS

The terms defined herein shall, for all purposes of this Safety Manual for Field Operations, have the meanings herein specified, unless the context clearly indicates otherwise:

APPROVED	-	In reference to a code, standard, device, or item of equipment, one that is sanctioned, endorsed, accredited, certified, listed, labeled, or accepted by a duly constituted and nationally recognized authority or agency as satisfactory for use in a specified manner.
ATTENDANT	-	A person who is assigned as standby to monitor a confined space process or operation and provide support or react as required.
AUTHORIZED - EMPLOYEE		A Gannett Fleming employee designated or assigned by his supervisor to perform a specific type of duty or duties, to use specified equipment or vehicles, and/or to be present in a given location at specified times.

## **DEFINITIONS**

(continued)

**AUTHORIZED -  
REPRESENTATIVE**

A person, other than a Gannett Fleming employee, who has been designated by his Supervisor, company, or agency to act on its behalf on specified matters.

**BLINDING**

- Inserting a solid barrier across the open end of a pipe leading into or out of the confined space, and securing the barrier in such a way to prevent leaking of material into the confined space.

**CATENARY  
SYSTEM**

- A system of suspended cables attached at fixed points, implied herein as high tension electric cables.

**COMBUSTIBLE  
GAS INDICATOR**

- An instrument which samples air and indicates (a) whether there is an explosive mixture present, and (b) the percentage of the lower explosive limit of the air-gas mixture that has been reached.

## DEFINITIONS

(continued)

### CONFINED SPACE

- An enclosed area that has the following characteristics:
  - ? its primary function is something other than human occupancy,
  - ? has restricted entry and exit,
  - ? may contain potential or known hazards.

Examples of confined space include, but are not limited to: tanks, silos, vessels, pits, vaults, pipelines, ducts, manholes, sewers, septic tanks, tunnels, caves, drainage pipes, culverts, caissons, cut and cover excavations, sinkholes, open topped space more than four feet deep, such as pits and trenches, or a chlorine room when a leak is suspected. Tanks and other structures under construction may be considered confined spaces until completely closed.

## **DEFINITIONS**

(continued)

CPR	-	Cardiopulmonary Resuscitation
DOUBLE BLOCK AND BLEED	-	A method used to isolate a confined space from a line, duct or pipe by physically closing two in-line valves on a piping system, and opening a "vented-to-atmosphere" valve between them.
ENGULFMENT	-	The surrounding, capturing, or both, of a person by divided particulate matter or liquid.
ENTRY	-	Ingress by persons into a confined space which occurs upon breaking the plane of the confined space portal with his/her face; and all periods of time in which the confined space is occupied.
EQUIPMENT CENTER MANAGER	-	The person in charge of any Gannett Fleming equipment center or equipment dispensing.

## DEFINITIONS

(continued)

### FIRE EXTINGUISHER

- A device having characteristics essential for extinguishing flame. Fire extinguishers may contain liquid, dry chemicals, or gases. They are tested and rated to indicate their ability to handle specific classes and sizes of fires, as follows:
  - ? Class A Extinguishers – for ordinary combustibles, such as wood, paper and textiles, where a quenching/cooling effect is required.
  - ? Class B Extinguishers - for flammable liquid and gas fires, such as oil, gasoline, paint, and grease, where oxygen exclusion or a flame interruption effect is essential.
  - ? Class C Extinguishers - for fires involving energized electrical

## DEFINITIONS

(continued)

wiring and equipment, where the non-conductivity of the extinguishing agent is of prime importance.

? Class D Extinguishers - for fires in combustible metals such as magnesium, potassium, powdered aluminum, zinc, sodium, titanium, zirconium, and lithium.

FLAMMABILITY - Property of a substance referring to its ability to be easily ignited or to burn.

FLAMMABLE - Said of any substance that is easily ignited, burns intensely, or has a rapid rate of flame spread.

HARD HAT - An approved metal or plastic helmet worn by a worker to provide head protection when the worker is subject to the hazard of falling or moving objects.

## **DEFINITIONS**

(continued)

HAZARDOUS ATMOSPHERE	-	An atmosphere that may be or is injurious to occupants by reason of: oxygen deficiency or enrichment; flammability or explosivity; or toxicity.
INSURANCE MANAGER	-	The Gannett Fleming employee who is responsible for insurance matters for the company.
LANYARD	-	A flexible line to secure a worker wearing a safety belt or harness to a drop line, lifeline, or fixed anchorage.
LIFELINE	-	A horizontal line between two fixed-anchorage, independent of the work surface, to which a lanyard is secured either by tying off or by means of a suitable sliding connection.
LOCKOUT/ TAGOUT	-	The placement of a lock/tag on the energy isolating device in accordance with an established

## DEFINITIONS

(continued)

procedure, indicating that the energy isolating device shall not be operated until removal of the lock/tag in accordance with an established procedure. (The term "lockout/tagout" allows the use of a lockout device, a tag, or a combination of both.)

LOWER  
EXPLOSIVE  
LEVEL

- Minimum or least concentration of gas or vapor in air below which a substance will not burn or explode.

LOWER  
FLAMMABLE  
LEVEL

- Minimum or least concentration of gas or vapor in air below which a substance will not burn.

MSHA

- Mine Safety and Health Administration, an agency of the Federal government.

NON-PERMIT  
CONFINED SPACE  
(NPCS)

- A space which, by configuration, meets the definition of a confined space but which after evaluation is found to have little potential for generation of hazards or has the hazards



## **DEFINITIONS**

(continued)

		eliminated by engineering controls.
OCCUPATIONAL ILLNESS	-	A physical ailment or injury incurred as a direct result of exposure to a work environment.
OSHA	-	Occupational Safety and Health Administration, an agency of the Federal government.
PERMIT REQUIRED CONFINED SPACE (PERMIT SPACE) (PS)	-	A confined space which after evaluation has actual or potential hazards which have been determined to require written authorization for entry.
PERSONAL PROTECTIVE EQUIPMENT	-	Equipment and/or clothing worn by an individual to prevent illness or injury.
PROTECTIVE CLOTHING	-	Clothing worn to protect a worker from exposure to or contact with harmful substances.

## **DEFINITIONS**

(continued)

QUALIFIED PERSON	-	A person who by reason of training, education and experience is knowledgeable in the operation to be performed and is competent to judge the hazards involved.
RESPIRATOR	-	A protective device for the human respiratory system designed to protect the wearer from inhaling contaminated air.
SAFETY BELT	-	A device usually worn around the waste which, by reason of its attachment to a lanyard and lifeline or a structure, will prevent a worker from falling.
SAFETY MANAGER	-	A person trained in safety and having specific authority to direct the safety program of the company.
SHALL	-	Denotes a mandatory requirement.

## **DEFINITIONS**

(continued)

SHOULD	-	A recommendation that is a sound safety and health practice; it does not denote a mandatory requirement.
SUPERVISOR	-	Person in responsible charge of a group of workers or a work activity.
THIRD RAIL	-	An exposed or partially exposed electrified conductor, adjacent to a railroad track, used to provide electric power to a locomotive.
TOXIC GASES -		Gases which are poisonous or which reduce the oxygen content of an atmosphere below safe levels for human occupancy.
TOXICITY	-	A measure of the poisonous nature of a substance, such as gases or liquids.

**PART II**

**GENERAL REQUIREMENTS**

## **II.A. ACCIDENTS**

### **1.0 PURPOSE:**

To establish procedures for seeking medical attention and reporting of job related accidents, injuries and occupational illnesses.

### **2.0 SCOPE:**

Applies to all Gannett Fleming employees.

### **3.0 RESPONSIBILITIES:**

Employee - To report and seek medical attention for all job related accidents or occupational illnesses.

Supervisor - To supply emergency information for field offices; to complete or require the completion of the "Employer's Report of Occupational Injury or Disease" form and send it to the company Insurance Manager; to immediately notify the Safety Manager of employee fatality; to correct or arrange for the correction of deficiencies that were determined to contribute to or cause an injury.

Safety Manager - To investigate accidents, injuries and occupational illnesses; to identify deficiencies; to prepare appropriate reports for governmental agencies, insurance and internal purposes.

## **II.A. ACCIDENTS**

(continued)

### **4.0 PROCEDURES:**

- 4.1 Emergency telephone numbers such as physician, hospital, ambulance, fire and police departments and utility companies shall be posted at field offices.
- 4.2 All accidents, however minor, should be reported to the immediate supervisor.
- 4.3 For injuries such as minor cuts and bruises, employees should seek treatment from an individual trained in first aid. For all other injuries, if the injury is not so severe as to prevent the moving of the employee, the employee should be transported to the nearest medical facility, hospital or physician. If the injury is of a severe nature as to prevent the moving of the employee or if unsure of the severity of the injury, the hospital emergency care telephone number or ambulance service telephone number shall be called and an ambulance requested. The caller shall be prepared to give the location, phone number being called from, number of people injured and nature of injuries. The caller shall stay on the line until party called hangs up.

## **II.B. CONFINED SPACE ENTRY**

### **1.0 PURPOSE:**

To establish procedures for safe work practice to be utilized when engaged in work activities that may involve confined space entry.

### **2.0 SCOPE:**

2.1 Provides minimum safety requirements to be followed by Gannett Fleming employees while entering, exiting and working in confined spaces.

2.2 Although this section describes specific safety steps to be taken for entry into confined spaces, it is not intended to preclude the use of any additional measures that may be deemed necessary for a particular situation.

### **3.0 RESPONSIBILITIES:**

Employee - To report to work wearing clothing suitable for the weather and work as deemed appropriate by the Supervisor; to wear personal protective equipment, if required; to obtain a confined space entry permit when required; to become familiar with and adhere to the applicable job related safety requirements, including those of Gannett Fleming, the property owner, the client and Federal, state and local governments.

## **II.B. CONFINED SPACE ENTRY**

(continued)

Supervisor - To arrange employee safety training pertinent to the job, including confined space entry; to assist employees in obtaining personal protective and safety equipment requested for the job; to consult with the Safety Manger identification and entry procedures; to assist employees if assistance is needed to identify and minimize work site safety hazards; to advise Employees to utilize personal protective and safety equipment, as necessary, and practice sound safety principles.

Safety Manger - To train employees in the identification of and entry into confined spaces; to provide employees with safety equipment and personal protective equipment; to assist the Project Manager, Supervisor or the Employee in identifying and minimizing safety and health hazards at the work site.

Entry Supervisor – Know the hazards that may be faced during the confined space entry. Verify that the permit has been completed prior to entry. Terminate the entry and cancel the permit if any of the required provisions of the permit are not met or if additional hazards which affect the safety of the entrants become apparent. Advise the designated rescue service of the entry and confirm that they are available to respond to an emergency. Enforce the removal of unauthorized persons who enter or attempt to enter the confined space. Be responsible for the adherence to procedures to insure that all operations remain consistent with the terms of the entry permit and that entry conditions remain acceptable.



## **II.B. CONFINED SPACE ENTRY**

(continued)

### **4.0 CONFINED SPACE CLASSIFICATIONS (PERMIT SPACE):**

**4.1** A Permit Required Confined Space (PS) is an enclosed space which has all of the following characteristics:

? Is large enough and so configured that an employee can bodily enter and perform assigned work;

? Has limited or restricted means for entry or exit (some examples are tanks, vessels, silos, manholes, storage bins, hoppers, vaults, pits, and diked areas);

? Is not designed for continuous employee occupancy; and

? Has one or more of the following characteristics:

- Contains or has a known potential to contain a hazardous atmosphere;
- Contains a material with the potential to engulf an entrant;
- Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging

## II.B. CONFINED SPACE ENTRY (continued)

walls, or a floor which slopes downward and tapers to a smaller cross section;

- Has an energy hazard which can involve contact with electrical equipment, steam or other sources of heat inside the space. This type of equipment can include shafts, augers, mixers or impellers; or
- Contains any other known serious safety or health hazard.

4.2 A Non-Permit Confined Space (NPCS) is an enclosed space which does not meet the PS definition. If there is any doubt whether or not a confined space may be classified as an NPCS, the employee should request a determination by the Supervisor or Safety Manager.

## 5.0 GENERAL PROCEDURES

5.1 Hazards shall be identified for each confined space. The hazard identification process shall include, but not be limited to, a review of the past and current uses of the confined space, which may adversely effect the atmosphere of the confined space. This information shall be used to determine testing requirements prior to entry.

## **II.B. CONFINED SPACE ENTRY**

(continued)

- 5.2 Review the means of entry and exit into the confined space and the hazards posed by adjacent spaces and operations.
- 5.3 Field personnel working in or around confined spaces shall have a working knowledge and understanding of the hazards that may exist.
- 5.4 Before entry into a confined space, testing shall be conducted for a hazardous atmosphere by a competent team member who has been trained in proper testing techniques. The equipment used must be calibrated to the manufacturers specifications. At a minimum, testing must monitor oxygen levels, combustible gases, vapors and any toxic materials which are known to exist in the space. Testing needs to be done prior to entry to assess the conditions and while the space is occupied. The air outside the space should be tested to detect hazards that may affect persons remaining outside the space.

The confined space shall not be entered unless confined space atmosphere testing results are within the following acceptable limits:

## **II.B. CONFINED SPACE ENTRY**

(continued)

- ? Test for gases in the correct order. Always test for oxygen first. Oxygen content should be between 19.5% and 23%. If the oxygen level is low, other meter readings, such as flammables and toxics, may not be accurate.
- ? Test for flammability shall be less than 10% of Lower Explosive Level (LEL) or Lower Flammable Level (LFL).
- ? Test for toxicity shall be less than recognized exposure limits for each monitored substance.

Test the air at several levels in the space. Some gases may be present only at the bottom, others only at the top. Testing at lower, middle and upper levels of space will detect these differences. Sometimes it is necessary to enter the space to test corners or behind equipment. If entry into the space for testing is required, the tester must wear appropriate respiratory protection equipment.

Initial testing of atmospheric conditions and subsequent testing after a job has been stopped for a significant period of time shall be done with ventilation systems shut down. Further testing shall be conducted with ventilation system turned on to verify that the contaminants are removed and the ventilation system is not itself causing a

## **II.B. CONFINED SPACE ENTRY**

(continued)

hazardous condition. If the confined space is vacated for any significant period of time, the atmosphere of the confined space shall be retested before re-entry is permitted.

- 5.5 Whenever testing of the atmosphere indicates that levels of oxygen, flammability, or toxicity are not within acceptable limits, entry shall be prohibited. If the source of the contaminant cannot be determined, precautions shall be adequate to deal with the worst possible condition that the contaminant could present in the confined space.
- 5.6 Based on the evaluation of the confined space hazards, a qualified person shall classify the confined space as either a PS or an NPCS.
- 5.7 Personal protective equipment shall be worn as needed for safe entry and occupancy of the confined space. Personal protective equipment includes but is not limited to: approved respirator, hard hat, safety goggles or safety glasses, safety shoes, gloves and chemical protective clothing. Personal safety equipment is not an adequate substitute for safe working conditions, adequate ventilation or safe working practices.

## **II.B. CONFINED SPACE ENTRY**

(continued)

- 5.8 Approved low-voltage electrical equipment must be used where the atmosphere in the confined area may contain flammable vapors or where the atmosphere could contain solvent vapors within their flammable limits. All electrical outlets and circuits used to energize such equipment shall be equipped with ground-fault interrupters.
- 5.9 If initial air monitoring indicates the presence of flow oxygen levels or high toxic levels, forced ventilation into the space using adequately sized equipment should be provided. The most effective method of ventilation involves placing an air hose far enough into the space to force the air to the bottom. The air will eventually be vented through an opening in the space.

If the entrant is welding inside the space, it will be more efficient to capture the contaminants at the point of generation and carry them out of the space via flexible piping. If this method is chosen be sure that the exit point is far enough outside the space to keep contaminants from being drawn back down into the space.

If any work is being done outside, be aware of environmental factors such as the direction the wind is blowing. Vent exhaust contaminants downwind from the space. If air is being vented into the space using outside air, be sure the air is taken upwind from any airborne contaminants.

## 6.0 PERMIT SPACE PROCEDURES

6.1 A confined space entry permit shall be prepared by the entry supervisor for all Permit Space entries. This document shall include as a minimum the following information:

1. Name and location of the space to be entered
2. Purpose of entry
3. When the entry will be performed including the date and the authorized duration of entry
4. Who will be entering the space
5. Who will be serving as attendants
6. Who is authorizing the entry into the space
7. The hazards anticipated inside the space
8. How the space will be made safe for entry including:
  - ? lockout and tagout procedures

## **II.B. CONFINED SPACE ENTRY**

(continued)

- ? emptying, cleaning or purging the space
  - ? disconnecting process supply lines
  - ? insertion of blanks into supply lines
9. The acceptable conditions inside the space prior to the entry such as:
- ? acceptable oxygen level
  - ? acceptable levels of airborne toxic materials
  - ? acceptable levels of flammable vapors
10. The equipment needed to control the hazards existing in the space and the equipment needed to respond to an emergency situation:
- ? personal protective equipment
  - ? testing equipment
  - ? communication equipment
  - ? rescue equipment



## **II.B. CONFINED SPACE ENTRY**

(continued)

11. Initial, periodic or continuous monitoring of conditions inside the space. Include the name or initials of the person who performed the tests and the times and date the tests were completed
12. The person who will initiate the rescue procedures and the team that will be called to perform the rescue in an emergency situation
13. Procedures entrants and attendants will follow
14. Additional required permits (e.g., Hot Work Permits) needed to safely perform work inside the space.

Each permit is valid for not more than one work shift.

