BABCOCK STREET PROPERTIES AREA INVESTIGATION COMPLETION REPORT

VOLUME I OF II

Buffalo Terminal
Location No. 31-010
Buffalo, New York

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1.0 INTRODUCTION

Roux Associates, Inc. (Roux Associates) has prepared this report on behalf of Exxon Mobil Corporation (ExxonMobil) to document the investigation activities undertaken to complete the assessment of the Babcock Street Properties Area (BSPA) of the Buffalo Terminal (Site) located at 625 Elk Street, Buffalo, New York (Figure 1). The BSPA is one of nine geographic areas of the Site, which have been defined for the purpose of assessing environmental conditions and reporting the results of area-specific activities (Figure 2). A detailed location plan of the BSPA is included as Plate 1. The work was performed in accordance with the Work Plan for Completion of Investigation on the Babcock Street Properties Area (Work Plan) dated May 24, 2000 (Roux Associates 2000a) and subsequent letter correspondence from the New York State Department of Environmental Conservation (NYSDEC) dated June 2, 2000 (NYSDEC 2000).

The objectives of the investigation in the BSPA were to develop the site-specific data necessary to:

- Supplement previous investigations in order to describe environmental conditions within the BSPA and in the area west of the BSPA (south of Prenatt Street);
- Conduct an exposure assessment; and
- Evaluate remedial alternatives.

To achieve these objectives, the scope of work completed between June 2000 and May 2001 included the following tasks:

- Reconnaissance of the interior of former refinery/lube plant/terminal buildings that still exist in the BSPA;
- A Geoprobe™ soil and groundwater sampling program to build upon the previous investigations in the BSPA to further define the extent of separate-phase product and soil and groundwater conditions throughout the BSPA;
- Completion of a test pit on the BSPA upgradient of an area of seepage that exists along the Buffalo River bank;
- Completion of two test pits on the east side of the former Barrel House in the location of the former unloading trench;
- Completion of three test pits along the Buffalo Sewer Authority (BSA) Babcock Street Sewer and collection of dry weather and wet weather water samples from the sewer;

- Sediment sampling along the Buffalo River bank west of the BSPA;
- Installation of monitoring wells in locations selected based on the Geoprobe™ sampling program;
- Monitoring of water-level and separate-phase product (if present) in new and existing wells on the BSPA;
- Investigation of the location and condition of the two former pipe tunnels beneath Babcock Street; and
- Evaluation of the storm sewer piping north and east of the former Barrel House (Lube Building).

The remainder of the report is organized as follows:

- Section 2.0 provides a summary of the history of the BSPA, including ownership, past and present operations (i.e., buildings, tanks, etc) and spills or releases, as well as current environmental remediation efforts in the BSPA;
- Section 3.0 provides a summary of environmental conditions based upon the results of previous investigations;
- Section 4.0 presents the scope of work for the completion of investigation activities on the BSPA;
- Section 5.0 presents the results of the investigation;
- Section 6.0 presents a summary of findings and conclusions; and
- Section 7.0 presents references.

Included with the report are the following appendices:

- Appendix A: Field Change Forms;
- Appendix B: Building Reconnaissance Field Notes;
- Appendix C: Soil Boring and Monitoring Well Logs;
- Appendix D: Test Pit and Pipe Tunnel Inspection Logs, Photographs and Field Notes;
- Appendix E: Well Development Notes;
- Appendix F: Field Notes for Sewer Manhole and Catch Basin Cleaning and Inspection; and
- Appendix G: Hydrographs for BSPA Monitoring Wells with Product Present.

2.0 BABCOCK STREET PROPERTIES AREA DESCRIPTION AND HISTORY

The historical information presented in this Section was obtained from the document entitled "History of Operations at Buffalo Terminal" (Historical Document), dated April 26, 2000 (Roux Associates, 2000b). Historically, the major Site refinery and terminal operations occurred south of Elk Street in an area of approximately 89 acres. The petroleum refining operations at the Site began during 1880. The majority of the Site was purchased by Standard Oil Company of New York (SOCONY), ExxonMobil's predecessor, in 1892. In May 1981, the Site terminated all refinery operations. The Site continued only as a distribution terminal, receiving product via a pipeline and barge.

Throughout the Site's history, the areal extent of property owned by ExxonMobil changed as portions of property were acquired or sold for various reasons. For example, the entire BSPA (11.1 acres) was sold to One Babcock Street, Inc. (One Babcock Street) in 1994. The area within the current ExxonMobil property boundary is 78.3 acres.

Historical information is provided below for the BSPA, including facility operations, tanks, buildings and structures and product releases.

2.1 General History of the BSPA

In total, the BSPA encompasses approximately 11.1 acres. The northern portion of the BSPA is bounded by Elk Street to the north, Babcock Street to the east, Prenatt Street to the south, and Orlando Street to the west. The southern portion of the BSPA is bounded by Prenatt Street to the north, the adjacent property currently owned by PVS Chemicals Corporation (PVS Chemicals) to the west, the Former Refinery Area (FRA) to the east, and the Buffalo River to the south. The entire BSPA and associated structures were sold to One Babcock Street in 1994. Prior to the sale, a portion of the property including the former Barrel House was leased to One Babcock Street.

The original route of the Buffalo River formerly bisected the southern portion of the BSPA. Between 1914 and 1917, the river was filled and rerouted to the south to form a relatively straight channel (Plate 1). The rerouting of the Buffalo River was intended to facilitate the navigation of ships and in turn, benefit industries along the river. The rerouted river line became

the Site's southern boundary. The parcel of land located on the east side of Babcock Street and between Prenatt Street and the original Buffalo River, was purchased by Atlas Refining Company from Chas Norton, Receiver for Buffalo Lubricating Oil Company on July 6, 1888. On June 16, 1892, the Standard Oil Company purchased the property from Atlas Refining Company.

The portion of the BSPA located on the west side of Babcock Street and between Prenatt Street and the Buffalo River was leased by ExxonMobil from Allied Chemical from 1956 through 1974, at which time ExxonMobil purchased the property. This portion of the BSPA was primarily used for employee parking. Following the purchase of this property, ExxonMobil installed several catch basins and below grade piping for drainage of the parking area. These parking lot drains discharged to the Buffalo River through a single pipe located just west of the BSPA sewer line.

2.2 Former and Current Structures

Following the purchase of various sections of the BSPA by SOCONY, the northern portion remained primarily vacant. The residential structures were removed, two storage tanks, Tanks Nos. 83 and 84, and two pipe tunnels to the Former Refinery Area (FRA) were constructed between 1939 and 1951. The south portion of the BSPA, on the east side of Babcock Street, was utilized to house refinery associated structures and storage tanks. Later, these areas were occupied by the Lakes Division, the marketing division of SOCONY, and used specifically for the distribution of petroleum products.

Table 1 provides information regarding the storage tanks that were formerly located in the BSPA. The following list of structures is arranged in chronological order by their construction date in the BSPA. Locations of tanks and structures are shown on Plate 1. Additional tanks and structures that were present on the BSPA in 1917 are not shown on Plate 1 in order to maintain the clarity of the drawing. The 1917 structures and tanks that are not included in this report are presented in the "History of Operations at Buffalo Terminal."

Barrel House (Lube Oil Building). This 200 ft by 125 ft structure was constructed between 1917 and 1924 in the southeast portion of the BSPA. The first floor was utilized for storage.

This structure was primarily used for the manufacture and containerization of lubricating oil. It contained up to 40 storage tanks with capacities ranging from 1,600 to 12,000 gallons on the second and third floors. Piping ran between the third and second floors and out through the east wall of the building. After exiting the building, the piping continued below grade and connected the tanks within the building to the storage tanks located at the eastern border of the BSPA. Two railroad tracks spurred southward between the Barrel House and the tanks to the east from the tracks that ran westward along Prenatt Street. The former Barrel House currently exists and is occupied by One Babcock Street and several of their tenants. A gasoline shed was identified on the 1939 and 1951 maps at the southeast corner of the Barrel House. The purpose of the gasoline shed could not be determined from the available information.

Unloading Trench. The Unloading Trench was located on the east side of the Barrel House between the two tracks that spurred from the Prenatt Street tracks. The trench was approximately 220 ft by 12 ft in size and contained piping from the tanks to the east, the tanks within the Barrel House, and pumps to load and unload lube oil products from the railcars. The Unloading Trench still exists but was decommissioned between 1977 and 1986.

Loading Platforms. Between 1924 and 1939, four loading platforms were constructed north of the Barrel House. An 88 ft by 5 ft platform was located approximately 25 ft north of the Barrel House. Three 15 ft by 5 ft platforms were located in the area between the Barrel House and the railroad tracks in Prenatt Street near where the tracks spurred southward to the Barrel House. These loading platforms were removed between 1951 and 1955 when the Truck Loading Rack was constructed.

Pump Houses. Two pump houses were constructed between 1924 and 1939 in the southeast portion of the BSPA. One pump house, measuring approximately 68 ft by 20 ft in size, was located south of Tank Nos. 393 and 394 and was changed to the Asphalt Pump House between 1951 and 1955. The Asphalt Pump House was used in conjunction with the asphalt distributing operations that were started during that time frame. The Asphalt Pump House was demolished in 1989. The other pump house, measuring approximately 20 ft by 15 ft, was located between the rail spur that led to the Former Refinery Area and the spur that led to the Barrel House. This

pump house was removed between 1951 and 1955 when several of the storage tanks and the rail spur were removed and the area was renovated for asphalt distributing operations.

Ethyl Plant. The Ethyl Plant was constructed between 1924 and 1939 and located in the southeastern corner of the BSPA. The Ethyl Plant measured approximately 53 ft by 23 ft and was used for the injection of lead into the petroleum products. The structure was removed in 1951.

Lakes Division Garage. The Lakes Division Garage was constructed on the northwest corner of Prenatt Street and Babcock Street between 1939 and 1951. The structure measures approximately 245 ft by 100 ft. The structure currently exists and is owned and occupied by One Babcock Street and their tenants.

Tank Truck Loading Rack. The former Tank Truck Loading Rack was constructed between 1951 and 1955. The rack measured approximately 180 ft by 55 ft and had 10 islands with four pumps per island. The structure currently exists and was modified by One Babcock Street into a storage structure/garage facility after 1994. All equipment associated with the former Loading Rack was removed during the renovation. This Tank Truck Loading Rack was replaced during 1990 and 1991 by the current tank Truck Loading Rack in the Central Rail and Process Area (CRPA).

The Truck Wash Building. The Truck Wash Building was located just south of Prenatt Street and west of Babcock Street in the portion of the BSPA purchased from Allied Chemical Corp. for employee parking in 1974. The Truck Wash Building was approximately 80 ft by 25 ft in size and was detailed on a 1974 partial plan of the Site. Associated with the Truck Wash Building were three drains and below grade piping to collect the runoff from the truck washing activities. The engineering drawing of the Truck Wash Building indicates that the drain piping was connected to a below grade oil/water separator with a 1,000 gallon oil collection tank, both located to the north of the building. The drawing indicates that the water from the separator discharged to the BSA municipal sewer system on Prenatt Street. Based upon aerial photographs from 1982 through 1990, the Truck Wash Building was replaced with a Vapor Recovery Unit.

Vapor Recovery Unit. A Vapor Recovery Unit that was associated with the former Tank Truck Loading Rack was located just south of Prenatt Street and west of Babcock Street (in the same location as the Truck Wash Building). Aerial photographs of the site indicate that the Vapor Recovery Unit was present in 1982 and was removed between 1990 and 1995.

2.3 Spills/Releases

Historical evidence supporting the occurrence of the following releases in this area is based on the knowledge of current and/or former ExxonMobil employees (Table 2).

- Repeated releases of mixed petroleum products have been documented at several of the catch basins located in the BSPA during heavy precipitation events. These events have been documented by ExxonMobil employees, as well as by the current occupants of the former Barrel House. During these events, two catch basins to the north (CB-69 and CB-70) and two catch basins to the east (CB-71 and CB-72) of the former Barrel House overflowed, causing a mixture of petroleum product and water to pool on paved and unpaved surfaces. The timeframe during which these incidents began is not known. Since August 29, 2000, when a water pump was installed in MH-4 (connected to the BSPA catch basins), there have been no overflows from these catch basins.

- The seals on the pumps located south of Tank 82 (in the FRA immediately adjacent to the BSPA) would reportedly leak due to handling the heavy, heated petroleum products. When the seals would leak, the heavy product would drain to the ground surface. The quantities of product released and the timeframe during which these incidents occurred are not known.

In addition to these releases, there have been several incidents where a sheen was observed on the Buffalo River in the area behind the former Barrel House, at the outfall location of the BSA Babcock Street Sewer and to the west of the BSPA along the bank of the River. These incidents are listed on Table 2. The incidents that are included in this category are the following:

- On August 29, 1988, a sheen was identified on the Buffalo River coming from the BSA outfall location. NYSDEC was notified and Spill No. 8804710 was assigned. The BSA was also notified. The follow-up action for this incident is not known.

- On October 19, 1989, a sheen was identified on the Buffalo River coming from the BSA outfall location. NYSDEC was notified and Spill No. 8907130 was assigned. The follow-up action for this incident is not known.

- On July 6, 1990, a sheen was identified on the Buffalo River coming from the BSA outfall location. NYSDEC was notified and Spill No. 9003889 was assigned. The BSA and United States Coast Guard (USCG) were also notified. The follow-up action for this incident is not known.

- On December 9, 1991, an oily substance was identified on the Buffalo River coming from the BSA outfall location. NYSDEC was notified and Spill No. 9109562 was assigned. The BSA, USCG and City of Buffalo Fire Department were also notified. ExxonMobil deployed a containment boom and absorbents around the area of sheen.

- On April 11, 1992, a sheen was identified on the Buffalo River. The location of the sheen is not identified in the spill report. NYSDEC was notified and Spill No. 9200434 was assigned. The follow-up action for this incident is not known.

- On April 1, 1995, ExxonMobil received a call from the adjacent property owner to the west (PVS Chemical), notifying them of a sheen on the Buffalo River coming from the ExxonMobil dock area. An oily sheen was observed originating from the ExxonMobil bulkhead behind the former Barrel House. NYSDEC was notified and Spill No. 9500007 was assigned. ExxonMobil installed absorbent pads and vacuumed the free oil off the water. Two days later, the area was still leaching product. ExxonMobil continued to change absorbent pads and inspected the well point system (WPS) for efficiency.

- On April 5, 1995, petroleum product was observed entering the Buffalo River from the same source as 4/1/95 release. NYSDEC was notified and Spill No. 9500223 was assigned. The cause was believed to be a malfunction of the Well Point System. ExxonMobil continued to maintain the containment booms and absorbents still in place from 4/1/95. The WPS was checked for malfunctions and repairs were made.

- On October 19, 1995, sheen was observed on the Buffalo River near the BSA Outfall at the base of ExxonMobil's dock. NYSDEC was notified and Spill No. 9508906 was assigned. The BSA, City of Buffalo and Erie County were also notified. ExxonMobil deployed a containment boom and absorbents to the sheen.

- On February 20, 1998, a 5' x 30' sheen along the ExxonMobil dock was observed, sheen was also identified at PVS property and behind the former Barrel House approximately 82' upstream of the BSA outfall. NYSDEC was notified and Spill No. 9712937 was assigned. ExxonMobil used a vacuum truck to cleanup sheen.

- On October 4, 1999, a sheen was observed on the Buffalo River near the BSA Outfall and approximately 100 ft to the west of Babcock Street. NYSDEC was notified and Spill No. 9908124 was assigned. The United States Coast Guard (USCG) was also notified. ExxonMobil installed a slick-bar containment boom and sorbent boom around the sheen. In June 2000, ExxonMobil installed a permanent slick-bar boom around the area. Additional details regarding the inspection of this area and maintenance of the boom is included in Section 2.4.

2.4 Environmental Remediation History in the BSPA

The environmental remediation efforts on the BSPA include operation of the western leg of the WPS, treatment of extracted water, manual bailing of separate-phase product and installation and maintenance of a boom around the seepage area west of Babcock Street. Manual bailing of product is discussed in Section 5. The other remediation efforts are discussed below.

2.4.1 Well Point System

Two groundwater extraction systems are currently operating at the Site, the well point system and the Dual-Phase Recovery System. The groundwater recovered by these systems is treated by the Site's Water Treatment System, installed in the Remediation Building in the FRA and operational since 1993. Treated water is discharged to the BSA municipal sewer system. The well point system extends into the BSPA and is discussed below. The dual phase product recovery systems are not located in the BSPA, therefore they are not discussed.

The WPS was installed and operational in 1971. It consists of approximately 123 well points located parallel to the Buffalo River and is configured in two legs, eastern and western. The western leg consists of 23 well points and the eastern leg consists of over 100 well points. The eastern leg has run continuously since its installation, however, the western leg had not operated from 1992 through August 1999 and again from June 2000 through August 2000.

Each leg has an independent header collection pipe and discharge pipe to the Water Treatment System, as well as a totalizing flow meter. Each well point is approximately 25 feet deep and 2.5 inches in diameter with a drop tube assembly within the well. Most points have been modified with a riser to the surface so that the well can be accessed. Each well has a valve connecting it to the 6-inch collection header pipe.

The well points are connected in series to the header pipe that leads to a dual-phase liquid ring pump system for each leg of the WPS. Each leg has an independent pump. The eastern leg has one operating pump and one standby pump. The western leg has one operating pump. The pumps provide a vacuum that extracts fluid from all of the well points tied into each header. Total fluids pulled from the WPS are pumped directly into the piping system and transmitted to the Site's Water Treatment System.

The western leg of the WPS was rehabilitated between August 1998 and April 1999. The rehabilitation included accessing and inspecting each well point drop tube, isolation valve and connection piping to the collection header. The collection header was observed to be in poor condition and was replaced with new pipe and connections to the well points. In addition, each well point was pressure cleaned. The rehabilitation also included the purchase and installation of a new liquid ring vacuum pump. The western leg of the WPS was reactivated on August 23, 1999 and operated continuously until June 26, 2000. The western leg of the WPS was inoperable from June 26, 2000 until the installation of a permanent cooling water line for the pump was completed on August 23, 2000. The western leg of the WPS was restarted on August 24, 2000 and has operated continuously since.

2.4.2 Water Treatment System

The Site's Water Treatment System was installed and operational by 1993. The Water Treatment System is located in the Remediation Building in the FRA. The treatment system handles all extracted groundwater, as well as storm water not associated with the lined active tank farm drainage system, prior to discharge to the BSA sewer system.

The Water Treatment System consists of two treatment trains. Treatment Train 1 handles all groundwater sources described above (western and eastern WPS and dual phase recovery systems), flow from MH-4 which includes storm water generated from catch basins/manholes CB-69, CB-70, CB-71, CB-72, CB-0, MH-4, MH-8, as well as dry-weather flow from the storm-water lift station. Treatment Train 2 handles wet weather flow from the storm-water lift station. Flow from the storm-water lift station through Train 1 or Train 2 is controlled by a manually operated valve.

Treatment Train 1 consists of a 500 gpm oil/water separator followed in series be a 300 gpm oil/water separator to remove separate phase product and air sparging tanks to remove dissolved phase constituents. Treatment Train 2 consists of a 1,500 gpm oil/water separator followed by a 500 gpm oil/water separator in series. Train 2 is configured so that wet weather flow in excess of the capacity of the 500 gpm separator is automatically bypassed after passing through the 1,500 gpm separator. Following treatment and flow monitoring by an ultrasonic flow meter,

water is discharged to the BSA outfall. Recovered separate phase product is pumped to a storage tank and disposed of offsite.

2.4.3 Installation and Maintenance of the Boom Around the Seepage Area West of Babcock Street

On October 4, 1999, a sheen was observed on the Buffalo River near the BSA Outfall and approximately 100 ft to the west of Babcock Street. NYSDEC was notified and Spill No. 9908124 was assigned. A temporary slick-bar containment boom and sorbent boom were immediately installed around the sheen. A permanent boom was installed, inspected and maintained since June 2000 around the area of seepage until December 18, 2000 to prevent any adverse impacts to the Buffalo River from this area. The boom was dislodged and carried downstream by the river on December 18, 2000 due to significant ice accumulation and movement in the river. The boom was later recovered in relatively good condition at a downstream location.

Through March 2001, it was not possible to reinstall the permanent boom due to ice conditions in the river. The slick bar (permanent) boom that was dislodged in December 2000 was retrieved by the contractor from a location downstream. The boom required only minor repairs and was installed in its permanent location during May 2001. As an interim measure, a sorbent boom was installed along the riverbank around the seepage area immediately west of the BSA Babcock Street sewer on March 16, 2001 and was maintained until the permanent boom was re-installed.

The seepage area has been inspected regularly since January 2000. These inspections include a description of the area of seepage noting any differences in the appearance of the area (i.e., presence or absence of sheen and its location if present). The inspections also note the position of the boom and any adjustments required.

3.0 SUMMARY OF ENVIRONMENTAL CONDITIONS

Data regarding environmental conditions at the Site, and particularly the BSPA, were obtained from a review of the results of previous investigations and the ongoing monitoring program at the Site.

3.1 Previous Investigations

The results of the field activities conducted between June 2000 and May 2001 for the completion of investigation activities on the BSPA, described in this report, supplement the results of previous investigations conducted in the BSPA and other areas of the Site, which are the following:

- Installation of five monitoring wells (B-1MW, B-2MW and B-4MW through B-6MW) in various areas of the Site (including the BSPA) and performance of water-level and product thickness measurements in these new wells, by Empire Soils Investigations, Inc. in July 1989 (ESI, 1989a);

- Installation of monitoring well B-3MW in the BSPA and performance of water-level and product thickness measurements in the new well, by Empire Soils Investigations, Inc. in October 1989 (ESI, 1989b);

- Installation of 17 monitoring wells (MW-1 through MW-17) in various areas of the Site (including the BSPA) and performance of water-level and product thickness measurements in these new wells, by Empire Soils Investigations, Inc. in October and November 1989 (ESI, 1990);

- Environmental site assessment for the former Barrel House (Lube Building) and surrounding area in the BSPA, conducted by Groundwater Technology, Inc. in October 1993 (GTI, 1994a);

- Environmental site assessment for the former Barrel House (Lube Building) in the BSPA, conducted by Groundwater Technology, Inc. in March 1994 (GTI, 1994b);

- Environmental site assessment for the Lakes Division garage in the BSPA, conducted by Groundwater Technology, Inc. in April 1994 (GTI, 1994c);

- Site Facility Investigation, conducted by Groundwater & Environmental Services, Inc. from June through August 1998 (Roux Associates, Inc., 1998);

- Site Facility Investigation completion, conducted by Groundwater & Environmental Services, Inc. and Roux Associates from July through October 1999 (Roux Associates, Inc., 1999);

- Investigation of sewers in the BSPA, including visual inspection and high pressure jetting to confirm sewer connections, performed by Groundwater & Environmental Services, Inc in October 1999; and

- Investigation of an area of seepage along the Buffalo River west of Babcock Street and the BSPA, conducted by Groundwater & Environmental Services, Inc. and Roux Associates in January 2000 (Roux Associates, Inc., 2000c).

3.2 Environmental Quality

Roux Associates reviewed the data generated during prior investigations to evaluate soil and groundwater quality and the occurrence of separate-phase product in the BSPA. The results of the completion of investigation activities on the BSPA, which are described in Sections 4 of this report, build upon the descriptions that follow.

3.2.1 Soil Quality

In general, results of previous investigations indicate that soil quality in the BSPA has been impacted by historical activities.

Soil Quality Criteria

Soil quality data from previous investigations has been compared to NYSDEC soil quality criteria. This type of comparison enables identification of areas that may pose a potential risk under a residential land use scenario, as well as those areas that may have potential to impact groundwater at concentrations exceeding drinking water standards. As of December 20, 2000, NYSDEC changed its methods for determining soil cleanup objectives for several VOCs of concern at the Site. Investigation summary reports generated for the Site prior to December 20, 2000 compared soil quality data to soil quality criteria contained in two NYSDEC sources:

- For SVOCs, metals and some VOCs soil quality data was evaluated against NYSDEC Recommended Soil Cleanup Objectives (RSCOs) presented in the "Division of Hazardous Waste Remediation. Division Technical and Administrative Guidance Memorandum 4046: Determination of Soil Cleanup Objectives and Cleanup Levels" (NYSDEC 1994); and

- For VOCs that did not have a RSCO prior to December 2000, soil quality data was evaluated against Toxicity Characteristic Leaching Procedure (TCLP) Alternative Guidance Values, presented in "Spill Technology and Remediation Series (STARS) Memo # 1, Petroleum Contaminated Soil Guidance Policy" (NYSDEC 1992).

However, as outlined in a NYSDEC memorandum regarding "Determination of Soil Cleanup Levels" dated December 20, 2000 (NYSDEC 2000), these Alternative Guidance Values are no longer used to set Site cleanup goals. The parameters for which these guidance values were previously used (i.e., during the SFI and SFI completion) have now been assigned a RSCO by NYSDEC. Further changes to the RSCO values (for several VOCs and SVOCs) were issued by NYSDEC in their memorandum regarding "Response to Comments Relative to 12/20/00 Soil Cleanup Consolidation Memo", issued on April 10, 2001 (NYSDEC 2001). Data generated during previous investigations, described below, and during the completion of investigation activities on the BSPA, described in Section 5 of this report, will be compared to the RSCOs identified in the December 2000 and April 2001 NYSDEC documents.

Soil Quality Based on Previous Investigation Results

Soil quality data on the BSPA was available from three previous investigations, the SFI, SFI Completion and the seepage area investigation. Data collected during these investigations indicate that concentrations of SVOCs exceeded RSCOs for at least one compound at all but two sample locations on the BSPA (SB-30 and SB-39). VOC concentrations exceeded RSCOs for at least one compound at all but six sample locations (SB-7, SB-8, SB-24, SB-27, SB-30 and SB-37). The RSCOs for at least one metal were exceeded at all locations except SB-39. Concentrations of constituents of concern are generally higher in the area of the former Barrel House and the former Truck Loading Rack.

3.2.2 Separate-Phase Product

The following is a description of the occurrence of separate-phase product within the BSPA. The results of previous investigations indicate that separate-phase product beneath the BSPA extends from the western leg of the WPS on the south side of the former Barrel House to north of the former Truck Loading Rack on the north side of the former Barrel House. East of the former Barrel House, the separate-phase product extends onto the FRA. West of the former Barrel House, the data from wells SB-13 and SB-17 indicate that separate-phase product extends beneath Babcock Street. Monitoring wells installed on the west side of Babcock Street did not show evidence of separate-phase product, however, several of the intermediate soil borings conducted during the SFI Completion (SB-21, 22, 24, 26 and 29) did show evidence of petroleum-related impacts. Water/product level data collected since the installation of SB-37

and SB-39 in January 2000, indicated that measurable separate-phase product is not present at these locations.

Comparison of the BSA Babcock Street sewer elevation with the separate-phase product elevation in monitoring wells located near the sewer generally indicate that the separate-phase product layer is at or above the sewer invert elevation when the western leg of the WPS is either not operating or is operating inefficiently. The elevation of the separate-phase product layer is generally lowered below the sewer invert and sewer bedding material when the western leg of the WPS is operating efficiently. The effect of operating the western leg of the WPS is discussed further in Section 5.

3.2.3 Groundwater Quality

NYSDEC Ambient Water Quality Standards and Guidance (AWQSG) values for Class GA groundwater presented in the Division of Water Technical and Operational Guidance Series (1.1.1) "Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations" (NYSDEC, 1998) as amended in April 2000, were used to evaluate data from previous investigations.

The groundwater data collected from monitoring wells in the BSPA that did not contain separate-phase product during previous investigations indicate non-detectable concentrations of VOCs and SVOCs north of Prenatt Street. Several VOCs, SVOCs and metals exceeded NYSDEC AWQSGs at one or more locations on the BSPA south of Prenatt Street. Higher concentrations of constituents of concern are generally observed in the vicinity of the former Tank Truck Loading Rack and former Barrel House. This distribution of data is consistent with the historical Site operations, as well as the groundwater flow direction, and presence of separate-phase product within the central/southern portion of the BSPA, as described above.

4.0 SCOPE OF WORK FOR THE COMPLETION OF INVESTIGATION ACTIVITIES ON THE BSPA

This section identifies rationale for investigating portions of the BSPA, as well as the scope of work that was performed during this investigation. The scope of work performed provided the data necessary to complete the characterization of environmental conditions in the BSPA. The assessment items included areas of known and suspected environmental impact, areas associated with lube blending/storage and/or terminal buildings/structures, former refinery operations, and areas associated with former storage tank locations. The majority of the field activities were conducted from June 2000 through October 2000 by GES. The remainder of the field activities (including sampling on PVS Chemicals' property and sampling of water from the BSA Babcock Street sewer) occurred between April 2001 and May 2001.

4.1 Rationale for Selecting Areas for Further Investigation

The rationale for selecting areas of the BSPA for inclusion in this assessment included the lack of previous investigations and the need for additional data to complete the characterization of the BSPA. The following areas of the BSPA had not been previously investigated to characterize the soil and groundwater quality and to delineate separate-phase product (if present):

- Loading racks on the west side of Babcock Street, north of Prenatt Street;
- The pipe tunnels beneath Babcock Street;
- Bedding material beneath the Babcock Street sewer;
- The area adjacent to Tanks 81 and 82;
- The location of former pumps just inside the fence of the FRA, that were identified during preparation of the History Report to have leaked repeatedly during their operation;
- The former Truck Wash Building/Vapor Recovery Unit and associated underground accessories located west of Babcock Street and south of Prenatt Street;
- The former pump houses, rail car loading rack and storage tanks located east of Babcock Street between Prenatt Street and the Buffalo River;
- The ethyl plant located in the southeast corner of the BSPA; and
- The western perimeter of the BSPA located south of Prenatt Street, where the former river channel crossed this area.

The following areas had been investigated previously, but required additional work, including soil quality, sediment quality and/or groundwater quality sampling and separate-phase product delineation (where present) to complete the assessment.

- The tank yards for Tanks 83 through 85 and Tank 221 had been subjected to limited soil sampling and analysis. In addition, the southern portion of the tank yard for Tank 221 was identified as a potential tank bottom disposal location during aerial photograph review.

- Separate-phase product had been identified throughout the majority of the southeast portion of the BSPA. However, additional work was required to refine the delineation of separate-phase product in the vicinity of the western leg of the well point system (WPS); east of the former Barrel House in the vicinity of the Unloading Trench and north of the former Barrel House in the vicinity of the former Truck Loading Rack.

- Evidence of petroleum-related impacts had been identified beneath and to the west of Babcock Street. Additional work was required to refine the delineation of separate-phase product in this area.

- The area upgradient of the area of seepage along the Buffalo River west of the BSPA required investigation to determine the source of the seepage. The sediment present in the area of seepage along the Buffalo River bank also required further investigation.

- The underground storm sewers located to the north and east of the former Barrel House required further investigation due to product found during precipitation events.

- The water-level and separate-phase product thickness measurements from several monitoring wells (SB-7, 10, 13 and 28) had been suspected of being inaccurate due to problems with well construction (i.e., well too shallow, concerns related to well construction, inappropriate screened interval). These wells required replacement.

4.2 Scope of Work for the Completion of Investigation Activities on the BSPA

The scope of work presented below was designed to develop necessary information to complete the assessment of the soil, sediment, storm water and groundwater quality and the extent of separate-phase product in the BSPA and the area of seepage west of the BSPA. The scope of work completed is divided into the following tasks:

- Task 1: Building Interior Reconnaissance;

- Task 2: Pre-surveying of Sample Locations;

- Task 3: Geoprobe™ Soil and Groundwater Sampling program;

- Task 4: Test Pitting;

- Task 5: Riverbank Sediment Sampling;
- Task 6: Monitoring Well Installation;
- Task 7: Water-Level and Separate-phase Product Gauging and Groundwater Sampling; and
- Task 8: Sewer Investigation/Former Pipe Tunnels Investigation.

Due to conditions encountered in the field at several sampling locations, the scope of work presented in the Work Plan was modified. Where appropriate, the reason for the modification to the Work Plan is discussed below, and field change forms are included in Appendix A.