- 6.2 A sample PS permit is provided in Appendix B. Each Gannett Fleming division or section may develop a permit form which best meets its needs. However, the form must be approved by the Corporate Safety Manager prior to use.
- 6.3 An attendant trained for confined space entry shall be stationed outside any PS. It is important that communication be maintained between team

## **II.B. CONFINED SPACE ENTRY**

(continued)

members. If problems arise, the attendant must be able to order the entrants out of the space, or the entrants must be able to summon for help. The entrants and the attendants can maintain visual and voice contact. If the entrants are out of visual range, portable electronic communication equipment can be used. The attendant shall provide standby assistance to occupants entering the confined space, direct occupants to exit the confined space when irregularities are observed, initiate evacuation and emergency procedures, monitor conditions or changes that could adversely affect the entry and remain at the point unless relieved by another attendant.

- 6.4 All energy sources that are potentially hazardous to confined space entrants shall be secured, relieved, disconnected and/or restrained before personnel are permitted to enter the confined space. Precautions shall be used to prevent flammable, toxic, irritating or oxygen displacing gases and vapors from entering the space. All hazardous material piping, high pressure piping, high temperature piping and other piping that could induce a hazard shall be isolated by utilizing blinding, disconnection, removal or double block and bleed as needed to prevent entry of material and hazardous contaminants.

## **II.B. CONFINED SPACE ENTRY**

(continued)

- 6.5 Procedures and equipment necessary to rescue entrants from a PS must be provided. In PS having a restricted means of access (such as a sewer manhole), any person entering the confined space must be fitted with a safety harness and lifeline. The lifeline should be secured outside the entrance. Where entry into a vessel, manhole, or other confined space must be made through a top opening, an approved hoisting device or other effective means must be provided to lift employee out of space. Ladders must be in place for entrances and exits where the drop or climb involves a depth of more than 3 feet.
- 6.6 Continuous monitoring of the PS atmosphere is required during occupancy.

### **7.0 NPCS PROCEDURES**

- 7.1 When a qualified person determines atmospheric test results are within acceptable limits (Oxygen - 19.5 % to 23.5%; Flammability - less than 10% of the lower explosive limit or lower flammable limit, and toxicity less than recognized exposure limits) and there is no known potential for generation of hazards, a confined space permit will not be required.

## **II.B. CONFINED SPACE ENTRY**

(continued)

- 7.2 A qualified person shall determine the need for periodic testing and re-evaluation of the hazards based on possible changes in activities in the space, or other physical or environmental conditions which could adversely affect the space and change the classification.
- 7.3 Continuous monitoring of the NPCS atmosphere is not required during occupancy.

## **II.C. ELECTRICAL HAZARDS**

### **1.0 PURPOSE:**

To establish procedures for safe work practices to be utilized when engaged in work activities that may involve electrical hazards.

### **2.0 SCOPE:**

Applies to all Gannett Fleming personnel in work activities that may involve electrical hazards.

### **3.0 RESPONSIBILITIES:**

Employee - To report to work wearing clothing suitable for the weather and work as deemed appropriate by the Supervisor; to wear personal protective equipment, if required; to become familiar with and adhere to the applicable job related safety requirements, including those of Gannett Fleming, the property owner, the client and Federal, state and local governments.

Supervisor - To arrange employee safety training pertinent to the job; to assist employees in obtaining personal protective and safety equipment requested for the job; to consult with the Safety Manager if assistance is needed to identify and minimize work site safety hazards; to advise Employees to utilize personal protective and safety equipment, as necessary, and practice sound safety principles.

## **II.C. ELECTRICAL HAZARDS**

(continued)

Safety Manager - To provide employees with training, safety equipment and personal protective equipment as requested; to assist the Project Manager, Supervisor or the Employee in identifying and minimizing safety and health hazards at the work site.

### **4.0 PROCEDURES**

- 4.1 Personnel who are regularly assigned to field activities shall be instructed in CPR, first aid and safety training appropriate for the job.
- 4.2 Work shoes or boots with heavy soles to protect the bottom of the foot shall be worn. Shoes with steel shank and toe shall be worn in areas that pose the risk of injury to the foot.
- 4.3 Safety glasses with side shields or safety goggles shall be worn if there is a reasonable probability of injury to the eye from debris, liquids, or other causes.
- 4.4 Hearing protection shall be required when noise levels exceed 85 decibels. Generally, if shouting is required to be heard by another within arms length because of noise, hearing protection is required.

## **II.C. ELECTRICAL HAZARDS**

(continued)

- 4.5 Activities involving entry into a confined space such as a tank, vessel, vault, pit, pipeline, duct, manhole, sewer, tunnel, cave, underground mine, drainage pipe, culvert, caisson, trench, hole, sinkhole or open-topped space more than four feet deep, shall be performed in accordance with "Confined Space Entry Procedures", as specified in Section II.B of this manual.
- 4.6 Gloves shall be worn when hand protection is required.
- 4.7 Employees are expected to utilize proper judgment in their personal habits. When they report to work they must be in a condition fit to meet daily responsibilities.
- 4.8 Except where the electrical distribution and transmission lines have been de-energized and visibly grounded at point of work or where insulating barriers have been erected to prevent physical contact with the lines, employees shall maintain clearances under, over, by, or near power in accordance with the following:
  - (1) For lines rated 50 kv and below, minimum clearance between the lines and any part of the body shall be 10 feet

## **II.C. ELECTRICAL HAZARDS**

(continued)

plus 0.4 inches for each 1 kv or twice the length of the line insulator, but never less than 10 feet.

- 4.9 Before starting operations near electrical lines, the owner of the lines or his authorized representative shall be notified of the work and shall be provided information about the nature of the work. The Supervisor shall ascertain the electrical line owner's requirements pertaining to the type of work being performed and shall seek the electrical line owner's cooperation in minimizing potential electrical hazards to workers.
- 4.10 Any electrical line or wire shall be considered to be an energized line until the owner of the line or his authorized representative confirms that it is de-energized. Electrical equipment shall be considered energized until determined to be de-energized by test or other appropriate methods or means.
- 4.11 If portable ladders are used, they shall be at such a pitch that the horizontal distance from the top support to the foot of the ladder is about 1/4 of the working length of the ladder. The side rails shall extend not less than 36 inches above the



## **II.C. ELECTRICAL HAZARDS**

(continued)

landing. They shall be tied and blocked, or otherwise secured, to prevent their being displaced. Portable metal ladders shall not be used for electrical work or where they may contact electrical conductors. Ladders shall not be used in a horizontal position as platforms or scaffolds. The use of ladders with broken or missing rungs or steps, broken or split side rails, or other faulty or defective construction is prohibited.

- 4.12 Operating voltage of equipment and lines shall be determined before working on or near energized parts.
- 4.13 Guards or barriers shall be erected as necessary adjacent to all energized equipment or lines to prevent accidental contact when such equipment or lines cannot be de-energized. Where appropriate, signs indicating the hazard shall be posted near the barricade or barrier.
- 4.14 Measuring tapes or measuring ropes that are metal or contain conductive strands shall not be used when working on or near energized equipment.

## **II.C. ELECTRICAL HAZARDS**

(continued)

- 4.15 Appropriate warning signs shall be placed near the opening when covers of electrical manholes, handholes or vaults are removed.
- 4.16 Before an employee enters an electrical manhole, handhole or vault, it shall be protected with a barrier, temporary cover, or other suitable guard.
- 4.17 Electrical manholes, handholes, and unvented vaults are confined spaces. Entry into these spaces shall be performed in accordance with "Confined Space Entry Procedures", as specified in Section II.B of this manual.
- 4.18 Safety switches or circuit breakers shall not be operated without the consent and approval of the Owner or his authorized representative.
- 4.19 Panelboard covers shall not be removed and/or associated wiring disturbed unless assisted and approved by the Owner or his authorized representative.
- 4.20 Employees shall not open, internally inspect, or work on any energized electrical control panel, unless such work is required for the employee's performance of a specific work assignment, the

## **II.C. ELECTRICAL HAZARDS**

(continued)

employee has authorization from his supervisor, and the employee is accompanied by facility maintenance personnel. When opening, internally inspecting, or working on any energized electrical control panel, precautions shall be taken to prevent accidental operation of relays or other electrical devices due to jarring or vibration.

4.21 Employees shall not enter energized electrical substations, unless entry is required for the employee's performance of a specific work assignment and the employee has been authorized by his supervisor to enter. Prior to entering an energized electrical substation, the employee shall:

- ? Obtain authorization from the Owner or his authorized representative.
- ? Determine which facilities are energized.
- ? Determine what protective equipment and precautions are required and implement them.
- ? Comply with "Confined Space Entry Procedures" if the space to be entered is a confined space.

## **II.D. BOATING SAFETY**

### **1.0 PURPOSE:**

To establish procedures for safe boating practices to be utilized when work is done from a boat.

### **2.0 SCOPE:**

Applies to all Gannett Fleming employees when using a boat in their work activities.

### **3.0 RESPONSIBILITIES:**

Employee - To report to work wearing clothing suitable for the weather and work as deemed appropriate by the Supervisor; to wear personal protective equipment, if required; to become familiar with and adhere to the applicable job related safety requirements, including those of Gannett Fleming, the property owner, the client and Federal, state and local governments.

Supervisor - To arrange safety training pertinent to the job for employees; to assist employees in obtaining personal protective and safety equipment requested for the job; to consult with the Safety Manager if assistance is needed to identify and minimize work site safety hazards; to advise employees to utilize personal protective and safety equipment, as necessary, and practice sound safety principles.

## **II.D. BOATING SAFETY**

(continued)

Safety Manager - To provide field employees with training, safety equipment and personal protective equipment as requested; to assist the Project Manager, Supervisor or the Employee in identifying and minimizing safety and health hazards at the work site.

### **4.0 PROCEDURES:**

- 4.1 Personnel who are regularly assigned to field activities shall be instructed in CPR first aid and safety training appropriate for the job.
- 4.2 Employees are expected to utilize proper judgement in their personal habits. When they report to work, they must be in a condition fit to meet daily responsibilities.
- 4.3 Boats shall be equipped with Coast Guard approved personal flotation devices for each passenger. In addition, power boats shall be equipped with Coast Guard approved navigation lights, stern light and a horn capable of producing a 4 second blast audible for ½ mile. Additional equipment is determined by the length of the boat.
- 4.4 The law prohibits the throwing, discharging or depositing of any refuse matter of any kind into the water.

## **II.D. BOATING SAFETY**

(continued)

- 4.5 The operator of any vessel involved in an on-the-water accident must stop, render assistance to those in danger and offer identification. If a person disappears from a vessel or a death occurs as a result of a boating accident, local authorities must be notified immediately.

## **II.E. HEAT AND COLD STRESS**

### **1.0 PURPOSE:**

To establish practices and procedures to be utilized while performing field activities during periods of hot and cold weather.

### **2.0 SCOPE:**

Applies to all Gannett Fleming personnel engaged in field activities.

### **3.0 RESPONSIBILITIES:**

Employee - To report to work wearing clothing suitable for the weather and work as deemed appropriate by the Supervisor; to wear personal protective equipment, if required; to become familiar with and adhere to the applicable job related safety requirements, including those of Gannett Fleming, the property owner, the client and Federal, state and local governments.

Supervisor - To monitor temperature and humidity of work site and to observe employees for symptoms of heat or cold stress. This duty may be assigned to an on-site health and safety officer, as appropriate.

Safety Manager - To assist the Supervisor in selecting and implementing practices and procedures necessary to reduce heat or cold stress.

## **II.E. HEAT AND COLD STRESS**

(continued)

### **4.0 PROCEDURES**

- 4.1 Work modifications may be necessary during temperatures of greater than 78°F. This may include additional rest periods, supplemental fluids, use of cooling vests or modification of work practices. The Safety Manager should be consulted for recommendations to reduce the employee's heating load.
- 4.2 Employees exhibiting symptoms of heat exhaustion or heat stroke should receive medical attention from a hospital or physician. Both conditions can be life threatening and should be immediately treated.

#### **Heat Exhaustion - Symptoms and Treatment:**

Symptoms - Cool, wet, pale skin; body temperature normal or lower; dilated pupils.

Treatment - remove victim from heat to a cooler place. Have the victim rest and elevate the feet. Loosen or remove clothing. Cool but do not chill the victim (fan and apply cold packs or wet towels).



## **II.E. HEAT AND COLD STRESS**

(continued)

Care for shock. If the victim is conscious, give one-half glass full of water every 15 minutes, as tolerated. Call physician or hospital, advise them of employee's symptoms and of treatment provided, and seek physician's advice on next course of action.

### **Heat Stroke - Symptoms and Treatment:**

Symptoms - Hot, dry or wet, red skin; body temperature very high; pupils constricted.

Treatment - remove the victim from heat to a cooler place. Cool victim fast (immerse in a cool bath or wrap wet sheets around him or her and direct a fan over the body). Care for shock. Give nothing by mouth. Call physician or hospital, advise them of employee's symptoms and of treatment provided, and seek physician's advice on next course of action.

- 4.3 If heat cramps are suspected, move the victim to a cooler place. Have victim stop activity. If there are no other injuries, give the victim one-half glass full of water every 15 minutes for 1 hour as tolerated.

## **II.E. HEAT AND COLD STRESS**

(continued)

A victim of extreme heat may first experience heat cramps and then heat exhaustion. If not helped he or she can suffer a heat stroke, a life threatening condition.

- 4.4 Cold stress may occur during exposures of less than 40°F. Additional clothing and rest periods in heated areas may be necessary to maintain the employee's core temperature. The Safety Manager should be consulted for recommendations to reduce cold stress.
- 4.5 Cold extremes can produce two kinds of cold emergencies: hypothermia and frostbite.

### **Hypothermia - Symptoms and Treatment**

Symptoms - slowed heart rate; slowed breathing rate; slurred speech; staggered walking; reduced response to pain; cold skin; low core temperature (less than 35°C or 95°F); confusion; muscle stiffness.

Treatment - move the victim from the cold to a warm place. Remove wet clothes and cover with dry clothing or blankets. Warm body slowly, give

## **II.E. HEAT AND COLD STRESS**

(continued)

nothing by mouth unless victim is fully conscious. Do not warm the victim too quickly. Rapid warming could cause serious heart problems or increase circulation to body surface causing additional cooling of vital organs. Do not give beverages containing alcohol or caffeine. Give warm broth or water.

Call physician or hospital, advise them of employee's symptoms and of treatment provided, and seek physician's advice on next course of action.

### **Frostbite - Symptoms and Treatment:**

Symptoms - skin may be slightly flushed prior to frostbite; skin changes to white or grayish yellow as frostbite develops; may be early pain, but often there is no pain; part feels intensely cold and numb; skin may have glossy appearance.

Treatment - move the victim from the cold to a warm place. Rewarm frozen part quickly by immersing in warm (not hot) water; do not rub or massage; put sterile gauze between warmed toes and

## **II.E. HEAT AND COLD STRESS**

(continued)

fingers; loosely bandage. Call physician or hospital, advise them of employee's symptoms and of treatment provided, and seek physician's advice on next course of action.

## **II.F. TRAFFIC CONTROL STANDARDS AND GUIDELINES**

### **1.0 PURPOSE:**

To establish procedures for safe work practices to be utilized when engaged in work activities within or adjacent to roads, streets, or highways.

### **2.0 SCOPE:**

2.1 Provides procedures to be followed by Gannett Fleming employees while working within or adjacent to roads, streets, or highways.

2.2 Although this section describes specific steps to be taken to provide for the safe movement of traffic through work zones and to enhance the safety of our work force, it is not intended to preclude the use of good judgment or any additional measures that may be deemed necessary for a particular situation.

2.3 The information in this manual shall be used in conjunction with appropriate state and Federal traffic control manuals.

## **II.F. TRAFFIC CONTROL STANDARDS AND GUIDELINES**

(continued)

### **3.0 RESPONSIBILITIES:**

Employee - To report to work wearing clothing suitable for the weather and work as deemed appropriate by the Supervisor; to wear personal protective equipment, if required; to become familiar with and adhere to the applicable job related safety requirements, including those of Gannett Fleming, the property owner, the client and Federal, state and local governments.

Supervisor - To arrange employee safety training pertinent to the job, including traffic control standards and guidelines; to assist employees in obtaining personal protective and safety equipment requested for the job; to consult with the Safety Manager when assistance is needed to identify and minimize work site safety hazards; to advise employees to utilize personal protective and safety equipment, as necessary, and practice sound safety principles.

Safety Manager - To train employees in the application of traffic standards and guidelines; to provide employees with safety equipment and personal protective equipment as requested; to assist the Project Manager, Supervisor or the Employee in identifying and minimizing safety and health hazards at the work site.

## **II.F. TRAFFIC CONTROL STANDARDS AND GUIDELINES**

(continued)

### **4.0 GENERAL PROCEDURES:**

- 4.1 The guidelines contained herein are minimum desirable guidelines for normal situations. Additional protection must be provided when special complexities and hazards prevail. The protection prescribed for each situation shall be based on speed and volume of traffic, duration of operation, and exposure to hazards. As used in these guidelines, the term street refers to all streets or roadways in any municipality, including cities, towns, villages, or other local jurisdictions.
- 4.2 Motorists should be guided in a clear and positive manner while approaching and driving through work and survey areas.
  - a. Adequate warning and direction by means of proper pavement markings, signing, and use of other devices which are effective under varying conditions of light and weather should be provided to assure the motorist of positive guidance ahead of and through the work area.

## **II.F. TRAFFIC CONTROL STANDARDS AND GUIDELINES**

(continued)

- b. Flagging procedures, when used, should provide guidance to the motorist traversing the work area. Flagging should only be employed when required to control traffic or when all other methods of traffic control are inadequate to warn and direct drivers.

### **5.0 SIGNS**

- 5.1 Warning signs shall have a black legend on orange background. It is acceptable to utilize materials having fluorescent red-orange or yellow-orange colors as background. Existing yellow warning signs already in place within these areas may remain in use.
- 5.2 All signs intended for night use shall be fabricated with encapsulated lens reflective sheeting or an illuminated sign may be used.
- 5.3 Signs shall be placed to the right of traffic on the street or placed on both sides. Advance warning signs on open highways should be placed about 1,500 feet ahead of the work area. The sign nearest the work or restriction area should be 500 feet from the point of restriction



## **II.F. TRAFFIC CONTROL STANDARDS AND GUIDELINES**

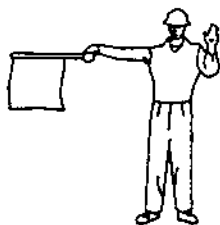
(continued)

with additional signs at 500 to 1,000 foot intervals. These distances may be adjusted depending on the street type.

- 5.4 An advance flagger sign shall alert drivers that they are approaching a flagman. This sign may contain words or the flagger symbol. The sign shall be promptly removed, covered, or turned to face away from the street whenever the flagger is not on duty.
- 5.5 A worker sign is intended for protection of workers in or near a street. This is for use at limited obstruction sites, such as an open manhole with a fence around it, on low speed streets.

DIAGRAM 1

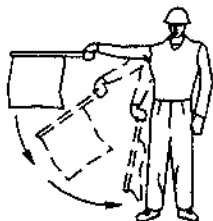
FLAG



TO STOP  
TRAFFIC



TRAFFIC  
PROCEED



TO ALERT  
AND SLOW  
TRAFFIC

PADDLE



USE OF HAND SIGNALING DEVICES BY FLAGGER

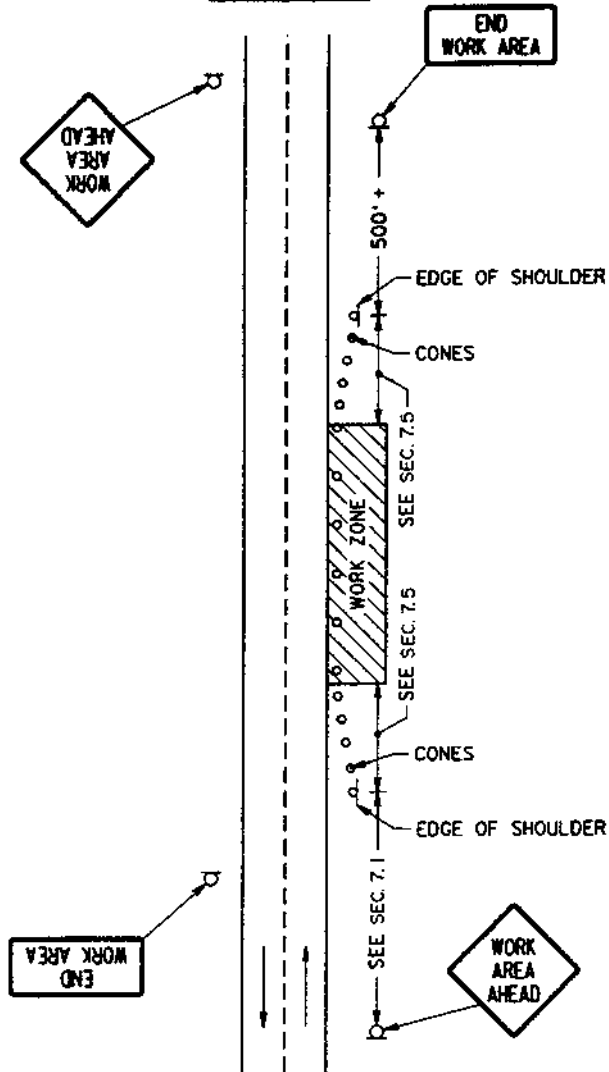
## **II.F. TRAFFIC CONTROL STANDARDS AND GUIDELINES**

(continued)

### **6.0 USE OF HAND SIGNALING DEVICES BY FLAGGER**

- 6.1 When a flagger is used to signal oncoming traffic, he shall use a red warning flag or slow/stop paddle.
- 6.2 Use of the signal flag, slow/stop paddle, and associated hand signals are shown in Diagram 1, opposite page.

DIAGRAM 2



## II.F. TRAFFIC CONTROL STANDARDS AND GUIDELINES

(continued)

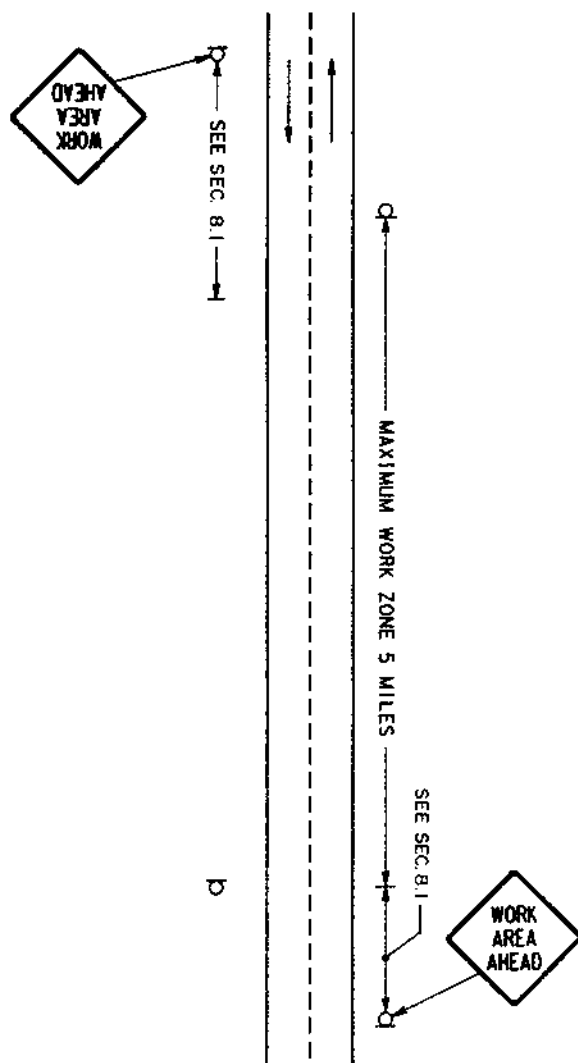
- 7.0 TRAFFIC CONTROL FOR WORK BETWEEN TRAVELWAY AND DITCHLINE ON RURAL STREETS (Refer to Diagram 2, opposite page.)
- 7.1 Distance between advance warning sign and beginning of cone taper should be 350 feet to 500 feet where posted speed limit is 45 mph or less and 500 feet to 800 feet where posted speed limit is greater than 45 mph.
- 7.2 Traffic cones are not required on the departure end of the work zone on four-lane undivided and divided primary streets.
- 7.3 On rural streets having a median wider than 8 feet, left and right side sign assemblies shall be required.
- 7.4 Spacing of cones shall be 40 feet on straight road and 20 feet on curves and transitions.
- 7.5 To determine the length of cone transition, use the formula

$$L = \frac{WS^2}{60}$$

**II.F. TRAFFIC CONTROL STANDARDS AND  
GUIDELINES**  
(continued)

where L equals the taper length in feet; W equals the width of offset in feet; and S equals the posted speed.

DIAGRAM 3

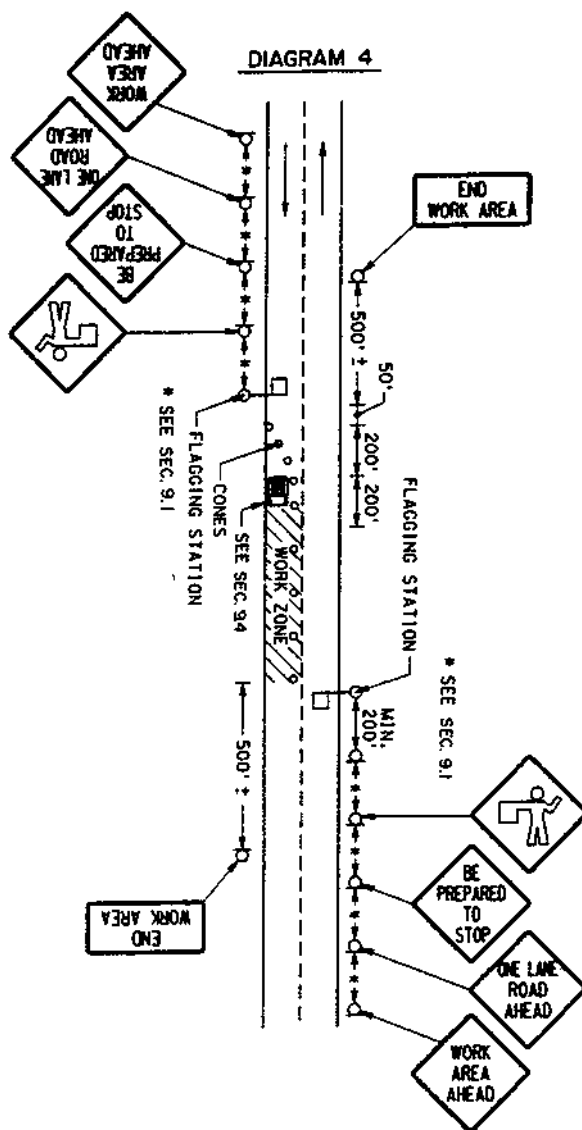


## **II.F. TRAFFIC CONTROL STANDARDS AND GUIDELINES**

(continued)

- 8.0 TRAFFIC CONTROL FOR WORK OPERATIONS OFF TRAVELWAY ON RURAL STREETS (Refer to Diagram 3, opposite page.)
  - 8.1 Distance between advance warning sign and beginning of work zone should be 350 feet to 500 feet where posted speed limit is 45 mph or less and 500 feet to 800 feet where posted speed limit is greater than 45 mph.
  - 8.2 On rural streets having a median wider than 8 feet, left and right side sign assemblies shall be required.





## **II.F. TRAFFIC CONTROL STANDARDS AND GUIDELINES**

(continued)

- 9.0 TRAFFIC CONTROL FOR WORK ON TRAVELWAY ON TWO-LANE RURAL STREETS (Refer to Diagram 4, opposite page.)
  - 9.1 Distance between advance warning sign and beginning of work zone should be 350 feet to 500 feet where posted speed limit is 45 mph or less and 500 feet to 800 feet where posted speed limit is greater than 45 mph.
  - 9.2 Flagging stations shall be located far enough in advance of the work zone to permit approaching traffic to reduce speed and/or stop before passing the work zone and allow sufficient distance for departing traffic in the left lane to return to the right lane before reaching opposing traffic.
  - 9.3 Care should be exercised when establishing the limits of the work zone to insure maximum possible sight distance in advance of the transition.
  - 9.4 A truck or trailer with at least one rotating or two alternating high intensity amber flashers shall be parked at the beginning of work in advance of work crew.

**II.F. TRAFFIC CONTROL STANDARDS AND  
GUIDELINES**  
(continued)

- 9.5 Spacing between cones shall be 40 feet on straight roads and 20 feet on curves and transitions.

**PART III**  
**SAFETY EQUIPMENT**

### **III.A. AVAILABLE SAFETY EQUIPMENT**

The following is a listing of safety equipment which is available to Gannett Fleming personnel in the performance of their duties:

#### **PERSONAL PROTECTIVE EQUIPMENT**

- A. Hard hats, liners, and chin straps
- B. Safety goggles, glasses, and face shields
- C. Ear plugs and muffs
- D. Gloves (leather, rubber, or both)
- E. Boots and overboots
- F. Steel toes and metatarsels for footwear
- G. Protective coveralls
- H. Reflectorized safety vests
- I. Safety belts and harnesses
- J. Lifelines
- K. Lanyards
- L. Respirators, self-contained breathing apparatus

### **III.A. AVAILABLE SAFETY EQUIPMENT**

(continued)

- M. Resuscitators
- N. Rainsuits
- O. First aid kits
- P. Fire extinguishers
- Q. Flashlights and lanterns
- R. Miscellaneous items (as requested)

### **TRAFFIC CONTROL ITEMS**

- A. Safety cones (28 to 36 inches in height)
- B. Traffic-warning and traffic control signs
  - 1. Nonreflective-day
  - 2. Reflective-night
- C. Barricades
- D. Flashing lights

### **III.A. AVAILABLE SAFETY EQUIPMENT**

(continued)

- E. Revolving lights
- F. Arrow boards

### **MEASURING DEVICES**

- A. Oxygen/combustible gas/toxic gas detector
- B. Oxygen and combustible gas detector
- C. Toxic gas detector
- D. Toxic gas detector tubes
- E. Sound-level meter
- F. Light meter
- G. Velocimeter
- H. Thermometer
- I. Ground fault circuit interrupter

Other items of safety equipment, not specifically included in this listing, will be provided as needed, upon request.

### **III.B. HOW TO OBTAIN SAFETY EQUIPMENT**

Safety equipment may be obtained by submitting a requisition to the Safety Manager, who has the necessary forms. The requisition must be approved by the Division or Subsidiary Director, Section Head or Regional Office Manager, or an authorized representative and be filed at least 24 hours in advance to allow for equipment scheduling.

The care and maintenance of assigned safety equipment is the responsibility of the employee to whom it is assigned. After use, all equipment must be promptly returned to the Safety Manager or other designated Company employee.

The Safety Manager can be contacted by calling the switchboard operator at the Headquarters Building in Camp Hill (717/763-7211).



### **III.C. EQUIPMENT OPERATING PROCEDURES**

The proper operation and use of safety equipment is essential for the protection of employees who use the equipment. The Equipment Center Manager will demonstrate the proper operation of all requisitioned safety equipment. Questions about the operation or limitations of use should be referred to the Equipment Center Manager. The safety equipment shall be used only for its intended purposes.

**PART IV**

**BASIC PROGRAM REQUIREMENTS**

## **IV.A. CONSTRUCTION PHASE ACTIVITIES**

### **1.0 PURPOSE:**

To establish procedures for safe work practices to be utilized during construction phase activities. These procedures may require supplementation with OSHA Safety and Health Standards, as appropriate.

### **2.0 SCOPE:**

Applies to all Gannett Fleming personnel engaged in construction observation or construction management.

### **3.0 RESPONSIBILITIES:**

Employee - To report to work wearing clothing suitable for the weather and work as deemed appropriate by the Supervisor; to wear personal protective equipment, if required; to become familiar with and adhere to the applicable job related safety requirements, including those of Gannett Fleming, the property owner, the client and Federal, state, and local governments.

Supervisor - To arrange safety training pertinent to the job for employees; to assist employees in obtaining personal protective and safety equipment requested for the job; to consult with the Safety Manager if assistance is needed to identify and minimize work site safety hazards; to advise employees to utilize personal protective and safety equipment, as necessary, and practice sound safety principles.

## **IV.A. CONSTRUCTION PHASE ACTIVITIES**

(continued)

Safety Manager - To provide employees with training, safety equipment and personal protective equipment as requested; to assist the Project Manager, Supervisor or the Employee in identifying and minimizing safety and health hazards at the work site.

### **4.0 PROCEDURES:**

- 4.1 Personnel who are regularly assigned to field activities shall be instructed in CPR, first aid and safety training appropriate for the job.
- 4.2 Applicable OSHA forms, including the "Job Safety & Health Protection" poster, the U.S. Department of Labor injuries and illnesses report (February 1 through March 1 each year), and the "Emergency Phone Numbers" notice, shall be posted at all field offices.
- 4.3 Work shoes or boots with heavy soles to protect the bottom of the foot shall be worn. Shoes with steel shank and toe shall be worn in areas that pose the risk of injury to the foot.
- 4.4 Hard hats shall be worn at all times when on the active portion of a construction site.

## **IV.A. CONSTRUCTION PHASE ACTIVITIES**

(continued)

- 4.5 The Gannett Fleming field office, if one is utilized, shall be equipped with an appropriately sized first aid kit and correct size and type of fire extinguisher.
- 4.6 Safety glasses with side shields or safety goggles shall be worn if there is a reasonable probability of injury to the eye from debris, dust, liquids, or other causes.
- 4.7 Hearing protection shall be required when noise levels exceed 85 decibels. Generally, if shouting is required to be heard by another within arms length because of noise, hearing protection is required.
- 4.8 Activities involving entry into a confined space such as a tank, vessel, vault, pit, pipeline, duct, manhole, sewer, tunnel, cave, underground mine, drainage pipe, culvert, caisson, trench, hole, sinkhole or open-topped space more than four feet deep, shall be performed in accordance with "Confined Space Entry Procedures", as specified in Section II.B of this manual.
- 4.9 Gloves shall be worn when hand protection is required.

#### **IV.A. CONSTRUCTION PHASE ACTIVITIES**

(continued)

- 4.10 Employees are expected to utilize proper judgment in their personal habits. When they report to work, they must be in a condition fit to meet daily responsibilities.
- 4.11 Caution shall be exercised when working in the vicinity of over-head power lines to avoid electrocution.
- 4.12 No outdoor work by Gannett Fleming employees shall be permitted during electrical storms.
- 4.13 Employees should not attempt to move or lift heavy loads or items unless they have received applicable training. Guidance and a demonstration tape about the moving or lifting of heavy loads will be provided by the Safety Manager upon request.

## **IV.B DRILLING, BORING AND SUBSURFACE INVESTIGATION**

### **1.0 PURPOSE:**

To establish procedures for safe work practices to be utilized during drilling, boring and subsurface investigation. These procedures may require supplementation with OSHA Safety and Health Standards, as appropriate.

### **2.0 SCOPE:**

Applies to all Gannett Fleming personnel engaged in drilling, boring or subsurface investigation activities.