4.2.1 Task 1: Building Interior Reconnaissance

This task included visual reconnaissance of the interior of three former refinery/lube plant/terminal buildings that still exist in the BSPA in order to evaluate the need for additional work. These buildings are:

- The building constructed around the former Tank Truck Loading Rack;
- The Former Barrel House (Lube Building); and
- The Former Lakes Division Garage.

One Babcock Street and their tenants currently use each of these buildings for various purposes.

This work was conducted on June 28, 2000. Field notes were kept during the building reconnaissance activities and are included in Appendix B. Specific areas of interest were locations, such as drain pipes, which may have been used for handling of waste streams.

4.2.2 Task 2: Pre-surveying of Sample Locations

The horizontal and vertical locations of selected sample points (i.e., borings and test pits) were surveyed prior to installation. Pre-surveying was important for locations in which former structures are no longer available to be used as a landmark. The horizontal coordinates of the selected sampling locations were obtained from the surveyed base map of the BSPA (Plate 1) and provided in the New York State Plane Coordinate System to a surveyor licensed in the State

of New York. The locations of any borings or wells that were re-located for any reason were re-surveyed after completion.

4.2.3 Task 3: Geoprobe™ Soil and Groundwater Sampling Program

A Geoprobe™ soil and groundwater sampling program was performed to expand upon the data collected during previous investigations in the BSPA. The objective of the Geoprobe™ sampling program was to collect soil and groundwater samples (at selected locations) for analysis to delineate the nature and extent of petroleum-related impacts and identify the presence of separate-phase product. The results of the Geoprobe™ sampling program were used to select locations for the installation of groundwater monitoring wells.

A total of 34 soil borings (SB-40 through SB-73) were installed in the locations presented on Plate 1. Boring logs are included in Appendix C. Shallow soil borings SB-72 and SB-73 were added based upon a review of the data collected from borings north of Prenatt Street in order to complete the assessment of shallow soil conditions along the western border of the BSPA north of Prenatt Street (see Appendix A for field change form).

Groundwater was sampled from 16 borings shown on Plate 1 using the Geoprobe™. Groundwater collected from SB-56 was not analyzed due to the presence of separate-phase product on the water sample (see Appendix A for field change form).

Soil borings and groundwater sampling from locations SB-44 through SB-73 were conducted by GES from June 2000 through October 2000. The remainder of the Geoprobe™ program (installation of SB-40 through SB-43), was completed on April 5, 2001, after the access agreement between ExxonMobil and PVS Chemicals was finalized. Several boring locations were moved from their original locations (SB-44, SB-45, SB-47, SB-48, SB-65, SB-67 and SB-68) due to encountering subsurface obstructions. The reasons for moving the borings are presented on the field change forms contained in Appendix A. In addition, SB-42 on PVS chemicals property was moved to avoid a concrete slab and SB-43 was moved to a location outside a truck parking area at the request of a PVS Chemicals representative (see Appendix A for field change form).

Two additional samples, designated SB-46 (WHITE) and SB-46 (GREEN) were collected to characterize a white material and a green material encountered at the SB-46 location and at a second location approximately 15 feet west of the SB-46 location at approximately 1 to 2 feet bls. The white material was encountered at approximately 1 to 2 feet bls at the SB-46 location. At the location approximately 15 feet west of SB-46, a six-inch layer of green material was present above a six-inch layer of the white material. These samples were analyzed for ignitability, corrosivity, sulfate, reactivity, SVOCs and TAL metals.

In accordance with ExxonMobil ground disturbance protocols, each boring location was cleared from 0 to 5 ft using an ExxonMobil approved method (i.e., hand auger, air-knife, etc.). Soil samples were collected continuously from five feet below ground surface to five feet below the water table. The supervising technical staff inspected all soil samples and recorded all applicable lithologic characteristics. In addition, all soil samples were visually inspected for evidence of separate-phase product (i.e., separate-phase product sheen, odors, staining, etc.) and screened for organic vapors with a photoionization detector (PID).

Soil borings were conducted by Zebra Environmental Corporation under the direction of a GES geologist. The soil samples were collected using a Macrocore™ sampler. Two soil samples were retained for laboratory analysis from each boring (except at SB-72, SB-73 and SB-40 through SB-43). One from the 0 to 0.5 ft interval and a second at the zone where the greatest PID reading was observed. If no PID readings were observed, the second sample was collected from the soil/water interface. If a material other than soil was present at the surface (i.e., asphalt, concrete, debris, etc.) the shallow soil sample was collected from 0 to 0.5 ft below the surface material. At SB-72 and SB-73, one soil sample was collected from the shallow interval (0 to 0.5 feet bls). At SB-40 through SB-43, one sample was collected from the deeper interval (soil/water interface), per the terms of the access agreement with PVS Chemicals.

Groundwater samples were collected using the Geoprobe™ by advancing a screened head and extracting the sample through a sampling tube. At least three volumes of water were drawn through the sampling tube prior to collecting the sample for laboratory analysis.

Except at SB-40 through SB-43, soil samples retained for laboratory analysis from selected intervals and groundwater samples from selected Geoprobe™ locations were analyzed for VOCs and SVOCs according to USEPA methods SW846 8021 and 8270 for NYSDEC STARS list compounds, respectively; chlorinated VOCs (CVOCs) by method SW846 8021; and reduced target analyte list (TAL) metals by method SW846 6010B (includes cadmium, chromium, lead, mercury, nickel, selenium, thallium and vanadium). Sampling for VOCs and CVOCs in groundwater collected from SB-45 was inadvertently omitted. In addition, ten percent of the samples collected during the investigation were analyzed for VOCs and CVOCs by USEPA method SW846 8260, per the request of NYSDEC. At SB-40 through SB-43, per the access agreement with PVS Chemicals, the soil and groundwater samples were analyzed for VOCs according to USEPA methods SW846 8021 for NYSDEC STARS list compounds, chlorinated VOCs (CVOCs) by method SW846 8021 and tetraethyl lead (TEL) by method SW846 8270. All samples, except those for TEL, were submitted under chain of custody to Lancaster Laboratories. TEL samples were submitted under chain of custody to Lozier Analytical.

After completion, any Geoprobe™ boring locations that were not pre-surveyed or that were moved from their original location were surveyed for horizontal and vertical coordinates relative to the New York State Plane Coordinate System by a surveyor licensed in the State of New York. Horizontal coordinates are accurate to ±0.1 ft and vertical coordinates are accurate to ±0.01 ft.

4.2.4 Task 4: Test Pitting

Six test pits were completed between August 2000 and September 2000 to accomplish the following objectives for three specific areas within the BSPA. Test pit logs, field notes and field photographs are included in Appendix D. The rationale for selection of the test pit locations is described below:

- Two test pits (TP-01 and TP-02) were completed between August 9 and August 11, 2000 in the decommissioned Unloading Trench located east of the former Barrel House to provide visual indication of the physical condition of the trench and the occurrence of separate-phase product;
- One test pit (TP-03) was completed on August 9, 2000 on the BSPA north of the area of seepage present along the Buffalo River bank, to provide a visual indication of environmental impacts that may be contributing to the seepage area. This test pit was

originally located on the PVS Chemical's property, however due to access issues it was moved approximately 45 feet northeast onto the BSPA (see Appendix A for field change form); and

- Three test pits (TP-04, TP-05 and TP-06) were completed on September 12 and 13, 2000 immediately adjacent to the east side of the BSA Babcock Street sewer. These test pits provided a visual indication of petroleum-related impacts in the vicinity of the sewer that may have resulted from former terminal/lube plant/refinery operations. They also provided a visual indication of the structural integrity of the sewer in the excavated areas.

One additional test pit (TP-10), which is described under Task 8 below, was completed on August 14, 2000 at the western end of the northern pipe tunnel that crosses beneath Babcock Street. This test pit was installed to inspect the condition of the tunnel and any piping present and to identify petroleum-related impacts. The locations of the test pits are shown on Plate 1.

Soil samples were collected from the bottom of test pits TP-03, TP-04, TP-05 and TP-10. A water sample was collected from the bottom of TP-03. Soil and water samples collected were analyzed for VOCs and SVOCs according to USEPA methods SW846 8021 and 8270 for NYSDEC STARS list compounds, respectively; CVOCs by method SW846 8021; and reduced target analyte list (TAL) metals by method SW846 6010B. All samples were submitted under chain of custody to Lancaster Laboratories.

Test pit locations were surveyed for horizontal and vertical coordinates relative to the New York State Plane Coordinate System by a surveyor licensed in the State of New York after completion. Horizontal coordinates are accurate to ±0.1 ft and vertical coordinates are accurate to ±0.01 ft.

4.2.5 Task 5: Riverbank Sediment Sampling

Sediment samples were collected from the bank of the Buffalo River at two locations (SS-1 and SS-2) shown on Plate 1 on April 4, 2001. The work plan called for collection of samples continuously from the land surface to a depth of 4 feet bls and laboratory analysis of samples collected at two depth intervals (0 to 0.5 feet bls and 3.5 to 4.0 feet bls). Per the access agreement with PVS Chemicals, samples were collected from the 0 to 0.5 foot interval only. The sediment samples were visually inspected for evidence of separate-phase product (i.e., separate-

phase product sheen, odors, staining, etc.) and screened for organic vapors with a photoionization detector (PID).

Per the terms of the access agreement, samples were analyzed for VOCs according to USEPA method SW846 8021 for NYSDEC STARS list compounds; chlorinated VOCs (CVOCs) by method SW846 8021; and TEL by method SW846 8270. All samples, except those for TEL, were submitted under chain of custody to Lancaster Laboratories. TEL samples were submitted under chain of custody to Lozier Analytical.

Sediment sampling locations were surveyed for horizontal and vertical coordinates relative to the New York State Plane Coordinate System by a surveyor licensed in the State of New York after completion. Horizontal coordinates are accurate to ±0.1 ft and vertical coordinates are accurate to ±0.01 ft.

4.2.6 Task 6: Monitoring Well Installation

Six four-inch diameter monitoring wells (MW-22 through MW- 27) were installed during the BSPA investigation. Monitoring well drilling was performed by SJB under the direction of a GES geologist between July 20 and July 24, 2000. Boring logs and well installation logs are included in Appendix C.

Existing wells SB-7, SB-10, SB-13 and SB-28 were replaced by wells MW-22, MW-25, MW-27 and MW-26, respectively, since the water-level and separate-phase product thickness data collected have been suspected of being inaccurate due to problems with well construction (i.e., well too shallow, inappropriate screened interval). The results of the Geoprobe™ sampling program were evaluated to select the final location of these four wells, as well as to select the location of MW-23 and MW-24.

- Wells SB-7 and SB-10 were replaced with wells MW-22 and MW-25, respectively, in locations immediately adjacent to the existing wells (Plate 1).
- Well SB-13 was replaced with well MW-27, which was installed approximately 12 feet deeper than SB-13, in a location approximately 20 feet to the south from the original location. The location for MW-27 was selected based upon boring logs from SB-44 and SB-13.

- SB-28 was replaced with well MW-26, which was constructed with the screened interval just below land surface for monitoring potential shallow separate-phase product that may be present in this area. The new well was installed approximately 40 feet east of SB-28 based upon logs for SB-28 and SB-51.

- MW-23 was located at the corner of the single story extension on the southeast side of the former Barrel House that was called out on historical drawings as the "gasoline shed" to monitor for potential petroleum-related impacts from historical operations.

- MW-24 was installed on the west side of the BSA Babcock Street sewer to monitor for the separate-phase product, if present. The location was selected based on the boring logs from SB-22, SB-24 and SB-26 on the west side of the sewer that indicated the presence of petroleum-related impacts (i.e., odor and staining).

The pilot borehole for each well was drilled with a hollow-stem auger rig using 6.25-inch diameter augers. Boreholes were advanced to the depths shown on Table 3. Soil samples were collected continuously from five feet below grade to the bottom of the boring. In accordance with ExxonMobil ground disturbance protocols, the boring location was cleared from 0 to 5 feet using an ExxonMobil approved method (i.e., air-knife, etc.). The supervising technical staff inspected all soil samples and recorded all applicable lithologic characteristics. In addition, all soil samples were visually inspected for evidence of separate-phase product (i.e., separate-phase product sheen, odors, staining, etc.) and screened for organic vapors with a PID. Soil samples were not sent for laboratory analysis during the well installation program.

Each monitoring well was constructed of 4-inch diameter, schedule 40, flush-joint internally-threaded, polyvinyl chloride (PVC) casing 20-slot PVC screen. The depths of the newly installed wells and screen lengths are presented in Table 3. The screen annulus of each monitoring well was gravel packed to approximately 2 feet above the top of the screen, unless field conditions necessitated a shorter gravel pack (i.e., at MW-26). A 2 foot thick bentonite pellet seal was placed on top of the gravel pack, unless field conditions necessitated a shorter bentonite seal (i.e., at MW-26).

The remainder of the annulus was grouted within 2 feet of land surface, unless field conditions necessitated a shorter gravel pack (i.e., at MW-26), and finished with a concrete cap. Each monitoring well was finished either approximately 2 feet above grade and fitted with a 5 foot

steel casing (except where field conditions necessitate the use of a shorter casing), or finished flush with ground surface and fitted with and 8-inch diameter steel curb box.

Following installation, each well was developed by surging and pumping until the well produced sediment-clear water, to the extent possible, and a good hydraulic connection was established between the well screen and the aquifer. Field notes regarding well development are included in Appendix E.

Each well was surveyed for horizontal and vertical coordinates relative to the New York State Plane Coordinate System by a surveyor licensed in the State of New York after completion. Both ground surface and top of casing (i.e., measuring point) elevations were determined for each well. Horizontal coordinates are accurate to ±0.1 feet and vertical coordinates are accurate to ±0.01 ft.

4.2.7 Task 7: Water-Level and Separate-phase Product Gauging and Groundwater Sampling

Once all proposed monitoring wells were installed, the water level and separate-phase product thickness (if present) were gauged in each new and existing monitoring well within the BSPA on a monthly basis in order to assess the performance of the western leg of the Well Point System. In addition, the new wells installed in the BSPA were included in the comprehensive quarterly gauging rounds for the Site conducted since July 2000 (July 2000, October 2000, January 2001 and April 2001). Wells found to contain separate-phase product (MW-25 and MW-27) were gauged and bailed more frequently and evaluated for inclusion in the Site-wide product removal program.

An electronic product-water interface probe was used to measure the water level, detect separate-phase product and to determine its thickness. Water-level elevations were corrected for the presence of separate-phase product and used to construct groundwater flow maps. The water-level elevation of the Buffalo River was also measured frequently throughout the period of investigation. Gauging results from July 2000 through April 2001 are summarized in Table 4. Groundwater samples were collected from selected new and existing monitoring wells within the BSPA that did not contain free product at the time of sampling. Sampling of the wells on the

BSPA was conducted during the site-wide quarterly sampling rounds in January 2001 and April 2001. The samples were analyzed for VOCs and SVOCs according to USEPA methods SW846 8021 and 8270 for NYSDEC STARS list compounds, respectively. All samples were submitted under chain of custody to Lancaster Laboratories.

4.2.8 Task 8: Sewer Investigation/Former Pipe Tunnels Investigation

The investigation of sewers and piping in the BSPA were conducted in three general areas:

- The piping that exists in the tunnels beneath Babcock Street;
- The BSA Babcock Street sewer; and
- The storm sewers located to the north and east of the former Barrel House.

Field notes, test pit logs and field photographs of these activities are presented in Appendix D.

4.2.8.1 Investigation of the Former Pipe Tunnels Beneath Babcock Street

One test pit (TP-10), on the west side of Babcock Street, was installed on August 14, 2000 to determine the condition of the northern pipe tunnel and associated piping that crosses beneath Babcock Street. The three other test pits (TP-07, TP-08 and TP-09) that had originally been proposed to inspect the condition of the east side of the northern tunnel and both sides of the southern tunnel (and associated piping) were not necessary. The ends of the tunnels were accessible and were inspected through the existing concrete tunnel access structures without the need for excavation. The inspections performed included:

- evacuation of any water and product (if present) from the test pit or access structures;
- tapping and removal of water and product (if present) from selected pipes present; and
- inspection of the condition of the tunnel and piping, noting the condition of the pipes and the presence of separate-phase product.

These activities were conducted between August 10 and August 15, 2000. The locations of the test pit and existing tunnel access structures are shown on Plate 1. The condition of the tunnels, the presence of any standing water or separate-phase product and the presence and condition of piping were documented. As noted previously, soil samples were collected from TP-10 and analyzed for VOCs and SVOCs according to USEPA methods SW846 8021 and 8270 for

NYSDEC STARS list compounds, respectively; CVOCs by method SW846 8021; and reduced target analyte list (TAL) metals by method SW846 6010B. No samples were collected from the tunnel access structures.

In addition to the work conducted in August 2000, the tunnel access structures were all inspected again in January 2001 and April 2001 for the presence of separate-phase product.

4.2.8.2 Investigation of the BSA Babcock Street Sewer

The investigation of the BSA Babcock Street sewer included:

- the test pitting described in Section 4.2.4, which allowed for visual inspection of the sewer at various points between Elk Street and the Buffalo River;
- the collection of water samples from the sewer at two manhole locations within Babcock Street (BSA-MH2 and BSA-MH-3) during dry weather conditions; and
- the collection of water samples from the sewer at three manhole locations within Babcock Street (BSA-MH1, BSA-MH2 and BSA-MH-3) during wet weather conditions.

Plate 1 shows the location of the three manholes sampled. One manhole was located near the intersection of Elk Street and Babcock Street (BSA-MH1), one manhole was located between Prenatt Street and Elk Street (BSA-MH2) and one was located to the northwest of SB-13 (BSA-MH3). The BSA-MH1 and BSA-MH2 locations were selected to characterize the quality of water within the sewer coming onto the BSPA. The BSA-MH3 location was selected to characterize the quality of water of within the sewer downstream of an area of known separate-phase product occurrence (i.e., downstream of SB-17).

Two water samples were collected from BSA-MH2 and BSA-MH3, one during a dry weather period (April 11, 2001) and one during a storm event (May 23, 2001). BSA-MH1 was only sampled once during the storm event on May 23, 2001. The water samples were analyzed for VOCs and SVOCs according to USEPA methods SW846 8021 and 8270 for NYSDEC STARS list compounds, respectively; and CVOCs by method SW846 8021.

4.2.8.3 Investigation of Storm Sewers to the North and East of the Former Barrel House

The investigation of storm sewers located to the north and east of the former Barrel House on the BSPA (CB-69, CB-70, CB-71 and CB-72) and several structures on the FRA (CB-0, MH-4, MH-8), included evacuation of the contents of these sewers using a vacuum truck, jetting of selected pipes to clear and confirm connections and surveying of the pipe inverts. This work was completed on August 10, 2000. Field notes for each structure investigated and photographs taken during this task are included in Appendix F.

The results of this work will be incorporated into a report summarizing the work conducted in accordance with the Work Plan for Investigation of the Storm-Water Collection System, dated June 27, 2000 (Roux Associates 2000d) for investigation of the site-wide storm-water collection system. The work conducted during both of these investigations was used to prepare a revised Sewer System Map for the site (Plate 2). The scope of work and results of the site-wide sewer work will be described in more detail in a separate report to be completed by July 2001.

5.0 INVESTIGATION RESULTS

The following sections present the results of the investigation activities undertaken to complete the assessment of the Babcock Street Properties Area (BSPA). The results of previous investigations are also discussed, where appropriate, to describe the conditions in the BSPA.

5.1 Task 1: Building Interior Reconnaissance

Reconnaissance of the interiors of the following former refinery buildings was conducted by representatives of Exxon Mobil, Roux Associates and One Babcock Street on June 28, 2000:

- The building constructed around the former Tank Truck Loading Rack;
- The Former Barrel House (Lube Building); and
- The Former Lakes Division Garage.

Field notes were kept during the building reconnaissance activities and are included in Appendix B.

5.1.1 Former Tank Truck Loading Rack

The first building inspected was the building constructed around the former Tank Truck Loading Rack. The building is currently used by One Babcock Street for storage of construction equipment and supplies for their associated construction company Pinto Construction. All former piping and equipment associated with the loading rack was removed prior to modification of the building. The original canopy for the loading rack was modified into the roof for the new storage building and new exterior metal panel walls were installed. No active floor drains were observed in the interior of the building. The only drains visible were the roof drains and piping that ran along the inside of the building walls and then exited the building through the metal panel walls and entered the subsurface. The ultimate discharge location of the roof drains could not be determined from visual observation.

The floor inside the current storage building was wet, with water ponding in several areas. One Babcock Street indicated that water regularly enters the building beneath the roll-up access doors and ponds in low points in the floor. Their maintenance of the building includes periodically removing the water.

5.1.2 Former Lakes Division Garage

The next building inspected was the former Lakes Division Garage. This building is currently owned and occupied by One Babcock Street and several of their tenants. The building is divided into five distinct segments, each occupied by a different entity, with block walls dividing each segment. The tenants include a trucking company, the Niagara Frontier Transportation Authority (NFTA), a construction company and an auto repair facility. One Babcock Street also occupies a portion of the building for storage of supplies for Pinto Construction. The access to each segment of the building is through one or more roll-up doors along the east side of the building fronting Babcock Street. Several of the building segments also have smaller access doors and roll-up doors along the west side of the building.

Each segment of the building had a strip drain running from east to west across the floor. All of the drains were filled with concrete at the time of the inspection. The condition of the concrete indicated that several of the drains had been filled relatively recently, while others had been filled some time ago. One Babcock Street indicated that they had recently (during 2000) cleaned and filled several of the drains but were uncertain when the other drains were filled. The configuration and former discharge location of the drains could not be determined through visual inspection. One Babcock Street did not believe that the drains in the various building segments were connected to each other and did not know the discharge location of the drains. No other floor drains were observed in the former Lakes Division Garage. Sanitary piping from one or more restrooms within the building does exist.

During the inspection, One Babcock Street identified the location of a former 500 gallon underground fuel oil storage tank at the northwest corner of the building (Plate 1). According to One Babcock Street, the tank was removed.

Finally, during the inspection, a 4-foot by 4-foot metal plate was observed in the southwest corner of the portion of the building used by One Babcock Street for storage of construction supplies. At the time of the original inspection, the function of the plate could not be determined. The plate was inspected again on September 12, 2000 by Roux Associates and One Babcock Street. It was not possible to remove the cover, as it appeared to be held in place from

below at the center of the plate. It is possible that the plate may have been a hydraulic or pneumatic lift because there are piping and controls located against the wall adjacent to the plate.

5.1.3 Former Barrel House (Lube Building)

The final building inspected was the former Barrel House/Lube Building. The three floors and the roof of the former Barrel House were inspected on June 28, 2000. The office space occupied by One Babcock Street and their tenants, located on the northern end of the building was not inspected.

This structure was formerly used for the manufacture and containerization of lubricating oil. Since the sale of the property to One Babcock Street in 1994, this building has been occupied by One Babcock Street and several of its tenants. Product piping and tanks associated with the former lube operations still exist within the building. Several of the former product pipe lines pass through the exterior wall of the building on the east side and continue along the exterior wall of the building until enter the subsurface. This piping formerly connected the tanks within the building to the storage tanks formerly located at the eastern border of the BSPA. The following are other observations made during the inspection:

- A floor drain was observed near the entrance to the first floor of the building on the northwest side. The floor drain was filled with concrete. The former discharge location of this drain could not be determined through visual observation.
- A restroom with a sink exists at the southwest end of the building on the first floor. The current status and discharge location of the piping associated with this restroom could not be determined through visual inspection.
- The roof was inspected and was dry.
- Many roof drains exist and run vertically from the roof to the first floor of the building where they exit through the exterior wall. The roof drains and piping exist on both sides of the building (east and west). The ultimate discharge location of the drains observed could not be determined through visual inspection.
- One of the roof drains on the southwest side of the building was re-piped to exit the building through a first floor window and discharge onto the ground.
- It appears that a restroom existed on the second floor in the southeast portion of the building. All fixtures were removed and the three drain pipes were cut flush with the second floor. It appears that the waste from this restroom discharged into three pipes that passed through the second floor, where they were manifolded together and connected to

the roof drain located at the third column line from the south on the east side of the building. The ultimate discharge location of the drains observed could not be determined through visual inspection.

5.2 Geology

The following is a general description of the geology of the Site as a whole and the BSPA, in particular. The description is based on the results of previous investigations, as well as the work conducted during the completion of investigation activities on the BSPA.

Site Geology West of the Former Erie-Lackawanna Railroad

The Buffalo Terminal is located within the Erie-Ontario Lowland physiographic region of the Interior Plains Division. In general, the region is underlain by Silurian and Devonian age interbedded shales, siltstones, sandstones, limestones and dolomites, dipping approximately 0.50 degrees to the south.

Three unconsolidated deposits exist in the portion of the Site west of the former Erie-Lackawanna Railroad that divides the ETYA from the remainder of the Site. The first is a fill layer that consists of black cinders, silt, gravel, sand, slag, and varying amounts of concrete, brick, glass, and wood. The second unit, colored gray to brown, consists of alluvial deposits of silt (sandy silts to clayey silts), silts and clays, sands, sand and silt and sands and gravel. Underlying the alluvial layer is a gray to brown glacio-lacustrine clay. Bedrock was not encountered in any of the wells installed to date. However during a review of the Buffalo Sewer Authority's Babcock Street records, a 1917 Plan for the Babcock Street Sewer Extension shows test borings with a clay layer approximately 25 to 30 ft thick and extending approximately 40 to 50 ft below land surface to bedrock in the area adjacent to the west edge of the Site.

The following generalization regarding Site geology can be made from available information.

- Fill thickness is generally greatest in the southern portion of the site.
- The thickness of the alluvial deposits is greatest in the southern portion of the Site, in proximity to the Buffalo River. This layer pinches out at the central portion of the Site and the depth to the top of the clay layer decreases northward.

Geology of the BSPA

The following is a general description of the geology within the BSPA. The description is based upon boring logs for wells and soil borings installed on the BSPA during previous investigations and during the completion of the scope of work for the investigation activities on the BSPA, described in Section 4 of this report.

Figure 3 presents a generalized north-south hydrogeologic cross-section (designated A-A') through the BSPA running parallel to the BSA Babcock Street Sewer. Figure 4 presents a generalized east-west cross-section (designated B-B') through the widest point in the BSPA, perpendicular to the BSA Babcock Street sewer. Plate 1 shows the locations of the cross-sections.

The description of the geology of the Site as a whole (presented above) generally applies to the BSPA. As described previously, the thickness of the fill layer and alluvial deposits was observed to become thicker towards the south. The clay layer described as existing below the alluvial deposits, as described above, was encountered in some but not all of the new boring locations which were generally installed to less than 20 feet bls.

As shown on the cross sections, a clay layer was encountered immediately below the fill layer in many locations north of Prenatt Street, as well as and in the vicinity of the Babcock Street sewer south of Prenatt Street. The clay layer generally extended to the bottom of the borings north of Prenatt Street which is consistent with the general description above. However, the clay layer was underlain by alluvial deposits south of Prenatt Street to the bottom of the borings, which is inconsistent with the general description above.

5.3 Hydrogeology

The following is a general description of the hydrogeology of the Site as a whole, and is not specifically related to the BSPA, except where noted. The description of groundwater flow direction presented below is based upon water-level and separate-phase product thickness data collected on April 19 and 20, 2001, which is generally consistent with data collected at the Site during previous investigations. Plate 3 presents water-level and separate-phase product thickness data for the Site from the April 2001 quarterly gauging round.

The groundwater flow direction in the area of the Site west of the former Erie-Lackawanna Railroad is generally southwest toward the Buffalo River. The influence of the western leg of the Well Point System (WPS) in drawing down the water table and affecting the direction of groundwater flow can be seen in monitoring wells in the southern portion of the FRA and BSPA. The drawdown caused by the western leg of the WPS was not as significant as during previous gauging rounds. Due to the discharge line from the pump being clogged, the western leg of the WPS had not operated efficiently since February/March 2001. This line was cleaned several days before the gauging round. The performance of the system has been observed to improve in data collected in May 2001. The influence of the eastern leg of the WPS can be seen in monitoring wells in the southern tank yard area (STYA) and the southwest portion of the ETYA.

The gauging data from the April 2001 quarterly round indicates that the Buffalo River level was higher than the water level observed in all wells located along the bulkhead, except monitoring well SB-39. Therefore, in general, the data demonstrates that pumping of the WPS depresses the water table sufficiently to induce recharge from the Buffalo River into the aquifer in the area between the WPS and the Buffalo River, except in the vicinity of SB-37.

In the area between the operating dual phase recovery wells and the WPS, a groundwater flow divide is created between the cones of influence of the two pumping systems.

Groundwater Drawdown Relative to the Babcock Street Sewer

The western leg of the WPS has been operating continuously since August 24, 2000.

Figures 3, 5 and 6 present water-level and separate-phase product data plotted on a north-south cross-section along the Babcock Street sewer. Figure 4 presents water-level and separate-phase product data plotted on the east-west cross-section through the Babcock Street sewer. These figures demonstrate the relationship between operation of the western leg of the WPS and the elevation of the water and product tables in the vicinity of the sewer.

Figure 5 shows data from January 19 and 20, 2001 when the western leg of the well point system was operating efficiently. When the well point system is operating efficiently, the water table and separate-phase product layer is generally drawn down below the level of the sewer and sewer bedding material. Figures 3 and 4 show data from April 19 and 20, 2001 and Figure 6 shows data from March 16, 2001 when the western leg of the WPS was not operating efficiently. When the well point system is either not operating or is operating inefficiently, separate-phase product present at SB-17 and MW-27 is at or above the elevation of the invert of the Babcock Street sewer.

Figures 3, 5 and 6 show three wells located west of the sewer (SB-37, MW-3 and MW-24) and four wells located east of the sewer (SB-11/LB-1, SB-17, SB-39 and MW-27). The gauging data collected from wells near the sewer line indicates that conditions are different on the east and west sides of the sewer with respect to water levels and the presence of separate-phase product, especially when the western leg of the WPS is operating efficiently. The elevation of the water table is generally higher on the west side of the sewer, as shown on Figure 5 from the January 2001 gauging round. The difference between the behavior of the water table to the east and west of the BSA Babcock Street sewer is less apparent in the data collected during March and April 2001 when the western leg of the WPS was not operating as efficiently. Separate-phase product is present on the east side of the sewer, in MW-27 and SB-17, but not on the west side of the sewer (MW-24). The differences in water levels east and west of the sewer are depicted using two line types to represent the water-table and separate-phase product conditions on the two sides of the Babcock Street sewer.

Hydrographs of Monitoring Wells with Separate-Phase Product

Hydrographs for monitoring wells (SB-13, SB-15, SB-17, SB-20, MW-25 and MW-27) in the BSPA in which separate-phase product has been observed are presented in Appendix G. The hydrographs show water-table elevation and thickness of product with time, as well as thickness of product and gallons of product bailed with time. In addition, Appendix G presents a hydrograph of the Buffalo River elevation with time from February 22, 2000 through April 30, 2001. The wells have not been monitored long enough to evaluate potential seasonal water-level or product thickness changes.

5.4 Results of the Geoprobe™ Soil and Groundwater Sampling Program

The following sections present the results of the soil and groundwater sampling program conducted during the investigation completed between June 2000 and May 2001. The results of previous investigations are also discussed, to provide a comprehensive characterization of the soil and groundwater conditions in the BSPA.

5.4.1 Soil Quality

Soil samples were collected and sent for laboratory analysis from a total of 34 Geoprobe™ soil boring locations (30 in the BSPA and four locations on the adjacent property to the west of the BSPA owned by PVS Chemicals) during this investigation. In addition, four locations were sampled during the SFI, 13 locations were sampled during the SFI Completion and two locations were sampled during the seepage investigation. This section summarizes the results of these four investigations.

Tables 5 through 7 summarize analytical results VOCs, SVOCs and metals, respectively, for the soil samples collected during the investigation conducted between June 2000 and May 2001. These tables only contain data for the target analytes that were detected in at least one sample. These tables also include the results of the VOC analyses by both USEPA methods 8021 and 8260 for the 10 percent of the total number of samples for which both analyses were completed.

As discussed in Section 4, RSCOs in effect after December 20, 2000 were used to evaluate the soil quality at the Site. Evaluation of soil data relative to the RSCOs enables identification of areas that may pose a potential risk under a residential land use scenario, as well as those areas that may have potential to impact groundwater at concentrations exceeding drinking water standards.

Summary maps (Plates 4 through 9) were prepared using the analytical database and MapInfo™ Geographic Information System (GIS) Software to show soil concentration data from the current and previous investigations relative to applicable criteria. Plates 4 through 6 present soil quality results from shallow soil sample locations (i.e., less than 3 feet bls) and plates 7 through 9 present soil quality results from deep soil sample locations for VOCs, SVOCs and metals,

respectively. In order to maintain consistency with previous data presentation, the data analyzed by method 8021 for VOCs is presented on the maps.

VOC Results

As shown in Plates 4 and 7, at least one VOC was detected at each location sampled during the four investigations mentioned above.

On the portion of the BSPA west of the BSA Babcock Street sewer between Prenatt Street and the Buffalo River, several VOCs were detected in shallow and deep soils, but only isopropylbenzene was detected above the NYSDEC RSCO at SB-37 (deep interval).

In the portion of the BSPA north of Prenatt Street, several VOCs were detected in shallow and deep soils. The only compound detected above the NYSDEC RSCO was benzene at SB-56 (deep interval) and TP-10, which are both adjacent to a former loading rack and are approximately 4 feet apart.

The portion of the BSPA east of the BSA Babcock Street sewer between the FRA/BSPA border and the Buffalo River is the area where the highest concentrations of VOCs were detected in shallow and deep soils. One or more VOCs were detected at each sampling location and sampling interval in this portion of the BSPA. RSCOs were exceeded at all locations except SB-50, and higher concentrations were observed the vicinity of the former Tank Truck Loading Rack, west of the former Barrel House and east of the former Barrel House in the vicinity of former tanks and former loading racks. In general, concentrations of VOCs increase with depth, except at SB-67 near the former Unloading Trench.

The compounds detected at the four sample locations on the PVS Chemicals property were naphthalene, isopropylbenzene, chlorobenzene and methylene chloride. None were detected above NYSDEC RSCOs.

In general, CVOCs were not detected in the majority of samples collected during the investigation for completion of the BSPA assessment, described in Section 4. Chlorobenzene

was detected in deeper soils at SB-43, SB-49, SB-66, SB-67, SB-70 and TP-10 at levels below NYSDEC RSCOs, except at SB-67. Chlorobenzene was also detected in shallow soil at SB-67 above the NYSDEC RSCO. The other CVOCs detected below RSCOs were:

- 1,2-dichlorobenzene and cis-1,2-dichloroethene in deeper soil at TP-10;
- 1,4-dichlrobenzene in deeper soil at SB-49 and SB-58;
- trichloroethene at SB-48, SB-62 and SB-73 in shallow soil;
- trichlorofluoromethane at SB-49, SB-52, SB-60 and SB-66 in shallow soil;
- tetrachloroethene at SB-57, SB-62 and SB-69 in shallow soil; and
- methylene chloride in shallow and deeper soil at many locations.

SVOC Results

SVOCs were detected at concentrations exceeding RSCOs at multiple sample locations throughout the BSPA.

On the portion of the BSPA west of the BSA Babcock Street sewer between Prenatt Street and the Buffalo River, concentrations of SVOCs are higher in the shallow soil interval. One or more SVOCs were detected at each sampling location in this portion of the BSPA. RSCOs for at least one SVOC were exceeded in the shallow soil at all locations except SB-30. In this area of the site, several SVOCs were detected in deep soils surrounding the former Vapor Recovery Unit/Truck Wash Building (SB-27, SB-48 and SB-49) and along the northwest (SB-46) and southwest (SB-37) border between the BSPA and PVS Chemicals property. RSCOs were exceeded at SB-27, SB-37 and SB-49 for several SVOCs.

In the portion of the BSPA north of Prenatt Street, concentrations of SVOCs are higher in the shallow soil interval. One or more SVOCs were detected at each sampling location in this portion of the BSPA. RSCOs for at least one SVOC were exceeded in the shallow soil at all locations. The highest concentrations were detected at the four boring locations south of former Tank 221 (SB-54, SB-56, SB-72 and SB-73) and at SB-57 in the location of former Tank 84. The data from the vicinity of Tank 221 are consistent with information gathered during the aerial photograph review conducted for the preparation of the History Document, which identified the

area south of Tank 221 as a potential tank bottom disposal area. The impacts associated with the historical disposal activities near Tank 221 are not expected to extend westward beyond the vicinity of borings SB-72 and SB-73 since these borings were installed immediately adjacent to Orlando Street and a concrete wall that surrounds the former tank area, both of which were present since the tanks were installed.

In deep soils in this portion of the BSPA, the highest concentrations (exceeding RSCOs) were observed at TP-10 near a former loading rack. RSCOs were also exceeded for one or more SVOCs at SB-54, SB-57, SB-59 and SB-53 (east of Babcock Street near former tanks 81 and 82).

One or more SVOCs were detected at each sampling location in the portion of the BSPA east of the BSA Babcock Street sewer between the FRA/BSPA border and the Buffalo River. This is the portion of the BSPA where the highest concentrations of several SVOCs were detected in shallow (SB-28, SB-7 and SB-10) and deep soils (SB-7). RSCOs were exceeded in shallow soil for at least one SVOC at all locations in this portion of the BSPA except SB-47 off the southwest corner of the former Tank Truck Loading Rack. Concentrations of SVOCs were generally lower in the deeper soil interval. RSCOs were exceeded for at least one SVOC in the deeper interval in this portion of the site at all but the following six sample locations, SB-9, SB-11/LB-1, SB-28, SB-39, SB-50 and SB-65. Higher concentrations of SVOCs in deeper soil were observed surrounding the former Tank Truck Loading Rack and on the east side of the former Barrel House.

Metals Results

As shown in Plates 6 and 9, metals were detected at concentrations exceeding RSCOs for at least one metal at all sample locations on the BSPA in shallow soil, except at SB-20, SB-47, SB-68 and SB-70 (east of the Babcock Street sewer and south of the BSPA/FRA border) and at SB-60 (north of Prenatt Street). In deep soil, metals exceeding RSCOs were detected at all sample locations except SB-39, SB-63, SB-64, SB-71 and TP-05. Nickel and chromium were the metals most frequently detected at concentrations exceeding RSCOs. Throughout the BSPA, concentrations of metals are generally higher in the shallow soil interval.

TEL was not detected in any of the soil samples collected on the PVS Chemicals property (SB-40 through SB-43).

Results for Analysis of Green and White Materials

The analytical results for ignitability, corrosivity, sulfate, reactivity, SVOCs and TAL metals from the samples designated SB-46 (WHITE) and SB-46 (GREEN) are included in Table 8. These materials were observed at the SB-46 location and at a second location approximately 15 feet west of the SB-46 location at approximately 1 to 2 feet bls. The white material was encountered at approximately 1 to 2 feet bls at the SB-46 location. At the location approximately 15 feet west of SB-46, a six-inch layer of green material was present above a six-inch layer of the white material. Neither of the materials was present at the surface or below approximately 2 feet bls. The analytical results for these samples are not presented on Plates 4 through 6 since these materials were encountered only at the localized area near SB-46, and are not representative of site conditions.

Several metals, SVOCs and sulfate were present at elevated concentrations in both materials. Based upon the waste characterization analyses performed, the "white" material was determined not exhibit the characteristics of corrosivity, ignitability sulfide reactivity or cyanide reactivity. The "green" material was determined to exhibit the characteristic of corrosivity, but not ignitability or reactivity.

5.4.2 Geoprobe™ Groundwater Sampling Results

Groundwater samples were collected and sent for laboratory analysis from 16 Geoprobe™ boring locations in the BSPA during this investigation (Plate 1). Tables 9 through 11 summarize analytical results VOCs, SVOCs and metals, respectively, from the groundwater samples collected during the investigation conducted between June 2000 and May 2001. These tables only contain data for the target analytes that were detected in at least one sample. These tables also include the results of the VOC analyses by both USEPA methods 8021 and 8260 for the 10 percent of the total number of samples for which both analyses were completed.

Groundwater data collected during this investigation were compared to NYSDEC AWQSGs. Plates 10 and 11 present the groundwater data for VOCs and SVOCs, respectively, from the Geoprobe™ investigation compared to NYSDEC AWQSGs, along with data collected from monitoring wells on the BSPA during the April 2001 quarterly sampling round (discussed in Section 5.7 below). Plate 12 presents metals results from groundwater collected during the Geoprobe™ investigation compared to NYSDEC AWQSGs.

VOC Results

As shown in Plate 10, at least one VOC was detected in groundwater collected at each of the 15 locations sampled for VOCs (SB-45 was inadvertently missed) during the Geoprobe™ investigation.

Several VOCs and CVOCs exceeding NYSDEC AWQSGs were detected in the groundwater collected from two of the four locations on PVS (SB-40 and SB-43). At SB-40, chlorobenzene, 1,2-dichlorobenzene, 1,3-dichlorobenzene, 1,4-dichlorobenzene and benzene were detected at concentrations exceeding AWQSGs. None of these compounds were detected in the groundwater collected from TP-03 on the BSPA.

On the portion of the BSPA west of Babcock Street between Prenatt Street and the Buffalo River, at least one VOC was detected at all sampling locations, but only benzene at SB-46 and MTBE at SB-48 exceeded the AWQSG.

North of Prenatt Street, several VOCs were detected at location SB-58, but none exceeded NYSDEC AWQSGs, and none were detected at SB-59.

At least one VOC was detected at all but one (SB-51) Geoprobe™ sampling locations in the portion of the BSPA east of Babcock Street between the FRA/BSPA border and the Buffalo River. Higher concentrations were observed in the southern part of this portion of the BSPA along the BSPA/FRA border. Concentrations one or more VOCs exceeded AWQSGs at all Geoprobe™ sampling locations where VOCs were detected in this area except SB-50.

CVOCs were detected in groundwater at five of the 15 Geoprobe™ locations sampled (SB-40, SB-43, SB-62, SB-70 and SB-71). The detections were generally limited to the PVS Chemicals property and to the portion of the BSPA on the east-southeast side of the former Barrel House.

Chlorobenzene was detected in groundwater at SB-40 and SB-43 (on PVS Chemicals property) and SB-70 and SB-71 (in the southeast corner of the BSPA) at levels exceeding NYSDEC AWQSGs. 1,2-dichlorobenzene and 1,3-dichlorobenzene were detected above the AWQSG at SB-40 and SB-70 and 1,2-dichlorobenzene was detected below the AWQSG at SB-43. 1,4-dichlorobenzene was detected above the AWQSG at SB-40, SB-70 and SB-71 and below the AWQSG at SB-62.

SVOC Results

As described in Section 4, groundwater was sampled for SVOCs from 12 Geoprobe™ locations (SB-40 through SB-43 were not sampled for SVOCs). As shown in Plate 11, SVOCs were detected in groundwater samples from seven of the 12 Geoprobe™ locations, SB-46 (on the west side of the BSA sewer and south of Prenatt Street); SB-58, SB-59 (north of Prenatt Street); and at SB-62, SB-64, SB-70 and SB-71 (east of the BSA sewer and south of Prenatt Street). Concentrations of one or more SVOCs exceeded AWQSGs at each of these locations except SB-62.

Metals Results

As described in Section 4, groundwater was sampled for SVOCs from 12 Geoprobe™ locations (Table 11). SB-40 through 43 were not sampled for metals. At least one metal exceeding NYSDEC AWQSGs was detected at each of the 12 locations sampled. TEL was not detected in any of the groundwater samples collected on the PVS Chemicals property (SB-40 through SB-43).

5.5 Test Pitting Results

Six test pits (TP-01 through TP-06) were completed during the BSPA investigation by Safety Kleen under the observation of a GES field geologist or Roux Associates engineer. The following is a description of the conditions encountered, observations made and analytical data

collected during the test pit completion. Test pit logs, field notes and field photographs are included in Appendix D.

Tables 5 through 7 summarize analytical results for VOCs, SVOCs and metals, respectively from soil samples collected from four test pits (TP-03, TP-04, TP-05 and TP-10). These tables only contain data for the target analytes that were detected in at least one sample. The soil quality results from the four test pits compared to NYSDEC RSCOs are presented on Plates 7 through 9 for VOCs, SVOCs and metals, respectively.

5.5.1 Test pits TP-01 and TP-02 in the Unloading Trench East of the Former Barrel House

Test pits TP-01 and TP-02 were completed between August 9 and August 11, 2000 in the Unloading Trench located east of the former Barrel House to provide visual indication of the physical condition of the trench and the occurrence of separate-phase product. A representative from NYSDEC observed the completion of each of these test pits.

TP-01

The dimensions of test pit TP-01 were approximately 12 feet from east to west and 7.7 feet from north to south. A concrete breaker was used to open the concrete top of the unloading trench. The concrete bottom of the Unloading Trench was encountered at approximately 3 feet below grade. Water and separate-phase product were encountered in the trench approximately 1.5 feet below grade. The water and product were evacuated from the test pit using a vacuum truck. Water entering the trench was observed to be impacted with separate-phase product. Four pipes (three 4-inch pipes and one 1.5-inch line) were present in the trench. The pipes ran in a north-south direction. Cold-tapping of the 4-inch line located approximately 3-feet from the eastern edge of the test pit was performed by Safety Kleen. The line was observed to be full of water, but separate-phase product was not observed. The line was cut and evacuated using the vacuum truck. All fluids generated during this activity was discharged to the water treatment system. Product recovered (from the water treatment system oil/water separators) was transferred to the 8,000 gallon waste oil storage tank associated with the water treatment system for later disposal offsite.

Following evacuation of the fluids present, the concrete bottom of the trench was penetrated at a location near the center of the test pit. The fill material present in the 3 inches below the concrete bottom was observed to be impacted by separate-phase product. Below the fill layer, a red-brown clay was present. No petroleum-related impact was observed (i.e., there was no staining or odor was observed). After completion, the material removed from TP-01 was backfilled and compacted in the hole.

TP-02

The dimensions of test pit TP-02 were approximately 12 feet from east to west and 7.8 feet from north to south. A concrete breaker was used to open the concrete top of the unloading trench. The concrete bottom of the Unloading Trench was encountered at approximately 3 feet below grade. Water and separate-phase product were encountered in the trench approximately 1.5 feet below grade. The fluids were evacuated from the test pit using a vacuum truck. No pipes were present within the test pit.

Following evacuation of the fluids present, the concrete bottom of the trench was penetrated at a location near the center of the test pit. Petroleum staining was observed in the fill material present in the 3 inches below the concrete bottom. Below the fill layer, a 6 to 12-inch layer of soil was observed. The soil was observed to be impacted by separate-phase product and separate-phase product was observed to pool in the excavation. Safety Kleen evacuated the product from the test pit. All fluids generated during this activity was discharged to the water treatment system. Product recovered (from the water treatment system oil/water separators) was transferred to the 8,000 gallon waste oil storage tank associated with the water treatment system for later disposal offsite. After completion, the material removed from TP-02 was backfilled and compacted in the hole.

5.5.2 Test pit TP-03 on the BSPA North of the Area of Seepage Along the Buffalo River Bank

Test pit TP-03 was originally planned to be completed on PVS Chemical's property, however due to access issues it was moved onto the BSPA, approximately 45 feet to the northeast of its original location (see Appendix A for field change form). The test pit was completed on August 9, 2000 by Safety Kleen under the observation of a GES field geologist. This test pit was

completed to provide a visual indication of environmental impacts that may be contributing to the seepage area located along the Buffalo River bank west of the BSPA. A representative from NYSDEC observed the completion of this test pit.

The dimensions of test pit TP-03 were approximately 3 feet from east to west and seven feet from north to south. The material in the upper three feet of TP-01 was comprised of fill consisting of sand, clay, silt, brick and ash. Lenses of a tar-like substance were noted in the upper three feet of the test pit. The material encountered form three to seven feet below grade was comprised of sand with some silt and little clay. The material encountered from seven to thirteen feet below grade was comprised of silt with some clay and little sand. No petroleum odor or staining was observed. Water was observed to be entering the excavation through the side wall at approximately nine feet below grade.

A soil sample was collected from nine to ten feet below grade and a groundwater sample was collected from the base of the excavation at 13 feet below grade. There were no petroleum-related impacts observed in the samples collected. Both samples were submitted for VOC, SVOC and metals analyses. The analytical results for soil are presented in Table 5 through 7 for VOCs, SVOCs and metals, respectively. The analytical results for groundwater are presented in Table 9 through 11 for VOCs, SVOCs and metals, respectively. The material removed from TP-03 was backfilled and compacted in the hole.

No VOCs or SVOCs were detected in the soil sample. Several metals (chromium, nickel, vanadium and lead) were detected above the method quantitation limit in the soil sample and chromium and nickel exceeded NYSDEC RSCOs. Plates 7 through 9 include the soil quality data from this test pit location relative to RSCOs.

No VOCs or SVOCs were detected above the method quantitation limit in the groundwater sample. At least one metal exceeding the NYSDEC AWQSG was detected in the groundwater sample from all locations, as shown on Plate 12.

5.5.3 Test pits TP-04, TP-05 and TP-06 Adjacent BSA Babcock Street Sewer

Test pits TP-04 and TP-05 were completed and TP-06 was begun on September 12, 2000 by Safety Kleen under the observation of a GES field geologist and Roux Associates engineer. TP-06 was completed on September 13, 2000 under the observation of a Roux Associates engineer. These test pits were installed at the three locations along the east side of the BSA Babcock Street Sewer shown on Plate 1. TP-04 was located furthest to the south and TP-06 was located furthest to the north. A representative from NYSDEC was present during portions of the completion of each of these test pits.

Test Pit TP-04

Test pit TP-04, located closest to the Buffalo River, measured approximately four feet from east to west and 12 feet from north to south. TP-04 was completed to a depth between 14 and 15 feet below grade. The southern end of TP-04 was originally opened approximately 40 feet north of the face of the bulkhead along the Buffalo River to a depth of approximately five feet. After a broken tie-back for the bulkhead (tie-back was broken prior to the test pit installation) was encountered in the excavation, the southern end of the test pit was moved approximately 5 feet north to avoid the possibility of damaging the tie-backs for the bulkhead. According to a drawing of the sewer, the tie-backs are located approximately 41 feet from the face of the bulkhead.

Six inches of asphalt roadway overlaying twelve inches of concrete were encountered at the test pit location and removed. Fill, comprised of slag, brick and sand was encountered from 1.5 to five feet below grade. Sand with some brick was encountered from five to eight feet below grade. The material from eight to 13.5 feet below grade was comprised of clay with silt and sand. Petroleum odor was observed at nine feet below grade to the bottom of the test pit. The material from 13.5 to the bottom of the test pit and the bottom of the BSA sewer was comprised of sand with some silt and clay. Groundwater was not encountered during completion of the test pit. The western leg of the WPS was operating during the completion of this test pit.

The top of the concrete BSA sewer was encountered at approximately seven feet below grade. The test pit was completed such that the east wall of the sewer formed the west wall of the test pit. The BSA sewer appeared to be in good condition, with no cracks or defects observed in the

concrete. The "slag bedding" material called out along the bottom of the sewer on the BSA sewer drawing was not observed in the test pit.

A soil sample was collected from the base of the excavation at approximately 14 to 15 feet below grade and submitted for VOC, SVOC and metals analyses. The bottom of the sewer was encountered at approximately 15 feet below grade. A PID headspace reading from the material sampled indicated a total VOC concentration of 431 ppm. The analytical results for soil are presented in Table 5 through 7 for VOCs, SVOCs and metals, respectively. After the soil sample was collected, the material removed from TP-04 was backfilled and compacted in the hole to the level of the bottom of the existing pavement. Cones and caution tape were set up around the area, which was later paved.

The soil sample results compared to NYSDEC RSCOs are presented on Plates 7 through 9. Several VOCs were detected, however none exceeded the RSCOs. Several SVOCs were detected at concentrations exceeding the RSCOs. Several metals (cadmium, chromium, nickel, vanadium, selenium and lead) were detected in the soil sample and chromium and nickel exceeded NYSDEC RSCOs.

Test Pit TP-05

Test pit TP-05 was completed approximately 95 feet north of the bulkhead at the Buffalo River (Plate 1). The dimensions of TP-05 were approximately four feet from east to west and seven feet from north to south. TP-05 was completed to a depth of approximately 14.5 feet below grade.

Two inches of asphalt roadway overlaying approximately six inches of concrete were encountered at the test pit location and removed. The material encountered from eight inches to five feet below grade was comprised of sand with silt, clay and gravel. Sand with silt and clay was encountered from five to nine feet below grade. An organic material with a decomposed organic material odor was also present from seven to nine feet below grade. The material from nine to 11.5 feet below grade was comprised of silt and clay with sand. Petroleum odor was observed at nine feet below grade to the bottom of the test pit. Black staining was observed from

nine to 11.5 feet below grade. The material from 11.5 to approximately 14.5 feet below grade (the bottom of the test pit and below the bottom of the sewer), was comprised of sand with silt and clay. Groundwater was observed to be trickling out of the north wall of the excavation at approximately 13 feet below grade, but it did not accumulate in the excavation. The western leg of the WPS was operating during the completion of this test pit.

The top of the concrete BSA sewer was encountered at approximately seven feet below grade. The test pit was completed such that the east wall of the sewer formed the west wall of the test pit. The BSA sewer appeared to be in good condition, with no cracks or defects observed in the concrete. The "slag bedding" material called out along the bottom of the sewer on the BSA sewer drawing was not observed in the test pit.

A soil sample was collected from the base of the excavation at approximately 14.5 feet below grade and submitted for VOC, SVOC and metals analyses. The bottom of the sewer was encountered at approximately 14.5 feet below grade. A PID headspace reading from the material sampled indicated a total VOC concentration of 461 ppm. The analytical results for soil are presented in Table 5 through 7 for VOCs, SVOCs and metals, respectively. After the soil sample was collected, the material removed from TP-05 was backfilled and compacted in the hole to the level of the bottom of the existing pavement. Cones and caution tape were set up around the area, which was later paved.

The soil sample results compared to NYSDEC RSCOs are presented on Plates 7 through 9. Several VOCs were detected. Xylenes, n-butylbenzne and n-propylbenzene were detected at concentrations exceeding RSCOs. Several SVOCs were detected, but none exceeded the RSCOs. Several metals (cadmium, chromium, nickel, vanadium, selenium and lead) were detected, but none exceeded NYSDEC RSCOs.

Test Pit TP-06

Test pit TP-06 was completed approximately 30 feet west and 20 feet south of the southwest corner of the former Truck Loading Rack (Plate 1). TP-06 was begun on September 12, 2000 when the six inch asphalt road surface underlain by six inches of concrete were removed. Since

it was late afternoon, work on this test pit was stopped for the evening, these materials were replaced and compacted into the hole and cones and caution tape were set up around the excavation. Work on this test pit was resumed on September 13, 2000.

The dimensions of TP-06 were approximately four feet from east to west and 10 feet from north to south. TP-06 was completed to a depth of approximately 15 feet below grade.

Fill, comprised of clay with brick and concrete was encountered from one to 2.5 feet below grade. Yellow caution tape reading "caution – buried electric line" was encountered at approximately 2.5 feet below grade in the northern portion of the hole. Safety Kleen hand dug and located a 6-inch steel pipe at approximately three feet below grade running diagonally across the northern four feet of the test pit, toward the former Barrel House. The pipe was left exposed and was marked so that it was clearly visible. Digging continued in the southern portion of the test pit at a distance safely out of reach of the exposed pipe. Fill, comprised of clay with brick and concrete, was encountered from 2.5 to four feet below grade. Petroleum odor was observed at five feet below grade to the bottom of the test pit at 15 feet below grade. The material from four to 13 feet below grade was generally comprised of clay with silt. Black staining was observed from five to 11 feet below grade. The material from 13 to 15 feet below grade was comprised of silt, clay and well rounded gravel that may have been former river bed material (gravel varied in size from a few tenths of an inch up to 1.5 inches in diameter). The bottom of the sewer was encountered at approximately 15 feet below grade. Separate-phase product was observed in the excavated soil from 11 to 15 feet below grade. In addition, separate-phase product pooled at the bottom of the test pit. Groundwater was not encountered during the completion of the test pit. The western leg of the WPS was operating during the completion of this test pit.

The top of the concrete BSA sewer was encountered at approximately seven feet below grade. The test pit was completed such that the east wall of the sewer formed the west wall of the test pit. The BSA sewer appeared to be in good condition, with no cracks or defects observed in the concrete. The "slag bedding" material called out along the bottom of the sewer on the BSA sewer drawing was not observed in the test pit.

A soil sample was collected from the base of the excavation at approximately 15 feet below grade. The soil sample was not submitted for laboratory analysis since separate-phase product was present and since soil samples from soil boring locations in the vicinity of the test pit and with similar petroleum-related impacts (i.e., SB-17) had be analyzed during previous investigations.

5.6 Riverbank Sediment Sampling Results

As discussed in Section 4.2.5, sediment samples were collected and sent for laboratory analysis for VOCs from 0 to 0.5 feet bls at two locations (SS-1 and SS-2) along the Buffalo River bank west of the BSPA on April 4, 2001(Plate 1).

Several VOCs were detected above the method detection limit in SS-1 and SS-2. TEL was not detected in either sample. The following table summarizes the results. Only those compounds that were detected in either sediment sample are shown. Although they are not soil samples, the results from SS-1 and SS-2 compared to NYSDEC RSCOs are shown on Plate 4. No RSCOS were exceeded at these locations.

Summary of VOC Results for Sediment Samples SS-1 and SS-2

	Concentration (ug/kg)	
Sample Designation Analyte Name	**SS-1**	**SS-2**
1,2,4-Trimethylbenzene	1200	550
1,2-Dichlorobenzene	2200	2700
1,3,5-Trimethylbenzene	230	360
1,3-Dichlorobenzene	590	260
1,4-Dichlorobenzene	3900	1700
Chlorobenzene	320	280
Ethylbenzene	83	180
Isopropylbenzene	560	770
Methylene Chloride	120	41
Naphthalene	4600	5100

Summary of VOC Results for Sediment Samples SS-1 and SS-2

	Concentration (ug/kg)	
Sample Designation Analyte Name	**SS-1**	**SS-2**
n-Butylbenzene	1800	1200
n-Propylbenzene	240	360
p-Isopropyltoluene	830	ND
sec-Butylbenzene	680	680
tert-Butylbenzene	770	560
Toluene	27	ND
Trichloroethene	30	ND
Xylenes (total)	750	240

5.7 Water-Level and Separate-Phase Product Gauging and Groundwater Sampling Results in the BSPA

The following is a summary water-level and separate-phase product gauging and groundwater sampling results collected during the completion of investigation activities on the BSPA. This data described below supplements the description of the site's hydrogeology and the occurrence of separate phase product provided in Section 5.3.

5.7.1 Water-Level and Separate-Phase Product Occurrence

The installation of soil borings and new monitoring wells between June 2000 and July 2000, coupled with the results of previous investigations and the on-going gauging of new and existing wells have delineated the extent of separate-phase product occurrence in the BSPA.

The depth to water and separate-phase product (if present) in all new and existing monitoring wells within the BSPA were gauged on a monthly basis in order to assess the performance of the western leg of the Well Point System from July 2000 through April 2001. Due to personnel issues, this gauging data was not collected in February 2001. In addition, the new wells installed in the BSPA were included in the comprehensive quarterly gauging rounds for the Site conducted since July 2000. The water level and separate-phase product data collected from July

2000 through April 2001 is presented in Table 4. Data from the April 2001 gauging round is presented on Plate 3 and described above in Section 5.3.

The results of the current and previous investigations indicate that separate-phase product beneath the BSPA extends from the western leg of the WPS on the south side of the former Barrel House to north of the former Truck Loading Rack on the north side of the former Barrel House. East of the former Barrel House, the separate-phase product extends onto the FRA. West of the former Barrel House, the data from wells SB-13, SB-17 and MW-27 (east of the Babcock Street sewer) and MW-24 and MW-2 (west of the sewer), indicate that separate-phase product extends beneath Babcock Street to the east wall of the sewer, as observed in TP-06, but that it does not extend west of the Babcock Street sewer (MW-24). Figures 3, 4, 5 and 6 depict the occurrence of separate-phase product east and west of the sewer during periods when the western leg of the well point system is operating efficiently (Figure 5) and is not operating efficiently (Figures 3, 4 and 6).

Comparison of the BSA Babcock Street sewer elevation with the separate-phase product elevation in monitoring wells located near the sewer indicate that the separate-phase product layer is at or above the sewer invert elevation when the western leg of the WPS is either not operating or is operating inefficiently. The elevation of the separate-phase product layer is generally lowered below the sewer invert and sewer bedding material when the western leg of the WPS is operating efficiently.

Wells found to contain separate-phase product, MW-25 and MW-27, were gauged and bailed more frequently and evaluated for inclusion in the Site-wide product removal program. To date, approximately 30 gallons of product have been manually bailed from these new wells and 60 gallons have been bailed from all BSPA wells.

5.7.2 Groundwater Quality in the BSPA

Ten wells in the BSPA that did not contain separate-phase product were sampled during the January 2001 and April 2001 quarterly sampling and gauging rounds. Tables 12 and 13 summarize analytical results VOCs and SVOCs from the January 2001 and April 2001 quarterly sampling rounds, respectively. These tables only contain data for the target analytes that were

detected in at least one sample. Groundwater data for benzene, toluene, ethylbenzene and xylenes (BTEX), MTBE, total VOCs and total SVOCs collected during the January 2001 and April 2001 quarterly sampling rounds are presented on Plate 13.

Groundwater data collected during the April quarterly sampling round were compared to NYSDEC AWQSGs. The groundwater quality results collected during the April 2001 quarterly sampling round, compared to NYSDEC AWQSG values are presented on Plates 10 and 11 for VOCs and SVOCs, respectively (along with results from the Geoprobe™ groundwater sampling program). In addition to the BSPA wells, SB-12 in the FRA near the FRA/BSPA border is shown on Plates 10 and 11.

VOC Results

During the January 2001 and April 2001 quarterly sampling rounds, at least one VOC was detected in groundwater collected at eight of the 10 locations in the BSPA (except B-4MW and MW-2) and at SB-12 in the FRA.

During the January 2001 quarterly sampling round, one or more VOCs were detected at concentrations exceeding NYSDEC AWQSGs at five locations (MW-22, MW-24, MW-26, SB-11/LB-1 and SB-19). During the April 2001 sampling round, one or more VOCs were detected at concentrations exceeding NYSDEC AWQSGs at four locations (MW-22, MW-24, MW-26 and SB-11/LB-1).

SVOC Results

During the January 2001 quarterly sampling round at least one SVOC was detected in groundwater collected at six of the 10 locations in the BSPA (MW-2, SB-11/LB-1, MW-22, MW-24, MW-26 and SB-19). One or more SVOCs were detected at concentrations exceeding NYSDEC AWQSGs at five of these six locations (except MW-22).

During the April 2001 quarterly sampling round at least one SVOC was detected in groundwater collected at six of the 10 locations in the BSPA (MW-2, SB-11/LB-1, MW-22, MW-24, MW-26

and SB-19) and at SB-12 in the FRA. One or more SVOCs were detected at concentrations exceeding NYSDEC AWQSGs at five of these seven locations (except SB-11/LB-1 and SB-12).

5.8 Sewer Investigation/Former Pipe Tunnels Investigation Results

The following sections describe the results of the investigation of sewers and piping in the BSPA that were conducted in these three general areas:

- The piping that exists in the tunnels beneath Babcock Street;
- The BSA Babcock Street sewer; and
- The storm sewers located to the north and east of the former Barrel House.

The locations of the test pit and existing tunnel access structures are shown on Plate 1. Field notes, test pit logs and field photographs of these activities are presented in Appendix D.

5.8.1 Investigation of Piping that Exists in Former Pipe Tunnels Beneath Babcock Street

The following describes the results of inspections/investigation performed on the former pipe tunnels that exist beneath Babcock Street.