### **3.0 RESPONSIBILITIES:**

Employee - To report to work wearing clothing suitable for the weather and work as deemed appropriate by the Supervisor; to wear personal protective equipment, if required; to become familiar with and adhere to the applicable job related safety requirements, including those of Gannett Fleming, the property owner, the client and Federal, state and local governments.

Supervisor - To arrange safety training pertinent to the job for employees; to assist employees in obtaining personal protective or safety equipment requested for the job; to consult with the Safety Manager if assistance is needed to identify or minimize work site safety hazards; to advise

## **IV.B DRILLING, BORING AND SUBSURFACE INVESTIGATION**

(continued)

employees to utilize personal protective and safety equipment, as necessary, and practice sound safety principles.

Safety Manager - to provide employees with training, safety equipment and personal protective equipment as requested; to assist the Project Manager, Supervisor or the Employee in identifying and minimizing safety and health hazards at the work site.

### **4.0 PROCEDURES:**

- 4.1 Personnel who are regularly assigned to field activities shall be instructed in CPR, first aid and safety training appropriate for the job.
- 4.2 Applicable OSHA forms, including the "Job Safety & Health Protection" poster, the U.S. Department of Labor injuries and illnesses report (February 1 through March 1 each year), and the "Emergency Phone Numbers" notice, shall be posted at all field offices.
- 4.3 Work shoes or boots with heavy soles to protect the bottom of the foot shall be worn. Shoes with steel shank and toe shall be worn in areas that pose the risk of injury to the foot.



## **IV.B DRILLING, BORING AND SUBSURFACE INVESTIGATION**

(continued)

- 4.4 Hard hats shall be worn at all times.
- 4.5 The Gannett Fleming field office, if one is utilized, shall be equipped with an appropriately sized first aid kit and correct size and type of fire extinguisher.
- 4.6 Hearing protection is required during all drilling and boring activities when noise levels exceed 85 decibels. Generally, if shouting is required to be heard by another within arms length because of noise, hearing protection is required.
- 4.7 Activities involving entry into a confined space such as a tank, vessel, vault, pit, pipeline, duct, manhole, sewer, tunnel, cave, underground mine, drainage pipe, culvert, caisson, trench, hole, sinkhole or open-topped space more than four feet deep shall be performed in accordance with "Confined Space Entry Procedures", as specified in Section II.B of this manual.
- 4.8 Gloves shall be worn when hand protection is required.
- 4.9 Employees are expected to utilize proper judgment in their personal habits. When they

## **IV.B DRILLING, BORING AND SUBSURFACE INVESTIGATION**

(continued)

report to work, they must be in a condition fit to meet daily responsibilities.

- 4.10 Caution shall be exercised when working in the vicinity of over-head power lines to avoid electrocution.
- 4.11 No outdoor work by Gannett Fleming employees shall be permitted during electrical storms.
- 4.12 Safety glasses with side-shields or safety goggles shall be worn when in close proximity to drilling, boring and subsurface investigation activities, or as otherwise directed by the Supervisor.
- 4.13 Employees should not attempt to move or lift heavy loads or items unless they have received applicable training. Guidance and a demonstration tape about the moving or lifting of heavy loads will be provided by the Safety Manager upon request.
- 4.14 The contract with the drilling, boring, or subsurface investigation contractor shall require the contractor, at its expense and in the presence of the engineer, to have the owners of underground

#### **IV.B DRILLING, BORING AND SUBSURFACE INVESTIGATION**

(continued)

utilities and service lines locate all underground utilities and service lines which may be in the immediate vicinity of the drilling, boring, or subsurface investigation.

## **IV.C. WORK ON ELEVATED STRUCTURES**

### **1.0 PURPOSE:**

To establish procedures for safe work practices to be utilized during the work on elevated structures such as bridges, buildings and towers. Required references for these procedures are appropriate OSHA Safety and Health Standards and U.S. Department of Transportation/ F.H.W.A. Bridge Inspector's Training Manual 70.

### **2.0 SCOPE:**

Applies to all Gannett Fleming personnel engaged in work on elevated structures.

### **3.0 RESPONSIBILITIES:**

Employee - To report to work wearing clothing suitable for the weather and work as deemed appropriate by the Supervisor; to wear personal protective equipment, if required; to become familiar with and adhere to the applicable job related safety requirements, including those of Gannett Fleming, the property owner, the client and Federal, state and local governments.

Supervisor - To arrange safety training pertinent to the job for employees; to assist employees in obtaining personal protective and safety equipment requested for the job; to consult with the Safety Manager if assistance is needed to

## **IV.C. WORK ON ELEVATED STRUCTURES**

(continued)

identify and minimize work site safety hazards; to advise employees to utilize personal protective and safety equipment, as necessary, and practice sound safety principles.

Safety Manager - To provide employees with training, safety equipment and personal protective equipment as requested; to assist the Project Manager, Supervisor or the Employee in identifying and minimizing safety and health hazards at the work site.

### **4.0 PROCEDURES:**

- 4.1 Personnel who are regularly assigned to field activities shall be instructed in CPR, first aid and safety training appropriate for the job.
- 4.2 Applicable OSHA forms, including the "Job Safety & Health Protection" poster, the U.S. Department of Labor injuries and illnesses report (February 1 through March 1 each year), and the "Emergency Phone Numbers" notice, shall be posted at all field offices.
- 4.3 Work shoes or boots with heavy soles to protect the bottom of the foot shall be worn. Shoes with steel shank and toe shall be worn in areas that pose the risk of injury to the foot.

#### **IV.C. WORK ON ELEVATED STRUCTURES**

(continued)

- 4.4 Hard hats shall be worn at all times when on the job site.
- 4.5 The Gannett Fleming field office, if one is utilized, shall be equipped with an appropriately sized first aid kit and correct size and type of fire extinguisher.
- 4.6 Safety glasses with side shields or safety goggles shall be worn if there is a reasonable probability of injury to the eye from debris, dust, liquids, or other causes.
- 4.7 Hearing protection shall be required when noise levels exceed 85 decibels. Generally, if shouting is required to be heard by another within arms length because of noise, hearing protection is required.
- 4.8 Activities involving entry into a confined space such as a tank, vessel, vault, pit, pipeline, duct, manhole, sewer, tunnel, cave, underground mine, drainage pipe, culvert, caisson, trench, hole, sinkhole or open-topped space more than four feet deep, shall be performed in accordance with "Confined Space Entry Procedures", as specified in Section II.B of this manual.

#### **IV.C. WORK ON ELEVATED STRUCTURES**

(continued)

- 4.9      Gloves shall be worn when hand protection is required.
- 4.10     Employees are expected to utilize proper judgment in their personal habits. When they report to work, they must be in a condition fit to meet daily responsibilities.
- 4.11     No outdoor work by Gannett Fleming employees shall be permitted during electrical storms.
- 4.12     When working in an area not normally used for human occupancy or travel and there is danger of a fall greater than six feet, a safety belt must be worn and secured by a lanyard to a lifeline or to the structure with the appropriate fastening device. If it is impractical or impossible to be secured to the structure, a safety net or other safety device shall be used in accordance with OSHA requirements.
- 4.13     When working over, on, or near water, where the danger of drowning exists, U.S. Coast Guard-approved life jackets or buoyant work vests shall be worn. In addition, ring buoys with 90 feet of line (minimum) and a life saving skiff shall be in close proximity to the work area for use in a rescue.

#### **IV.C. WORK ON ELEVATED STRUCTURES**

(continued)

- 4.14 When performing work operations from a man basket or mobile platform, employees shall wear safety belts and tie off to the platform on which they are standing.
- 4.15 Scaffolds more than 4 feet above the ground or floor shall have guardrails and toeboards. Guardrails shall be approximately 42 inches high and toeboards shall be a minimum of 4 inches in height.
- 4.16 When working from a suspended scaffold, employees shall wear a safety belt secured by a lanyard to a lifeline and the lifeline shall be secured to an anchorage or structural member capable of supporting a minimum dead load of 5,400 lbs. Where the support capability is questionable, contact the Safety Manager. The lanyard shall be a minimum of one-half inch nylon, or equivalent, with a maximum length allowing a fall of no greater than 6 feet. The lanyard and the lifeline shall have a nominal breaking strength of at least 5,400 pounds.
- 4.17 If portable ladders are used, they shall be at such a pitch that the horizontal distance from the top support to the foot of the ladder is about 1/4 of



#### **IV.C. WORK ON ELEVATED STRUCTURES**

(continued)

the working length of the ladder. The side rails shall extend not less than 36 inches above the landing. They shall be tied or blocked, or otherwise secured, to prevent their being displaced. Portable metal ladders shall not be used for electrical work or where they may contact electrical conductors. Ladders shall not be used in a horizontal position as platforms or scaffolds. The use of ladders with broken or missing rungs or steps, broken or split siderails, or other faulty or defective construction is prohibited.

- 4.18 Employees should not attempt to move or lift heavy loads or items unless they have received applicable training. Guidance and a demonstration tape about the moving or lifting of heavy loads will be provided by the Safety Manager upon request.
- 4.19 Caution shall be exercised when working in the vicinity of over-head power lines to avoid electrocution.

#### **IV.D. WORK ON RAILROAD PROPERTY**

##### **1.0 PURPOSE:**

To establish procedures for safe work practices to be utilized during work on railroad property. These procedures may require supplementation with OSHA Safety and Health Standards, as appropriate.

##### **2.0 SCOPE**

Applies to all Gannett Fleming personnel engaged in work on railroad property.

##### **3.0 RESPONSIBILITIES:**

Employee - To report to work wearing clothing suitable for the weather and work as deemed appropriate by the Supervisor; to wear personal protective equipment, if required; to become familiar with and adhere to the applicable job related safety requirements, including those of Gannett Fleming, the property owner, the client and Federal, state and local governments.

Supervisor - To arrange safety training pertinent to the job for employees; to assist employees in obtaining personal protective and safety equipment requested for the job; to consult with the Safety Manager if assistance is needed to identify and minimize work site safety hazards; to advise employees to utilize personal protective and safety equipment, as necessary, and practice sound safety principles.

## **IV.D. WORK ON RAILROAD PROPERTY**

(continued)

Safety Manager - To provide employees with training, safety equipment and personal protective equipment as requested; to assist the Project Manager, Supervisor or the Employee in identifying and minimizing safety and health hazards at the work site.

### **4.0 PROCEDURES:**

- 4.1 Personnel who are regularly assigned to field activities shall be instructed in CPR, first aid and safety training appropriate for the job.
- 4.2 Work shoes or boots with heavy soles to protect the bottom of the foot shall be worn. Shoes with steel shank and toe shall be worn in areas that pose the risk of injury to the foot.
- 4.3 Hard hats shall be worn at all times on the job site.
- 4.4 Safety glasses with side shields or safety goggles shall be worn if there is a reasonable probability of injury to the eye from debris, dust, liquids or other causes.
- 4.5 Activities involving entry into a confined space such as a tank, vessel, vault, pit, pipeline, duct, manhole, sewer, tunnel, cave, underground mine,

#### **IV.D. WORK ON RAILROAD PROPERTY**

(continued)

drainage pipe, culvert, caisson, trench, hole, sinkhole or open-topped space more than four feet deep, shall be performed in accordance with "Confined Space Entry Procedures", as specified in Section II.B of this manual.

- 4.6      Gloves shall be worn when hand protection is required.
- 4.7      Employees are expected to utilize proper judgment in their personal habits. When they report to work they must be in a condition fit to meet daily responsibilities.
- 4.8      No outdoor work by Gannett Fleming employees shall be permitted during electrical storms.
- 4.9      Employees shall be mindful that they are on an operating railroad and shall have a safe place to go if a train should approach the work area. Employees shall also be aware of the location and extent of "no clearance" areas.
- 4.10     When railroad flagmen are provided by the railroad, the employees shall ascertain where the flagmen want them to go when a train passes and what signals will warn of an approaching train.

#### **IV.D. WORK ON RAILROAD PROPERTY**

(continued)

When no railroad flagmen are provided, the Gannett Fleming crew shall be alert to the approach of trains and shall warn other crew members of a train's approach.

- 4.11 When a train approaches:
- ? Move to a safe place as far from the track as judgment dictates.
  - ? Stand still.
  - ? Secure all items of clothing, papers, and equipment to prevent the air blast created by the train from dislodging them.
  - ? Always be alert for dragging objects from the train.
  - ? Move all inspection equipment clear of the track.
- 4.12 Minimize walking along the railroad tracks and property except as required for the job. When walking along or across railroad tracks, the following procedures shall be followed:

#### **IV.D. WORK ON RAILROAD PROPERTY**

(continued)

- ? Know the direction of traffic and walk facing traffic. (Note: during construction and in single track areas, traffic may come from either direction).
- ? Be alert. Look and listen for approaching trains. Have a safe place to go when a train approaches.
- ? Do not cross between the cars of a train or, in the train switching areas, between the engine and the train.
- ? Walk outside the track area where possible. Do not step on switch points, switch mechanisms, wires, tie ends, rail or other tripping hazards. (Note: rails and ties may be extremely slippery due to oil, frost, or rain).
- ? Do not touch or make contact with any electrical wires, cables, bonds, grounds, or other electrical connections attached to the rails, structures or signal system. They may be energized and pose the risk of electrocution.
- ? Wear a reflective vest and hard hat.

#### **IV.D. WORK ON RAILROAD PROPERTY**

(continued)

##### **4.13 Railroad tunnels and other restricted areas:**

- ? Comply with all applicable provisions of Section 4.11 above.
- ? Proper lighting or flashlights shall be provided and used while in tunnel areas.
- ? Employees shall not be in restricted areas such as tunnels and depressed cuts without proper railroad protection personnel unless adequate safe areas or train restrictions are in force to provide a safe working area.
- ? Do not run on bridges or in tunnels, retained cuts, or other restricted areas. If you cannot move safely away from an oncoming train, lie flat on the ground or bridge outside of the track area.

##### **4.14 Assume third rail and catenary systems are energized and that they pose the risk of electrocution until you are certain they have been de-energized. Do not touch or allow objects to touch or come in close proximity with an energized third rail or catenary system and their support structures. Do not use metal tapes, rules, flashlights or ladders for inspection.**

#### **IV.D. WORK ON RAILROAD PROPERTY**

(continued)

- 4.15 De-energizing and grounding of the electrical systems, when required, shall be performed by railroad personnel. Do not touch any apparatus or equipment unless required by your duties and you are absolutely sure it is safe to do so.
- 4.16 Do not cross third rail areas except as required by your duties. Do not step on, sit on, or touch third rails, cover boards, bonds, grounds or other apparatus. Do not touch third rail contact shoes of engines or electrical cars. They may be energized on both sides of engine or car and pose the risk of electrocution. Do not touch anything that is in contact with the third rail system such as debris, wire, or string as they may also be energized and pose an electrocution risk.
- 4.17 Do not climb any catenary support and do not climb onto the top of any engine, train, or high rail vehicle, unless authorized and required in performance of your duties. Authorized employees shall have proper training and knowledge to perform this duty. Maintain a safe distance from the catenary support and any cables attached to the catenary support system.



#### **IV.D. WORK ON RAILROAD PROPERTY**

(continued)

Never touch anything that is in contact with the catenary system such as debris, wire or string as they may be energized and pose the risk of electrocution.

- 4.18 Do not enter operating substations unless authorized railroad personnel are present. Do not touch equipment, wire, cables, or other appurtenances or operate any equipment unless authorized and required in the performance of your duties.
- 4.19 Normal safety practices as appropriate for each construction operation shall apply while inspecting or observing construction on railroad property.
- 4.20 Employees should not attempt to move or lift heavy loads or items unless they have received applicable training. Guidance and a demonstration tape about the moving or lifting of heavy loads will be provided by the Safety Manager upon request.

## **IV.E SURVEYING**

### **1.0 PURPOSE:**

To establish procedures for safe work practices to be utilized when performing all types of field surveying. These procedures may require supplementation with OSHA Safety and Health Standards, as appropriate.

### **2.0 SCOPE:**

Applies to all Gannett Fleming personnel engaged in all types of field surveying.

### **3.0 RESPONSIBILITIES:**

Employee - To report to work wearing clothing suitable for the weather and work as deemed appropriate by the Supervisor; to wear personal protective equipment, if required; to become familiar with and adhere to the applicable job related safety requirements, including those of Gannett Fleming, the property owner, the client and Federal, state and local governments.

Supervisor - To arrange safety training pertinent to the job for employees; to assist employees in obtaining personal protective and safety equipment requested for the job; to consult with the Safety Manager if assistance is needed to identify and minimize work site safety hazards; to advise employees to utilize personal protective and safety equipment, as necessary, and practice sound safety principles.

## **IV.E SURVEYING**

(continued)

Safety Manager - To provide employees with training, safety equipment and personal protective equipment as requested; to assist the Project Manager, Supervisor or the Employee in identifying and minimizing safety and health hazards at the work site.

### **4.0 PROCEDURES:**

- 4.1 Personnel who are regularly assigned to field activities shall be instructed in CPR, first aid and safety training appropriate for the job.
- 4.2 Work shoes or boots with heavy soles to protect the bottom of the foot shall be worn. Shoes with steel shank and toe shall be worn in areas that pose the risk of injury to the foot.
- 4.3 Safety glasses with side shields or safety goggles shall be worn if there is a reasonable probability of injury to the eye from debris, dust, liquids or other causes.
- 4.4 Activities involving entry into a confined space such as a tank, vessel, vault, pit, pipeline, duct, manhole, sewer, tunnel, cave, underground mine, drainage pipe, culvert, caisson, trench, hole, sinkhole or open-topped space more than four feet deep, shall be performed in accordance with

## **IV.E SURVEYING**

(continued)

"Confined Space Entry Procedures", as specified in Section II.B of this manual.