5.8.1.1 Investigation of the Northern Pipe Tunnel Beneath Babcock Street

One test pit (TP-10), on the west side of Babcock Street, was installed on August 14, 2000 to determine the condition of the northern pipe tunnel and associated piping that crosses beneath Babcock Street. TP-10 was installed approximately 15 feet west of Babcock Street. The other test pit (TP-09) that had originally been proposed to inspect the condition of the east side of the northern tunnel was not necessary because the end of the tunnel was accessible and was inspected through the existing tunnel access structure without the need for excavation. The locations of the test pit and existing tunnel access structure are shown on Plate 1.

<u>TP-10</u>

TP-10 was completed on August 14, 2000 in the location shown on Plate 1, at the western end of the northern pipe tunnel, approximately 15 feet west of Babcock Street. The main portion of TP-10 (in which the piping that crosses under Babcock Street was encountered) measured approximately seven feet from north to south, five feet from east to west and three feet deep.

The excavation extended for several feet to the south (where an inactive gas line was encountered and exposed) and to the west, where a three-inch pipe was encountered.

TP-10 was impacted with separate-phase product at less than two feet below grade. Shallow water was encountered at less than two feet below grade. During excavation of the test pit, what appeared to be a 1.5 inch inactive gas line was encountered along the east side of the test pit. A concrete block was encountered at approximately three feet below grade. Four pipes, two 6 inch and one 10 inch pipe (each ending in a 90 degree elbow) and one 3 inch pipe were encountered approximately 1-3 feet below grade. The western ends of the two 6 inch pipes and the 10-inch pipe were encountered within the test pit and were noted to be filled with concrete. The 6 inch pipes and the 10 inch pipe proceeded generally in a east/southeasterly direction under and across Babcock Street. The 3 inch pipe crossed from the north side of the test pit in a southwesterly direction to the west side of the test pit. The contents and start/end point of this pipe could not be determined.

All fluids generated during this excavation was discharged to the water treatment system. Product recovered was transferred to the 8,000 gallon waste oil storage tank associated with the water treatment system for later disposal offsite.

A soil sample was collected from the base of the excavation at approximately 3.0 feet below grade and submitted for VOC, SVOC and metals analyses. The analytical results for soil are presented in Table 5 through 7 for VOCs, SVOCs and metals, respectively. After the soil sample was collected, the material removed from TP-05 was backfilled and compacted in the hole to the level of the bottom of the existing pavement.

The soil sample results compared to NYSDEC RSCOs are presented on Plates 7 through 9. Several VOCs were detected at concentrations below RSCOs, except for benzene. Several SVOCs were detected exceeding the RSCOs. Several metals (mercury, cadmium, chromium, nickel, vanadium and lead) were detected but none exceeded the NYSDEC RSCOs.

Northern Pipe Tunnel Entrance East of Babcock Street (TP-09)

The pipe tunnel entrance that is present on the east side of Babcock Street was inspected in lieu of excavating test pit TP-09 (see Appendix A for field change form). The tunnel entrance was a pit constructed of concrete and measured approximately 13 feet from north to south, six feet from east to west and eight feet deep. The field notes and photographs contained in Appendix D refer to the tunnel entrance as TP-09. Water and measurable separate-phase product (approximately 0.01 inches) were present in the tunnel entrance. The fluids were evacuated using a vacuum truck prior to the inspection.

- one 12-14 inch pipe that enters the concrete structure from the west side (likely the continuation of one of the pipes present in TP-10) and passes through the east side of the structure toward the FRA;
- one 8-10 inch pipe that enters the concrete structure from the west side (likely the continuation of one of the pipes present in TP-10)) and passes through the east side of the structure toward the FRA;
- one 3-inch pipe that enters the concrete structure from the west side and ends just inside the structure;
- one 2-inch pipe that enters the concrete structure from the north and ends just inside the structure; and
- two 6-inch pipes enter the structure from the east side and end just inside the structure.

No separate-phase product was observed during inspections of this tunnel entrance structure conducted by Safety Kleen in January and April 2001.

5.8.1.2 Investigation of the Southern Pipe Tunnel Beneath Babcock Street

The southern pipe tunnel beneath Babcock Street was investigated without the need for excavation through the tunnel access structures located on the east and west sides of the street.

Southern Pipe Tunnel Entrance East of Babcock Street (TP-07)

The pipe tunnel entrance structure that is present on the east side of Babcock Street was inspected in lieu of excavating a test pit TP-07 (see Appendix A for field change form). The tunnel entrance was a pit constructed of concrete and measured approximately eight feet from

north to south, 22 feet from east to west and almost seven feet deep. The field notes and photographs contained in Appendix D refer to the tunnel entrance as TP-07.

Water and separate-phase product sheen were observed in the tunnel entrance structure. Approximately 10,000 gallons (three vacuum truck loads) of total fluids were evacuated using a vacuum truck prior to the inspection. The first two vacuum truckloads were discharged to the lift station. During the evacuation of fluid, separate-phase product was observed to be coming from one of the 10-inch pipes present. This product was contained within the third vacuum truck load and was discharged to a frac tank to allow any product present to separate and be transferred to the product storage tank prior to the water being discharged to the treatment system. Product recovered (either directly from the frac tank or from the water treatment system oil/water separators), was transferred to the 8,000 gallon waste oil storage tank associated with the water treatment system for later disposal offsite.

Two six-inch pipes and one 10-inch pipe enter the structure from the west side and end within the structure. These pipes apparently cross Babcock Street and enter the tunnel entrance structure on the west side of Babcock Street (TP-08), described below.

No separate-phase product was observed during inspections of this tunnel conducted by Safety Kleen in January and April 2001.

Southern Pipe Tunnel Entrance West of Babcock Street (TP-08)

The pipe tunnel entrance structure that is present on the west side of Babcock Street was inspected in lieu of excavating a test pit TP-08 (see Appendix A for field change form). The tunnel entrance was a pit constructed of concrete and measured approximately six feet from north to south, 11 feet from east to west and seven feet deep. The field notes and photographs contained in Appendix D refer to the tunnel entrance as TP-08.

Water and separate-phase product sheen were observed in the tunnel entrance structure. Approximately 6,400 gallons (two vacuum truck loads) of total fluids were evacuated using a

vacuum truck prior to the inspection. The contents of the vacuum trucks were discharged to the lift station.

Two six-inch pipes and one 10-inch pipe enter the structure from the east side. These pipes apparently cross Babcock Street and enter the tunnel access entrance on the east side of Babcock Street (TP-07), described above. The two six-inch pipes end within the tunnel entrance while the 10-inch pipe passes through the tunnel entrance and exits through a culvert located in the western wall. The three pipes were cold tapped by Safety Clean during the inspection. Product and water were removed from the 10-inch line and water was removed from the two six-inch pipes.

Any product recovered (from the water treatment system), was transferred to the 8,000 gallon waste oil storage tank associated with the water treatment system for later disposal offsite.

No separate-phase product was observed during inspections of this tunnel conducted by Safety Kleen in January and April 2001.

5.8.2 Investigation of the BSA Babcock Street Sewer

The results of the test pitting performed along the Babcock Street sewer are described in detail in Section 5.3.

The analytical results from water samples collected from the sewer manhole locations designated BSA-MH2 and BSA-MH3 (Plate 1) during dry weather flow conditions (April 11, 2001) and from BSA-MH1, BSA-MH2 and BSA-MH3 during wet weather flow conditions (May 23, 2001) are presented below. The BSA-MH1 and BSA-MH2 locations were selected to represent the quality of water within the sewer coming onto the BSPA. The BSA-MH3 location was selected to represent the quality of water within the sewer downstream of an area of known separate-phase product occurrence (i.e., downstream of SB-17).

Several VOCs were detected in BSA-MH1 during the during wet weather conditions. Several VOCs and SVOCs were detected in BSA-MH2 and BSA-MH3 during both dry and wet weather conditions. The following table summarizes the results. Only those compounds that were detected in any one of the storm water samples are shown. The laboratory qualifier "J" indicates

that the compound was positively identified in the sample, but that the concentration is approximate. The results indicate relatively low concentrations of petroleum-related compounds in the water collected from these locations under both dry and wet weather conditions. In general, there was little difference between the number and concentrations of compounds detected in the manhole(s) further upstream (BSA-MH1 and BSA-MH2) and the manhole downstream of the area of known separate-phase product occurrence (BSA-MH3). In fact, during the storm event, higher concentrations were observed in BSA-MH1 than in the manholes further downstream.

Summary of VOC and SVOC Results from Samples Collected from the BSA Babcock Street Sewer

	Dry Weather Conditions (4/11/01)		Wet Weather Conditions (5/23/01)		
Sample Designation / **Concentration Units**	**BAS-MH2 (µg/l)**	**BAS-MH3 (µg/l)**	**BAS-MH1 (µg/l)**	**BAS-MH2 (µg/l)**	**BAS-MH3 (µg/l)**
Analyte Name					
VOCs					
Benzene	1	0.6	5	2.9	ND
1,2,4 Trimethylbenzene	0.4	0.8	0.4 J	ND	ND
1,3,5-Trimethylbenzene	0.2	0.5	ND	ND	ND
Ethylbenzene	ND	0.4	ND	ND	ND
Isopropylbenzene	ND	0.2	ND	ND	ND
n-Butylbenzene	0.4	0.3	ND	ND	ND
Sec-Butylbenzene	ND	ND	0.4 J	ND	ND
n-Propylbenzene	ND	0.3	0.7 J	0.2 J	ND
p-Isopropyltoluene	ND	10	ND	ND	0.4 J
Toluene	10	4.9	1 J	0.6 J	ND
Xylenes (Total)	0.9	1.8	1.2 J	0.8 J	ND
MTBE	1.3	3.7	1.2	1	ND
Naphthalene	ND	ND	0.3 J	ND	ND
SVOCs					2 J
Fluoranthene	9	9	ND	ND	2 J
Fluorene	ND	8	ND	ND	ND
Phenanthrene	2	2	ND	ND	ND

Summary of VOC and SVOC Results from Samples Collected from the BSA Babcock Street Sewer

	Dry Weather Conditions (4/11/01)		Wet Weather Conditions (5/23/01)		
Sample Designation / **Concentration Units**	**BAS-MH2 (µg/l)**	**BAS-MH3 (µg/l)**	**BAS-MH1 (µg/l)**	**BAS-MH2 (µg/l)**	**BAS-MH3 (µg/l)**
Analyte Name					
Naphthalene	ND	ND	ND	2 J	1 J
Pyrene	ND	ND	ND	ND	1 J
Benzo[b]fluoranthene	ND	ND	ND	ND	1 J

5.8.3 Investigation of the Storm Sewers North and East of Former Barrel House

The results of the investigation work conducted on the storm sewers north and east of the former Barrel House on the BSPA (CB-69, CB-70, CB-71 and CB-72) and on the FRA (CB-0, MH-4, MH-8), are described briefly below. The fieldwork was conducted during the week of August 9, 2000. Field notes for this work are included in Appendix F. These results, which included confirmation of the configuration of the sewer system in these areas of the BSPA, were incorporated into the revised Sewer System Map (Plate 1). The map was completed as part of the site-wide storm-water collection system investigation and will be described in further detail in the separate report of results for the site-wide sewer system investigation.

The investigation activities conducted on the selected sewer system structures were intended to confirm the configuration of the sewer system in this area and assist in identifying an appropriate means of handling storm water generated on the BSPA. All fluids generated during the evacuation of water and separate-phase product (if present) and high pressure jetting of selected pipe segments was discharged to the lift station. Any separated product recovered (from the water treatment system oil/water separators), was transferred to the 8,000 gallon waste oil storage tank associated with the water treatment system for later disposal offsite.

The work performed, including identification of piping present, high pressure jetting and surveying of pipe inverts, was used to:

- determine the direction of storm-water flow from the BSPA;

- re-establish connections that may have become blocked by debris; and
- restore storm-water flow by gravity from the BSPA to the main portion of the sewer system on the FRA.

At the conclusion of the work, the first two goals listed above were met. However, it was not possible to restore flow by gravity from the BSPA to the lift station on the FRA. Additional work to achieve this goal will be conducted along with any improvements to the storm water collection system that may result from the site-wide sewer investigation.

In the area north of the former Barrel House, storm-water flow by gravity was confirmed between CB-69 to CB-70. Through jetting, flow by gravity was restored from CB-70 (where a blockage had previously been encountered) to MH-4. Flow is then pumped (as described below) to the treatment system. In the area east of the former Barrel House, storm-water was confirmed to flow from CB-72 to CB-71 to MH-8. Based upon pipe invert elevations, flow should be from MH-4 to MH-8. However, the operation of pumping equipment (described below) within MH-4 reverses the flow pattern from MH-8 to MH-4. Water is pumped from MH-4 to the treatment system. Dual-phase product recovery equipment that had previously been installed in RW-6 was installed in MH-4 in June 2000 in an attempt to prevent sewer overflows on the BSPA. The dual-phase equipment was subsequently removed on August 16, 2000 and replaced with a water pump only on August 29, 2000. Since the pumps were installed in MH-4, no further overflows have occurred.

At present, the 24-inch storm sewer that exits MH-8 to the east is blocked and the final discharge location of this line is not known. Additional work will be undertaken in an attempt to restore flow by gravity from MH-8 to the main portion of the sewer system, thereby eliminating the need to pump water generated on the BSPA to the treatment system.

6.0 SUMMARY OF MAJOR FINDINGS AND CONCLUSIONS

The investigation work completed between June 2000 and May 2001, coupled with work performed during previous investigations on the BSPA, has completed the assessment of the soil, sediment, storm water and groundwater quality and the extent of separate-phase product in the BSPA and the area of seepage west of the BSPA. In addition, the condition of former refinery/lube plant/terminal buildings and structures that still exist on the BSPA were investigated. The following is a summary of the major findings of these investigations.

6.1 Former Refinery/Lube Plant/Terminal Buildings and Structures

Former refinery/lube plant/terminal buildings that still exist on the BSPA, including the former Barrel House (Lube Building), former Lakes Division Garage and former Tank Truck Loading Rack were inspected in June 2000. One Babcock Street and their tenants currently occupy all three of these structures. Based upon these inspections, there did not appear to be drain connections remaining from former refinery/terminal operations in the former Lakes Division Garage and former Tank Truck Loading Rack (aside from existing sanitary discharges).

There are several pipes that exit the former Barrel House and enter the subsurface. Some are pipes that exit the east wall of the building and are former connections between the tanks within the building (which still exist), the former tanks on the eastern border of the BSPA and/or the decommissioned Unloading Trench. Others are roof drains that exit the building along the east and west sides. There is also one former combined roof/sanitary drain that exits the building on the east side. The final discharge location of these drains could not be determined by visual observation, but it was confirmed that the former sanitary discharge was removed.

The two pipe tunnels that still exist beneath Babcock Street were inspected in August 2000. The conditions of the tunnels indicate that petroleum-related impacts existed within the tunnels prior to the inspections. During the inspections, water and separate-phase product (where present) were evacuated from the tunnels and piping using a vacuum truck and discharged to the treatment system. Since the work was completed in August 2000, two additional inspections conducted in January 2001 and April 2001, did not indicate the presence of separate-phase product.

6.2 Chlorinated VOCs

The results of soil and groundwater samples collected between June 2000 and April 2001 confirm that the occurrence of CVOCs is not widespread on the BSPA. Nine CVOCs were detected (chlorobenzene, methylene chloride, 1,2-dichlorobenzene, 1,3-dichlorobenzene 1,4-dichlorobenzene, cis-1,2-dichloroethene, trichloroethene, trichlorofluoromethane and tetrachloroethene) in isolated areas of the BSPA, generally to the east-southeast of the former Barrel House (in soil and groundwater); in the vicinity of the former Vapor Recovery Unit/Truck Wash Building (in soil only); and several locations north of Prenatt Street (in soil only).

In soil, chlorobenzene was the only CVOC detected above the NYSDEC RSCO in locations east of the former Barrel House. In groundwater, chlorobenzene, 1,2-dichlorobenzene, 1,3-dichlorobenzene and 1,4-dichlorobenzene were detected in the southeast corner of the BSPA at levels exceeding NYSDEC AWQSGs.

CVOCs were also detected in the soil and groundwater samples collected on PVS Chemicals property west of the BSPA. In soil, chlorobenzene was detected below the RSCO at SB-43. In groundwater, chlorobenzene was detected at SB-40 and SB-43 at levels exceeding NYSDEC AWQSGs. 1,2-dichlorobenzene and 1,3-dichlorobenzene were detected above the AWQSG at SB-40 and below the AWQSG at SB-43. 1,4-dichlorobenzene was detected above the AWQSG at SB-40.

6.3 Soil Quality

In general, soil in the BSPA has been impacted by former refinery/lube plant/terminal activities. VOCs, SVOCs and metals are present in the soil at shallow and deep intervals, some exceeding NYSDEC RSCOs to varying degrees across the BSPA.

<u>Soil Quality West of the BSA Babcock Street Sewer Between Prenatt Street and the Buffalo River</u>

On the portion of the BSPA west of the BSA Babcock Street sewer between Prenatt Street and the Buffalo River, several VOCs were detected in shallow and deep soils, but only isopropylbenzene was detected above the NYSDEC RSCO at SB-37 (deep interval).

Concentrations of SVOCs are higher in the shallow soil interval. One or more SVOCs were detected at each sampling location in this portion of the BSPA and RSCOs for at least one SVOC were exceeded in the shallow soil at all locations except SB-30. In this area of the site, several SVOCs were detected in deep soils surrounding the former Vapor Recovery Unit/Truck Wash Building (SB-27, SB-48 and SB-49) and along the northwest (SB-46) and southwest (SB-37) border between the BSPA and PVS Chemicals property. RSCOs were exceeded at SB-27, SB-37 and SB-49 for several SVOCs.

Finally, metals were detected at concentrations exceeding RSCOs for at least one metal at all sample locations in this portion of the BSPA in both shallow and deep soil. Nickel and chromium were the metals most frequently detected at concentrations exceeding RSCOs. Concentrations of metals are higher in the shallow soil interval.

Soil Quality North of Prenatt Street

In the portion of the BSPA north of Prenatt Street, several VOCs were detected in shallow and deep soils. The only compound detected above the NYSDEC RSCO was benzene at SB-56 (deep interval) and TP-10, which are both adjacent to a former loading rack and are approximately 4 feet apart.

Concentrations of SVOCs in this portion of the BSPA are higher in the shallow soil interval. One or more SVOCs were detected at each sampling location in this portion of the BSPA and RSCOs for at least one SVOC were exceeded in the shallow soil at all locations. The highest concentrations were detected at the four boring locations south of former Tank 221 (SB-54, SB-56, SB-72 and SB-73) and at SB-57 in the location of former Tank 84. The data collected in the vicinity of Tank 221 are consistent with information gathered during the aerial photograph review conducted for the preparation of the History Document, which identified the area south of Tank 221 as a potential tank bottom disposal area. The impacts associated with the historical disposal activities near Tank 221 are not expected to extend westward beyond the vicinity of borings SB-72 and SB-73 since these borings were installed immediately adjacent to Orlando Street and a concrete wall that surrounds the former tank area, both of which were present since the tanks were installed. In deep soils in this portion of the BSPA, the highest concentrations

(exceeding RSCOs) were observed at TP-10 near a former loading rack. RSCOs were also exceeded for one or more SVOCs at SB-54, SB-57, SB-59 and SB-53 (east of Babcock Street near former tanks 81 and 82).

Finally, metals were detected at concentrations exceeding RSCOs for at least one metal at all sample locations except SB-60 on this portion of the BSPA in shallow soil and at all sample locations in deep soil. Nickel and chromium were the metals most frequently detected at concentrations exceeding RSCOs. Concentrations of metals are generally higher in the shallow soil interval.

Soil Quality East of the BSA Babcock Street Sewer Between the FRA/BSPA Border and the Buffalo River

The portion of the BSPA east of the BSA Babcock Street sewer between the FRA/BSPA border and the Buffalo River is the area where the highest concentrations of VOCs were detected in shallow and deep soils. One or more VOCs were detected at each sampling location (and interval) in this portion of the BSPA and RSCOs were exceeded at all locations except SB-50. Higher concentrations were observed the vicinity of the former Tank Truck Loading Rack, west of the former Barrel House and east of the former Barrel House in the vicinity of former tanks and former loading racks. In general, concentrations of VOCs increase with depth, except at SB-67 near the former Unloading Trench.

One or more SVOCs were detected at each sampling location (and depth interval) in this portion of the BSPA. This portion of the BSPA is where the highest concentrations of several SVOCs were detected in shallow (SB-28, SB-7 and SB-10) and deep soils (SB-7). RSCOs were exceeded in shallow soil for at least one SVOC at all locations in this portion of the BSPA except SB-47 off the southwest corner of the former Tank Truck Loading Rack. Concentrations of SVOCs were generally lower in the deeper soil interval. RSCOs were exceeded for at least one SVOC in the deeper interval in this portion of the BSPA at all but the following six sample locations, SB-9, SB-11/LB-1, SB-28, SB-39, SB-50 and SB-65. Higher concentrations of SVOCs in deeper soil are observed surrounding the former Tank Truck Loading Rack and on the east side of the former Barrel House.

Finally, metals were detected at concentrations exceeding RSCOs for at least one metal at all sample locations on this portion of the BSPA in shallow soil, except at SB-20, SB-47, SB-68 and SB-70. In deep soil, metals exceeding RSCOs were detected at all sample locations except SB-39, SB-63, SB-64, SB-71 and TP-05. Nickel and chromium were the metals most frequently detected at concentrations exceeding RSCOs. Concentrations of metals were generally higher in the shallow soil interval.

PVS Chemicals' Property West of the BSPA

The compounds detected in soil at the four sample locations on the PVS Chemicals' property were naphthalene, isopropylbenzene, chlorobenzene and methylene chloride. None were detected above NYSDEC RSCOs. TEL was not detected in any of the soil samples collected on the PVS Chemicals property (SB-40 through SB-43).

6.4 Groundwater Quality

In general, groundwater in the BSPA has been impacted by former refinery/lube plant/terminal activities. VOCs, SVOCs and metals are present in the groundwater, some exceeding NYSDEC AWQSGs to varying degrees across the BSPA.

Groundwater Quality West of the BSA Babcock Street Sewer Between Prenatt Street and the Buffalo River

On the portion of the BSPA west of the BSA Babcock Street sewer between Prenatt Street and the Buffalo River, at least one VOC was detected at all Geoprobe™ sampling locations, but only benzene at SB-46 and MTBE at SB-48 exceeded the AWQSG.

During the January 2001 and April 2001 quarterly sampling rounds, at least one VOC was detected in groundwater collected at the three locations sampled in this portion of the BSPA (SB-31, MW-2 and MW-24). Several VOCs were detected at concentrations exceeding NYSDEC AWQSGs at MW-24.

Several SVOCs were detected in the groundwater sample collected from SB-46 near the former Vapor Recovery Unit/Truckwash Building, some at concentrations that exceeded AWQSGs.

During the January 2001 and April 2001 quarterly sampling round at least one SVOC was detected in groundwater collected at MW-2 and MW-24 on this portion of the BSPA. One or more SVOCs were detected at concentrations exceeding NYSDEC AWQSGs at these locations.

At least one metal exceeding NYSDEC AWQSGs was detected at each Geoprobe™ location sampled on this portion of the BSPA.

Groundwater Quality North of Prenatt Street

North of Prenatt Street, several VOCs were detected at location SB-58, but none exceeded NYSDEC AWQSGs and none were detected at SB-59. During the January 2001 and April 2001 quarterly sampling rounds, several VOCs were detected in groundwater collected at B-3MW (all below NYSDEC AWQSGs), but none were detected at B-4MW.

SVOCs exceeding AWQSGs were detected in groundwater samples collected at Geoprobe™ locations SB-58 and SB-59 in this portion of the BSPA. SVOCs were not detected in groundwater collected from the two locations sampled during the quarterly sampling rounds in January 2001 and April 2001.

Groundwater Quality East of the BSA Babcock Street Sewer Between the FRA/BSPA Border and the Buffalo River

At least one VOC was detected at all but one (SB-51) Geoprobe™ sampling locations in the portion of the BSPA east of Babcock Street between the FRA/BSPA border and the Buffalo River. Higher concentrations were observed in the southern part of this portion of the BSPA along the BSPA/FRA border. Concentrations of one or more VOCs exceeded AWQSGs at all Geoprobe™ sampling locations in which VOCs were detected in this area except SB-50.

During the January 2001 quarterly sampling round, one or more VOCs were detected at concentrations exceeding NYSDEC AWQSGs at four locations on this portion of the BSPA (MW-22, MW-26, SB-11/LB-1 and SB-19). During the April 2001 sampling round, one or more VOCs were detected at concentrations exceeding NYSDEC AWQSGs at three locations (MW-22, MW-26 and SB-11/LB-1).

SVOCs were detected in groundwater samples from four Geoprobe™ locations in this portion of the BSPA (SB-62, SB-64, SB-70 and SB-71). Concentrations of one or more SVOCs exceeded AWQSGs at each of these locations except SB-62.

During the January 2001 quarterly sampling round at least one SVOC was detected in groundwater collected at SB-11/LB-1, MW-22, MW-26 and SB-19. One or more SVOCs were detected at concentrations exceeding NYSDEC AWQSGs at all of these locations, except MW-22. During the April 2001 quarterly sampling round at least one SVOC was detected in groundwater collected at SB-11/LB-1, MW-22 MW-26 and SB-19 on this portion of the BSPA and at SB-12 in the FRA near the BSPA border. One or more SVOCs were detected at concentrations exceeding NYSDEC AWQSGs at MW-22, MW-26 and SB-19.

At least one metal exceeding NYSDEC AWQSGs was detected at each location sampled on this portion of the BSPA during the Geoprobe™ investigation.

PVS Chemicals' Property West of the BSPA

Several VOCs and CVOCs exceeding NYSDEC AWQSGs were detected in the groundwater collected from two of the four locations on PVS Chemicals' Property (SB-40 and SB-43). At SB-40, chlorobenzene, 1,2-dichlorobenzene, 1,3-dichlorobenzene, 1,4-dichlorobenzene and benzene were detected at concentrations exceeding AWQSGs. None of these compounds were detected in the groundwater collected from TP-03 on the BSPA. Groundwater in this area was not analyzed for metals. At SB-43, chlorobenzene was detected above the NYSDEC AWQSG.

6.5 Separate-Phase Product Occurrence

The soil borings conducted and monitoring wells installed during the investigation for completion of the assessment on the BSPA, coupled with results of previous investigations and the on-going gauging of wells, has completed the delineation of the extent of separate-phase product on the BSPA.

Separate-phase product beneath the BSPA extends from the western leg of the WPS on the south side of the former Barrel House to north of the former Tank Truck Loading Rack on the north side of the former Barrel House. East of the former Barrel House, the separate-phase product

extends onto the FRA. West of the former Barrel House, separate-phase product extends beneath Babcock Street to the east wall of the BSA Babcock Street sewer, but it does not extend west of the Babcock Street sewer. Separate-phase product is present on the east side of the sewer, in MW-27 and SB-17, but not on the west side of the sewer in MW-24 or MW-2.

6.6 Seepage Area West of the BSPA

Soil and groundwater quality data from locations along the BSPA western border do not indicate that this area is a source contributing to the seepage area along the river bank.

Sediment quality data collected from the two locations along the Buffalo River west of the BSPA indicate the presence of petroleum and non-petroleum related VOCs and CVOCs. TEL was not detected in the sediment samples. Based upon the access agreement with PVS Chemicals, the sediment was not analyzed for SVOCs and metals.

Several VOCs were detected in soil samples collected from locations along the property boundary between the BSPA and PVS Chemicals property (SB-30, SB-45 and SB-46), but none exceeded RSCOs. SVOCs were detected above RSCOs at SB-45 and SB-46 but not at SB-30. No VOCs or SVOCs were detected in soil collected from test pit TP-03 at the BSPA border.

The soil samples collected from the test pits installed along the BSA Babcock Street sewer, as well as visual observations made during the test pit installation, indicate that soil quality on the east side of the sewer has been impacted by site-related activities. The petroleum-related impacts were observed to be greater at the locations further north from the bulkhead at the Buffalo River. Impacts at TP-06 furthest north from the river showed evidence of separate-phase product and significant petroleum-related impacts (i.e., staining and odor), while no separate-phase product was observed in TP-05 or TP-04 and the petroleum related impacts (staining and odor) were observed to be lower.

Several VOCs were detected in the soil sample collected from TP-04, however none exceeded the RSCOs. Several SVOCs were detected at concentrations exceeding the RSCOs at TP-04. At TP-05, several VOCs exceeding RSCOs were detected. Several SVOCs were detected, but none exceeded the RSCOs. Soil was not analyzed from TP-06 due to the presence of separate-phase

product and the availability of similar data from indicating the presence of VOCs and SVOCs at elevated concentrations from SB-17.

Comparison of the BSA Babcock Street sewer elevation with the separate-phase product elevation in monitoring wells located near the sewer generally indicate that the separate-phase product layer is at or above the sewer invert elevation when the western leg of the WPS is either not operating or is operating inefficiently. The elevation of the separate-phase product layer is generally lowered below the sewer invert and sewer bedding material when the western leg of the WPS is operating efficiently.

6.7 Storm Water Quality in the BSA Babcock Street Sewer

Based upon the analytical results from water samples collected from the sewer manhole locations along the BSA Babcock Street sewer, the storm water quality within the sewer is not impacted by petroleum-related compounds under dry or wet weather conditions. The samples were collected from manholes designated BSA-MH2 and BSA-MH3 (Plate 1) during dry weather flow conditions (April 11, 2001) and from BSA-MH1, BSA-MH2 and BSA-MH3 during wet weather flow conditions (May 23, 2001).

Several VOCs were detected in BSA-MH1 during the during wet weather conditions and several VOCs and SVOCs were detected in BSA-MH2 and BSA-MH3 during both dry and wet weather conditions at relatively low levels. There was little difference between the number and concentrations of compounds detected in the manhole(s) further upstream (BSA-MH1 and BSA-MH2) and the manhole downstream of the area of known separate-phase product occurrence (BSA-MH3). In fact, during the storm event, higher concentrations were observed in BSA-MH1 than in the manholes further downstream.

Respectfully submitted,

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Table 1. Tank Inventory for the Buffalo Terminal, Exxon Mobil Corporation, Buffalo Terminal, Buffalo, New York.