- 4.5      Gloves shall be worn when hand protection is required.
- 4.6      Employees are expected to utilize proper judgment in their personal habits. When they report to work, they must be in a condition fit to meet daily responsibilities.
- 4.7      No outdoor work by Gannett Fleming employees shall be permitted during electrical storms.
- 4.8      When surveying in dangerous areas or along highways or roads open to traffic, reflective vests shall be worn.
- 4.9      When working along highways or roads open to traffic, surveyors shall warn motorists of their presence and be responsible for traffic control. Advance warning signs shall be placed to warn both directions of traffic. Cones shall be located between the workmen and the advance warning signs. A yellow flashing light shall be mounted on the survey vehicle and used as a warning device. See Traffic Control Standards and Guidelines.

## **IV.E SURVEYING**

(continued)

- 4.10 Employees should not attempt to move or lift heavy loads or items unless they have received applicable training. Guidance and a demonstration tape about the moving or lifting of heavy loads will be provided by the Safety Manager upon request.

## **IV.F. TUNNEL AND MINE ENTRY**

### **1.0 PURPOSE:**

To establish procedures for safe work practices to be utilized during entry into or work in tunnels or mines. These procedures may require supplementation with OSHA Safety and Health Standards, as appropriate.

### **2.0 SCOPE:**

Applies to all Gannett Fleming personnel engaged in tunnel or mine entry activities.

### **3.0 RESPONSIBILITIES:**

Employee - To report to work wearing clothing suitable for the weather and work as deemed appropriate by the Supervisor; to wear personal protective equipment, if required; to become familiar with and adhere to the applicable job related safety requirements, including those of Gannett Fleming, the property owner, the client and Federal, state and local governments.

Supervisor - To arrange safety training pertinent to the job for employees; to assist employees in obtaining personal protective and safety equipment requested for the job; to consult with the Safety Manager if assistance is needed to identify and minimize work site safety hazards; to advise employees to utilize personal protective and safety equipment, as necessary, and practice sound safety principles.

## **IV.F. TUNNEL AND MINE ENTRY**

(continued)

Safety Manager - To provide employees with training, safety equipment and personal protective equipment as requested; to assist the Project Manager, Supervisor or the Employee in identifying and minimizing safety and health hazards at the work site.

### **4.0 PROCEDURES:**

- 4.1 Personnel who are regularly assigned to field activities shall be instructed in CPR, first aid and safety training appropriate for the job.
- 4.2 Work shoes or boots with heavy soles to protect the bottom of the foot shall be worn. Shoes with steel shank and toe shall be worn in areas that pose the risk of injury to the foot.
- 4.3 Hard hats shall be worn at all times.
- 4.4 Hearing protection shall be required when noise levels exceed 85 decibels. Generally, if shouting is required to be heard by another within arms length because of noise, hearing protection is required.

## **IV.F. TUNNEL AND MINE ENTRY**

(continued)

- 4.5 Activities involving entry into a confined space such as a tank, vessel, vault, pit, pipeline, duct, manhole, sewer, tunnel, cave, underground mine, drainage pipe, culvert, caisson, trench, hole, sinkhole or open-topped space more than four feet deep, or other confined spaces, shall be performed in accordance with "Confined Space Entry Procedures", as specified in Section II.B of this manual.
- 4.6 Gloves shall be worn when hand protection is required.
- 4.7 Caution shall be exercised around over-head power lines to avoid electrocution.
- 4.8 Employees are expected to utilize proper judgment in their personal habits. When they report to work, they must be in a condition fit to meet daily responsibilities.
- 4.9 Safety glasses with side shields or safety goggles shall be worn when in close proximity to drilling, boring and subsurface investigation activities; when there is a reasonable probability of injury to the eye from debris, dust, liquids, or other causes; or as otherwise directed by the Supervisor.



#### **IV.F. TUNNEL AND MINE ENTRY**

(continued)

- 4.10 Before entering into or making a mine inspection, the Supervisor shall check with the appropriate state regulatory agency (in Pennsylvania, Pennsylvania Bureau of Deep Mine Safety and Pennsylvania Department of Environmental Resources) to determine whether the mine has recently been inspected by the state and whether a state mine inspector can participate in the inspection. The mine inspector's duty is to make sure the mine is safe to enter. In Pennsylvania, the presence of a mine inspector is mandatory.
- 4.11 Carrying of matches or smoker's articles into tunnels or underground mines is strictly prohibited.
- 4.12 Any equipment used in tunnels or underground mines shall be MSHA or OSHA approved.
- 4.13 Employees should not attempt to move or lift heavy loads or items unless they have received applicable training. Guidance and a demonstration tape about the moving or lifting of heavy loads will be provided by the Safety Manager upon request.

## **IV.G. SOLID WASTE FACILITY INVESTIGATIONS**

### **1.0 PURPOSE:**

To establish procedures for safe work practices to be utilized during site investigations of solid waste facilities. These procedures may require supplementation with OSHA Safety and Health Standards, as appropriate.

### **2.0 SCOPE:**

Applies to all Gannett Fleming personnel engaged in solid waste facility investigations.

### **3.0 RESPONSIBILITIES:**

Employee - To report to work wearing clothing suitable for the weather and work as deemed appropriate by the Supervisor; to wear personal protective equipment, if required; to become familiar with and adhere to the applicable job related safety requirements, including those of Gannett Fleming, the property owner, the client and Federal, state and local governments; to have a current tetanus inoculation (these are usually good for a maximum of 5 years).

Supervisor - To arrange safety training pertinent to the job for employees; to assist employees in obtaining personal protective and safety equipment requested for the job; to consult with the Safety Manager if assistance is needed to identify and minimize work site safety

## **IV.G. SOLID WASTE FACILITY INVESTIGATIONS**

(continued)

hazards; to advise employees to utilize personal protective and safety equipment, as necessary, and practice sound safety principles.

Safety Manger - To provide employees with training, safety equipment and personal protective equipment as requested; to assist the Project Manager, Supervisor or the Employee in identifying and minimizing safety and health hazards at the work site.

### **4.0 PROCEDURES:**

- 4.1 Personnel who are regularly assigned to field activities shall be instructed in CPR, first aid and safety training appropriate for the job.
- 4.2 Work shoes or boots with heavy soles to protect the bottom of the foot shall be worn. Shoes with steel shank and toe shall be worn in areas that pose the risk of injury to the foot.
- 4.3 Hard hats shall be worn at all times in active work areas.

## **IV.G. SOLID WASTE FACILITY INVESTIGATIONS**

(continued)

- 4.4 Hearing protection shall be required when noise levels exceed 85 decibels. Generally, if shouting is required to be heard by another within arms length because of noise, hearing protection is required.
- 4.5 Activities involving entry into a confined space such as a tank, vessel, vault, pit, pipeline, duct, manhole, sewer, tunnel, cave, underground mine, drainage pipe, culvert, trench, hole, sinkhole or open-topped space more than four feet deep, or other confined spaces, shall be performed in accordance with "Confined Space Entry Procedures", as specified in Section II.B of this manual.
- 4.6 Gloves shall be worn when hand protection is required.
- 4.7 No outdoor work by Gannett Fleming employees shall be permitted during electrical storms.
- 4.8 Safety glasses with side-shields or safety goggles shall be worn if an activity is observed that produces airborne particulate matter or if there is a reasonable probability of injury to the eye from debris, dust, liquids, or other causes. The wearing of contact lenses is not recommended

## **IV.G. SOLID WASTE FACILITY INVESTIGATIONS**

(continued)

due to the presence of dusts and airborne particles and microbes.

- 4.9 No open flames or sparks are permitted on the site of a landfill.
- 4.10 Inhalation of landfill gases should be avoided as far as practicable. Prolonged exposure may require the use of respiratory protection to reduce the chances of overexposure, symptoms of which may include nausea and dizziness.
- 4.11 Employees are expected to utilize proper judgment in their personal habits. When they report to work, they must be in a condition fit to meet daily responsibilities.
- 4.12 Employees should not attempt to move or lift heavy loads or items unless they have received applicable training. Guidance and a demonstration tape about the moving or lifting of heavy loads will be provided by the Safety Manager upon request.

## **IV.H OTHER FIELD ACTIVITIES**

### **1.0 PURPOSE:**

To establish procedures for safe work practices to be utilized during other field activities not specifically covered by other sections of this manual. These procedures may require supplementation with OSHA Safety and Health Standards, as appropriate.

### **2.0 SCOPE:**

Applies to Gannett Fleming employees engaged in work activities in outdoor areas, inside process areas of industrial buildings, or in such other locations as may reasonably be expected to have potential safety hazards.

### **3.0 RESPONSIBILITIES:**

Employee - To report to work wearing clothing suitable for the weather and work as deemed appropriate by the Supervisor; to wear personal protective equipment, if required; to become familiar with and adhere to the applicable job related safety requirements, including those of Gannett Fleming, the property owner, the client and Federal, state and local governments.

Supervisor - To arrange safety training pertinent to the job for employees; to assist employees in obtaining personal protective and safety equipment requested for the job; to consult with the Safety Manager if assistance is needed to

## **IV.H OTHER FIELD ACTIVITIES**

(continued)

identify and minimize work site safety hazards; to advise employees to utilize personal protective and safety equipment, as necessary, and practice sound safety principles.

Safety Manager - To provide employees with training, safety equipment and personal protective equipment as requested; to assist the Project Manager, Supervisor or the Employee in identifying and minimizing safety and health hazards at the work site.

### **4.0 PROCEDURES:**

- 4.1 Personnel who are regularly assigned to field activities shall be instructed in CPR, first aid and safety training appropriate for the job.
- 4.2 Applicable OSHA forms, including the "Job Safety & Health Protection" poster, the U.S. Department of Labor injuries and illnesses report (February 1 through March 1 each year), and the "Emergency Phone Numbers" notice, shall be posted at all field offices.
- 4.3 Work shoes or boots with heavy soles to protect the bottom of the foot shall be worn. Shoes with steel shank and toe shall be worn in areas that pose the risk of injury to the foot.

## **IV.H OTHER FIELD ACTIVITIES**

(continued)

- 4.4 The Gannett Fleming field office, if one is utilized, shall be equipped with an appropriately sized first aid kit and correct size and type of fire extinguisher.
- 4.5 Safety glasses with side shields or safety goggles shall be worn if there is a reasonable probability of injury to the eye from debris, dust, liquids, or other causes.
- 4.6 Hearing protection shall be required when noise levels exceed 85 decibels. Generally, if shouting is required to be heard by another within arms length because of noise, hearing protection is required.
- 4.7 Activities involving entry into a confined space such as a tank, vessel, vault, pit, pipeline, duct, manhole, sewer, tunnel, cave, underground mine, drainage pipe, culvert, trench, hole, sinkhole or open-topped space more than four feet deep, shall be performed in accordance with "Confined Space Entry Procedures", as specified in Section II.B of this manual.
- 4.8 Gloves shall be worn when hand protection is required.



## **IV.H OTHER FIELD ACTIVITIES**

(continued)

- 4.9 Employees are expected to utilize proper judgment in their personal habits. When they report to work, they must be in a condition fit to meet daily responsibilities.
- 4.10 No outdoor work by Gannett Fleming employees shall be permitted during electrical storms.
- 4.11 Employees should not attempt to move or lift heavy loads or items unless they have received applicable training. Guidance and a demonstration tape about the moving or lifting of heavy loads will be provided by the Safety Manager upon request.
- 4.12 Caution shall be exercised when working in the vicinity of over-head power lines to avoid electrocution.
- 4.13 The “Construction Site Safety Awareness Handbook for Employees of Gannett Fleming Companies” is available from the Corporate Safety Manager. All construction site inspectors should have this handbook in their possession.

**PART V**

**HOW TO OBTAIN MORE INFORMATION ABOUT OSHA**

## **V. HOW TO OBTAIN MORE INFORMATION ABOUT OSHA**

The requirements of the Occupational Safety and Health Act have been published and are periodically updated in the Federal Register which is on file in our Headquarters Office. Current information about the Act is published by Commerce Clearing House, Inc., and may be found in similar publications. The U.S. Bureau of Labor Statistics also has a number of publications relating to the Act.

For specific information concerning the requirements of the Act, the Safety Manager should be consulted.

**PART VI**  
**APPENDICES**

**APPENDIX A**

**HEALTH AND SAFETY**

**STANDARD OPERATING PROCEDURES**

The health and safety procedures of the Safety Manual for field operations are intended only for the cited applications. They may require supplementation with Standard Operating Procedures more specific to the nature of the work being performed. The following is a listing of Gannett Fleming Standard Operating Procedures currently being considered:

Decontamination

Air Monitoring & Sampling

Hearing Conservation

Respiratory Protection

Asbestos Sampling & Investigations

Personal Protective Equipment

Handling of Drums & Containers

First Aid Kits

Incident Investigation & Reporting

## **APPENDIX A**

(continued)

Monitoring Equipment (various items)

Communications

Site Specific Health & Safety Plans

Health & Safety Audits

Medical Monitoring

Additional Standard Operating Procedures may be developed as requested.

# **STANDARD OPERATING PROCEDURE NUMBER 1**

## **RESPIRATORY PROTECTION PROGRAM**

### **1.0 PURPOSE**

It is the purpose of this document to provide the employees of Gannett Fleming, Inc. as well as any subsidiaries and affiliated companies (hereinafter the Company) with a safe working environment when utilizing respiratory protection. No Company personnel may use respiratory protection devices until the provisions of this document are met, and shall have a current, valid Respirator User Card.

### **1.1 SCOPE**

This program applies to all Company employees required to wear respiratory protection to protect them from inhalation hazards while performing tasks for the Company.

### **1.2 REFERENCES**

- 29 CFR 1910.134 - Respiratory Protection for General Industry and Construction
- 29 CFR 1910.1020/1926.33 - Access to Employee Exposure and Medical Records
- 42 CFR Part 84 - Respiratory Protective Devices
- G-7.1 - 1989 - ANSI/CGA Commodity Specification for Air

### **1.3 RESPONSIBILITIES**

To protect the safety and health of Company personnel who may be required to wear respiratory protection in the performance of their duties, it is imperative that Company personnel adhere to this respiratory program. Responsibilities of respirator wearers, Program Coordinators, the Program Administrator, the Medical Review Officer and Company management personnel are described in this section. Each person whose responsibilities are described herein is solely accountable for fulfilling the designated responsibilities. The names of the Program Administrator and the Medical Review Officer are provided in Section 1.10.

#### **1.3.1 Respirator Wearers**

- Wear his/her respirator when and where required and in the manner in which trained.
- Report any malfunctions of the respirator to his/her supervisor or, if applicable, the Safety Coordinator immediately.
- Guard against mechanical damage to the respirator, clean the respirator as instructed, and store the respirator in a clean, sanitary location.

### **1.3.2 Safety Coordinator**

The Safety Coordinator is responsible for assisting the Program Administrator maintain a respiratory protection program that protects Company personnel from recognized inhalation hazards and providing guidance to the project managers and respiratory wearers in the implementation of the program. They are also responsible for the following:

- Verifying all personnel assigned to the office/organization whose duties require the use of respiratory protection are identified.
- Scheduling appropriate training, fit testing and a medical evaluation for all respirator wearers assigned to the office/organization. Establishing and maintaining a system for keeping records for training, fit testing and medical evaluations and forwarding the originals of said records to the Program Administrator.
- Evaluating the tasks for which respiratory protective devices are believed to be required. Assisting in determining the degree of hazards posed by the potential exposure.
- Assisting in determining whether engineering controls and/or administrative procedures are feasible to protect the employees from the hazards.
- Inspecting and repairing respiratory protection devices.

### **1.3.3 Program Administrator**

The Program Administrator is responsible for maintaining a respiratory protection program that protects the Company personnel from recognized inhalation hazards and providing guidance to the Company staff in the implementation of the program. The Administrator also is responsible for conducting, or delegating as appropriate, the following:

- Implementing and administering the Company medical evaluation program.
- Coordinating medical evaluations with the Company's Medical Review Officer.
- Selecting/Assisting in selecting a Safety Coordinator where respiratory protective devices are required.
- Evaluating the tasks for which respiratory protective devices are believed to be required. Determining the degree of the hazards posed by the potential exposure.
- Determining whether engineering controls and/or administrative procedures are feasible to protect the employees from the hazards.
- Determining which respiratory protection devices are required for the appropriate protection for the hazards present.
- Training personnel in the use of respiratory protective devices.
- Conducting qualitative and quantitative fit testing, and issuing necessary protective devices.
- Overseeing the inspection of and verifying the repair of the respiratory protective devices.



- Overseeing the purchase and issuance of respiratory protection devices.
- Establishing and maintaining a system for keeping records of medical evaluations and fit testing.

#### **1.3.4 Business Unit Manager/Organization Manager**

- Designate an office/organization Safety Coordinator to assist the Program Administrator with the Respiratory Protection Program.
- Identify all personnel assigned to their organization whose duties require the use of respiratory protection. Provide the names to the Program Administrator.
- Verify each employee under his or her supervision using a respirator has received appropriate training in its use and an annual medical evaluation to determine an employee's ability to use a respirator.
- Provide the appropriate respirator(s) and accessories, provide adequate storage facilities, and encourage proper respiratory equipment maintenance.
- Report malfunctions of the respiratory equipment to the Program Administrator and, if applicable, the Safety Coordinator immediately.
- Be aware of tasks requiring the use of respiratory protection, and make sure all employees engaged in such work are provided the appropriate equipment and are following this program.

#### **1.3.5 Regional/Division Director**

- Verify with Business Unit Manager/Organization Manager where respiratory protection is utilized that all personnel wearing respiratory protection devices have been identified and are receiving the required training and medical evaluation.
- Recommend to the Program Administrator an office/organization Safety Coordinator for regional offices where the use of respiratory protection is required.
- Verify that appropriate respiratory devices are being used and the employees are following this program.

#### **1.3.6 Medical Review Officer**

The Medical Review Officer is responsible for the following:

- Establishing medical evaluation and surveillance procedures
- Reviewing the health status of the Company's personnel who may be required to wear respiratory protective equipment in the completion of their assigned tasks.

### **1.4 MEDICAL EVALUATION**

The Medical Review Officer, initially and periodically thereafter, makes a determination as to whether or not an employee can wear the required respirator without physical or psychological risk. Based on the overall health of the individual and the results of medical

tests (pulmonary function studies, EKG, etc.), which may be specified by the Medical Review Officer, the examining physician determines whether or not the individual will be restricted from wearing respiratory protective equipment. If a medical restriction is applied, the individual and the Program Administrator are formally notified of the restriction. Specific medical tests and procedures will be determined by the Medical Review Officer, when necessary, and will be in accordance with OSHA medical surveillance requirements.

Additional medical evaluations will be performed in the following instances:

- The employee reports problems wearing a respirator
- When recommended by the Medical Review Officer, Program Administrator or the employee's supervisor

Medical evaluation records shall be maintained by the Medical Review Officer. Employees and their representatives may have access to their medical records by contacting the Medical Review Officer and/or the Corporate Safety Manager.

## **1.5 SELECTION AND USE OF RESPIRATORY PROTECTIVE DEVICES**

### **1.5.1 Respirator Use**

If engineering controls and/or administrative procedures are not sufficient to eliminate the hazards, then respiratory protection is authorized and issued for the following personnel who have a current, valid, Respirator User Card:

- Workers on projects known to have contaminant levels requiring the use of respiratory protection or in which contaminant levels requiring the use of respiratory protection may be created without warning.
- Workers performing operations documented to have health hazards requiring the use of respiratory protection and those required to be in the immediate vicinity of where similar levels of contaminants are generated.
- Workers on suspect projects or performing operations suspected of having health hazards requiring the use of respiratory protection but for which adequate exposure data has not been obtained.

### **1.5.2 Respirator Selection**

All respirators selected for use by the Company's workers will be certified by the National Institute for Occupational Safety and Health.

Selection of the proper respirator(s) to be used on any Company project or operation will be made only after a determination has been made as to the real and/or potential exposure of employees to harmful concentrations of contaminants. Due to the variety of Company projects, the evaluation will be project and site specific. This evaluation will be performed prior to the start of any task requiring respirators and will be based on the contaminants, atmospheric sampling results, personnel assigned to the project and degree of exposure

(e.g. casual, moderate, heavy,). Respiratory protective devices will be selected by the Program Administrator or his/her designee. The following items will be considered in the selection of respirators:

- Effectiveness of the device against the hazards
- Estimated maximum concentration of the substance
- General environment (open air, confined space, etc.)
- Known limitations of the respiratory protective device
- Comfort, fit, and worker acceptance
- Other contaminants in the environment or the potential for oxygen deficiency

Project Managers will contact, with sufficient lead time, the Program Administrator prior to performing work tasks which may expose workers to hazardous substances or oxygen deficient atmospheres. Examples of work that may require the use of respirators include, but are not limited to:

- Hazardous material activities/site investigations
- Lead abatement activities
- Asbestos inspection/abatement activities
- Painting/Coating, especially with epoxy or organic solvent based compounds
- Using solvents, thinners, or degreasers
- Work which generates large amounts of dust
- Repair work in a confined space
- Drilling activities

During the implementation of a work task, a review of the real and/or potential exposures will be periodically performed to determine if respiratory protection continues to be required, and if so, an assessment that the previously chosen respirators still provide adequate protection.

### **1.5.3 Types of Respirators**

#### **A. Air Purifying Respirator**

These respirators remove contaminants from the atmosphere by filtering, absorbing, adsorbing, or chemical reaction with the contaminants as they pass through the respirator canister or cartridge. This type of respirator is a negative pressure respirator which means the user receives air when they inhale. The different types of air purifying respirators are disposable filtering fabric, half face, full face and powered air purifying. Even though powered air purifying respirators have battery operated fans to pull the air through the cartridges or canisters they are considered negative pressure respirators. Air purifying respirators are to be used only where the oxygen content of the atmosphere is between 19.5% to 23.5%.

Air purifying respirators can be classified as follows:

- Particulate removing respirators, which filter out dusts, fibers, fumes and mists. These respirators may be single-use disposable filtering fabric respirators or respirators with replaceable filters.
- Gas and vapor removing respirators, which remove specific individual contaminants or a combination of contaminants by absorption, adsorption or by chemical reaction. Gas masks and chemical cartridge respirators are examples of gas and vapor removing respirators.
- Combination particulate/gas and vapor removing respirators, which combine the respirator characteristics of both kinds of air purifying respirators.

## **B. Supplied Air Breathing Apparatus**

These respirators provide breathing air independent of the environment and offer the highest degree of protection. The air is supplied to the user through a hose, called an air line. Such respirators are to be used when the contaminant has insufficient odor, taste or irritating warning properties, or when the contaminant is of such high concentration or toxicity that an air purifying respirator is inadequate. The Company's supplied air respirators, also called airline respirators, are pressure demand and also are equipped with an emergency escape bottle for use in case of loss of air. This type of respirator maintains a continuous positive pressure within the face piece, thus preventing leakage into the face piece and supplies the required quantity of air to the user on demand (inhalation).

## **C. Self Contained Breathing Apparatus**

These respirators provide breathing air independent of the environment and also offer the highest degree of protection. The air is supplied to the user in a container mounted on the user's back. This type of respirator allows the user complete independence from a fixed source of air. Such respirators are to be used when the contaminant has insufficient odor, taste or irritating warning properties, or when the contaminant is of such high concentration or toxicity that an air purifying respirator is inadequate. They maintain a continuous positive pressure within the face piece, thus preventing leakage into the face piece, and supply the required quantity of air to the user on demand (inhalation).

## **D. Emergency Escape Packs**

Emergency Escape Packs are for use in case of emergency. Emergency Escape Packs consist of a small pressurized tank containing 5 or 10 minutes of air, a valve and airline and a loose fitting see-through hood. Even though the hood is loose fitting the Emergency Escape Pack is positive pressure because the air exiting the hood keeps the wearer from being exposed to the atmospheric contaminants. The

air will last only as long as the indicated tank rating. They are to be used only in an emergency situation. Such situations include Air Purifying Respirator failure or an atmospheric monitoring instrument alarm when not wearing respiratory protection.

Air used in Supplied Air Breathing Apparatus, Self Contained Breathing Apparatus and Emergency Escape Pack must be Grade D Breathing Air. Certification of Grade D Breathing Air must be obtained from the supplier of the breathing air. If a compressor is used to supply air to breathing apparatus, the air must be tested and certified to be Grade D Breathing Air by a qualified laboratory.

#### **1.5.4 Identification of Respirator Cartridges and Gas Mask Canisters**

Respirator cartridges and canisters are designed to protect against potentially hazardous atmospheric contaminants, and are specifically labeled and color coded in accordance with NIOSH requirements to indicate the type and nature of protection they provide. The label must not be removed.

The NIOSH approval label on the respirator will also specify the maximum concentration of a contaminant(s) for which the cartridge or canister is approved.

#### **1.5.5 Warning Signs of Respirator Failure**

##### **A. Particulate Air Purifying**

Increased resistance in breathing due to partial clogging of the filtering fabric, canister or cartridges is called loadup. When this occurs the filtering media must be discarded and replaced. If loadup continues to be a reoccurring problem and controls (e.g. forced mechanical ventilation) does not correct the problem, a Supplied Air Breathing Apparatus or Self Contained Breathing Apparatus is required.

##### **B. Gas or Vapor Air-Purifying**

If, when using a gas or vapor respirator (chemical cartridge or canister), any of the warning properties (e.g., odor, taste, etc.) occur, immediately leave the work area and check the following:

- Proper face seal
- Damaged or missing respirator parts
- Saturated or inappropriate cartridge or canister

If no discrepancies are observed, replace the cartridge or canister. If any of the warning properties appear again, the concentration of the contaminants may have exceeded the cartridge or canister design specification. When this occurs, a Supplied Air Breathing Apparatus or Self Contained Breathing Apparatus is required.

### **C. Service Life of Air-Purifying Respirator Canisters and Cartridges**

The canisters or cartridges of air-purifying respirators are intended to be used until filter resistance precludes further use, or the chemical sorbent is expended as signified by a specific warning property (e.g., odor, taste, etc.). New canisters, cartridges or filters shall always be used when starting a project or task.

The maximum service life of canisters, cartridges and filters will be established by site specific safety procedures or a Health and Safety Plan. The service life will be based on the contaminants, atmospheric sampling results, Permissible Exposure Limits, degree of exposure, task(s) to be performed and other pertinent information collected prior to and during the project. Manufacturers information, including computer software provided by the manufacturer, will also be utilized to establish the maximum service life.

### **D. Supplied Air Breathing Apparatus/Self Contained Breathing Apparatus**

When using a Supplied Air Breathing Apparatus, leave the work area immediately when the air pressure alarm is activated or activate the emergency escape bottle if an air pressure drop is sensed. When using a Self Contained Breathing Apparatus leave the work area as soon as the air pressure alarm is activated.

## **1.6 RESPIRATOR TRAINING**

Respirator users will receive training on the contents of the Company Respiratory Protection Program and their responsibilities under it. They will be trained on the proper selection and use, as well as the limitations of the respirator. Training also covers how to ensure a proper fit before use and how to determine when a respirator is no longer providing the protection intended.

The Company will also provide training to respirator wearers in the use, maintenance, capabilities, and limitations of the various types of respirators available for use at the Company. The training will be given initially upon assignment to tasks requiring the use of a respirator. Retraining is given annually thereafter or sooner as deemed necessary by the Program Administrator.

The training program will include the following:

- Nature and degree of respiratory hazard
- Respirator selection, based on the hazard and respirator capabilities and limitations
- Donning procedures and fit tests including hands-on practice
- Care of the respirator including need for cleaning, maintenance, storage, and/or replacement
- Use and limitations of respirator

Respirator training will be properly documented and will include the type and model of respirator for which the individual has been trained and fit-tested.

The respirator users' supervisors will receive an awareness training on the Respiratory Protection Program including their responsibilities under the Program.

## **1.7 RESPIRATOR FIT TESTING**

A fit test shall be used to determine the ability of each individual respirator wearer to obtain a satisfactory fit with any air purifying respirator and supplied air respirator. Either quantitative or qualitative fit tests will be performed. Personnel must successfully pass the fit test before being issued a respirator.

Company employees will not be permitted to wear a respirator in a work situation until he or she has demonstrated that an acceptable fit can be obtained. Fit testing will be conducted initially upon assignment to a task requiring use of a respirator, and annually thereafter. Additional fit testing may also be required if the respirator wearer's facial features change (e.g. dental changes, weight gain or loss, facial scarring, etc.)

Fit testing will be conducted by the Program Administrator, his/her designee or an outside source and the test results will be the determining factor in selecting the type, model, and size of negative pressure respirator for use by each individual respirator wearer.

### **1.7.1 Fit Checking**

Each time a respirator is donned, the user will perform positive and negative pressure fit checks. These checks are not a substitute for fit testing. Respirator users must be properly trained in the performance of these checks and understand their limitations.

#### **A. Negative Pressure Check**

**Applicability/Limitations:** This test cannot be carried out on all respirators; however, it can be used on facepieces of air purifying respirators equipped with tight-fitting respirator inlet covers and on atmosphere supplying respirators equipped with breathing tubes which can be squeezed or blocked at the inlet to prevent the passage of air.

**Procedure:** Close off the inlet opening of the respirator's canister(s), cartridge(s), or filter(s) with the palm of the hand, or squeeze the breathing air tube or block its inlet so that it will not allow the passage of air. Inhale gently and hold for at least 10 seconds. If the face piece collapses slightly and no inward leakage of air into the face piece is detected, it can be reasonably assumed that the respirator has been properly positioned and the exhalation valve and face piece are not leaking.



## **B. Positive Pressure Check**

**Applicability/Limitations:** This test cannot be carried out on all respirators; however, respirators equipped with exhalation valves can be tested.

**Procedure:** Close off the exhalation valve or the breathing tube with the palm of the hand. Exhale gently. If the respirator has been properly positioned, a slight positive pressure will build up inside the face piece without detection of any outward air leak between the sealing surface of the face piece and the face.

### **1.7.2 Qualitative Fit Testing**

Qualitative fit testing checks the respirator wearer's response to a chemical introduced outside the respirator face piece. This response is either voluntary or involuntary depending on the chemical used. Several methods may be used. The two most common are the irritant smoke test and the odorous vapor test.

#### **A. Irritant Smoke**

The irritant smoke is an irritant to the eyes, skin, and mucous membranes. It must not be introduced directly onto the skin. The test subject must keep his or her eyes closed when being fit tested for a half face respirator. The irritant smoke test is an involuntary response test. The air purifying respirator must be equipped with a P100 (HEPA) filter for this test. While the respirator wearer stands under a large plastic bag an irritant smoke, usually either stannic chloride or titanium tetrachloride, is directed from a smoke tube toward the respirator wearer. The respirator wearer performs the following exercises for one minute each:

- Normal breathing
- Deep breathing
- Side to side movement of the head
- Up and down movement of the head
- Read the Rainbow Passage
- Bending over or jogging in place
- Normal breathing

If the test subject does not respond (e.g. coughing, watery eyes) to the irritant smoke, a satisfactory fit is assumed to be achieved. Any response to the smoke indicates an unsatisfactory fit.

If the respirator wearer cannot smell the irritant smoke, the respirator will be momentarily pulled away from the subject's face. If the subject reacts to the irritant smoke, a satisfactory fit is assumed. If the subject does not react to the irritant smoke with the respirator pulled away from the face, this test is inappropriate for this subject.



## **B. Odorous Vapor**

The odorous vapor test is a voluntary response test. It relies on the subject's ability to detect an odorous chemical while wearing the respirator. Air purifying respirators must be equipped with an organic cartridge or canister for this test. Isoamyl acetate (banana oil) is the usual test. An isoamyl acetate saturated gauze pad is placed near the face piece of the respirator without touching the skin. If the test subject is unable to smell the chemical, then a satisfactory fit is assumed to be achieved. If the subject smells the chemical, the fit is unsatisfactory.

If the respirator wearer cannot smell the chemical, the respirator will be momentarily pulled away from the subject's face. If the subject is then able to smell the chemical, a satisfactory fit is assumed. If the subject cannot smell the chemical with the respirator pulled away from the face, this test is inappropriate for this subject.

This test is limited by the wide variation of odor thresholds among individuals and the possibility of olfactory fatigue. Since it is a voluntary response test it depends upon an honest response.

### **1.7.3 Quantitative Fit Testing**

Quantitative fit testing, using a Porta Count Plus fit test system, or equivalent, is performed on both full face and half face negative pressure air purifying respirators. A fit factor is determined by comparing the particle concentration of the atmosphere outside the respirator with the concentration inside the respirator face piece. The respirator wearer performs the following exercises for one minute each except the grimace which is performed for 40 seconds:

- Normal breathing
- Deep breathing
- Side to side movement of the head
- Up and down movement of the head
- Read the Rainbow Passage
- Grimace
- Bending over or jogging in place
- Normal breathing

An acceptable fit is achieved when the respirator wearer successfully completes exercises and achieves a fit factor of 100 or more for a half face respirator and 1000 or more for a full face respirator.

#### **1.7.4 Special Problems**

##### **A. Contact Lenses**

Contact lenses are **NOT** allowed to be worn when wearing a respiratory protective device.

##### **B. Facial Hair**

No attempt will be made to fit test an employee who has facial hair which interferes with the seal of the respirator to the face, or if facial hair interferes with normal functioning of the exhalation valve of the respirator.

Respirators may **NOT** be worn at any time, and the employee shall not conduct work requiring the wearing of a respirator, if the respirator wearer has any facial hair that interferes with the seal of the respirator to the face, or if facial hair interferes with normal functioning of the exhalation valve of the respirator.

##### **C. Glasses and Eye/Face Protective Devices**

Proper fitting of a respiratory protective device face piece for individuals wearing corrective eyeglasses or goggles may not be established if temple bars or straps extend through the sealing edge of the face piece. If eyeglasses, goggles, face shield or welding helmet must be worn with a respirator, they must be worn so as not to adversely affect the seal of the face piece. If a full-face piece respirator is used, special prescription glasses inserts are available if needed. If the employee has a current prescription, the Company will reimburse the employee for the lenses for the inserts.

#### **1.7.5 Respirator User Cards**

Respirator User Cards will be issued by the Program Administrator or his designee to Company employees who have been trained, passed fit testing and been qualified medically fit to use a respirator. A Respirator User Card will include:

- Name and identification number of the worker.
- Name of person performing the fit test.
- The statement: "(name) has been trained, fitted and medically evaluated to use the respirator(s) indicated."
- The type(s), model(s) and size(s) of respirator(s) that the cardholder was issued.
- The Expiration date of card.

#### **1.7.6 Recordkeeping**

Respirator fit-testing shall be documented and shall include the type of respirator, brand name and model, including the NIOSH approval number, method of test and test results,

test date and the name of the instructor/tester. The original records will be on file in the Program Administrator's office.