Tank No	Size				Capacity (BBL)		Year Built	Removed	Duplicate Tank Designation Notes	Product Stored	Roof Type	Shell
	Length	Width	Diameter (Feet)	Height (Feet)	Gross	Available						
Babcock Street Properties Area												
76			15	16	504		1924 map	1977 map		Mobil Gas		
77			15	16	504		1924 map	1977 map		V.M.P		
83			67	40	23,865	22,609	1939	1990 photo		No. 6 Fuel Oil	Cone	Welded
84			67	40	23,865	22,609	1939	1990 photo		No. 6 Fuel Oil	Cone	Welded
85			100	40	54,630	51,828	1944	1990 photo	Duplicate name in FRA	No. 6 Fuel Oil and Cutter Stock	Cone	Riveted
151			15	16.167	509		1924 map	1977 map		No. 3 Fuel Oil		
152			15	16.104	507		1924 map	1977 map				
153			15	16.25	511		1924 map	1977 map		No. 80 Octane		
154			14	15.135	415		1924 map	1977 map		No. 5 Savo. (Lube Oil)		
159			15	16	504		1924 map	1977 map		No. 5 Savo. (Lube Oil)		
162			16	15	537		1924 map	1939 map				
162			16				1939 map	1977 map	Different Location			
164			15				1939 map	1977 map				
166			21				1939 map	1977 map				
167			15	20.208	636		1924 map	1977 map				
170			15	15.125	476		1924 map	1977 map		No. 3 Fuel Oil		
188			25	16	1,399		1924 map	1977 map				
190			15	16	504		1924 map	1977 map				
193			15	16.25	511		1924 map	1977 map		No. 1 Savo.		
214			24.25	17.5	1,440		1924 map	1951 map				
221			85	50	49,441	45,394	1944	1988		No. 2 Fuel Oil	Cone	Riveted
333			36	28	5,076		1924 map	1951 map				
334			36	28	5,076		1924 map	1951 map				
342			25	16	1,399		1924 map	1977 map				
343			36	28	5,076		1924 map	1977 map				
383			12				1939 map	1977 map		Stock Oil		
384			12				1939 map	1977 map		Stock Oil		
385			12				1939 map	1977 map		Stock Oil		
386			12				1939 map	1987 map		Stock Oil		
387			12				1939 map	1987 map		Stock Oil		
393			25	35	2,966	2,924	1941	1995 map		Asphalt	Cone	Welded
394			25	35	2,966	2,924	1941	1995 map		Asphalt	Cone	Welded
395			25	35	2,966	2,924	1941	1995 map		Asphalt	Cone	Welded
396			25	30	2,966	2,924	1941	1995 map		Asphalt	Cone	Welded
397			30	40	4,886	4,825	1941	1995 map		Asphalt	Cone	Welded

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Tank No	Size				Capacity (BBL)		Year Built	Removed	Duplicate Tank Designation Notes	Product Stored	Roof Type	Shell
	Length	Width	Diameter (Feet)	Height (Feet)	Gross	Available						
398			30	40	4,886	4,825	1941	1995 map		Asphalt	Cone	Welded
420			25	33	2,885		1924 map	1995 map		Diesel		
421			25	33	2,885		1924 map	1995 map		No. 2 Fuel Oil		
422			25	33	2,885		1924 map	1995 map		No. 2 Fuel Oil		
423			25	33	2,885		1924 map	1995 map		Kerosene		
424			25	33	2,885		1924 map	1995 map		Stock Oil 102		
425			25	33	2,885		1924 map	1995 map		Stock Oil 494		
491			30	40	4,886	4,825	1942	1995 map		Out of Service/Asphalt	Cone	Welded
492			30	40	4,886	4,825	1942	1995 map		Out of Service/Asphalt	Cone	Welded
493			25	35	2,966	2,924	1942	1995 map		Asphalt	Cone	Welded
494							1939 map	1977 map				
495			25	35	2,966	2,924	1942	1995 map		Asphalt	Cone	Welded
800			30				1951 map	1990 map		Stock Oil 492		
801			30				1951 map	1990 map				
802			12				1951 map	1987 map		Stock Oil		
803			12				1951 map	1987 map		Stock Oil		
804			12				1951 map	1977 map		Stock Oil		
805			12				1951 map	1977 map		Stock Oil		
806			12				1951 map	1977 map		Stock Oil		
807			12				1951 map	1977 map		Stock Oil		
808			12				1951 map	1977 map		Stock Oil		
809			12				1951 map	1977 map		Stock Oil		
91			7	5	34		1924 map			Lube Products		
92			7	5	34		1924 map			Lube Products		
205			10	10	140		1924 map			Lube Products		
206			10	10	140		1924 map			Lube Products		
207			10	10	140		1924 map			Lube Products		
208			10	10	140		1924 map			Lube Products		
209			10	10	140		1924 map			Lube Products		
210			10	10	140		1924 map			Lube Products		
211			4	5	11		1924 map			Lube Products		
212			5	4	14		1924 map			Lube Products		
231			14.25	11	312		1924 map			Lube Products		
232			12.17	11	228		1924 map			Lube Products		
294					119		1943 map			Delvac 920		
295					119		1943 map			Mobil Oil 88		
296					119		1943 map			Rubbex 900		
297					119		1943 map					
298					119		1943 map			Stock 232		
299					119		1943 map			Mobil Oil AF		
300					119		1943 map			Flowrex 500		
303			5	4.5	16		1924 map			Lube Products		

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Tank No	Size				Capacity (BBL)		Year Built	Removed	Duplicate Tank Designation Notes	Product Stored	Roof Type	Shell
	Length	Width	Diameter (Feet)	Height (Feet)	Gross	Available						
304			5	4.5	16		1924 map			Lube Products		
305			5	4.5	16		1924 map			Lube Products		
307			5.875	11.208	54		1924 map			Lube Products		
310			7	11	75		1924 map			Lube Products		
311			7	11	75		1924 map			Lube Products		
312			7	11	75		1924 map			Lube Products		
315			7	8	55		1924 map			Lube Products		
316			7	8	55		1924 map			Cylrex		
317			7	8	55		1924 map			Lube Products		
319			12.5	11	240		1924 map			Lube Products		
320			12.5	11	240		1924 map			Lube Products		
321			12.5	12	262		1924 map			Stock No. 172		
322			12.5	12	262		1924 map			Stock No. 378		
323			12.5	12	262		1924 map			Stock No. 180		
428			13	12	284		1924 map			Stock No. 826		
429			13	12	284		1924 map			Turex 90		
430			13	12	284		1924 map			Stock No. 102		
431			13	12	284		1924 map			Stock No. 92		
432			13	12	284		1924 map			Stock No. 572		
433			13	12	284		1924 map			Cylinder Oil		
434			13	12	284		1924 map			DTE Oil light		
435			13	12	284		1924 map			Stock No, 270		
436			13	12	284		1924 map			Stock No. 671		
437			13	12	284		1924 map			Stock No. 113		
438			13	12	284		1924 map			Stock No. 492		
439			13	12	284		1924 map			Stock No, 494		
440			13	12	284		1924 map			Turex 125		
441			13	12	284		1924 map			Delvac 930		
442			13	12	284		1924 map			Mobil Oil Arctic		
443			13	12	284		1924 map			Lube Products		
444			13	12	284		1924 map			Stock No. 142		
445			13	12	284		1924 map			Stock No. 615		
446			13	12	284		1924 map			Stock No. 352		
447			13	12	284		1924 map			Stock No. 141		
448			13	12	284		1924 map			Stock No. 621		
449			13	12	284		1924 map			Mobil Oil Spec.		
450			13	12	284		1924 map			Mobil Oil		
451			12.75	12	273		1924 map			DTE Oil Heavy		

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Tank No	Size				Capacity (BBL)		Year Built	Removed	Duplicate Tank Designation Notes	Product Stored	Roof Type	Shell
	Length	Width	Diameter (Feet)	Height (Feet)	Gross	Available						
452			14	11	302		1924 map			Lube Products		
453			14	11	302		1924 map			Lube Products		
454			8	4	36		1924 map			Lube Products		
455			5	10.75	38		1924 map			Lube Products		
456			6	8	40		1924 map			Lube Products		
457			6	8	40		1924 map			Lube Products		
458			6	8	40		1924 map			Lube Products		
459			6	8	40		1924 map			Lube Products		
460			5	5	17		1924 map			Lube Products		
461			11	8.5	144		1924 map			Lube Products		
462			11	5.83	99		1924 map			Lube Products		

Notes:

1. **Where blanks entries exist, information from the existing documentation was not available.**
2. **For Construction dates, an entry referencing a map or aerial photo indicates the map/aerial photo that the tank first appeared.**
3. **For Removal Dates, an entry referencing a map or aerial photo indicates the first map/aerial photo that the tank does not appear on.**
4. **Not all 1917 tanks are listed.**

Table 2. Summary of Spills/Releases at the Buffalo Terminal, Mobil Oil Corporation, Buffalo, New York

Date of Incident	Quantity	Product	Cause/Source of Spill	Geographic Area	Media Affected	Agency Notified	Action Taken/Comments	Source	Date Spill Closed by NYSDEC
FORMER REFINERY AREA (FRA)									
Various Dates	Unknown	Heavy Products	The seals on the pumps located southeast of Tank 84 would reportedly leak due to handling the heavy heated products. Product would drain to the ground in the pump area.	FRA (immediately adjacent to BSPA border)	Soil	None	Unknown	Current and/or Former ExxonMobil Employees	NA
BABCOCK STREET PROPERTIES AREA (BSPA)									
3/24/1984	82 gallons	Gasoline	Spill during delivery at the loading rack	BSPA	Unknown	NYSDOT	Squeegeed spill to drains at the loading rack. DOT requested a rewash.	Mobil Files	NA
7/23/1989	150 gallons	Super Unleaded Gasoline	Leaking gasket on 6-inch gasoline line, 10 feet north of the loading rack pumps. Product leaked through a blind flange gasket and trickled down onto the ground.	BSPA	Soil	NYSDEC - #8904003	Area was barricaded; container used to capture product and prevent additional product from reaching the ground; product removed with a vacuum truck. Gasket was replaced; line eliminated as part of loading rack relocation (1990). Impacted soil was disposed (8/31/89).	Mobil Files/ NYSDEC Spills	2/28/1990
12/19/1990	Unknown	Jet A Fuel	Underground storage tank (6,000 gallon), located off the southeast corner of the former tank truck loading rack used to receive jet fuel from trucks when flushed after gasoline load and prior to the jet fuel load failed integrity test.	BSPA	Unknown	NYSDEC - #9010202	Vacuum truck used to pump out. Tank subsequently removed (3/21/91 per NYSDEC Spill Form). No contamination identified; no further action required.	Mobil Files/ NYSDEC Spills	4/10/1991
3/7/1991	20 gallons	#2 Fuel Oil	While the vacuum truck was transferring #2 Fuel Oil from jet flush tank located off the southeast corner of the former tank truck loading rack to #2 Fuel Oil storage tank, the cap on discharge valve fell off, the valve vibrated open and product spilled on road.	BSPA	Road	NRC - #62618 NYSDEC - #9012582	Valve on the vacuum truck was checked; hold down installed to ensure valve remains closed; wire lugs used on cap when truck is loaded.	Mobil Files/ NYSDEC Spills	3/8/1991
2/1/1994	Unknown	Unknown Petroleum Product	Contamination found during Site Assessment	BSPA	Unknown	NYSDEC - #9314015	NYSDEC Spill Report Form noted that this spill would be incorporated into spill #8808982. Spill closed by NYSDEC on 1/3/96 as site addressed under consent order.	NYSDEC Spills	1/3/1996
Various Dates	Unknown	Unknown Petroleum Product	During heavy precipitation several of the catch basins (two to the north and two to the east) of the former Barrel House overflowed causing a mixture of product and water to pool on paved and unpaved areas.	BSPA	Soil/Pavement	NA	The product/water mixture was recovered using a vacuum truck and either treated through the Site's Water Treatment System or disposed offsite.	Current and/or Former ExxonMobil Employees	NA
BUFFALO RIVER/BSPA									
8/29/1988	Sheen	Unknown Petroleum Product	Sheen identified on the Buffalo River coming from the BSA Outfall.	BSPA/RIVER	Buffalo River	NYSDEC - #8804710 Buffalo Sewer Authority	Unknown	NYSDEC Spills	9/12/1988
10/19/1989	Sheen	Unknown Petroleum Product	Sheen identified on the Buffalo River coming from the BSA Outfall.	BSPA/RIVER	Buffalo River	NYSDEC - #8907130	Unknown	NYSDEC Spills	11/2/1989
7/6/1990	Sheen	Unknown Petroleum Product	Sheen identified on the Buffalo River coming from the BSA Outfall.	BSPA/RIVER	Buffalo River	NYSDEC - #9003889 USCG, Buffalo Sewer Authority	NYSDEC Spill Report Form noted it was a one time incident and no further action was necessary.	NYSDEC Spills	7/9/1990

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Date of Incident	Quantity	Product	Cause/Source of Spill	Geographic Area	Media Affected	Agency Notified	Action Taken/Comments	Source	Date Spill Closed by NYSDEC
12/9/1991	Sheen	Unknown Petroleum Product	Oil substance discovered coming from BSA Outfall.	BSPA/RIVER	Buffalo River	NYSDEC - #9109562, Buffalo Sewer Authority, NRC - #98855, Buffalo Fire Department, USCG	Boom and absorbents deployed 12/9/91 and removed 12/11/91.	Mobil Files/ NYSDEC Spills	12/31/1991
4/11/1992	Sheen	Unknown Petroleum Product	Sheen identified on the Buffalo River.	BSPA/RIVER	Buffalo River	NYSDEC - #9200434	Unknown	NYSDEC Spills	4/13/1992
4/1/1995	Sheen	Unknown Petroleum Product	Received call from PVS Chemical notifying of sheen on Buffalo River coming from Mobil dock area. An oily sheen observed originating from Mobil bulkhead behind the former Barrel House.	BSPA/RIVER	Buffalo River	NRC - #285244 NYSDEC - #9500007	Installed absorbent pads and vacuum out free oil on the water. Two days later, still leaching product. Mobil continued to change absorbent pads. Well point system inspected for efficiency.	Mobil Files/ NYSDEC Spills	5/15/1995
4/5/1995	Sheen	Unknown Petroleum Product	Petroleum product was observed entering the Buffalo River from the same source as 4/1/95 release. The cause was believed to be a malfunction of the Well Point System.	BSPA/RIVER	Buffalo River	NYSDEC - #950223	Containment booms and absorbents still in place from 4/1/95, Well Point System checked for malfunctions and repairs made.	Mobil Files/ NYSDEC Spills	5/15/1995
10/19/1995	Sheen	Unknown Petroleum Product	Sheen observed on the Buffalo River near the BSA Outfall at the base of Mobil's dock	BSPA/RIVER	Buffalo River	NYSDEC - #9508906 Buffalo Sewer Authority, City of Buffalo, and Erie County	Boom and absorbents deployed.	NYSDEC Spills	11/28/1995
2/20/1998	Sheen	Unknown Petroleum Product	Sheen 5' x 30' along Mobil dock observed, sheen also identified at PVS property and behind Pinto building approximately 82' upstream of the BSA outfall.	BSPA/RIVER	Buffalo River	NRC - #425263 NYSDEC - #9712937	Mobil used vacuum truck to cleanup sheen and installed sorbent boom.	Mobil Files/ NYSDEC Spills	Spill not closed
10/4/1999	Sheen	Unknown Petroleum Product	Sheen observed on the Buffalo River near the BSA Outfall and to the west of Babcock Street approximately 100 ft.	BSPA/RIVER	Buffalo River	NRC - Unknown NYSDEC - #9908124	Installed slick bar boom and sorbent boom. Mobil has maintained boom since October 1999 and inspects the area daily.	Mobil Files/ NYSDEC Spills	Spill not closed
SPILLS FOR WHICH THE AREA OF OCCURRENCE COULD NOT BE DETERMINED FROM AVAILABLE INFORMATION (UNKNOWN)									
7/17/1987	1 gallon	Gasoline	Gasoline found in trench excavation. (No other information)	Unknown	Unknown	NYSDEC - #8703102	Recovered one gallon.	NYSDEC Spills	8/4/1987
9/7/1989	Unknown	#2 Fuel Oil	Underground tanks failed tightness test.	Unknown	Unknown	NYSDEC - #8905567	Unknown	NYSDEC Spills	11/20/1989
2/2/1990	<1 gallon	Gasoline	Product pipeline test failure	Unknown	Unknown	NYSDEC - #8910543	Product was removed from the pipeline; location of the leak was to be located. Follow-up action by NYSDEC to be made under spill # 8808982.	NYSDEC Spills	12/7/1990
5/18/1991	15-20 gallons	Caustic	Contractor cut 3-inch pipe in pipe rack with a shear with (believed to be) caustic remaining in the pipeline	Unknown	Unknown	NYSDEC - #9101954	Drained the pipe and cleaned area; NYSDEC Spill Report Form noted no further action required.	Mobil Files/ NYSDEC Spills	5/20/1991
7/12/1990	50 gallons	Diesel Fuel	Equipment failure in the diked area (No additional information)	Unknown	Soil	NYSDEC - #9004061	NYSDEC Spill Report Form indicates spill was cleaned up by Mobil.	NYSDEC Spills	7/12/1990
3/24/1992	25 gallons	#6 Fuel Oil	Pipeline severed during construction	Unknown	Soil	NYSDEC - #9113037	Impacted soil removed and placed in the biotreatment cell, no further action required.	NYSDEC Spills	4/3/1992
3/27/1992	50 gallons	Unknown Petroleum Product	Contractor cutting up old piping released residual oil trapped in piping	Unknown	Soil	NYSDEC - #9113176	Spill cleaned up and debris placed in biotreatment cell.	NYSDEC Spills	3/31/1992
7/31/1992	15 gallons	Mixed Product	Oil/water separator overflowed due to rain	Unknown	Soil	NYSDEC - #9205006	Impacted soil removed and placed in the biotreatment cell.	NYSDEC Spills	8/3/1992

Table 2. Summary of Spills/Releases at the Buffalo Terminal, Mobil Oil Corporation, Buffalo, New York

Date of Incident	Quantity	Product	Cause/Source of Spill	Geographic Area	Media Affected	Agency Notified	Action Taken/Comments	Source	Date Spill Closed by NYSDEC
9/20/1992	10 gallons	Gasoline	Pressure valve malfunction	Unknown	Soil	NYSDEC - #9207108	Spill cleaned up, no further action required.	NYSDEC Spills	9/21/1992
10/22/1992	5 gallons	Jet Fuel	During demolition, jet fuel leaked from an out of service line	Unknown	Soil	NYSDEC - #9208484	Pipe was blanked; absorbent pads placed; impacted soil removed and placed in the biotreatment cell. No further action required.	NYSDEC Spills	10/23/1992
3/1/1993	Unknown	Petroleum Product	4,000 cubic yards of contaminated soil (Source not specified)	Unknown	Soil	NYSDEC - #9314328	NYSDEC Spill Report Form noted no further action required.	NYSDEC Spills	3/8/1994
6/23/1993	20 gallons	Unknown Petroleum Product	Unknown	Unknown	Soil/Stone	NYSDEC - #9303750	Soil and stone were excavated and placed in biotreatment cell, no further action required.	NYSDEC Spills	7/23/1993
7/5/1993	40 gallons	Gasoline	Equipment failure	Unknown	Soil/Stone	NYSDEC - #9304257	Impacted soil removed and replaced with new stone; repairs were made, no further action required.	NYSDEC Spills	7/23/1993
1/17/1995	10 gallons	Petroleum Product	Sewer backup due to storm water and runoff	Unknown	Sewer	NYSDEC - #9413823	One cubic yard of soil removed and placed in biotreatment cell; auto dialer installed in the event of high alarm at storm sewer lift station.	Mobil Files/ NYSDEC Spills	5/15/1995
5/18/1999	30	Diesel Fuel	Product Spill from a tractor trailer onto the road and in the parking lot.	Unknown	Sewer	NYSDEC - #9901860	Speedy-dri applied; contractor cleaned up debris; disposal records provided to NYSDEC; no further action required.	Mobil Files/ NYSDEC Spills	6/7/1999

Table 3. Summary of Well Construction Details for Wells Installed During the BSPA Investigation, Exxon Mobil Corporation Buffalo Terminal, Buffalo, New York.

Well Designation	Date Installed	Installer	Measuring Point Elevation (ft amsl)	Land Surface Elevation (ft amsl)	Depth of Boring (ft bls)	Depth of Well (ft bls)	Screen Interval (ft bls)	Screen Length (feet)
MW-22	7/20/2000	GES	582.36	582.6	19	20	5-20	15
MW-23	7/20/2000	GES	586.14	586.6	24	25	5-25	20
MW-24	7/21/2000	GES	583.67	584.1	19	20	5-20	15
MW-25	7/21/2000	GES	583.28	583.8	19	20	5-20	15
MW-26	7/24/2000	GES	584.87	585.3	19	8	0.7-8	7.3
MW-27	7/24/2000	GES	582.69	583.7	23	27	7-27	20

Notes:
ft amsl = feet above mean sea level
ft bls = feet below land surface

Table 4. Summary of Water-Level, Product Thickness and Product Bailing Data on the BSPA from July 2000 through April 2001
Buffalo Terminal, Exxon Mobil Corporation, Buffalo, New York

Well Designation	Date	Measuring Point Elevation (ft msl)	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Geographic Area	Specific Gravity	Corrected Elevation (ft msl)	Product Bailed (gal)	Comments
B-3MW	7/28/2000	586.82		3.68		BSPA		583.14		
B-3MW	10/31/2000	586.82		3.72		BSPA		583.10		
B-3MW	1/18/2001	586.82		3.19		BSPA		583.63		
B-4MW	7/28/2000	587.05				BSPA				NM
B-4MW	10/31/2000	587.05		9.09		BSPA		577.96		
B-4MW	1/18/2001	587.05		8.95		BSPA		578.10		
MW-1	7/28/2000	582.13		14.02		BSPA		568.11		
MW-1	8/31/2000	582.13		11.77		BSPA		570.36		
MW-1	9/27/2000	582.13		12.23		BSPA		569.90		
MW-1	10/31/2000	582.13		14.50		BSPA		567.63		
MW-1	11/29/2000	582.13		13.71		BSPA		568.42		
MW-1	12/19/2000	582.13		13.73		BSPA		568.40		
MW-1	1/18/2001	582.13		14.24		BSPA		567.89		
MW-1	3/16/2001	582.13		12.17		BSPA		569.96		
MW-1	4/20/2001	582.13		11.24		BSPA		570.89		
MW-2	7/28/2000	583.09		13.62		BSPA		569.47		
MW-2	8/31/2000	583.09		13.38		BSPA		569.71		
MW-2	9/27/2000	583.09		13.86		BSPA		569.23		
MW-2	10/31/2000	583.09		15.99		BSPA		567.10		
MW-2	11/29/2000	583.09		15.47		BSPA		567.62		
MW-2	12/19/2000	583.09		15.51		BSPA		567.58		
MW-2	1/18/2001	583.09		13.2		BSPA		569.89		
MW-2	3/16/2001	583.09		13.1		BSPA		569.99		
MW-2	4/20/2001	583.09		10.82		BSPA		572.27		
MW-22	7/27/2000	582.36		10.65		BSPA		571.71		
MW-22	8/31/2000	582.36		13.84		BSPA		568.52		
MW-22	9/27/2000	582.36		14.39		BSPA		567.97		
MW-22	10/31/2000	582.36		16.96		BSPA		565.40		
MW-22	11/29/2000	582.36		16.34		BSPA		566.02		
MW-22	12/19/2000	582.36		16.37		BSPA		565.99		
MW-22	1/18/2001	582.36		16.66		BSPA		565.70		depth to product: sheen
MW-22	3/16/2001	582.36		13.57		BSPA		568.79		
MW-22	4/20/2001	582.36		13.46		BSPA		568.9		
MW-23	7/27/2000	586.14		14.38		BSPA		571.76		
MW-23	8/31/2000	586.14		16.77		BSPA		569.37		
MW-23	9/27/2000	586.14		17.08		BSPA		569.06		
MW-23	10/31/2000	586.14		14.51		BSPA		571.63		
MW-23	11/29/2000	586.14		13.97		BSPA		572.17		
MW-23	12/19/2000	586.14		13.99		BSPA		572.15		
MW-23	1/18/2001	586.14		20.31		BSPA		565.83		
MW-23	3/16/2001	586.14		17.24		BSPA		568.90		
MW-23	4/20/2001	586.14		17.07		BSPA		569.07		
MW-24	7/27/2000	583.67		10.63		BSPA		573.04		
MW-24	8/31/2000	583.67		12.91		BSPA		570.76		
MW-24	9/27/2000	583.67		13.32		BSPA		570.35		
MW-24	10/31/2000	583.67		14.74		BSPA		568.93		
MW-24	11/29/2000	583.67		14.21		BSPA		569.46		
MW-24	12/19/2000	583.67		14.25		BSPA		569.42		
MW-24	1/18/2001	583.67		14.57		BSPA		569.10		
MW-24	3/16/2001	583.67				BSPA				could not find
MW-24	4/20/2001	583.67		11.82		BSPA		571.85		
MW-25	7/27/2000	583.28	10.45	11.2	0.75	BSPA	0.8	572.68		
MW-25	8/31/2000	583.28	12.89	13.7	0.81	BSPA	0.8	570.23		
MW-25	9/6/2000	583.28	14.75	18.1	3.35	BSPA	0.8	567.86	2.17	
MW-25	9/13/2000	583.28	15.24	16.12	0.88	BSPA	0.8	567.86	0.8	
MW-25	9/21/2000	583.28	15.22	16.09	0.87	BSPA	0.8	567.89	0.52	

Table 4. Summary of Water-Level, Product Thickness and Product Bailing Data on the BSPA from July 2000 through April 2001
Buffalo Terminal, Exxon Mobil Corporation, Buffalo, New York

Well Designation	Date	Measuring Point Elevation (ft msl)	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Geographic Area	Specific Gravity	Corrected Elevation (ft msl)	Product Bailed (gal)	Comments
MW-25	9/27/2000	583.28	13.33	14.03	0.7	BSPA	0.8	569.81		
MW-25	10/6/2000	583.28	13.33	14.03	0.70	BSPA	0.8	569.81	0.46	
MW-25	10/10/2000	583.28	14.78	18.14	3.36	BSPA	0.8	567.83	2.18	
MW-25	10/18/2000	583.28	15.17	17.23	2.06	BSPA	0.8	567.70	1.34	
MW-25	10/31/2000	583.28	15.78	17.60	1.82	BSPA	0.8	567.14		
MW-25	11/7/2000	583.28	15.19	17.03	1.84	BSPA	0.8	567.72	1.20	
MW-25	11/15/2000	583.28	15.21	17.05	1.84	BSPA	0.8	567.70	1.20	
MW-25	11/29/2000	583.28	15.20	17.06	1.86	BSPA	0.8	567.71	1.21	
MW-25	11/29/2000	583.28	15.19	16.70	1.51	BSPA	0.8	567.79		
MW-25	12/5/2000	583.28	15.02	16.91	1.89	BSPA	0.8	567.88	1.23	
MW-25	12/14/2000	583.28	15.11	16.85	1.74	BSPA	0.8	567.82	1.13	
MW-25	12/19/2000	583.28	15.21	16.50	1.29	BSPA	0.8	567.81		
MW-25	12/19/2000	583.28	15.14	16.90	1.76	BSPA	0.8	567.79	1.14	
MW-25	12/29/2000	583.28	15.13	16.89	1.76	BSPA	0.8	567.80	1.14	
MW-25	1/18/2001	583.28	15.44	16.38	0.94	BSPA	0.80	567.65		
MW-25	3/8/2001	583.28	13.98	15.5	1.52	BSPA	0.80	569.00	1	
MW-25	3/16/2001	583.28	13.26	15.29	2.03	BSPA	0.80	569.61		
MW-25	3/19/2001	583.28	12.96	14.41	1.45	BSPA	0.80	570.03	0.75	
MW-25	3/26/2001	583.28	11.87	13.6	1.73	BSPA	0.80	571.06	1.25	
MW-25	4/2/2001	583.28	11.57	12.72	1.15	BSPA	0.80	571.48	1.00	
MW-25	4/9/2001	583.28	11.22	11.83	0.61	BSPA	0.8	571.938	0.25	
MW-25	4/16/2001	583.28	11.24	11.74	0.5	BSPA	0.8	571.94	0.5	
MW-25	4/20/2001	583.28	12.34	14.32	1.98	BSPA	0.8	570.544		
MW-25	4/23/2001	583.28	13.34	14.32	0.98	BSPA	0.8	569.744	0.75	
MW-25	4/30/2001	583.28	13.7	17.08	3.38	BSPA	0.8	568.904	3.25	
MW-26	7/27/2000	584.87		0.93		BSPA		583.94		
MW-26	8/31/2000	584.87				BSPA				flooded
MW-26	9/27/2000	584.87		0.4		BSPA		584.47		
MW-26	10/31/2000	584.87		1.04		BSPA		583.83		
MW-26	11/29/2000	584.87				BSPA				flooded
MW-26	12/19/2000	584.87				BSPA				under ice
MW-26	1/18/2001	584.87		0.2		BSPA		584.67		
MW-26	3/16/2001	584.87				BSPA				water to top of well
MW-26	4/20/2001	584.87		0.71		BSPA		584.16		
MW-27	7/27/2000	582.69		10.94		BSPA		571.75		
MW-27	8/9/2000	582.69	9.17	13.35	4.18	BSPA	0.8	572.68	2.75	
MW-27	8/31/2000	582.69	13.59	13.7	0.11	BSPA	0.8	569.08		
MW-27	9/6/2000	582.69	15.7	15.79	0.09	BSPA	0.8	566.97		
MW-27	9/13/2000	582.69	15.99	16.05	0.06	BSPA	0.8	566.69		
MW-27	9/21/2000	582.69	16.01	16.04	0.03	BSPA	0.8	566.67		
MW-27	9/27/2000	582.69	13.61	13.62	0.01	BSPA	0.8	569.08		
MW-27	10/6/2000	582.69	13.61	13.62	0.01	BSPA	0.8	569.08		
MW-27	10/10/2000	582.69	15.42	15.60	0.18	BSPA	0.8	567.23	0.12	
MW-27	10/18/2000	582.69	15.60	15.88	0.28	BSPA	0.8	567.03	0.18	
MW-27	10/31/2000	582.69	16.10	16.56	0.46	BSPA	0.8	566.50		
MW-27	11/7/2000	582.69	15.68	15.93	0.25	BSPA	0.8	566.96	0.16	
MW-27	11/15/2000	582.69	15.70	15.90	0.20	BSPA	0.8	566.95		
MW-27	11/29/2000	582.69	15.51	15.90	0.39	BSPA	0.8	567.10		
MW-27	11/29/2000	582.69	15.69	15.88	0.19	BSPA	0.8	566.96	0.12	
MW-27	12/5/2000	582.69	15.52	15.72	0.20	BSPA	0.8	567.13		
MW-27	12/14/2000	582.69	15.48	15.69	0.21	BSPA	0.8	567.17		
MW-27	12/19/2000	582.69	15.50	15.69	0.19	BSPA	0.8	567.15		
MW-27	12/19/2000	582.69	15.55	15.91	0.36	BSPA	0.8	567.07		
MW-27	12/29/2000	582.69	15.51	15.71	0.20	BSPA	0.8	567.14		
MW-27	1/18/2001	582.69	15.53	16.1	0.57	BSPA	0.80	567.05		
MW-27	3/16/2001	582.69	13.11	14.41	1.3	BSPA	0.80	569.32		
MW-27	3/19/2001	582.69	13.15	14.4	1.25	BSPA	0.80	569.29	0.5	

Table 4. Summary of Water-Level, Product Thickness and Product Bailing Data on the BSPA from July 2000 through April 2001
Buffalo Terminal, Exxon Mobil Corporation, Buffalo, New York

Well Designation	Date	Measuring Point Elevation (ft msl)	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Geographic Area	Specific Gravity	Corrected Elevation (ft msl)	Product Bailed (gal)	Comments
MW-27	3/26/2001	582.69	11.68	11.92	0.24	BSPA	0.80	570.96		
MW-27	4/2/2001	582.69	11.32	12.60	1.28	BSPA	0.80	571.114	1.00	
MW-27	4/9/2001	582.69	10.96	11.83	0.87	BSPA	0.8	571.556	0.3	
MW-27	4/16/2001	582.69	11.02	11.38	0.36	BSPA	0.8	571.598		
MW-27	4/20/2001	582.69	12.79	13.32	0.53	BSPA	0.8	569.794		
MW-27	4/23/2001	582.69	12.79	13.32	0.53	BSPA	0.8	569.794	0.25	
MW-27	4/30/2001	582.69	14.32	14.87	0.55	BSPA	0.8	568.26	0.25	
MW-3	7/28/2000	581.72		14.71		BSPA		567.01		
MW-3	8/31/2000	581.72		11.98		BSPA		569.74		
MW-3	9/27/2000	581.72		12.38		BSPA		569.34		
MW-3	10/31/2000	581.72		15.12		BSPA		566.60		
MW-3	11/29/2000	581.72		14.49		BSPA		567.23		
MW-3	12/19/2000	581.72		14.52		BSPA		567.20		
MW-3	1/18/2001	581.72		13.1		BSPA		568.62		
MW-3	3/16/2001	581.72		12.19		BSPA		569.53		
MW-3	4/20/2001	581.72		11.41		BSPA		570.31		
SB-10	7/27/2000	582.13		10.15		BSPA		571.98		
SB-10	8/31/2000	582.13		9.96		BSPA		572.17		
SB-10	9/27/2000	582.13		10.08		BSPA		572.05		
SB-10	10/31/2000	582.13		10.30		BSPA		571.83		
SB-10	11/29/2000	582.13		10.01		BSPA		572.12		
SB-10	12/19/2000	582.13		10.06		BSPA		572.07		
SB-10	1/18/2001	582.13				BSPA				did not gauge-replaced by MW-27
SB-11/LB-1	7/28/2000	582.08		14.91		BSPA		567.17		
SB-11/LB-1	8/31/2000	582.08		12.42		BSPA		569.66		
SB-11/LB-1	9/27/2000	582.08		12.88		BSPA		569.20		
SB-11/LB-1	10/31/2000	582.08		15.59		BSPA		566.49		
SB-11/LB-1	11/29/2000	582.08		15.12		BSPA		566.96		
SB-11/LB-1	12/19/2000	582.08		15.15		BSPA		566.93		
SB-11/LB-1	1/18/2001	582.08		15.15		BSPA		566.93		depth to product: sheen
SB-11/LB-1	3/16/2001	582.08		12.69		BSPA		569.39		
SB-11/LB-1	4/20/2001	582.08		12.25		BSPA		569.83		
SB-13	7/28/2000	583.44		14.01		BSPA		569.43		
SB-13	8/31/2000	583.44	11.04	11.19	0.15	BSPA	0.8	572.37		
SB-13	9/27/2000	583.44	11.56	11.65	0.09	BSPA	0.8	571.86		
SB-13	10/31/2000	583.44		14.30		BSPA		569.14		
SB-13	11/29/2000	583.44		13.97		BSPA		569.47		
SB-13	12/19/2000	583.44		14.02		BSPA		569.42		
SB-13	1/18/2001	583.44		13.91		BSPA		569.53		
SB-13	3/8/2001	583.44	13.8	13.85	0.05	BSPA	0.80	569.63		
SB-13	3/19/2001	583.44		13.74		BSPA		569.70		
SB-13	3/26/2001	583.44		11.87		BSPA		571.57		
SB-13	4/2/2001	583.44		12.27		BSPA		571.17		
SB-13	4/9/2001	583.44		11.59		BSPA		571.85		
SB-14	7/28/2000	584.79		14.93		BSPA		569.86		
SB-14	8/31/2000	584.79		13.31		BSPA		571.48		
SB-14	9/27/2000	584.79		13.72		BSPA		571.07		
SB-14	10/31/2000	584.79		14.99		BSPA		569.80		
SB-14	11/29/2000	584.79		14.60		BSPA		570.19		
SB-14	12/19/2000	584.79		14.62		BSPA		570.17		
SB-14	1/18/2001	584.79		19.01		BSPA		565.78		
SB-14	3/16/2001	584.79		11.03		BSPA		573.76		
SB-14	4/20/2001	584.79		13.46		BSPA		571.33		
SB-15	7/28/2000	583.35		13.66		BSPA		569.69		
SB-15	8/31/2000	583.35	11.13	11.59	0.46	BSPA	0.8	572.13		