## **1.8 MAINTENANCE AND ISSUANCE OF RESPIRATORS**

### **1.8.1 Maintenance**

The maintenance of respiratory protective devices involves a thorough visual inspection as per the manufacturer's recommendations for cleanliness and defects (i.e., cracking or disfigured rubber, cracking or deterioration of straps, defective or missing exhalation and/or inhalation valves, broken, cracked or scratched lenses, cracked cartridge receptacles, deteriorated or missing cartridge gaskets, etc.) prior to each time it is used or issued. Worn or deteriorated parts shall be replaced prior to use or issue. Replacement parts are available through the Program Administrator. No respirator with a known defect shall be used or issued. No attempt shall be made to replace components, make adjustments or make repairs on any respirator beyond those recommended by the manufacturer. Under no circumstances shall parts be substituted as such substitutions shall invalidate the approval of the respirator. Any repair to reducing or admission valves, regulators, or alarms shall be conducted by either the manufacturer or a qualified trained technician. Respirators issued to Company employees shall be inspected by the instructor/fit tester at the users fit test.

Self Contained Breathing Apparatuses, Supplied Air Breathing Apparatuses and Emergency Escape Packs shall be inspected monthly according to the manufacturer's recommendations by a qualified, trained technician. The regulators must be inspected and tested every six months to make sure the regulators are mechanically sound and the flow of air to the user is per manufacturer's recommendations. The air tanks must be hydrostatically tested to verify soundness. Aluminum cylinders wound in fiberglass must be tested every three years and steel cylinders every five years. Inspection logs will be maintained by the technician with a copy of the logs forwarded to the Program Administrator monthly.

The user will perform an inspection prior to use of either type of air supplied respirator. The respirator will be inspected for cleanliness and defects (i.e., cracking or disfigured rubber, cracking or deterioration of straps, defective or leaking valves, deteriorating airlines/hoses, broken, cracked or scratched lenses, deteriorated or missing gaskets or o-rings, etc.). The inspection will also include the quantity of air in the air cylinder(s) (at least 90% full for Self Contained Breathing Apparatus and Supplied Air Breathing Apparatus and 100% full for Emergency Escape Packs) and the low pressure alarms.

### **1.8.2 Cleaning of Respirators**

All respirators in routine use shall be cleaned and sanitized daily. Respirators used non-routinely shall be cleaned and sanitized after each use and filters and cartridges also replaced. Routinely used respirators are maintained individually by the respirator wearer. Replacement cartridges and filters are obtained through the Program Administrator.

Cleaning and disinfection of respirators must be done frequently to ensure that skin-penetrating and dermatitis-causing contaminants are removed from the respirator surface. Respirators maintained for emergency use or those used by more than one person must be cleaned after each use by the user.

The following procedure is recommended for cleaning and disinfecting respirators:

- Remove and discard all used filters, cartridges, or canisters.
- Wash face piece and breathing tube in a cleaner-disinfectant solution. A hand brush may be used to remove dirt. Cleaning solvents shall not be used.
- Rinse completely in clean, warm water.
- Air dry in a clean area in such a way as to prevent distortion.
- Clean other respirator parts as recommended by the manufacturer.
- Inspect valves, head straps, and other parts to ensure proper working condition.
- Reassemble respirator and replace any defective parts.
- Place in a clean, dry plastic bag or other suitable container for storage after each cleaning and disinfection.

### **1.8.3 Issuance of Respirators**

Respiratory protective equipment shall not be ordered, purchased, or issued to personnel unless the respirator wearer has been medically qualified and successfully completed respirator training and passed a fit test. New employees who require respiratory protective equipment, must be placed into the respirator program before being issued equipment.

Company will provide the following types of air purifying respirators:

- MSA Comfo II (half face)
- MSA Ultra-Twin (full face)
- Survivair half mask
- Survivair full face
- North half face
- North full face

These respirators have a variety of cartridges and canisters that may be worn with them. Therefore, the cartridges and canisters and facepieces are packaged separately. The appropriate cartridge or canister is determined, based on the user's needs (see Section 1.5.2), and is issued with the appropriate face piece. In addition, disposable respirators with filter ratings N-95 and N-100 are available for use under appropriate conditions.

### **1.8.4 Storage**

After inspection, cleaning, and any necessary minor repairs, respirators will be stored to protect against sunlight, heat, extreme cold, excessive moisture, damaging chemicals or other contaminants. Routinely used respirators, such as half mask or full face air purifying

respirators, shall be placed in sealable plastic bags. Respirators may be stored in such places as lockers or tool boxes only if they are first placed in carrying cases or cartons. Respirators shall be packed or stored so that the face piece and exhalation valves will rest in a normal position and not be crushed. The strap on all full face respirators will be in the normal position, not over the front of the face piece, during storage.

## **1.9 PROGRAM SURVEILLANCE**

The Respirator Protection Program will be continuously critiqued and evaluated by the Program Administrator and reviewed at least annually.

The evaluation of the Respirator Program will include investigating wearer acceptance of respirators, inspecting respirator program operation and appraising protection provided by the respirator. Evidence of excessive exposure of respirator wearers to respiratory hazards will be followed up by an investigation to determine why inadequate respiratory protection was provided. The findings of the respirator program evaluation will be documented, and this documentation will list plans to correct faults in the program and set target dates for the implementation of the plans.

## **1.10 RECORD KEEPING/DESIGNATED PERSONNEL**

The following records shall be developed and maintained for the Company Respiratory Protection Program and the personnel listed are designated to fulfill the responsibilities of the Program Administrator and Medical Review Officer as described in Section 1.3:

<b>Record</b>	<b>Designee/Location</b>
Medical Evaluations	Medical Review Officer - Dr. Charles Haverstick, WorkNet, Hummelstown, PA (717) 566-8400
Respiratory Protection Program	Office of Program Administrator Thomas W. Gingrich - Corporate Safety Manager (717) 763-7211 - Extension 2087 Gannett Fleming's Harrisburg Office East Building, Room 370, Safety Manual for Field Operations
Hazard Evaluations (Air sampling results, surveys, respirator selection records)	Project Managers, Business Unit Manager, Organization Manager
Training Records, Fit Test Records, Program Evaluations	Office of Program Administrator Thomas W. Gingrich - Corporate Safety Manager (717) 763-7211 - Extension 2087 Gannett Fleming's Harrisburg Office East Building, Room 370

# **STANDARD OPERATING PROCEDURE NUMBER 10**

## **CONFINED SPACE ENTRY PROGRAM**

### **GANNETT FLEMING, INC.**

#### **10.0 PURPOSE**

This document sets forth general confined space entry procedures for Gannett Fleming, Inc. (GFI) personnel. No personnel shall be permitted to enter a confined space until the provisions of these procedures, in accordance with the following standards and regulations, have been met.

#### **10.1 KEY ELEMENTS**

- Designation and definition of confined space entry personnel: Confined Space Supervisor, Authorized Entrant, Attendant and Rescue Team
- Identification and evaluation of confined spaces
- Confined space entry permits
- Training of personnel
- Duties of confined space entry personnel
- Lockout/tagout requirements
- Ventilation
- Electrical equipment requirements
- Compressed gas cylinders restrictions
- Specific requirements
- Emergency response

#### **10.2 REFERENCES**

- 29 CFR Part 1910.146, Permit Required Confined Spaces
- 29 CFR 1910.38, Employee Emergency and Fire Prevention Plans
- 29 CFR 1910.147, The Control of Hazardous Energy (Lockout/Tagout)

- American National Standard Safety Requirements for Confined Spaces, American National Standards Institute (ANSI) Z117.1-1989
- Gannett Fleming Safety Manual for Field Operations, Confined Space Entry

### **10.3            CONFINED SPACE ENTRY PERSONNEL**

#### **10.3.1            Confined Space Supervisor**

The designated individual responsible for evaluating health and safety issues for confined spaces and the procedures to be performed within the confined space prior to any entry.

#### **10.3.2            Attendant**

The designated individual(s) assigned to be present at all times at the confined space entry point, to remain immediately outside the confined space, to monitor confined space conditions and to render assistance if needed, to entrants from outside of the confined space. Attendant shall not enter the confined space unless replaced by an individual equally trained in the performance of these duties.

#### **10.3.3            Authorized Entrant**

The designated individual(s) assigned to enter a confined space who has(have) been authorized by the Confined Space Supervisor.

#### **10.3.4            Rescue Team**

Those persons designated by the Confined Space Supervisor to perform rescues from confined spaces. The Rescue Team may be composed of an on-site rescue team of GFI workers or off-site emergency rescue personnel from the supporting local Fire Department or Rescue Service.

### **10.4            CONFINED SPACE IDENTIFICATION AND EVALUATION**

#### **10.4.1            Confined Space Identification**

The Confined Space Supervisor will identify confined spaces using the following definition: A confined space is an enclosed space which has all of the following characteristics:

- Is large enough and so configured that an employee can bodily enter and perform assigned work;
- Has limited or restricted means for entry or exit (e.g., tanks, vessels, silos, manholes, storage bins, hoppers, vaults, pits and diked areas); and
- Is not designed for continuous employee occupancy.

A permit-required confined space meets the definition of a confined space and has one or more of the following characteristics:

- Contains or has a potential to contain a hazardous atmosphere;
- Contains a material with the potential to engulf an entrant;
- Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or a floor which slopes downward and tapers to a smaller cross section; or
- Contains any other known serious safety or health hazard.

A non-permit required confined space is a confined space that does not contain or have the potential to contain any hazard capable of causing death or serious physical harm.

#### **10.4.2      Confined Space Evaluation**

Confined spaces shall be evaluated by the Confined Space Supervisor prior to each entry. The Confined Space Supervisor shall evaluate these confined spaces for potential hazards which may be involved and specify entry requirements. Evaluation will include, as a minimum, atmospheric testing for oxygen level, combustible gases and vapors, and toxic gases and vapors which are known to exist or may potentially exist in the confined space. Potential Mechanical/Electrical Hazards must also be evaluated.

The atmosphere shall be tested in the following chronological order: Oxygen Level, Combustible Gases, Toxic Gases. The atmosphere shall be tested at the lower level, middle level and upper level of the confined space. Initial test results shall be recorded on the permit.

Entry into a confined space shall only be permitted when atmospheric testing indicates the following results, except as subsequently stated:

- Oxygen levels are > 19.5 percent and < 23.5 percent
- Combustible Gas Flammability/Explosivity levels are < 10 percent of Lower Explosive Limit (LEL)
- An atmospheric concentration of a specific substance is below the listed OSHA Permissible Exposure Limit (PEL) or ACGIH Threshold Limit Value (TLV)

An Authorized Entrant may enter a confined space when the oxygen level is less than 19.5 percent or when the atmospheric concentration of a specific substance exceeds the listed OSHA PEL or ACGIH TLV ONLY IF the entrant is respirator qualified, the appropriate respirator or breathing apparatus is worn, and the entry under these conditions is specifically authorized by the Confined Space Supervisor.



Following the evaluation of the confined space, the Confined Space Supervisor shall classify the confined space as either a permit-required confined space or a non-permit-required confined space, and specify confined space entry requirements. Entry requirements shall be recorded on the permit. A non-permit-required confined space does not require the use of an entry permit.

All confined spaces shall be continuously tested for oxygen level, flammable/explosive gases, toxic materials and other serious safety or health hazards identified by the Confined Space Supervisor throughout the duration of the confined space entry. Periodic test results shall be recorded on the permit.

## **10.5            CONFINED SPACE ENTRY PERMIT SYSTEM**

A Confined Space Entry Permit (CSEP) system will be used by the Confined Space Supervisor to control employee entry into the permit-required confined space. Prior to each entry into any permit-required confined space, a written CSEP is required and shall be issued by the Confined Space Supervisor. Standard GFI format permits shall be used so that basic elements of information are documented.

### **10.5.1            Validity Period of Confined Space Entry Permit**

A permit is valid for the duration of one work shift. In the event that additional time is needed, a new permit must be issued by the Confined Space Supervisor, pending reevaluation of the confined space certification for acceptable entry conditions.

### **10.5.2            Confined Space Entry Permit Form**

The CSEP form will be completed by the Confined Space Supervisor for each permit-required confined space entry and will be specific to each entry situation. A copy of GFI's standard CSEP form is attached to this Standard Operating Procedure.

### **10.5.3            Posting, Maintenance, Cancellation and Filing of Confined Space Entry Permits**

The CSEP shall be conspicuously posted at each confined space entry point, maintained until the entry has been completed and then canceled. Canceled CSEP forms shall be transferred to the GFI project file and maintained for a minimum period of one year.

## **10.6            TRAINING**

### **10.6.1            Confined Space Supervisor**

The Confined Space Supervisor shall have completed GFI's 16-hour course in Confined Space Operations, or equivalent.

### **10.6.2        Authorized Entrants**

The Authorized Entrant(s) shall have completed GFI's 8-hour course in Confined Space Entry, or equivalent, as a minimum.

### **10.6.3        Attendants**

The Attendant(s) shall have completed GFI's 16-hour course in Confined Space Operations, or equivalent.

### **10.6.3        Rescue Team**

Prior to any confined space entry, the Confined Space Supervisor shall designate a rescue team comprised of on-site GFI personnel or an off-site local Rescue Team. The training of GFI rescue team personnel shall include, as a minimum:

- Use of the equipment needed to perform rescue functions
- Emergency and rescue methods and procedures
- Additionally, at least one member of the rescue team shall hold current certification in Red Cross first aid and Red Cross CPR

## **10.7        DUTIES**

### **10.7.1        Confined Space Supervisor**

The duties of the Confined Space Supervisor shall be as follows:

- Know space hazards including information on the mode of exposure, signs, or symptoms and consequences of exposure
- Identify confined spaces that must be entered as part of the work
- Evaluate confined spaces for potential hazards
- Verify emergency plans and specify entry conditions such as permits, tests, procedures, and equipment before allowing entry
- Verify that equipment specified for confined space entry is available and operational
- Designate a rescue team comprised of on-site GFI personnel or an off-site local Rescue Team and designate means of contacting the rescue team
- Verify training of authorized entrants, attendants and GFI rescue team
- Complete and sign permit form prior to initial entry

- Terminate entry and cancel permits when entry operations are completed or if a new condition exists that may cause death or serious physical harm
- Support Attendants in removal of unauthorized entrants
- Ensure that entry operations remain consistent with the entry permit and that acceptable entry conditions are maintained

### **10.7.2 Authorized Entrants**

The duties of the Authorized Entrant(s) shall be as follow:

- Know space hazards, including information on the mode of exposure (e.g., inhalation or dermal absorption), signs or symptoms, and consequences of the exposure
- Use appropriate personal protective equipment properly
- Maintain communication with Attendants as necessary to enable the Attendant to monitor the Authorized Entrant's status as well as to alert the Authorized Entrant to evacuate
- Exit from permit space as soon as possible when ordered by an Attendant or other authorized person, when the Authorized Entrant recognizes the warning signs or symptoms of exposure exist, when a prohibited condition exists, or when an automatic alarm is activated
- Alert the Attendant when a prohibited condition exists or when warning signs or symptoms of exposure exist

### **10.7.3 Attendants**

The duties of the Attendant(s) shall be as follow:

- Remain outside permit space during entry operations and maintain communications with Authorized Entrants unless relieved by another authorized Attendant
- Perform non-entry rescues when specified by employer's rescue procedure
- Know existing and potential hazards, including information on the mode of exposure, signs or symptoms, consequences of the exposure, and their physiological effects
- Keep an accurate account of those workers entering the permit-required space
- Periodically check the status of conditions in the confined space via the methods used by the Confined Space Supervisor to perform initial evaluation of the confined space
- Order evacuation of the permit space when a prohibited condition exists, when an Authorized Entrant shows signs of physiological effects of hazard exposure, when an emergency outside the confined space exists, and when the Attendant cannot effectively and safely perform required duties

- Summon rescue and other services during an emergency
- Instruct unauthorized persons to stay away from permit spaces or to exit immediately if they have entered the permit space
- Inform Authorized Entrants and Entry Supervisor of entry by unauthorized persons
- Perform no other duties that interfere with the Attendant's primary duties

#### **10.7.4      Rescue Team**

The duties of the Rescue Team shall be as follow:

- Report immediately to the confined space, when summoned
- Don the appropriate Personal Protective Equipment (PPE)
- Attempt rescue

#### **10.8              LOCKOUT/TAGOUT**

Prior to entry into any confined space, the Confined Space Supervisor shall verify that all mechanical and electrical energy sources (pipes, valves, machinery, etc.) that may pose a hazard due to accidental startup, engulfment or electrocution, have been de-energized and/or rendered in the zero mechanical state through the following methods:

- Lockout/tagout
- Blanking or blinding
- Double block and bleed
- Disconnection

#### **10.9              VENTILATION**

Adequately sized mechanical ventilation equipment should be available for confined spaces prior to initial entry and for the duration of the CSEP. The use of mechanical ventilation shall be determined by the Confined Space Supervisor. However, care should be taken to ensure that the mechanical ventilation will not pose a hazard of its own such as carbon monoxide accumulation or ignition source in the confined space or spreading contamination outside of the enclosed area.

#### **10.10            ELECTRICAL EQUIPMENT REQUIREMENTS**

When electrical or battery powered equipment is used in a confined space, it shall meet the following requirements:

- Electrical or battery powered equipment must be intrinsically safe when a flammable or potentially explosive atmosphere is present.
- Ground fault electrical circuit interrupters for electrical equipment

## **10.11 COMPRESSED GAS CYLINDERS**

Compressed gas cylinders, except cylinders used for Self-contained Breathing Apparatus (SCBA), shall not be taken into confined spaces.

## **10.12 CONFINED SPACE ENTRY SPECIFIC REQUIREMENTS**

Prior to entry, the Confined Space Supervisor, shall specify the air monitoring requirements and equipment requirements for the confined space entry.

## **10.13 EMERGENCY RESPONSE**

### **10.13.1 Authorized Entrants**

In the event that the Authorized Entrants experience an emergency situation, they shall:

- Notify Attendant of emergency situation
- Help fellow entrant, if incapacitated, and proceed immediately to the nearest escape hatch; if an emergency retrieval system is used to support entry and exit, proceed to the hatch where the emergency retrieval system is located and attach lifeline to harness of incapacitated worker first
- Exit the confined space

### **10.13.2 Attendant**

In the event of an emergency, the Attendant shall:

- Notify the on-site GFI Rescue Team or the off-site local Rescue Team by designated means of communication
- At no time is the Attendant to enter the confined space or leave the entrance unmanned
- The Attendant shall attempt rescue utilizing an emergency retrieval system without entering the space
- Upon arrival of the Rescue Team, the Attendant shall provide them with appropriate information requested to perform the rescue

### **10.13.3 Rescue Team**

In the event of an emergency, the Rescue Team shall:

- Report immediately to the confined space.
- Don the appropriate PPE
- Attempt rescue

# CONFINED SPACE ENTRY PERMIT

Entry Date:

Entry Time:

Expiration Time:

CS Location:

Description of task(s):

Confined Space Classification\* (Circle)    A (Do Not Enter) B (Caution)    C

Personnel Assigned

Name: \_\_\_\_\_ Duties: \_\_\_\_\_

Training\*\*: (Circle)    1    2    3

Name: \_\_\_\_\_ Duties: \_\_\_\_\_

Training\*\*: (Circle)    1    2    3

Name: \_\_\_\_\_ Duties: \_\_\_\_\_

Training\*\*: (Circle)    1    2    3

Name: \_\_\_\_\_ Duties: Attendant (Required)

Training\*\*: (Circle)    1    2    3

Name: \_\_\_\_\_ Duties: CS Supervisor

Training\*\*: (Circle)    1    2    3

Equipment/PPE Required: (Circle) 1 2 3 4 5 6 7 8 9 10

- |                       |                          |
|-----------------------|--------------------------|
| 1.    Gloves          | 6.    Hearing Protection |
| 2.    Hard Hat        | 7.    Other_____         |
| 3.    Eye Protection  | 8.    Other_____         |
| 4.    Coveralls       | 9.    Other_____         |
| 5.    Steel Toe Shoes | 10.   Other_____         |

Safety Requirements/Procedures: (Circle) 1 2 3 4 5 6

- |                           |                                  |
|---------------------------|----------------------------------|
| 1.    Constant Monitoring | 4.    Tripod and Retrieval Winch |
| 2.    Buddy System        | 5.    Other_____                 |
| 3.    Safety Harness      | 6.    Other_____                 |

\*    A -- Immediately Dangerous to Life and Health  
     B -- Dangerous but not Immediately Dangerous to Life and Health  
     C -- Requires no modification to standard procedures

\*\*    1 -- CPR/Fist Aid  
     2 -- Confined Space Entry  
     3 -- Respirator Qualified

Emergency Phone Nos. \_\_\_\_\_  
EMS \_\_\_\_\_

FIRE

OTHER

Monitor No. \_\_\_\_\_ Calibrated By \_\_\_\_\_ Date \_\_\_\_\_

Monitor No. \_\_\_\_\_ Calibrated By \_\_\_\_\_ Date \_\_\_\_\_

**Atmospheric Monitoring Results:**

<u>Activity</u>	<u>Time</u>	<u>Oxy%</u>	<u>LEL%</u>	<u>H<sub>2</sub>S (ppm)</u>	<u>Acceptable Limits</u>	
					<u>CO (ppm)</u>	<u>Other</u>
			19.5-23.5	0-10	0-10	0-35

Pre-Entry

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Level of protection	_____	Rescue Equipment
Adeq. PPE Supply	_____	Ventilation
Isolation Complete	_____	Approved Tools & Equipment
Tagging	_____	Approved Lighting & Elec.
Lockout	_____	Communication

Comments:

Permit Prepared by:

Confined Space Supervisor



HEALTH AND SAFETY PLAN  
FRITO-LAY, INC.

**APPENDIX B**

**Initial HASP Training Log**

# INITIAL HASP TRAINING LOG

## FRITO-LAY, INC.

[illegible]

HEALTH AND SAFETY PLAN  
FRITO-LAY, INC.

**APPENDIX C**

**Hospital Directions**

HEALTH AND SAFETY PLAN  
FRITO-LAY, INC.

## HOSPITAL LOCATIONS AND DIRECTIONS

### Hospital Location, Phone Numbers and Directions

#### Start

218 Morgan Avenue  
Brooklyn, NY 11237

#### Directions to Hospital: (see map)

1. Start out going SOUTH on MORGAN AVE toward MEADOW ST.
2. Turn RIGHT onto FLUSHING AVE.
3. Turn LEFT onto NOSTRAND AVE.
4. Turn RIGHT onto HALSEY ST.
5. Turn RIGHT onto BEDFORD AVE.
6. End at **Brooklyn Hospital Center**

#### **Brooklyn Hospital Center**

1221 Bedford Ave  
Brooklyn, NY 11216  
718-638-2946



HEALTH AND SAFETY PLAN  
FRITO-LAY, INC.

**APPENDIX D**

**Project Contacts**

HEALTH AND SAFETY PLAN  
FRITO-LAY, INC.

**APPENDIX E**

**Accident / Incident Report**

HEALTH AND SAFETY PLAN  
FRITO-LAY, INC.

**FRITO-LAY, INC.**

**ACCIDENT / INCIDENT REPORT**

	Report No. _____	
Site: _____	Project No. _____	
Location: _____		
Date of Report: _____	Preparer's Name: _____	
Name of Injured: _____		
Address of Injured: _____		
_____		
SSN: _____	Sex: _____ Age _____	
Years of Service: _____	Time on Present Job: _____	
Job Title/Classification: _____		
Division/Section: _____		
Date of Incident: _____	Time: _____	
Incident Category:	Motor Vehicle _____	Property Damage _____
	Fire _____	Chemical Exp. _____
	Near Miss _____	Other _____
Severity of Injury or Illness:		
	First-Aid Treatment _____	
	Lost Time _____	
	Physician Treatment _____	
	Fatality _____	
Describe property damage: _____		
Estimated amount of property damage: _____		
Estimated Number of Days Away from Job: _____		
Nature of Injury or Illness: _____		

HEALTH AND SAFETY PLAN  
FRITO-LAY, INC.

Classification of Injury:

Fractures _____	Heat Burns _____	Cold Exposure _____
Dislocation _____	Chemical Burns _____	Frostbite _____
Sprains _____	Radiation Burns _____	Heat Stroke _____
Abrasions _____	Bruises _____	Heat Exhaustion _____
Lacerations _____	Blisters _____	Concussion _____
Punctures _____	Toxic Respiratory Exposure _____	Faint/Dizziness _____
Bites _____	Respiratory Allergy _____	Toxic Ingestion _____
Dermal Allergy _____		

Part of body affected: \_\_\_\_\_

Degree of disability: \_\_\_\_\_

Date medical care was received: \_\_\_\_\_

Location where medical care was received: \_\_\_\_\_

Address where medical care was received: \_\_\_\_\_

**Incident Location**

Detailed narrative description (how did accident occur, why: object, equipment tools used, circumstances, assigned duties). Be specific:



HEALTH AND SAFETY PLAN  
FRITO-LAY, INC.

Causative agent most directly related to accident (object, substance, material, machinery, equipment, condition):

---

Was weather a factor? \_\_\_\_\_

Unsafe mechanical/physical environmental condition at time of accident (be specific):

---

Unsafe act by injured and/or others contributing to the accident (be specific, must be answered):

---

Personal factors (improper attitude, lack of knowledge or skill, slow reaction, fatigue):

---

Level of personal protective equipment required in Site Safety and Health Plan:

---

Was injured using required equipment: \_\_\_\_\_

If not, how did actual equipment use differ from plan?

---

What can be done to prevent a recurrence of this type of accident (modification or machine; mechanical guards; correct environment; training)?

HEALTH AND SAFETY PLAN  
FRITO-LAY, INC.

Names of witnesses to accident:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Signature of Site Safety and Health Supervisor: \_\_\_\_\_

Signature of Project Manager: \_\_\_\_\_

**APPENDIX B**  
**SOIL BORING LOG**







**APPENDIX C**  
**WELL CONSTRUCTION LOG**







## MONITORING WELL CONSTRUCTION INFORMATION

JOB No. : \_\_\_\_\_ CLIENT : \_\_\_\_\_

LOCATION : \_\_\_\_\_

DATE : \_\_\_\_\_ WELL No.: \_\_\_\_\_

HYDROGEOLOGIST : \_\_\_\_\_

DRILLING CONTRACTOR : \_\_\_\_\_

1). SCREEN TYPE : \_\_\_\_\_

SLOTTED LENGTH : \_\_\_\_\_

SLOT SIZE : \_\_\_\_\_

2). SOLID PIPE TYPE : \_\_\_\_\_

SOLID PIPE LENGTH : \_\_\_\_\_

PIPE & SCREEN DIA. : \_\_\_\_\_

JOINT TYPE-SLIP / GLUED : \_\_\_\_\_ THREADED ☒

3). TYPE OF BACKFILL AROUND SCREEN : \_\_\_\_\_

4). TYPE OF SEAL (IF INSTALLED) : \_\_\_\_\_

5). TYPE OF BACKFILL: \_\_\_\_\_

HOW INSTALLED: \_\_\_\_\_

6). TYPE OF SURFACE SEAL (IF INSTALLED): \_\_\_\_\_

7). PROTECTIVE CASING: YES ☒ NO \_\_\_\_\_

LOCKING CAP: YES ☒ NO \_\_\_\_\_

8). CONCRETE SEAL: YES ☒ NO \_\_\_\_\_

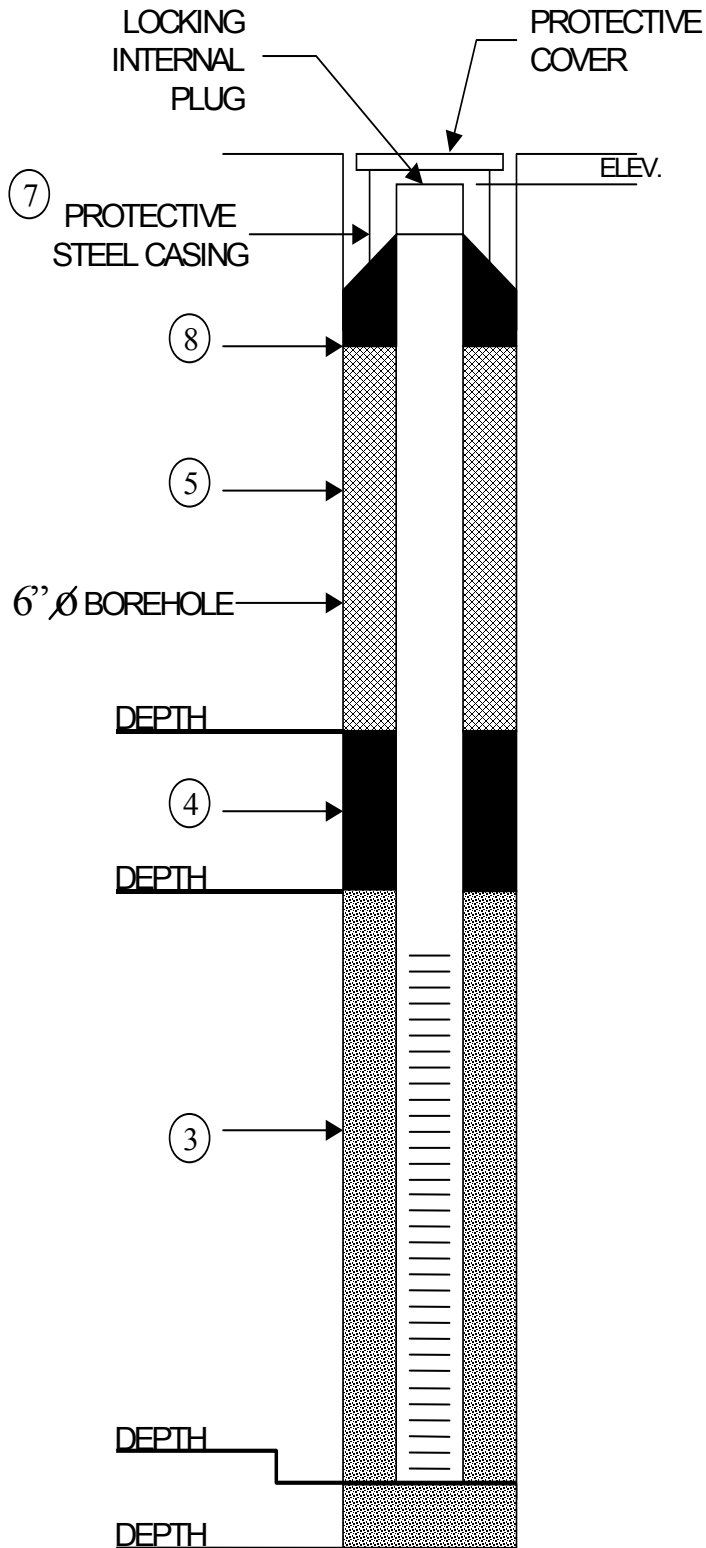
9). DRILLING METHOD: \_\_\_\_\_

10). ADDITIVES USED (IF ANY): \_\_\_\_\_

### WATER LEVELCHECKS\*

DATE	TIME	DEPTH TO WATER	REMARKS

\* FROM TOP OF WELL





**APPENDIX D**

**NEW YORK STATE DEPARTMENT OF HEALTH**  
**GENERIC COMMUNITY AIR MONITORING PROGRAM**



## **New York State Department of Health Generic Community Air Monitoring Plan**

A Community Air Monitoring Plan (CAMP) requires real-time monitoring for volatile organic compounds (VOCs) and particulates (i.e., dust) at the downwind perimeter of each designated work area when certain activities are in progress at contaminated sites. The CAMP is not intended for use in establishing action levels for worker respiratory protection. Rather, its intent is to provide a measure of protection for the downwind community (i.e., off-site receptors including residences and businesses and on-site workers not directly involved with the subject work activities) from potential airborne contaminant releases as a direct result of investigative and remedial work activities. The action levels specified herein require increased monitoring, corrective actions to abate emissions, and/or work shutdown. Additionally, the CAMP helps to confirm that work activities did not spread contamination off-site through the air.

The generic CAMP presented below will be sufficient to cover many, if not most, sites. Specific requirements should be reviewed for each situation in consultation with NYSDOH to ensure proper applicability. In some cases, a separate site-specific CAMP or supplement may be required. Depending upon the nature of contamination, chemical- specific monitoring with appropriately-sensitive methods may be required. Depending upon the proximity of potentially exposed individuals, more stringent monitoring or response levels than those presented below may be required. Special requirements will be necessary for work within 20 feet of potentially exposed individuals or structures and for indoor work with co-located residences or facilities. These requirements should be determined in consultation with NYSDOH.

Reliance on the CAMP should not preclude simple, common-sense measures to keep VOCs, dust, and odors at a minimum around the work areas.

### **Community Air Monitoring Plan**

Depending upon the nature of known or potential contaminants at each site, real-time air monitoring for volatile organic compounds (VOCs) and/or particulate levels at the perimeter of the exclusion zone or work area will be necessary. Most sites will involve VOC and particulate monitoring; sites known to be contaminated with heavy metals alone may only require particulate monitoring. If radiological contamination is a concern, additional monitoring requirements may be necessary per consultation with appropriate NYSDEC/NYSDOH staff.

**Continuous monitoring will be required for all ground intrusive activities and during the demolition of contaminated or potentially contaminated structures.** Ground intrusive activities include, but are not limited to, soil/waste excavation and handling, test pitting or trenching, and the installation of soil borings or monitoring wells.

**Periodic monitoring** for VOCs will be required during non-intrusive activities such as the collection of soil and sediment samples or the collection of groundwater samples from existing monitoring wells. "Periodic" monitoring during sample collection might reasonably consist of taking a reading upon arrival at a sample location, monitoring while opening a well cap or overturning soil, monitoring during well baling/purging, and taking a reading prior to leaving a sample location. In some instances, depending upon the proximity of potentially

exposed individuals, continuous monitoring may be required during sampling activities. Examples of such situations include groundwater sampling at wells on the curb of a busy urban street, in the midst of a public park, or adjacent to a school or residence.

#### VOC Monitoring, Response Levels, and Actions

Volatile organic compounds (VOCs) must be monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a **continuous** basis or as otherwise specified. Upwind concentrations should be measured at the start of each workday and periodically thereafter to establish background conditions. The monitoring work should be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment should be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment should be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

- If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.
- If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.
- If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown.

All 15-minute readings must be recorded and be available for State (DEC and DOH) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.

#### Particulate Monitoring, Response Levels, and Actions

Particulate concentrations should be monitored **continuously** at the upwind and downwind perimeters of the exclusion zone at temporary particulate monitoring stations. The particulate monitoring should be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. The equipment must be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration should be visually assessed during all work activities.

- If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m<sup>3</sup>) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is

observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed  $150 \text{ mcg/m}^3$  above the upwind level and provided that no visible dust is migrating from the work area.

- If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than  $150 \text{ mcg/m}^3$  above the upwind level, work must be stopped and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within  $150 \text{ mcg/m}^3$  of the upwind level and in preventing visible dust migration.

All readings must be recorded and be available for State (DEC and DOH) personnel to review.

June 20, 2000