Table 4. Summary of Water-Level, Product Thickness and Product Bailing Data on the BSPA from July 2000 through April 2001
Buffalo Terminal, Exxon Mobil Corporation, Buffalo, New York

Well Designation	Date	Measuring Point Elevation (ft msl)	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Geographic Area	Specific Gravity	Corrected Elevation (ft msl)	Product Bailed (gal)	Comments
SB-15	9/27/2000	583.35	11.5	11.94	0.44	BSPA	0.8	571.76		
SB-15	10/31/2000	583.35	13.00	13.50	0.50	BSPA	0.8	570.25		
SB-15	11/29/2000	583.35	12.61	13.49	0.88	BSPA	0.8	570.56		
SB-15	12/19/2000	583.35	12.65	13.50	0.85	BSPA	0.8	570.53		
SB-15	1/18/2001	583.35	13.21	13.23	0.02	BSPA	0.80	570.14		
SB-15	3/16/2001	583.35				BSPA				could not find
SB-15	4/2/2001	583.35				BSPA				could not find
SB-15	4/9/2001	583.35				BSPA				could not find
SB-15	4/20/2001	583.35				BSPA				could not find
SB-16	7/28/2000	583.81		13.94		BSPA		569.87		
SB-16	8/31/2000	583.81		11.7		BSPA		572.11		
SB-16	9/27/2000	583.81		12.08		BSPA		571.73		
SB-16	10/31/2000	583.81		13.98		BSPA		569.83		
SB-16	11/29/2000	583.81		13.48		BSPA		570.33		
SB-16	12/19/2000	583.81		13.51		BSPA		570.30		
SB-16	1/18/2001	583.81	13.57	13.58	0.01	BSPA	0.80	570.24		
SB-16	3/16/2001	583.81		13		BSPA		570.81		
SB-16	3/19/2001	583.81				BSPA				blocked by construction equipment
SB-16	4/2/2001	583.81		10.94	10.94	BSPA	0.80	581.622		
SB-16	4/9/2001	583.81		10.68		BSPA		573.13		
SB-16	4/20/2001	583.81		10.84		BSPA		572.97		
SB-17	7/5/2000	583.53	9.47	11.14	1.67	BSPA	0.8	573.73	1.08	
SB-17	7/18/2000	583.53	11.51	14	2.49	BSPA	0.8	571.52		
SB-17	7/24/2000	583.53	11.6	14.2	2.6	BSPA	0.8	571.41	1.69	
SB-17	7/28/2000	583.53	9.6	14.15	4.55	BSPA	0.8	573.02		
SB-17	8/9/2000	583.53	9.5	16.5	7	BSPA	0.8	572.63	4.55	
SB-17	8/30/2000	583.53	11.29	15.01	3.72	BSPA	0.8	571.50	2.41	
SB-17	8/31/2000	583.53	12.81	14.07	1.26	BSPA	0.8	570.47		
SB-17	9/6/2000	583.53	15.2	16.3	1.1	BSPA	0.8	568.11	0.71	
SB-17	9/13/2000	583.53	15.23	16.63	1.4	BSPA	0.8	568.02	0.9	
SB-17	9/21/2000	583.53	15.25	16.59	1.34	BSPA	0.8	568.01	0.87	
SB-17	9/27/2000	583.53	13.62	15.9	2.28	BSPA	0.8	569.45	1.4	Gauged twice on 9/27
SB-17	9/27/2000	583.53	13.24	15.49	2.25	BSPA	0.8	569.84		Gauged twice on 9/27
SB-17	10/6/2000	583.53	13.24	15.49	2.25	BSPA	0.8	569.84	1.46	
SB-17	10/10/2000	583.53	15.31	16.82	1.51	BSPA	0.8	567.92	0.98	
SB-17	10/18/2000	583.53	15.64	16.16	0.52	BSPA	0.8	567.79	0.34	
SB-17	10/31/2000	583.53	16.35	16.90	0.55	BSPA	0.8	567.07		
SB-17	11/7/2000	583.53	16.37	16.91	0.54	BSPA	0.8	567.05	0.35	
SB-17	11/15/2000	583.53	16.42	16.98	0.56	BSPA	0.8	567.00	0.36	
SB-17	11/29/2000	583.53	15.85	16.41	0.56	BSPA	0.8	567.57	0.36	
SB-17	12/5/2000	583.53	15.20	16.16	0.96	BSPA	0.8	568.14	0.62	
SB-17	12/14/2000	583.53	15.24	16.20	0.96	BSPA	0.8	568.10	0.62	
SB-17	12/19/2000	583.53	15.90	16.45	0.55	BSPA	0.8	567.52	0.36	
SB-17	12/29/2000	583.53	15.21	16.18	0.97	BSPA	0.8	568.13	0.63	
SB-17	1/18/2001	583.53	15.65	17.36	1.71	BSPA	0.80	567.54		
SB-17	3/16/2001	583.53	13.76	18.92	5.16	BSPA	0.80	568.74		
SB-17	3/19/2001	583.53	12.95	14.03	1.08	BSPA	0.80	570.36	0.5	
SB-17	3/26/2001	583.53	12.05	12.87	0.82	BSPA	0.80	571.32	0.5	
SB-17	4/2/2001	583.53	11.81	12.10	0.29	BSPA	0.80	571.662	1.00	
SB-17	4/9/2001	583.53	11.51	12.16	0.65	BSPA	0.8	571.89	0.3	
SB-17	4/16/2001	583.53	11.47	12.1	0.63	BSPA	0.8	571.934	0.5	
SB-17	4/20/2001	583.53	12.68	13.86	1.18	BSPA	0.8	570.614		
SB-17	4/23/2001	583.53	12.68	13.86	1.18	BSPA	0.8	570.614	0.5	
SB-17	4/30/2001	583.53	14.18	16.1	1.92	BSPA	0.8	568.966	2	

Table 4. Summary of Water-Level, Product Thickness and Product Bailing Data on the BSPA from July 2000 through April 2001
Buffalo Terminal, Exxon Mobil Corporation, Buffalo, New York

Well Designation	Date	Measuring Point Elevation (ft msl)	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Geographic Area	Specific Gravity	Corrected Elevation (ft msl)	Product Bailed (gal)	Comments
SB-19	7/28/2000	583.13				BSPA				blocked by construction equipment
SB-19	8/31/2000	583.13	16.31	16.55	0.24	BSPA	0.8	566.77		
SB-19	9/27/2000	583.13				BSPA				NM-Under Water
SB-19	10/31/2000	583.13	7.72	7.74	0.02	BSPA	0.8	575.41		
SB-19	11/29/2000	583.13	7.13	7.15	0.02	BSPA	0.8	576.00		
SB-19	12/19/2000	583.13	7.25	7.27	0.02	BSPA	0.8	575.88		
SB-19	1/18/2001	583.13		7.45		BSPA		575.68		
SB-19	3/16/2001	583.13				BSPA				under water
SB-19	4/20/2001	583.13		5.71		BSPA		577.42		
SB-20	7/28/2000	583.46				BSPA				blocked by construction equipment
SB-20	8/31/2000	583.46		6.76		BSPA		576.70		
SB-20	9/27/2000	583.46		7.27		BSPA		576.19		
SB-20	10/31/2000	583.46	12.13	12.40	0.27	BSPA	0.8	571.28		
SB-20	11/29/2000	583.46	11.65	11.99	0.34	BSPA	0.8	571.74		
SB-20	12/19/2000	583.46	11.70	11.98	0.28	BSPA	0.8	571.70		
SB-20	1/18/2001	583.46	11.84	12.4	0.56	BSPA	0.80	571.51		
SB-20	3/16/2001	583.46				BSPA				blocked by construction equipment
SB-20	3/19/2001	583.46				BSPA				under water
SB-20	3/26/2001	583.46		7.55		BSPA		575.91		
SB-20	4/2/2001	583.46		7.48	7.48	BSPA	0.80	581.964		
SB-20	4/9/2001	583.46	7.84	7.88	0.04	BSPA	0.8	575.612		
SB-20	4/20/2001	583.46	8.45	8.63	0.18	BSPA	0.8	574.974		
SB-28	7/28/2000	588.13		2.01		BSPA		586.12		
SB-28	8/31/2000	588.13		3.61		BSPA		584.52		
SB-28	9/27/2000	588.13		3.83		BSPA		584.30		
SB-28	10/31/2000	588.13		2.38		BSPA		585.75		
SB-28	11/29/2000	588.13		1.50		BSPA		586.63		
SB-28	12/19/2000	588.13		1.42		BSPA		586.71		
SB-28	1/18/2001	588.13		3.55		BSPA		584.58		
SB-28	3/16/2001	588.13		3.4		BSPA		584.73		
SB-28	4/20/2001	588.13		4.01		BSPA		584.12		
SB-31	7/28/2000	581.92		12.5		BSPA		569.42		
SB-31	8/31/2000	581.92				BSPA				NM-Well Broken
SB-31	9/27/2000	581.92				BSPA				NM-Well Broken
SB-31	10/31/2000	581.92		12.50		BSPA		569.42		
SB-31	11/29/2000	581.92		11.97		BSPA		569.95		
SB-31	12/19/2000	581.92		11.99		BSPA		569.93		
SB-31	1/18/2001	581.92		12.51		BSPA		569.41		
SB-31	3/16/2001	581.92		11.12		BSPA		570.80		
SB-31	4/20/2001	581.92		9.74		BSPA		572.18		
SB-37	7/28/2000	582.9		15.77		BSPA		567.13		
SB-37	8/31/2000	582.9		12.99		BSPA		569.91		
SB-37	9/27/2000	582.9		13.63		BSPA		569.27		
SB-37	10/31/2000	582.9		16.30		BSPA		566.60		
SB-37	11/29/2000	582.9		15.61		BSPA		567.29		
SB-37	12/19/2000	582.9		15.65		BSPA		567.25		
SB-37	1/18/2001	583.1		15.98		BSPA		567.12		
SB-37	3/16/2001	583.1		13.44		BSPA		569.66		
SB-37	4/20/2001	583.1		12.94		BSPA		570.16		
SB-39	7/28/2000	581.73		9.42		BSPA		572.31		
SB-39	8/31/2000	581.73		9		BSPA		572.73		

Table 4. Summary of Water-Level, Product Thickness and Product Bailing Data on the BSPA from July 2000 through April 2001
Buffalo Terminal, Exxon Mobil Corporation, Buffalo, New York

Well Designation	Date	Measuring Point Elevation (ft msl)	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Geographic Area	Specific Gravity	Corrected Elevation (ft msl)	Product Bailed (gal)	Comments
SB-39	9/27/2000	581.73		9.38		BSPA		572.35		
SB-39	10/31/2000	581.73		13.32		BSPA		568.41		
SB-39	11/29/2000	581.73		12.83		BSPA		568.90		
SB-39	12/19/2000	581.73		12.88		BSPA		568.85		
SB-39	1/18/2001	581.73		10.14		BSPA		571.59		
SB-39	3/16/2001	581.73				BSPA				could not find
SB-39	4/20/2001	581.73		9.42		BSPA		572.31		
SB-7	7/28/2000	583.37		4.4		BSPA		578.97		
SB-7	10/31/2000	583.37		4.67		BSPA		578.70		
SB-7	1/18/2001	583.37				BSPA				did not gauge-replaced by MW-25
WP-11	7/27/2000	586.26	14.52	14.53	0.01	BSPA	0.8	571.74		
WP-11	8/31/2000	586.26		18.31		BSPA		567.95		
WP-11	9/27/2000	586.26		18.43		BSPA		567.83		
WP-11	10/31/2000	586.26		17.48		BSPA		568.78		Dry (DTB shown)
WP-11	11/29/2000	586.26		17.50		BSPA		568.76		Dry-depth to bottom shown
WP-11	1/18/2001	586.26		17.47		BSPA		568.79		dry
WP-11	3/16/2001	586.26		16.57		BSPA		569.69		
WP-11	4/20/2001	586.26		17.25		BSPA		569.01		
WP-2	7/27/2000	585.18		13.13		BSPA		572.05		
WP-2	8/31/2000	585.18		16.04		BSPA		569.14		
WP-2	9/27/2000	585.18		16.18		BSPA		569.00		
WP-2	10/31/2000	585.18		18.55		BSPA		566.63		
WP-2	11/29/2000	585.18		18.03		BSPA		567.15		
WP-2	12/19/2000	585.18		18.10		BSPA		567.08		
WP-2	1/18/2001	585.18		18.28		BSPA		566.90		
WP-2	3/16/2001	585.18		14.03		BSPA		571.15		
WP-2	4/20/2001	585.18		15.52		BSPA		569.66		
WP-23	7/27/2000	587.01	15.62	16.48	0.86	BSPA	0.8	571.22		
WP-23	8/31/2000	587.01		19.17		BSPA		567.84		
WP-23	9/27/2000	587.01		19.55		BSPA		567.46		
WP-23	10/31/2000	587.01	22.50	22.56	0.06	BSPA	0.8	564.50		Well 1/4 open
WP-23	11/29/2000	587.01	22.09	22.13	0.04	BSPA	0.8	564.91		
WP-23	12/19/2000	587.01	22.15	22.19	0.04	BSPA	0.8	564.85		
WP-23	1/18/2001	587.01	21.96	21.97	0.01	BSPA	0.80	565.05		
WP-23	3/16/2001	587.01		18.33		BSPA		568.68		
WP-23	4/20/2001	587.01		18.53		BSPA		568.48		
WP-3	7/27/2000	585.63		14.3		BSPA		571.33		
WP-3	8/31/2000	585.63		13.41		BSPA		572.22		
WP-3	9/27/2000	585.63		13.73		BSPA		571.90		
WP-3	10/31/2000	585.63		18.40		BSPA		567.23		
WP-3	11/29/2000	585.63		17.88		BSPA		567.75		
WP-3	12/19/2000	585.63		17.90		BSPA		567.73		
WP-3	1/18/2001	585.63		17.77		BSPA		567.86		
WP-3	3/16/2001	585.63		15.25		BSPA		570.38		
WP-3	4/20/2001	585.63		15.42		BSPA		570.21		
RIVER2	7/3/2000	586.18		14.08		BSPA/RIVER		572.10		
RIVER2	7/5/2000	586.18		14.25		BSPA/RIVER		571.93		
RIVER2	7/11/2000	586.18		14.5		BSPA/RIVER		571.68		
RIVER2	7/12/2000	586.18		14.58		BSPA/RIVER		571.60		
RIVER2	7/13/2000	586.18		14.58		BSPA/RIVER		571.60		
RIVER2	7/17/2000	586.18		14.08		BSPA/RIVER		572.10		
RIVER2	7/18/2000	586.18		14.33		BSPA/RIVER		571.85		
RIVER2	7/19/2000	586.18		14.46		BSPA/RIVER		571.72		
RIVER2	7/20/2000	586.18		14.29		BSPA/RIVER		571.89		
RIVER2	7/21/2000	586.18		14.75		BSPA/RIVER		571.43		

Table 4. Summary of Water-Level, Product Thickness and Product Bailing Data on the BSPA from July 2000 through April 2001
Buffalo Terminal, Exxon Mobil Corporation, Buffalo, New York

Well Designation	Date	Measuring Point Elevation (ft msl)	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Geographic Area	Specific Gravity	Corrected Elevation (ft msl)	Product Bailed (gal)	Comments
RIVER2	7/24/2000	586.18		14.5		BSPA/RIVER		571.68		
RIVER2	7/25/2000	586.18		14.67		BSPA/RIVER		571.51		
RIVER2	7/26/2000	586.18		14.67		BSPA/RIVER		571.51		
RIVER2	7/27/2000	586.18		14.7		BSPA/RIVER		571.48		
RIVER2	7/28/2000	586.18		14.5		BSPA/RIVER		571.68		
RIVER2	7/31/2000	586.18		14.38		BSPA/RIVER		571.80		
RIVER2	8/1/2000	586.18		14.42		BSPA/RIVER		571.76		
RIVER2	8/2/2000	586.18		13.83		BSPA/RIVER		572.35		
RIVER2	8/4/2000	586.18		14.67		BSPA/RIVER		571.51		
RIVER2	8/7/2000	586.18		14.33		BSPA/RIVER		571.85		
RIVER2	8/8/2000	586.18		14.17		BSPA/RIVER		572.01		
RIVER2	8/9/2000	586.18		14.08		BSPA/RIVER		572.10		
RIVER2	8/10/2000	586.18		14.58		BSPA/RIVER		571.60		
RIVER2	8/15/2000	586.18		14.5		BSPA/RIVER		571.68		
RIVER2	8/16/2000	586.18		14.75		BSPA/RIVER		571.43		
RIVER2	8/17/2000	586.18		14.83		BSPA/RIVER		571.35		
RIVER2	8/18/2000	586.18		14.67		BSPA/RIVER		571.51		
RIVER2	8/21/2000	586.18		14.92		BSPA/RIVER		571.26		
RIVER2	8/22/2000	586.18		14.67		BSPA/RIVER		571.51		
RIVER2	8/23/2000	586.18		15.17		BSPA/RIVER		571.01		
RIVER2	8/24/2000	586.18		14.92		BSPA/RIVER		571.26		
RIVER2	8/25/2000	586.18		15.33		BSPA/RIVER		570.85		
RIVER2	8/29/2000	586.18		15.17		BSPA/RIVER		571.01		
RIVER2	8/30/2000	586.18		14.58		BSPA/RIVER		571.60		
RIVER2	8/31/2000	586.18		15		BSPA/RIVER		571.18		
RIVER2	9/5/2000	586.18		15.5		BSPA/RIVER		570.68		
RIVER2	9/6/2000	586.18		15.25		BSPA/RIVER		570.93		
RIVER2	9/7/2000	586.18		14.75		BSPA/RIVER		571.43		
RIVER2	9/11/2000	586.18		15.08		BSPA/RIVER		571.10		
RIVER2	9/12/2000	586.18		15.33		BSPA/RIVER		570.85		
RIVER2	9/13/2000	586.18		14.68		BSPA/RIVER		571.50		
RIVER2	9/20/2000	586.18		15		BSPA/RIVER		571.18		
RIVER2	9/21/2000	586.18		15.17		BSPA/RIVER		571.01		
RIVER2	9/25/2000	586.18		15.58		BSPA/RIVER		570.60		
RIVER2	9/27/2000	586.18		15.5		BSPA/RIVER		570.68		
RIVER2	9/28/2000	586.18		15.42		BSPA/RIVER		570.76		
RIVER2	9/29/2000	586.18		15.5		BSPA/RIVER		570.68		
RIVER2	10/3/2000	586.18		16.67		BSPA/RIVER		569.51		
RIVER2	10/4/2000	586.18		17.33		BSPA/RIVER		568.85		
RIVER2	10/5/2000	586.18		16.17		BSPA/RIVER		570.01		
RIVER2	10/9/2000	586.18		15.80		BSPA/RIVER		570.38		
RIVER2	10/10/2000	586.18		14.92		BSPA/RIVER		571.26		
RIVER2	10/11/2000	586.18		14.74		BSPA/RIVER		571.44		
RIVER2	10/12/2000	586.18		15.07		BSPA/RIVER		571.11		
RIVER2	10/13/2000	586.18		14.76		BSPA/RIVER		571.42		
RIVER2	10/16/2000	586.18		15.58		BSPA/RIVER		570.60		
RIVER2	10/17/2000	586.18		15.33		BSPA/RIVER		570.85		
RIVER2	10/18/2000	586.18		15.13		BSPA/RIVER		571.05		
RIVER2	10/24/2000	586.18		15.30		BSPA/RIVER		570.88		
RIVER2	10/25/2000	586.18		15.58		BSPA/RIVER		570.60		
RIVER2	10/26/2000	586.18		15.42		BSPA/RIVER		570.76		
RIVER2	10/27/2000	586.18		15.42		BSPA/RIVER		570.76		
RIVER2	10/30/2000	586.18		15.90		BSPA/RIVER		570.28		
RIVER2	10/31/2000	586.18		15.91		BSPA/RIVER		570.27		
RIVER2	11/2/2000	586.18		15.68		BSPA/RIVER		570.50		
RIVER2	11/3/2000	586.18		15.75		BSPA/RIVER		570.43		
RIVER2	11/6/2000	586.18		15.79		BSPA/RIVER		570.39		

Table 4. Summary of Water-Level, Product Thickness and Product Bailing Data on the BSPA from July 2000 through April 2001
Buffalo Terminal, Exxon Mobil Corporation, Buffalo, New York

Well Designation	Date	Measuring Point Elevation (ft msl)	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Geographic Area	Specific Gravity	Corrected Elevation (ft msl)	Product Bailed (gal)	Comments
RIVER2	11/7/2000	586.18		15.86		BSPA/RIVER		570.32		
RIVER2	11/8/2000	586.18		15.12		BSPA/RIVER		571.06		
RIVER2	11/9/2000	586.18		15.96		BSPA/RIVER		570.22		
RIVER2	11/13/2000	586.18		15.76		BSPA/RIVER		570.42		
RIVER2	11/14/2000	586.18		14.62		BSPA/RIVER		571.56		
RIVER2	11/16/2000	586.18		15.25		BSPA/RIVER		570.93		
RIVER2	11/17/2000	586.18		14.21		BSPA/RIVER		571.97		
RIVER2	11/28/2000	586.18		14.65		BSPA/RIVER		571.53		
RIVER2	11/29/2000	586.18		15.72		BSPA/RIVER		570.46		
RIVER2	11/30/2000	586.18		14.20		BSPA/RIVER		571.98		
RIVER2	12/19/2000	586.18		15.75		BSPA/RIVER		570.43		
RIVER2	1/19/2001	586.18				BSPA/RIVER				
RIVER2	2/27/2001	586.18		15.98		BSPA/RIVER		570.20		
RIVER2	2/28/2001	586.18		15.52		BSPA/RIVER		570.66		
RIVER2	3/3/2001	586.18		15.71		BSPA/RIVER		570.47		
RIVER2	3/8/2001	586.18				BSPA/RIVER				River Frozen
RIVER2	3/16/2001	586.18		16.82		BSPA/RIVER		569.36		
RIVER2	3/19/2001	586.18				BSPA/RIVER				River Frozen
RIVER2	3/20/2001	586.18		15.75		BSPA/RIVER		570.43		
RIVER2	3/21/2001	586.18		15.32		BSPA/RIVER		570.86		
RIVER2	3/22/2001	586.18		15.53		BSPA/RIVER		570.65		
RIVER2	3/23/2001	586.18		15.2		BSPA/RIVER		570.98		
RIVER2	3/26/2001	586.18		14.82		BSPA/RIVER		571.36		
RIVER2	3/27/2001	586.18		15.18		BSPA/RIVER		571.00		
RIVER2	3/28/2001	586.18		15.31		BSPA/RIVER		570.87		
RIVER2	3/29/2001	586.18		15.56		BSPA/RIVER		570.62		
RIVER2	3/30/2001	586.18		15.94		BSPA/RIVER		570.24		
RIVER2	4/4/2001	586.18		15.32		BSPA/RIVER		570.86		
RIVER2	4/5/2001	586.18		15.92		BSPA/RIVER		570.26		
RIVER2	4/6/2001	586.18		15.56		BSPA/RIVER		570.62		
RIVER2	4/9/2001	586.18		15.49		BSPA/RIVER		570.69		
RIVER2	4/10/2001	586.18		15.88		BSPA/RIVER		570.30		
RIVER2	4/11/2001	586.18		15.75		BSPA/RIVER		570.43		
RIVER2	4/12/2001	586.18		15.12		BSPA/RIVER		571.06		
RIVER2	4/13/2001	586.18		15.32		BSPA/RIVER		570.86		
RIVER2	4/16/2001	586.18		14.92		BSPA/RIVER		571.26		
RIVER2	4/17/2001	586.18		15.9		BSPA/RIVER		570.28		
RIVER2	4/18/2001	586.18		15.31		BSPA/RIVER		570.87		
RIVER2	4/19/2001	586.18		15.1		BSPA/RIVER		571.08		
RIVER2	4/20/2001	586.18		15.32		BSPA/RIVER		570.86		
RIVER2	4/23/2001	586.18		15.25		BSPA/RIVER		570.93		
RIVER2	4/24/2001	586.18		13.82		BSPA/RIVER		572.36		
RIVER2	4/25/2001	586.18		15.39		BSPA/RIVER		570.79		
RIVER2	4/27/2001	586.18		15.62		BSPA/RIVER		570.56		

Table 5. Summary of Volatile Organic Compounds Detected in Soil Samples Collected During the Completion of Investigation Activities on the BSPA, Exxon Mobil Corporation Buffalo Terminal, Buffalo, New York.

Parameter (Concentration in µg/kg)	Sample Designation:	SB-40	SB-41	SB-42	SB-43	SB-44	SB-44	SB-44	SB-45	SB-45
	Sample Date:	04/05/01	04/05/01	04/05/01	04/05/01	07/13/00	07/17/00	07/17/00	10/05/00	10/05/00
	Sample Depth (ft bls):	11-13	9-11	11-13	11-13	0-0.5	15-17	15-17	0-0.5	13-15
	Analytical Method:	SW-846 8021	SW-846 8021	SW-846 8021	SW-846 8021	SW-846 8021	SW-846 8021	SW-846 8260I	SW-846 8021	SW-846 8021
Benzene		27 U	27 U	25 U	25 U	5 U	94	170 U	4.7 U	5.4 U
Toluene		27 U	27 U	25 U	25 U	34	88	170 U	4.7 U	5.4 U
Ethylbenzene		27 U	27 U	25 U	25 U	5 U	800	650	4.7 U	5.4 U
Xylenes (total)		80 U	81 U	74 U	74 U	15 U	2000	1100	14 U	16 U
1,2,4-Trimethylbenzene		27 U	27 U	25 U	25 U	8.2	3300		4.7 U	5.4 U
1,2-Dichlorobenzene		27 U	27 U	25 U	25 U	5 U	26 U		4.7 U	5.4 U
1,3,5-Trimethylbenzene		27 U	27 U	25 U	25 U	5 U	1600		4.7 U	5.4 U
1,4-Dichlorobenzene		27 U	27 U	25 U	25 U	5 U	26 U		4.7 U	5.4 U
Chlorobenzene		27 U	27 U	25 U	36	5 U	26 U	170 U	4.7 U	5.4 U
cis-1,2-Dichloroethene		27 U	27 U	25 U	25 U	5 U	26 U	170 U	4.7 U	5.4 U
Isopropylbenzene		27 U	6.9	25 U	25 U	5 U	3000		4.7 U	5.4 U
m+p-Xylene		53 U	54 U	49 U	49 U	9.9 U	1700		9.3 U	11 U
Methylene chloride		31	34	25	18	88	26 U	330 U	7.7	11
MTBE		27 U	27 U	25 U	25 U	5 U	26 U		4.7 U	5.4 U
n-Butylbenzene		27 U	27 U	25 U	25 U	5 U	3300		6.7	5.4 U
n-Propylbenzene		27 U	27 U	25 U	25 U	5 U	2000		4.7 U	5.4 U
Naphthalene		27 U	27 U	25 U	6.1	6.7	3300		4.7 U	5.4 U
o-Xylene		27 U	27 U	25 U	25 U	5 U	300		4.7 U	5.4 U
p-Isopropyltoluene		27 U	27 U	25 U	25 U	5 U	2600 U		4.7 U	5.4 U
sec-Butylbenzene		27 U	27 U	25 U	25 U	5 U	1700		4.7 U	5.4 U
tert-Butylbenzene		27 U	27 U	25 U	25 U	5 U	1800		4.7 U	5.4 U
Tetrachloroethene		27 U	27 U	25 U	25 U	5 U	26 U	170 U	4.7 U	5.4 U
Trichloroethene		27 U	27 U	25 U	25 U	5 U	26 U	170 U	4.7 U	5.4 U
Trichlorofluoromethane		27 U	27 U	25 U	25 U	5 U	26 U	330 U	4.7 U	5.4 U

µg/kg - Micrograms per kilogram

U - The analyte was analyzed for, but not detected above the reported quantitation limit.

J - The analyte was positively identified: the associated numerical value is the approximate concentration of the analyte in the sample.

NA - Not analyzed

Notes:

1. Ten percent of total number of samples collected during the BSPA Investigation completion were analyzed for VOCs using EPA Method 8260.

Table 5. Summary of Volatile Organic Compounds Detected in Soil Samples Collected During the Completion of Investigation Activities on the BSPA, Exxon Mobil Corporation Buffalo Terminal, Buffalo, New York.

Parameter (Concentration in µg/kg)	Sample Designation:	SB-46	SB-46	SB-47	SB-47	SB-48	SB-48	SB-48	SB-49	SB-49
	Sample Date:	07/07/00	10/05/00	07/11/00	07/11/00	10/05/00	10/05/00	07/12/00	07/05/00	07/12/00
	Sample Depth (ft bls):	0-0.5	11-13	0-0.5	13-15	1-1.5	1-1.5	11-13	0-0.5	9-11
	Analytical Method:	SW-846 8021	SW-846 8021	SW-846 8021	SW-846 8021	SW-846 8021	SW-846 8260E	SW-846 8021	SW-846 8021	SW-846 8021
Benzene		4.2 U	4.9 U	4.2 U	390	5 U	1 U	5 U	4.6 U	4.8 U
Toluene		14	4.9 U	4.2 U	930	5 U	1	5 U	35	6.2
Ethylbenzene		4.2 U	4.9 U	4.2 U	1500	5 U	1 U	5 U	15	4.8 U
Xylenes (total)		16	15 U	13 U	2200	17	1 U	15 U	100	14 U
1,2,4-Trimethylbenzene		4.7	25	4.2 U	2200	9.7		5 U	23	24
1,2-Dichlorobenzene		4.2 U	4.9 U	4.2 U	24 U	5 U		5 U	4.6 U	4.8 U
1,3,5-Trimethylbenzene		4.2 U	8.6	4.2 U	3100	5.2		5 U	5.7	15
1,4-Dichlorobenzene		4.2 U	4.9 U	4.2 U	24 U	5 U		5 U	4.6 U	19
Chlorobenzene		4.2 U	4.9 U	4.2 U	24 U	5 U	1 U	5 U	4.6 U	6
cis-1,2-Dichloroethene		4.2 U	4.9 U	4.2 U	24 U	5 U	1 U	5 U	4.6 U	4.8 U
Isopropylbenzene		4.2 U	7.3	4.2 U	7800	7.1		5 U	4.6 U	19
m+p-Xylene		11	9.9 U	8.4 U	1600	10 U		9.9 U	63	9.5 U
Methylene chloride		40	14	4.2 U	35	49	47	5.2	5	13
MTBE		4.2 U	4.9 U	4.2 U	24 U	47		690	4.6 U	4.8 U
n-Butylbenzene		4.2 U	14	4.2 U	6300	5 U		5 U	12	24
n-Propylbenzene		4.9	13	4.2 U	6600	5 U		5 U	6.9	4.8 U
Naphthalene		51	20	4.2 U	6000 U	19		5 U	28	4.8 U
o-Xylene		5.1	4.9 U	4.2 U	610	8.3		5 U	39	4.8 U
p-Isopropyltoluene		4.2 U	16	4.2 U	6000 U	5 U		5 U	4.6 U	27
sec-Butylbenzene		4.2 U	25 U	4.2 U	4700	5 U		5 U	7.5	4.8 U
tert-Butylbenzene			13	4.2 U	4400	5 U		5 U		27
Tetrachloroethene		4.2 U	4.9 U	4.2 U	24 U	5 U	1 U	5 U	4.6 U	4.8 U
Trichloroethene		4.2 U	4.9 U	4.2 U	24 U	9.4	6	5 U	4.6 U	4.8 U
Trichlorofluoromethane		4.2 U	4.9 U	4.2 U	24 U	5 U	3 U	5 U	16	4.8 U

µg/kg - Micrograms per kilogram

U - The analyte was analyzed for, but not detected above the reported quantitation limit.

J - The analyte was positively identified: the associated numerical value is the approximate concentration of the analyte in the sample.

NA - Not analyzed

Notes:

1. Ten percent of total number of samples collected during the BSPA Investigation completion were analyzed for VOCs using EPA Method 8260.

Table 5. Summary of Volatile Organic Compounds Detected in Soil Samples Collected During the Completion of Investigation Activities on the BSPA, Exxon Mobil Corporation Buffalo Terminal, Buffalo, New York.

Parameter (Concentration in µg/kg)	Sample Designation:	SB-50	SB-50	SB-51	SB-51	SB-52	SB-52	SB-53	SB-53	SB-54
	Sample Date:	07/11/00	07/11/00	07/07/00	07/12/00	07/12/00	07/14/00	07/12/00	07/14/00	07/12/00
	Sample Depth (ft bls):	2-2.5	13-15	0-0.5	5-7	0-0.5	13-15	0-0.5	7-9	0-0.5
	Analytical Method:	SW-846 8021	SW-846 8021	SW-846 8021	SW-846 8021	SW-846 8021	SW-846 8021	SW-846 8021	SW-846 8021	SW-846 8021
Benzene		4.5 U	5 U	7.4	340	5 U	5 U	5.9	42	5 U
Toluene		6	5 U	14	330	15	63 U	17	79	10
Ethylbenzene		4.5 U	5 U	8.9	890	5 U	25 U	30	400	5 U
Xylenes (total)		14 U	15 U	35	2200	15 U	15 U	78	630	27
1,2,4-Trimethylbenzene		4.5 U	5 U	24	1000	7.8	56	97	580	12
1,2-Dichlorobenzene		4.5 U	5 U	4.5 U	22 U	5 U	5 U	4.9 U	12 U	5 U
1,3,5-Trimethylbenzene		4.5 U	5 U	6.9	800	5 U	15	51	460	6.2
1,4-Dichlorobenzene		4.5 U	5 U	4.5 U	22 U	5 U	5 U	4.9 U	12 U	5 U
Chlorobenzene		4.5 U	5 U	4.5 U	22 U	5 U	5 U	4.9 U	12 U	5 U
cis-1,2-Dichloroethene		4.5 U	5 U	4.5 U	22 U	5 U	5 U	4.9 U	12 U	5 U
Isopropylbenzene		4.5 U	18	11	3900	5 U	58	110	1200	5 U
m+p-Xylene		9 U	9.9 U	27	1700	10 U	10 U	53	390	20
Methylene chloride		35	5 U	4.5 U	22 U	42	5 U	6.9	12 U	38
MTBE		4.5 U	5 U	4.5 U	22 U	5 U	5 U	4.9 U	12 U	5 U
n-Butylbenzene		4.5 U	5 U	13	730	6.1	51	160	2500	5 U
n-Propylbenzene		4.5 U	5 U	9.3	740	5 U	6.7	96	2000	5 U
Naphthalene		4.5 U	5 U	29	22 U	100	5 U	4.9 U	2500 U	19
o-Xylene		4.5 U	5 U	8.2	510	5 U	5 U	25	250	7.1
p-Isopropyltoluene		4.5 U	7.5	4.5 U	1100 U	5 U	25 U	120 U	800	5 U
sec-Butylbenzene		4.5 U	5 U	8.5	870	5 U	25	94	1000	5 U
tert-Butylbenzene		4.5 U	12		1200	5 U	36	99	940	5 U
Tetrachloroethene		4.5 U	5 U	4.5 U	22 U	5 U	5 U	4.9 U	12 U	5 U
Trichloroethene		4.5 U	5 U	4.5 U	22 U	5 U	5 U	4.9 U	12 U	5 U
Trichlorofluoromethane		4.5 U	5 U	4.5 U	22 U	510	5 U	4.9 U	12 U	5 U

µg/kg - Micrograms per kilogram

U - The analyte was analyzed for, but not detected above the reported quantitation limit.

J - The analyte was positively identified: the associated numerical value is the approximate concentration of the analyte in the sample.

NA - Not analyzed

Notes:

1. Ten percent of total number of samples collected during the BSPA Investigation completion were analyzed for VOCs using EPA Method 8260.

Table 5. Summary of Volatile Organic Compounds Detected in Soil Samples Collected During the Completion of Investigation Activities on the BSPA, Exxon Mobil Corporation Buffalo Terminal, Buffalo, New York.

Parameter (Concentration in µg/kg)	Sample Designation:	SB-54	SB-55	SB-55 DUP	SB-55	SB-56	SB-56	SB-57	SB-57	SB-58
	Sample Date:	07/17/00	07/12/00	07/12/00	07/17/00	07/12/00	07/12/00	07/11/00	07/13/00	07/12/00
	Sample Depth (ft bls):	9-11	0-0.5	0-0.5	11-13	0-0.5	7-9	0-0.5	13-15	0-0.5
	Analytical Method:	SW-846 8021	SW-846 8021	SW-846 8021	SW-846 8021	SW-846 8021	SW-846 8021	SW-846 8021	SW-846 8021	SW-846 8021
Benzene		5.2 U	4.7 U	4.6 U	5.1 U	4.2 U	24	4.6 U	5 U	4.8 U
Toluene		5.2 U	16	15	5.1 U	4.8	5.1 U	16	5 U	4.8 U
Ethylbenzene		5.2 U	10	7.8	5.1 U	4.2 U	5.1 U	6.2	5 U	4.8 U
Xylenes (total)		16 U	66	50	15 U	24	15 U	28	15 U	15 U
1,2,4-Trimethylbenzene		5.6	51	36	21	4.2 U	7.5	15	5 U	14
1,2-Dichlorobenzene		5.2 U	4.7 U	4.6 U	5.1 U	4.2 U	5.1 U	4.6 U	5 U	4.8 U
1,3,5-Trimethylbenzene		5.2 U	430	160	5.1 U	4.2 U	5.1 U	7	5 U	4.8 U
1,4-Dichlorobenzene		5.2 U	4.7 U	4.6 U	5.1 U	4.2 U	5.1 U	4.6 U	5 U	4.8 U
Chlorobenzene		5.2 U	4.7 U	4.6 U	5.1 U	4.2 U	5.1 U	4.6 U	5 U	4.8 U
cis-1,2-Dichloroethene		5.2 U	4.7 U	4.6 U	5.1 U	4.2 U	5.1 U	4.6 U	5 U	4.8 U
Isopropylbenzene		10	9.2	8.1	5.1 U	4.2 U	5.1 U	5.5	5 U	4.8 U
m+p-Xylene		10 U	48	37	10 U	14	10 U	23	10 U	9.7 U
Methylene chloride		5.2 U	4.7 U	32	5.1 U	4.2 U	7.3	87	14	14
MTBE		5.2 U	4.7 U	4.6 U	5.1 U	4.2 U	5.1 U	4.6 U	5 U	4.8 U
n-Butylbenzene		6.4	23	19	12	4.2 U	10	7.1	5 U	39
n-Propylbenzene		13	19	13	5.1 U	4.2 U	5.1 U	4.6 U	5 U	4.8 U
Naphthalene		5.2 U	27	18	16	4.2 U	24	5.8	5 U	25
o-Xylene		5.2 U	18	12	5.1 U	10	5.1 U	4.7	5 U	4.8 U
p-Isopropyltoluene		16	41	4.6 U	5.1 U	4.2 U	5.1 U	4.6 U	5 U	4.8 U
sec-Butylbenzene		16	4.7 U	8.7	5.1 U	4.2 U	12	4.6 U	5 U	4.8 U
tert-Butylbenzene		5.2 U	7.9	6.4	5.1 U	4.2 U	5.1 U	4.6 U	5 U	4.8 U
Tetrachloroethene		5.2 U	4.7 U	4.6 U	5.1 U	4.2 U	5.1 U	350	5 U	4.8 U
Trichloroethene		5.2 U	4.7 U	4.6 U	5.1 U	4.2 U	5.1 U	4.6 U	5 U	4.8 U
Trichlorofluoromethane		5.2 U	4.7 U	4.6 U	5.1 U	4.2 U	5.1 U	4.6 U	5 U	4.8 U

µg/kg - Micrograms per kilogram

U - The analyte was analyzed for, but not detected above the reported quantitation limit.

J - The analyte was positively identified: the associated numerical value is the approximate concentration of the analyte in the sample.

NA - Not analyzed

Notes:

1. Ten percent of total number of samples collected during the BSPA Investigation completion were analyzed for VOCs using EPA Method 8260.

Table 5. Summary of Volatile Organic Compounds Detected in Soil Samples Collected During the Completion of Investigation Activities on the BSPA, Exxon Mobil Corporation Buffalo Terminal, Buffalo, New York.

Parameter (Concentration in µg/kg)	Sample Designation:	SB-58	SB-59	SB-59	SB-60	SB-60	SB-60	SB-61	SB-61	SB-62
	Sample Date:	07/17/00	07/11/00	07/13/00	07/11/00	07/13/00	07/13/00	07/07/00	07/11/00	07/07/00
	Sample Depth (ft bls):	5-7	0-0.5	13-15	0-0.5	7-9	7-9	0-0.5	5-7	0-0.5
	Analytical Method:	SW-846 8021	SW-846 8021	SW-846 8021	SW-846 8021	SW-846 8021	SW-846 8260E	SW-846 8021	SW-846 8021	SW-846 8021
Benzene		4.9 U	4.6 U	6.9	4.4 U	4.7 U	1 U	4.6 U	5.3 U	4.6 U
Toluene		6.7	10	5.3 U	13	10	9	21	5.3 U	14
Ethylbenzene		4.9 U	4.6 U	5.3 U	4.4 U	4.7 U	1 U	7.4	10	4.6 U
Xylenes (total)		15 U	14 U	19	17	14 U	1 U	29	69	17
1,2,4-Trimethylbenzene		44	4.6 U	53	11	4.7 U		24	66	8.6
1,2-Dichlorobenzene		4.9 U	4.6 U	5.3 U	4.4 U	4.7 U		4.6 U	5.3 U	4.6 U
1,3,5-Trimethylbenzene		18	4.6 U	11	5.1	4.7 U		7.3	87	4.6 U
1,4-Dichlorobenzene		19	4.6 U	5.3 U	4.4 U	4.7 U		4.6 U	5.3 U	4.6 U
Chlorobenzene		4.9 U	4.6 U	5.3 U	4.4 U	4.7 U	1 U	4.6 U	5.3 U	4.6 U
cis-1,2-Dichloroethene		4.9 U	4.6 U	5.3 U	4.4 U	4.7 U	1 U	4.6 U	5.3 U	4.6 U
Isopropylbenzene		7.7	4.6 U	5.3 U	4.4	4.7 U		4.6 U	190	4.6 U
m+p-Xylene		9.8 U	9.2 U	11	12	9.4 U		22	57	12
Methylene chloride		7.5	52	5.3 U	55	22	23	52	5.3	54
MTBE		4.9 U	4.6 U	5.3 U	4.4 U	4.7 U	1 U	4.6 U	5.3 U	4.6 U
n-Butylbenzene		97	4.6 U	34	4.8	4.7 U		11	150	5.3
n-Propylbenzene		4.9 U	4.6 U	5.3 U	4.4 U	4.7 U		7.9	5.3 U	4.6 U
Naphthalene		99	6	74	4.4 U	4.7 U		24	5.3 U	8.2
o-Xylene		4.9 U	4.6 U	7.5	4.4 U	4.7 U		7.2	13	5.4
p-Isopropyltoluene		4.9 U	4.6 U	5.3 U	4.4 U	4.7 U		4.6 U	5.3 U	4.6 U
sec-Butylbenzene		4.9 U	4.6 U	6.1	4.4 U	4.7 U		4.6 U	5.3 U	4.6 U
tert-Butylbenzene		11	4.6 U	5.3 U	4.4 U	4.7 U			140	
Tetrachloroethene		4.9 U	4.6 U	5.3 U	4.4 U	4.7 U	1 U	4.6 U	5.3 U	35
Trichloroethene		4.9 U	4.6 U	5.3 U	4.4 U	4.7 U	1 U	4.6 U	5.3 U	12
Trichlorofluoromethane		4.9 U	4.6 U	5.3 U	7.2	4.7 U	2 U	4.6 U	5.3 U	4.6 U

µg/kg - Micrograms per kilogram

U - The analyte was analyzed for, but not detected above the reported quantitation limit.

J - The analyte was positively identified: the associated numerical value is the approximate concentration of the analyte in the sample.

NA - Not analyzed

Notes:

1. Ten percent of total number of samples collected during the BSPA Investigation completion were analyzed for VOCs using EPA Method 8260.

Table 5. Summary of Volatile Organic Compounds Detected in Soil Samples Collected During the Completion of Investigation Activities on the BSPA, Exxon Mobil Corporation Buffalo Terminal, Buffalo, New York.

Parameter (Concentration in µg/kg)	Sample Designation:	SB-62	SB-63	SB-63	SB-64	SB-64	SB-64	SB-65	SB-65	SB-66
	Sample Date:	07/10/00	07/05/00	07/10/00	07/05/00	07/06/00	07/06/00	07/11/00	07/11/00	07/05/00
	Sample Depth (ft bls):	5-7	0-0.5	7-9	0-0.5	14.5-16.0	14.5-16.0	0.5-1	13-15	0-0.5
	Analytical Method:	SW-846 8021	SW-846 8021	SW-846 8021	SW-846 8021	SW-846 8021	SW-846 8260B	SW-846 8021	SW-846 8021	SW-846 8021
Benzene		5.1 U	38	1500	11	180	550	12	84	4.6 U
Toluene		11	26	1500	29	140	150 U	110	87	18
Ethylbenzene		15	25	14000	12	410	510	50	3500	4.6 U
Xylenes (total)		30	250	27000	82	870	2800	270	16000	25
1,2,4-Trimethylbenzene		73	150	22000	45	850		200	26000	12
1,2-Dichlorobenzene		5.1 U	4.4 U	150 U	4.4 U	24 U		4.2 U	53 U	4.6 U
1,3,5-Trimethylbenzene		18	62	20000	13	320		58	7600	4.6 U
1,4-Dichlorobenzene		5.1 U	4.4 U	150 U	4.4 U	24 U		4.2 U	53 U	4.6 U
Chlorobenzene		5.1 U	4.4 U	150 U	4.4 U	24 U	150 U	4.2 U	53 U	4.6 U
cis-1,2-Dichloroethene		5.1 U	4.4 U	150 U	4.4 U	24 U	150 U	4.2 U	53 U	4.6 U
Isopropylbenzene		95	200	14000	4.4 U	2200		90	860	4.6 U
m+p-Xylene		24	200	25000	63	640		220	15000	17
Methylene chloride		27	4.4 U	150 U	4.4 U	43	300 U	71	54	8
MTBE		5.1 U	4.4 U	150 U	4.4 U	50		4.2 U	53 U	4.6 U
n-Butylbenzene		89	250	38000	16	1000		130	8100	6.2
n-Propylbenzene		14	92	23000	6.1	800		43	3400	4.6 U
Naphthalene		120	110	28000	36	1800		110	5300	33
o-Xylene		6.2	48	2900	19	220		44	1700	7.6
p-Isopropyltoluene		66	160	15000 U	4.4 U	1200 U		45	910	4.6 U
sec-Butylbenzene		60	4.4 U	15000	4.4 U	790		53	1500	4.6 U
tert-Butylbenzene		71						46	580	
Tetrachloroethene		5.1 U	4.4 U	150 U	4.4 U	24 U	150 U	4.2 U	53 U	4.6 U
Trichloroethene		5.1 U	4.4 U	150 U	4.4 U	24 U	150 U	4.2 U	53 U	4.6 U
Trichlorofluoromethane		5.1 U	4.4 U	150 U	4.4 U	24 U	300 U	4.2 U	53 U	7.3

µg/kg - Micrograms per kilogram

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J - The analyte was positively identified: the associated numerical value is the approximate concentration of the analyte in the sample.

NA - Not analyzed

Notes:

1. Ten percent of total number of samples collected during the BSPA Investigation completion were analyzed for VOCs using EPA Method 8260.

Table 5. Summary of Volatile Organic Compounds Detected in Soil Samples Collected During the Completion of Investigation Activities on the BSPA, Exxon Mobil Corporation Buffalo Terminal, Buffalo, New York.

Parameter (Concentration in µg/kg)	Sample Designation:	SB-66	SB-67	SB-67 DUP	SB-67	SB-68	SB-68	SB-69	SB-69	SB-70
	Sample Date:	07/06/00	07/06/00	07/06/00	10/05/00	07/06/00	07/10/00	07/05/00	07/06/00	07/05/00
	Sample Depth (ft bls):	15-17	0-0.5	0-0.5	7-9	1-1.5	11-13	0-0.5	11-13	0-0.5
	Analytical Method:	SW-846 8021	SW-846 8021	SW-846 8021	SW-846 8021	SW-846 8021	SW-846 8021	SW-846 8021	SW-846 8021	SW-846 8021
Benzene		2300	1100 U	1100 U	62	4.3 U	470	4.4 U	3000	4.4 U
Toluene		740	1100 U	1100 U	31	12	500	18	820	6.9
Ethylbenzene		4900	8800	9000	230	4.3 U	920	4.4 U	3400	4.4 U
Xylenes (total)		8900	250000	250000	460	30	3300	28	10000	18
1,2,4-Trimethylbenzene		35000	400000	400000	680	18	3300	31	49000	7.6
1,2-Dichlorobenzene		120 U	1100 U	1100 U	4.7 U	4.3 U	51 U	4.4 U	250 U	4.4 U
1,3,5-Trimethylbenzene		12000	120000	120000	350	6	2300	8	17000	60
1,4-Dichlorobenzene		120 U	1100 U	1100 U	4.7 U	4.3 U	51 U	4.4 U	250 U	4.4 U
Chlorobenzene		2800	3700	1100 U	200	4.3 U	51 U	4.4 U	250 U	4.4 U
cis-1,2-Dichloroethene		120 U	1100 U	1100 U	4.7 U	4.3 U	51 U	4.4 U	250 U	4.4 U
Isopropylbenzene		12000	22000	22000	2000	4.3 U	8700	4.4 U	17000	8.5
m+p-Xylene		7600	190000	190000	370	22	2700	21	8700	13
Methylene chloride		120 U	1100 U	1100 U	11	81	51 U	4.4 U	250 U	4.4 U
MTBE		120 U	1100 U	1100 U	4.7 U	4.3 U	51 U	4.4 U	250 U	4.4 U
n-Butylbenzene		17000	120000	120000	1300	6.2	9200	72	28000	5.8
n-Propylbenzene		13000	11000	11000	680	4.3 U	5300	4.4 U	18000	12
Naphthalene		9900	85000	84000	1500	18	14000	57	20000	9.1
o-Xylene		1300	62000	62000	89	7.8	570	6.9	1700	4.8
p-Isopropyltoluene		5800 U	18000	18000	1200 U	4.3 U	6400 U	20	12000 U	4.4 U
sec-Butylbenzene		6900	18000	17000	980	4.3 U	7400	4.4 U	15000	4.4 U
tert-Butylbenzene					1100					
Tetrachloroethene		120 U	1100 U	1100 U	4.7 U	4.3 U	51 U	4.8	250 U	4.4 U
Trichloroethene		120 U	1100 U	1100 U	4.7 U	4.3 U	51 U	4.4 U	250 U	4.4 U
Trichlorofluoromethane		120 U	1100 U	1100 U	4.7 U	4.3 U	51 U	4.4 U	250 U	4.4 U

µg/kg - Micrograms per kilogram

U - The analyte was analyzed for, but not detected above the reported quantitation limit.

J - The analyte was positively identified: the associated numerical value is the approximate concentration of the analyte in the sample.

NA - Not analyzed

Notes:

1. Ten percent of total number of samples collected during the BSPA Investigation completion were analyzed for VOCs using EPA Method 8260.

Table 5. Summary of Volatile Organic Compounds Detected in Soil Samples Collected During the Completion of Investigation Activities on the BSPA, Exxon Mobil Corporation Buffalo Terminal, Buffalo, New York.

Parameter (Concentration in µg/kg)	Sample Designation:	SB-70	SB-71	SB-71	SB-72	SB-72	SB-73
	Sample Date:	07/06/00	07/05/00	07/10/00	10/05/00	10/05/00	10/05/00
	Sample Depth (ft bls):	13-15	0-0.5	15-17	0-0.5	0-0.5	0-0.5
	Analytical Method:	SW-846 8021	SW-846 8021	SW-846 8021	SW-846 8021	SW-846 8260I	SW-846 8021
Benzene		400	4.7 U	170	5.1 U	1 U	4.8 U
Toluene		220	15	260	5.1 U	1 U	4.8 U
Ethylbenzene		1800	7.2	1000	5.1 U	1 U	4.8 U
Xylenes (total)		4100	37	4300	15 U	1 U	14 U
1,2,4-Trimethylbenzene		3600	20	4000	5.1 U		4.8 U
1,2-Dichlorobenzene		49 U	4.7 U	50 U	5.1 U		4.8 U
1,3,5-Trimethylbenzene		2600	7	3000	5.1 U		4.8 U
1,4-Dichlorobenzene		49 U	4.7 U	50 U	5.1 U		4.8 U
Chlorobenzene		1600	4.7 U	50 U	5.1 U	1 U	4.8 U
cis-1,2-Dichloroethene		49 U	4.7 U	50 U	5.1 U	1 U	4.8 U
Isopropylbenzene		10000	4.7 U	12000	5.1 U		4.8 U
m+p-Xylene		3200	24	3500	10 U		9.5 U
Methylene chloride		53	5.6	66	9.6	6	29
MTBE		49 U	4.7 U	50 U	5.1 U		4.8 U
n-Butylbenzene		7800	8.7	6600	5.1 U		4.8 U
n-Propylbenzene		6800	5.6	2200	5.1 U		4.8 U
Naphthalene		12000	35	11000	5.1 U		4.8 U
o-Xylene		890	13	810	5.1 U		4.8 U
p-Isopropyltoluene		6100 U	4.7 U	6300 U	5.1 U		4.8 U
sec-Butylbenzene		7300	4.7 U	6700	5.1 U		4.8 U
tert-Butylbenzene					5.1 U		4.8 U
Tetrachloroethene		49 U	4.7 U	50 U	5.1 U	1 U	4.8 U
Trichloroethene		49 U	4.7 U	50 U	5.1 U	1 U	6.5
Trichlorofluoromethane		49 U	4.7 U	50 U	5.1 U	3 U	4.8 U

µg/kg - Micrograms per kilogram

U - The analyte was analyzed for, but not detected above the reported quantitation limit.

J - The analyte was positively identified: the associated numerical value is the approximate concentration of the analyte in the sample.

NA - Not analyzed

Notes:

1. Ten percent of total number of samples collected during the BSPA Investigation completion were analyzed for VOCs using EPA Method 8260.

Table 5. Summary of Volatile Organic Compounds Detected in Soil Samples Collected During the Completion of Investigation Activities on the BSPA, Exxon Mobil Corporation Buffalo Terminal, Buffalo, New York.

Parameter (Concentration in µg/kg)	Sample Designation:	TP-03	TP-04	TP-05	TP-10
	Sample Date:	08/09/00	09/12/00	09/12/00	08/14/00
	Sample Depth (ft bls):	-	-	-	-
	Analytical Method:	SW-846 8021	SW-846 8021	SW-846 8021	SW-846 8021
Benzene		27 U	25 U	2500 U	1900
Toluene		27 U	8.6	660	130
Ethylbenzene		27 U	25 U	2500 U	1500
Xylenes (total)		82 U	90	3500	630
1,2,4-Trimethylbenzene		27 U	220	3700	700
1,2-Dichlorobenzene		27 U	5.1 U	49 U	57
1,3,5-Trimethylbenzene		27 U	130 U	2500 U	100
1,4-Dichlorobenzene		27 U	5.1 U	49 U	12 U
Chlorobenzene		27 U	5.1 U	49 U	240
cis-1,2-Dichloroethene		27 U	5.1 U	49 U	20
Isopropylbenzene		27 U	130 U	6200 U	720
m+p-Xylene		54 U	65	2400	530
Methylene chloride		27 U	5.1 U	49 U	15
MTBE		27 U	5.1 U	250 U	12 U
n-Butylbenzene		27 U	360	13000	2000
n-Propylbenzene		27 U	170	12000	1800
Naphthalene		27 U	630 U	12000 U	6200 U
o-Xylene		27 U	25	1100	110
p-Isopropyltoluene		27 U	190	6200 U	160
sec-Butylbenzene		27 U	210	5500	720
tert-Butylbenzene			190	4900	160
Tetrachloroethene		27 U	5.1 U	49 U	12 U
Trichloroethene		27 U	5.1 U	49 U	12 U
Trichlorofluoromethane		27 U	5.1 U	49 U	12 U

µg/kg - Micrograms per kilogram

U - The analyte was analyzed for, but not detected above the reported quantitation limit.

J - The analyte was positively identified: the associated numerical value is the approximate concentration of the analyte in the sample.

NA - Not analyzed

Notes:

1. Ten percent of total number of samples collected during the BSPA Investigation completion were analyzed for VOCs using EPA Method 8260.

Table 6. Summary of Semivolatile Organic Compounds Detected in Soil Samples Collected During the Completion of Investigation Activities on the BSPA, Exxon Mobil Corporation Buffalo Terminal, Buffalo, New York.

Parameter (Concentrations in µg/kg)	Sample Designation:	SB-44	SB-44	SB-45	SB-45	SB-46	SB-46	SB-47
	Sample Date:	07/13/00	07/17/00	10/05/00	10/05/00	07/07/00	10/05/00	07/11/00
	Sample Depth (ft bls):	0-0.5	15-17	0-0.5	13-15	0-0.5	11-13	1-1.5
Acenaphthene		41 U	650	380 U	45 U	700	51	35 U
Anthracene		41 U	1300	380 U	45 U	830	47	35 U
Benzo[a]anthracene		270	740	380 U	45 U	1900	71	35 U
Benzo[a]pyrene		630	280	380 U	45 U	1800	54	35 U
Benzo[b]fluoranthene		390	220 U	630	45 U	2200	41 U	36
Benzo[g,h,i]perylene		490	220 U	380 U	45 U	1000	41 U	35 U
Benzo[k]fluoranthene		69	220 U	380 U	45 U	840	41 U	35 U
Chrysene		390	1000	460	45 U	2100	120	35 U
Dibenzo[a,h]anthracene		160	220 U	380 U	45 U	300	41 U	35 U
Fluoranthene		78	490	510	45 U	4600	50	35 U
Fluorene		41 U	1500	380 U	45 U	700	41 U	35 U
Indeno[1,2,3-cd]pyrene		200	220 U	380 U	45 U	1300	41 U	35 U
Naphthalene		41 U	1300	380 U	45 U	560	41 U	35 U
Phenanthrene		230	5600	380 U	45 U	3800	41 U	35 U
Pyrene		240	2200	490	45 U	3500	160	35 U

µg/kg - Micrograms per kilogram
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NA - Not analyzed

Table 6. Summary of Semivolatile Organic Compounds Detected in Soil Samples Collected During the Completion of Investigation Activities on the BSPA, Exxon Mobil Corporation Buffalo Terminal, Buffalo, New York.

Parameter (Concentrations in µg/kg)	Sample Designation:	SB-47	SB-48	SB-48	SB-49	SB-49	SB-50	SB-50
	Sample Date:	07/11/00	10/05/00	07/12/00	07/05/00	07/12/00	07/11/00	07/11/00
	Sample Depth (ft bls):	13-15	1-1.5	11-13	0-0.5	9-11	2-2.5	13-15
Acenaphthene		1500	410 U	41 U	380 U	39 U	37 U	41 U
Anthracene		1100	410 U	41 U	380 U	39 U	37 U	41 U
Benzo[a]anthracene		550	1700	51	830	53	47	41 U
Benzo[a]pyrene		280	1600	41 U	1300	61	55	41 U
Benzo[b]fluoranthene		230	2400	45	1700	50	63	41 U
Benzo[g,h,i]perylene		110	1800	41 U	1800	39 U	61	41 U
Benzo[k]fluoranthene		80 U	1000	41 U	600	39 U	37 U	41 U
Chrysene		750	2300	64	1100	71	50	41 U
Dibenzo[a,h]anthracene		80 U	410 U	41 U	380 U	39 U	37 U	41 U
Fluoranthene		550	3700	41 U	1600	55	82	41 U
Fluorene		2100	410 U	41 U	380 U	39 U	37 U	41 U
Indeno[1,2,3-cd]pyrene		80 U	980	41 U	870	39 U	53	41 U
Naphthalene		250	1000	41 U	380 U	39 U	37 U	41 U
Phenanthrene		7400	2900	41 U	830	39 U	37 U	41 U
Pyrene		2300	2700	150	1800	100	88	48

µg/kg - Micrograms per kilogram
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NA - Not analyzed

Table 6. Summary of Semivolatile Organic Compounds Detected in Soil Samples Collected During the Completion of Investigation Activities on the BSPA, Exxon Mobil Corporation Buffalo Terminal, Buffalo, New York.

Parameter (Concentrations in µg/kg)	Sample Designation:	SB-51	SB-51	SB-52	SB-52	SB-53	SB-53	SB-54
	Sample Date:	07/07/00	07/12/00	07/12/00	07/14/00	07/12/00	07/14/00	07/12/00
	Sample Depth (ft bls):	0-0.5	5-7	0-0.5	13-15	0-0.5	7-9	0-0.5
Acenaphthene		190 U	270	230	130	200	480	210
Anthracene		310	290	380	76	160	210	910
Benzo[a]anthracene		1900	210	660	42 U	200	180	3100
Benzo[a]pyrene		2100	190 U	640	42 U	200	180	3100
Benzo[b]fluoranthene		2000	190 U	990	42 U	280	190	5100
Benzo[g,h,i]perylene		970	190 U	230	42 U	100	110	950
Benzo[k]fluoranthene		510	190 U	430	42 U	89	60	2100
Chrysene		4000	310	780	42 U	230	250	3700
Dibenzo[a,h]anthracene		350	190 U	95	42 U	41 U	43	400
Fluoranthene		1900	250	1700	42 U	390	310	6700
Fluorene		190 U	370	220	200	400	630	350
Indeno[1,2,3-cd]pyrene		820	190 U	300	42 U	100	99	1300
Naphthalene		220	330	150	42 U	260	450	190
Phenanthrene		1300	1200	1400	580	1200	2000	4000
Pyrene		7300	660	1200	120	480	600	5300

µg/kg - Micrograms per kilogram
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J - The analyte was positively identified: the associated numerical value is the approximate concentration of the analyte in the sample.
NA - Not analyzed

Table 6. Summary of Semivolatile Organic Compounds Detected in Soil Samples Collected During the Completion of Investigation Activities on the BSPA, Exxon Mobil Corporation Buffalo Terminal, Buffalo, New York.

Parameter (Concentrations in µg/kg)	Sample Designation:	SB-54	SB-55	SB-55 DUP	SB-55	SB-56	SB-56	SB-57	SB-57	SB-58
	Sample Date:	07/17/00	07/12/00	07/12/00	07/17/00	07/12/00	07/12/00	07/11/00	07/13/00	07/12/00
	Sample Depth (ft bls):	9-11	0-0.5	0-0.5	11-13	0-0.5	7-9	0-0.5	13-15	0-0.5
Acenaphthene		43 U	38 U	38 U	42 U	35 U	91	57	41 U	210 U
Anthracene		100	100	79	42 U	35 U	48	140	41 U	210 U
Benzo[a]anthracene		120	390	380	42 U	35 U	100	510	370	310
Benzo[a]pyrene		68	740	650	42 U	71	100	570	510	430
Benzo[b]fluoranthene		43 U	870	690	42 U	48	89	670	550	520
Benzo[g,h,i]perylene		49	710	620	42 U	75	42 U	420	340	370
Benzo[k]fluoranthene		43 U	280	220	42 U	35 U	42 U	270	260	240
Chrysene		130	570	510	49	35 U	150	510	400	340
Dibenzo[a,h]anthracene		43 U	320	290	42 U	35 U	42 U	120	110	210 U
Fluoranthene		43 U	690	610	42 U	40	42 U	1300	330	570
Fluorene		43 U	38 U	38 U	42 U	35 U	77	70	41 U	210 U
Indeno[1,2,3-cd]pyrene		43 U	450	390	42 U	35 U	42 U	480	360	270
Naphthalene		43 U	66	73	42 U	35 U	42 U	38 U	41 U	210 U
Phenanthrene		43 U	400	350	42 U	35 U	75	840	62	550
Pyrene		220	590	490	42 U	72	260	1100	340	720

µg/kg - Micrograms per kilogram
U - The analyte was analyzed for, but not detected above the reported quantitation limit.
J - The analyte was positively identified: the associated numerical value is the approximate concentration of the analyte in the sample.
NA - Not analyzed

Table 6. Summary of Semivolatile Organic Compounds Detected in Soil Samples Collected During the Completion of Investigation Activities on the BSPA, Exxon Mobil Corporation Buffalo Terminal, Buffalo, New York.

Parameter (Concentrations in µg/kg)	Sample Designation:	SB-58	SB-59	SB-59	SB-60	SB-60	SB-61	SB-61	SB-62	SB-62	SB-63
	Sample Date:	07/17/00	07/11/00	07/13/00	07/11/00	07/13/00	07/07/00	07/11/00	07/07/00	07/10/00	07/05/00
	Sample Depth (ft bls):	5-7	0-0.5	13-15	0-0.5	7-9	0-0.5	5-7	0-0.5	5-7	0-0.5
Acenaphthene		40 U	200 U	44 U	36 U	39 U	380 U	340	380 U	220 U	360 U
Anthracene		40 U	200 U	45	36 U	39 U	380 U	160	380 U	220 U	390
Benzo[a]anthracene		40 U	270	140	120	39 U	550	210	380 U	220 U	1900
Benzo[a]pyrene		40 U	320	120	130	39 U	680	240	390	240	1900
Benzo[b]fluoranthene		43	330	65	150	39 U	940	270	530	220 U	1500
Benzo[g,h,i]perylene		40 U	360	44 U	130	39 U	730	190	390	300	2200
Benzo[k]fluoranthene		40 U	200 U	44 U	67	39 U	380 U	120	380 U	220 U	360 U
Chrysene		40 U	270	240	120	39 U	510	340	380 U	260	3400
Dibenzo[a,h]anthracene		40 U	200 U	44 U	36 U	39 U	380 U	68	380 U	220 U	1000
Fluoranthene		66	460	61	210	39 U	1000	570	480	220	710
Fluorene		40 U	200 U	44 U	36 U	39 U	380 U	650	380 U	220 U	360 U
Indeno[1,2,3-cd]pyrene		40 U	200	44 U	110	39 U	590	200	380 U	220 U	1000
Naphthalene		40 U	200 U	44 U	36 U	39 U	380 U	260	380 U	220 U	360 U
Phenanthrene		40 U	240	340	160	39 U	550	1200	380 U	220 U	1600
Pyrene		50	470	380	220	39 U	840	570	380 U	350	2600

µg/kg - Micrograms per kilogram
U - The analyte was analyzed for, but not detected above the reported quantitation limit.
J - The analyte was positively identified: the associated numerical value is the approximate concentration of the analyte in the sample.
NA - Not analyzed

Table 6. Summary of Semivolatile Organic Compounds Detected in Soil Samples Collected During the Completion of Investigation Activities on the BSPA, Exxon Mobil Corporation Buffalo Terminal, Buffalo, New York.

Parameter (Concentrations in µg/kg)	Sample Designation:	SB-63	SB-64	SB-64	SB-65	SB-65	SB-66	SB-66	SB-67	SB-67 DUP	SB-67
	Sample Date:	07/10/00	07/05/00	07/06/00	07/11/00	07/11/00	07/05/00	07/06/00	07/06/00	07/06/00	10/05/00
	Sample Depth (ft bls):	7-9	0-0.5	14.5-16.0	0.5-1	13-15	0-0.5	15-17	0-0.5	0-0.5	7-9
Acenaphthene		8100	310	970	350 U	230	200	1300	3500	4200	340
Anthracene		2800	1100	1800	350 U	75	650	910	620	820	320
Benzo[a]anthracene		1300	3700	860	380	44 U	1400	460	580	720	200
Benzo[a]pyrene		730	4200	300	540	44 U	1500	250	460	500	100
Benzo[b]fluoranthene		600	5200	200 U	470	44 U	1900	170	560	610	58
Benzo[g,h,i]perylene		600	2600	200 U	360	44 U	1000	130	450	520	64
Benzo[k]fluoranthene		260 U	2000	200 U	350 U	44 U	880	39 U	380 U	380 U	39 U
Chrysene		2000	3700	1000	390	54	1500	570	540	580	290
Dibenzo[a,h]anthracene		300	860	200 U	350 U	44 U	330	67	380 U	380 U	42
Fluoranthene		1900	6300	610	760	60	2600	39 U	1100	1400	120
Fluorene		12000	330	1500	350 U	370	220	2100	6100	7000	800
Indeno[1,2,3-cd]pyrene		370	3000	200 U	360	44 U	1200	84	380 U	380	40
Naphthalene		7400	190 U	200 U	350 U	2300	190 U	1800	76000	91000	39 U
Phenanthrene		28000	3900	5700	720	740	2000	6100	8300	11000	1500
Pyrene		5500	6700	3300	1200	220	2600	1500	3000	3700	480

µg/kg - Micrograms per kilogram
U - The analyte was analyzed for, but not detected above the reported quantitation limit.
J - The analyte was positively identified: the associated numerical value is the approximate concentration of the analyte in the sample.
NA - Not analyzed

Table 6. Summary of Semivolatile Organic Compounds Detected in Soil Samples Collected During the Completion of Investigation Activities on the BSPA, Exxon Mobil Corporation Buffalo Terminal, Buffalo, New York.

Parameter (Concentrations in µg/kg)	Sample Designation:	SB-68	SB-68	SB-69	SB-69	SB-70	SB-70	SB-71	SB-71	SB-72	SB-73
	Sample Date:	07/06/00	07/10/00	07/05/00	07/06/00	07/05/00	07/06/00	07/05/00	07/10/00	10/05/00	10/05/00
	Sample Depth (ft bls):	1-1.5	11-13	0-0.5	11-13	0-0.5	13-15	0-0.5	15-17	0-0.5	0-0.5
Acenaphthene		66	4700	360	2500	190 U	1700	200 U	2300	59	390 U
Anthracene		130	3400	1000	1600	190 U	1200	370	1500	390	730
Benzo[a]anthracene		200	2000	2800	1500	210	920	920	850	1100	3300
Benzo[a]pyrene		200	880	3000	760	340	580	1100	380	1000	4500
Benzo[b]fluoranthene		230	560	3500	540	340	350	1200	260	1400	3100
Benzo[g,h,i]perylene		150	430	1900	490	510	300	710	210 U	640	2400
Benzo[k]fluoranthene		90	220 U	1600	210 U	190 U	66	540	210 U	450	1200
Chrysene		190	2500	3000	1800	270	1000	1000	1300	1200	8000
Dibenzo[a,h]anthracene		43	270	580	300	190 U	170	230	210 U	240	830
Fluoranthene		440	1900	5900	940	340	980	1600	850	2000	4100
Fluorene		76	7200	340	3500	190 U	2400	200 U	3500	120	390 U
Indeno[1,2,3-cd]pyrene		150	220	2200	350	290	180	620	210 U	730	1500
Naphthalene		87	220 U	190 U	3200	190 U	40 U	220	210 U	87	850
Phenanthrene		440	18000	3800	9200	210	6400	1400	8500	1300	7400
Pyrene		350	6500	6100	3800	370	2300	1600	3000	1600	13000

µg/kg - Micrograms per kilogram
U - The analyte was analyzed for, but not detected above the reported quantitation limit.
J - The analyte was positively identified: the associated numerical value is the approximate concentration of the analyte in the sample.
NA - Not analyzed

Table 6. Summary of Semivolatile Organic Compounds Detected in Soil Samples Collected During the Completion of Investigation Activities on the BSPA, Exxon Mobil Corporation Buffalo Terminal, Buffalo, New York.

Parameter (Concentrations in µg/kg)	Sample Designation:	TP-03	TP-04	TP-05	TP-10
	Sample Date:	08/09/00	09/12/00	09/12/00	08/14/00
	Sample Depth (ft bls):	-	-	-	-
Acenaphthene		450 U	280	1700	2400
Anthracene		450 U	440	710	3400
Benzo[a]anthracene		450 U	240	410 U	5900
Benzo[a]pyrene		450 U	110	410 U	5000
Benzo[b]fluoranthene		450 U	61	410 U	2600
Benzo[g,h,i]perylene		450 U	58	410 U	1700
Benzo[k]fluoranthene		450 U	42 U	410 U	540
Chrysene		450 U	240	410 U	8200
Dibenzo[a,h]anthracene		450 U	42 U	410 U	760
Fluoranthene		450 U	200	410 U	4200
Fluorene		450 U	440	2600	5600
Indeno[1,2,3-cd]pyrene		450 U	42 U	410 U	1000
Naphthalene		450 U	2300	3100	1900
Phenanthrene		450 U	790	3300	20000
Pyrene		450 U	830	830	17000

µg/kg - Micrograms per kilogram
U - The analyte was analyzed for, but not detected above the reported quantitation limit.
J - The analyte was positively identified: the associated numerical value is the approximate concentration of the analyte in the sample.
NA - Not analyzed

Table 7. Summary of Metals Detected in Soil Samples Collected During the Completion of Investigation Activities on the BSPA, Exxon Mobil Corporation Buffalo Terminal, Buffalo, New York.

Parameters (Concentrations in mg/kg)	Sample Designation:	SB-44	SB-44	SB-45	SB-45	SB-46	SB-46	SB-47	SB-47
	Sample Date:	07/13/00	07/17/00	10/05/00	10/05/00	07/07/00	10/05/00	07/11/00	07/11/00
	Sample Depth (ft bls):	0-0.5	15-17	0-0.5	13-15	0-0.5	11-13	1-1.5	13-15
Antimony									
Beryllium									
Cadmium		0.31	0.33	0.25 U	0.29 U	0.24	0.26 U	0.27	0.37
Chromium		8.2	15.3	764	11.7	12.4	8.8	7.3	12.7
Lead		17.3	8.8	249	8.2	25.5	13.5	10.8	12.6
Mercury		0.028	0.011	0.079	0.026	0.023	0.028	0.0067 U	0.0087
Nickel		14.4	20.5	17.1	19.9	11.6	18.3	9.5	17.6
Selenium		0.55	0.52 U	2	0.54 U	0.42 U	0.49 U	0.42 U	0.49 U
Thallium		0.99 U	1.1 U	0.95 U	1.2	0.85 U	1.2	0.85 U	1.2
Vanadium		23.1	25.5	315	17.1	13.2	15.2	8.5	18.7

mg/kg - Milligrams per kilogram

U - The analyte was analyzed for, but not detected above the reported quantitation limit.

J - The analyte was positively identified: the associated numerical value is the approximate concentration of the analyte in the sample.

NA - Not analyzed

Table 7. Summary of Metals Detected in Soil Samples Collected During the Completion of Investigation Activities on the BSPA, Exxon Mobil Corporation Buffalo Terminal, Buffalo, New York.

Parameters (Concentrations in mg/kg)	Sample Designation:	SB-48	SB-48	SB-49	SB-49	SB-50	SB-50	SB-51	SB-51
	Sample Date:	10/05/00	07/12/00	07/05/00	07/12/00	07/11/00	07/11/00	07/07/00	07/12/00
	Sample Depth (ft bls):	1-1.5	11-13	0-0.5	9-11	2-2.5	13-15	0-0.5	5-7
Antimony									
Beryllium									
Cadmium		0.86	0.26 U	0.77	1.37	0.47	0.57	0.82	0.37
Chromium		7.8	16.5	14.3	27.5	13.3	19.4	25.1	14
Lead		1240	12.3	120	85	30	21	153	21
Mercury		7.3	0.0091	0.62	0.0707	0.037	0.034	1.9	0.076
Nickel		4.1	26.9	11	28.4	20.8	31.2	20.9	29.3
Selenium		5.3	0.49 U	1.6	0.47 U	0.55	1.1	0.45 U	0.45 U
Thallium		1 U	1 U	1.36	0.95 U	1.5	1.8	0.91 U	0.92 U
Vanadium		14.8	20.6	13.6	19.8	19.9	24.2	17.5	16.9

mg/kg - Milligrams per kilogram

U - The analyte was analyzed for, but not detected above the reported quantitation limit.

J - The analyte was positively identified: the associated numerical value is the approximate concentration of the analyte in the sample.

NA - Not analyzed

Table 7. Summary of Metals Detected in Soil Samples Collected During the Completion of Investigation Activities on the BSPA, Exxon Mobil Corporation Buffalo Terminal, Buffalo, New York.

Parameters (Concentrations in mg/kg)	Sample Designation:	SB-52	SB-52	SB-53	SB-53	SB-54	SB-54	SB-55	SB-55 DUP
	Sample Date:	07/12/00	07/14/00	07/12/00	07/14/00	07/12/00	07/17/00	07/12/00	07/12/00
	Sample Depth (ft bls):	0-0.5	13-15	0-0.5	7-9	0-0.5	9-11	0-0.5	0-0.5
Antimony									
Beryllium									
Cadmium		0.47	0.29 U	0.35	0.44	2.02	0.29	1.98	2.05
Chromium		18.6	31.5	13.6	21.3	41.1	14.2	25.6	27.4
Lead		141	16.5	35	19	270	7.6	200	210
Mercury		0.16	0.011	0.031	0.015	0.55	0.0084 U	0.69	0.64
Nickel		12.2	37.8	14.9	25.6	21.9	17.1	20.2	18.6
Selenium		0.51 U	2.8	0.48 U	0.51 U	1.1	0.52 U	1	0.85
Thallium		1 U	1.1 U	1 U	1 U	1 U	1 U	2.4	2.5
Vanadium		15.9	33.6	14.3	33.2	24.4	21	19.3	20

mg/kg - Milligrams per kilogram

U - The analyte was analyzed for, but not detected above the reported quantitation limit.

J - The analyte was positively identified: the associated numerical value is the approximate concentration of the analyte in the sample.

NA - Not analyzed

Table 7. Summary of Metals Detected in Soil Samples Collected During the Completion of Investigation Activities on the BSPA, Exxon Mobil Corporation Buffalo Terminal, Buffalo, New York.

Parameters (Concentrations in mg/kg)	Sample Designation:	SB-55	SB-56	SB-56	SB-57	SB-57	SB-58	SB-58	SB-59
	Sample Date:	07/17/00	07/12/00	07/12/00	07/11/00	07/13/00	07/12/00	07/17/00	07/11/00
	Sample Depth (ft bls):	11-13	0-0.5	7-9	0-0.5	13-15	0-0.5	5-7	0-0.5
Antimony									
Beryllium									
Cadmium		0.49	0.33	0.36	0.75	0.39	1.1	0.46	0.84
Chromium		25.4	8.8	17.6	13.5	38.3	27.5	25.1	17.9
Lead		12.4	19.1	14.9	210	49.1	780	17	94
Mercury		0.011	0.012	0.0091	0.085	0.052	0.13	0.016	0.11
Nickel		33.6	15.1	30.7	18.4	32.2	12.5	30.6	22.2
Selenium		0.5 U	0.43 U	0.51 U	0.78	0.5 U	1.1	0.51 U	0.47 U
Thallium		1 U	0.88 U	1 U	1.8	1 U	0.98 U	1 U	1.1
Vanadium		35.4	10.9	21.8	15.2	26.7	14.7	36	18.6

mg/kg - Milligrams per kilogram

U - The analyte was analyzed for, but not detected above the reported quantitation limit.

J - The analyte was positively identified: the associated numerical value is the approximate concentration of the analyte in the sample.

NA - Not analyzed

Table 7. Summary of Metals Detected in Soil Samples Collected During the Completion of Investigation Activities on the BSPA, Exxon Mobil Corporation Buffalo Terminal, Buffalo, New York.

Parameters (Concentrations in mg/kg)	Sample Designation:	SB-59	SB-60	SB-60	SB-61	SB-61	SB-62	SB-62	SB-63
	Sample Date:	07/13/00	07/11/00	07/13/00	07/07/00	07/11/00	07/07/00	07/10/00	07/05/00
	Sample Depth (ft bls):	13-15	0-0.5	7-9	0-0.5	5-7	0-0.5	5-7	0-0.5
Antimony									
Beryllium									
Cadmium		0.3	0.39	0.26	0.59	0.53	6.9	0.53	0.91
Chromium		22.1	7.5	10.4	21	23.1	268	21.4	21.2
Lead		12.9	60	6.2	141	23	558	13.2	790
Mercury		0.013	0.025	0.028	2.5	0.07	4.5	0.051	0.23
Nickel		36.2	6.8	18.9	12.7	31.7	38.9	32.9	18.6
Selenium		0.54 U	0.43 U	0.48 U	0.46 U	0.58	2.7	0.86	0.75
Thallium		1.1 U	0.87 U	0.97 U	0.93 U	1.8	4.7	1.9	0.91 U
Vanadium		26.5	4.9	13.4	15.7	28.4	56.9	26.2	20.5

mg/kg - Milligrams per kilogram
U - The analyte was analyzed for, but not detected above the reported quantitation limit.
J - The analyte was positively identified: the associated numerical value is the approximate concentration of the analyte in the sample.
NA - Not analyzed

Table 7. Summary of Metals Detected in Soil Samples Collected During the Completion of Investigation Activities on the BSPA, Exxon Mobil Corporation Buffalo Terminal, Buffalo, New York.

Parameters (Concentrations in mg/kg)	Sample Designation:	SB-63	SB-64	SB-64	SB-65	SB-65	SB-66	SB-66	SB-67
	Sample Date:	07/10/00	07/05/00	07/06/00	07/11/00	07/11/00	07/05/00	07/06/00	07/06/00
	Sample Depth (ft bls):	7-9	0-0.5	14.5-16.0	0.5-1	13-15	0-0.5	15-17	0-0.5
Antimony									
Beryllium									
Cadmium		0.33 U	1	0.26 U	3.4	0.46	3.6	0.25 U	0.4
Chromium		3.69	11.7	5.9	36.4	22.9	37.9	7.2	9.3
Lead		21.2	390	21.6	700	17.3	3400	11.3	157
Mercury		0.038	0.34	0.026	0.16	0.0081 U	0.24	0.014	0.071
Nickel		11.4	9.2	11.3	23.7	28.4	24	16	16.7
Selenium		0.94	0.76	0.48 U	0.43 U	0.54 U	1.6	0.46 U	0.46 U
Thallium		1.2 U	1.2	0.97 U	3.5	1.6	0.92 U	0.93 U	0.94 U
Vanadium		8.6	15.6	7	35.1	31.7	24.9	9.7	12.6

mg/kg - Milligrams per kilogram
U - The analyte was analyzed for, but not detected above the reported quantitation limit.
J - The analyte was positively identified: the associated numerical value is the approximate concentration of the analyte in the sample.
NA - Not analyzed

Table 7. Summary of Metals Detected in Soil Samples Collected During the Completion of Investigation Activities on the BSPA, Exxon Mobil Corporation Buffalo Terminal, Buffalo, New York.

Parameters (Concentrations in mg/kg)	Sample Designation:	SB-67 DUP	SB-67	SB-68	SB-68	SB-69	SB-69	SB-70	SB-70
	Sample Date:	07/06/00	10/05/00	07/06/00	07/10/00	07/05/00	07/06/00	07/05/00	07/06/00
	Sample Depth (ft bls):	0-0.5	7-9	1-1.5	11-13	0-0.5	11-13	0-0.5	13-15
Antimony									
Beryllium									
Cadmium		0.52	0.25 U	0.47	0.38	2.1	0.26 U	0.62	0.26 U
Chromium		11.7	10.2	7.4	7.4	26.5	8.3	8.9	8.8
Lead		161	9.1	102	25	1070	50.3	128	16.2
Mercury		0.068	0.021	0.024	0.022	0.33	0.083	0.0387	0.0078
Nickel		17.9	14	6.4	15.4	54.3	16.4	6.5	18
Selenium		0.82	0.47 U	0.42 U	0.51 U	0.45 U	0.49 U	0.44 U	0.49 U
Thallium		0.93 U	0.95 U	0.86 U	1 U	0.91 U	0.99 U	0.88 U	0.99 U
Vanadium		14.3	15.5	5.7	10.1	348	10.7	7.1	13.1

mg/kg - Milligrams per kilogram

U - The analyte was analyzed for, but not detected above the reported quantitation limit.

J - The analyte was positively identified: the associated numerical value is the approximate concentration of the analyte in the sample.

NA - Not analyzed

Table 7. Summary of Metals Detected in Soil Samples Collected During the Completion of Investigation Activities on the BSPA, Exxon Mobil Corporation Buffalo Terminal, Buffalo, New York.

Parameters (Concentrations in mg/kg)	Sample Designation:	SB-71	SB-71	SB-72	SB-73	TP-03	TP-04	TP-05	TP-10
	Sample Date:	07/05/00	07/10/00	10/05/00	10/05/00	08/09/00	09/12/00	09/12/00	08/14/00
	Sample Depth (ft bls):	0-0.5	15-17	0-0.5	0-0.5	-	-	-	-
Antimony						27 U			
Beryllium						0.67 U			
Cadmium		1.4	0.27 U	1.6	0.26 U	2.7 U	0.59	0.35	1.37
Chromium		34.7	6	38.8	274	18.4	11.9	7.1	22
Lead		660	6.9	240	194	14.4	5.5	3.8	264
Mercury		1.64	0.0078 U	0.35	0.23	0.13 U	0.0079 U	0.0077 U	0.19
Nickel		29.3	12.2	27.3	21.9	34.5	20.6	11.8	15.7
Selenium		1.1	0.51 U	1.7	3.9	1.3 U	1	0.74	0.5 U
Thallium		0.96 U	1 U	2.7	0.97 U	2.7 U	1 U	0.99 U	1 U
Vanadium		20.7	8.6	36	102	24.7	18.2	12.3	16.4

mg/kg - Milligrams per kilogram

U - The analyte was analyzed for, but not detected above the reported quantitation limit.

J - The analyte was positively identified: the associated numerical value is the approximate concentration of the analyte in the sample.

NA - Not analyzed

Table 8. Summary of Analytical Results for Samples of White and Green Materials Encountered in the Vicinity of SB-46 in the BSPA, Exxon Mobil Corporation Buffalo Terminal, Buffalo, New York.

Parameters	Sample Designation:	SB-46(GREEN)	SB-46(WHITE)
	Sample Date:	07/13/00	07/13/00
	Sample Depth (ft bls):	1-2	1-2
Metals (Concentrations in mg/kg)			
Aluminum		1810	382
Antimony		2.7 U	4.7
Arsenic		4.3	3.6
Barium		241	121
Cadmium		0.31	0.25 U
Calcium		91600	4990
Chromium		7.7	2.47
Cobalt		1.35	0.5 U
Copper		19.5	4.06
Iron		9300	2720
Lead		648	11200
Magnesium		2270	111
Manganese		169	21.2
Mercury		12	111
Nickel		5.13	1.24
Potassium		744	227
Selenium		13.8	229
Silver		0.38 U	0.93
Sodium		210	48
Thallium		1 U	0.92 U
Vanadium		7.4	2.06
Zinc		51	7.85
SVOCs (Concentrations in ug/kg)			
Acenaphthene		3300	780
Anthracene		11000	2300
Benzo[a]anthracene		26000	7200
Benzo[a]pyrene		22000	6000
Benzo[b]fluoranthene		33000	9800
Benzo[g,h,i]perylene		6300	2200
Benzo[k]fluoranthene		14000	4300
Chrysene		26000	7900
Dibenzo[a,h]anthracene		2600	1000
Fluoranthene		54000	15000
Fluorene		3400	730
Indeno[1,2,3-cd]pyrene		8600	3100
Naphthalene		440	1300
Phenanthrene		39000	9300
Pyrene		42000	10000
Miscellaneous Waste Characterization Parameters			
Reactive Cyanide (Concentration in mg/kg)		100 U	99 U
Reactive Sulfide (concentrations in mg/kg)		39 U	39 U
Sulfate (concentrations in mg/kg)		11900	7900
pH		6.84	1.76

mg/kg - Milligrams per kilogram
ug/kg - Micrograms per kilogram
U - The analyte was analyzed for, but not detected above the reported quantitation limit.
J - The analyte was positively identified: the associated numerical value is the approximate concentration of the analyte in the sample.
NA - Not analyzed
SB-46 (GREEN) exhibited the characteristic of corrosivity.

Table 9. Summary of Volatile Organic Compounds Detected in Geoprobe™ Groundwater Samples Collected During the Completion of Investigation Activities on the BSPA, Exxon Mobil Corporation Buffalo Terminal, Buffalo, New York.

Parameters (Concentrations in µg/L)	**Sample Designation:** / **Sample Date:** / **Method:**	SB-40 04/05/01 SW-846 8021	SB-41 04/05/01 SW-846 8021	SB-42 04/05/01 SW-846 8021	SB-43 04/05/01 SW-846 8021	SB-46 10/06/00 SW-846 8021	SB-48 07/13/00 SW-846 8021
Benzene		66	0.5	1 U	5 U	4.2	1 U
Toluene		100 U	0.8	0.2	5 U	0.4	1.2
Ethylbenzene		100 U	1 U	1 U	5 U	0.3	1 U
Xylenes (total)		300 U	3 U	3 U	15 U	1.4	3 U
1,1,1-Trichloroethane		100 U	1 U	1 U	5 U	0.2 U	1 U
1,1-Dichloroethane		100 U	1 U	1 U	5 U	0.2 U	1 U
1,2,4-Trimethylbenzene		100 U	1 U	1 U	5 U	1.1	1 U
1,2-Dichlorobenzene		870	1 U	1 U	1.5	0.2 U	1 U
1,3,5-Trimethylbenzene		100 U	1 U	1 U	5 U	0.5	1 U
1,3-Dichlorobenzene		190	1 U	1 U	5 U	0.2 U	1 U
1,4-Dichlorobenzene		1200	1 U	1 U	5 U	0.2 U	1 U
Chlorobenzene		9500	1 U	1 U	350	0.2 U	1 U
cis-1,2-Dichloroethene		100 U	1 U	1 U	5 U	0.2 U	1 U
Dichlorodifluoromethane		200 U	2 U	2 U	10 U	0.2 U	
Isopropylbenzene		100 U	1 U	1 U	5 U	0.6	1 U
m+p-Xylene		200 U	0.4	2 U	10 U	0.5	2 U
Methylene Chloride		100 U	1 U	1 U	5 U	0.2 U	1 U
MTBE		100 U	1 U	1 U	5 U	0.2 U	260
n-Butylbenzene		100 U	1 U	1 U	5 U	0.2 U	1 U
n-Propylbenzene		100 U	1 U	1 U	5 U	0.5	1 U
Naphthalene		100 U	0.7	1 U	5 U	0.6	1 U
o-Xylene		100 U	1 U	1 U	5 U	0.9	1 U
p-Isopropyltoluene		100 U	1 U	1 U	5 U	0.2 U	1 U
sec-Butylbenzene		100 U	0.2	1 U	5 U	0.4	1 U
tert-Butylbenzene		100 U	1 U	1 U	5 U	0.2 U	1 U
Tetrachloroethene		100 U	1 U	1 U	5 U	0.2 U	1 U
Trichloroethene		100 U	1 U	1 U	5 U	0.2 U	1 U
Trichlorofluoromethane		100 U	1 U	1 U	5 U	0.2 U	1 U

Notes:

µg/L - Micrograms per liter

U - The analyte was analyzed for, but not detected above the reported quantitation limit.

J - The analyte was positively identified: the associated numerical value is the approximate concentration of the analyte in the sample.

NA - Not analyzed

SB-45 was inadvertently not sampled for VOCs.

Table 9. Summary of Volatile Organic Compounds Detected in Geoprobe™ Groundwater Samples Collected During the Completion of Investigation Activities on the BSPA, Exxon Mobil Corporation Buffalo Terminal, Buffalo, New York.

Parameters (Concentrations in µg/L)	**Sample Designation:** / **Sample Date:** / **Method:**	SB-49 07/13/00 SW-846 8021	SB-50 07/12/00 SW-846 8021	SB-51 07/14/00 SW-846 8021	SB-58 07/17/00 SW-846 8021	SB-59 07/17/00 SW-846 8021	SB-62 07/12/00 SW-846 8021
Benzene		0.2 U	0.2 U	0.2 U	0.2 U	0.5	0.5
Toluene		0.4	0.4	0.2 U	0.6	2.7	2.4
Ethylbenzene		0.2 U	0.2 U	0.2 U	0.2 U	0.3	4.5
Xylenes (total)		0.6 U	0.6 U	0.6 U	2.4	2.1	23
1,1,1-Trichloroethane		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4
1,1-Dichloroethane		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.4
1,2,4-Trimethylbenzene		0.2 U	0.2 U	0.2 U	1.5	0.5	25
1,2-Dichlorobenzene		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,3,5-Trimethylbenzene		0.2 U	0.2 U	0.2 U	2.5	0.2 U	7.2
1,3-Dichlorobenzene		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,4-Dichlorobenzene		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.7
Chlorobenzene		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
cis-1,2-Dichloroethene		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2
Dichlorodifluoromethane							
Isopropylbenzene		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1
m+p-Xylene		0.4 U	0.4 U	0.4 U	1	1.4	20
Methylene Chloride		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
MTBE		4.7	0.2 U	0.2 U	0.2 U	0.2	0.2 U
n-Butylbenzene		0.2 U	0.2 U	0.2 U	4.1	0.2 U	4.4
n-Propylbenzene		0.2 U	0.2 U	0.2 U	0.2	0.2 U	2.4
Naphthalene		0.2 U	0.4	0.2 U	3.6	0.4	7.1
o-Xylene		0.2 U	0.2 U	0.2 U	1.4	0.7	3.1
p-Isopropyltoluene		0.2 U	0.2 U	0.2 U	0.5	0.2 U	0.4
sec-Butylbenzene		0.2 U	0.2 U	0.2 U	0.3	0.2 U	0.7
tert-Butylbenzene		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Tetrachloroethene		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1
Trichloroethene		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.3
Trichlorofluoromethane		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Total VOCS							

Notes:

µg/L - Micrograms per liter

U - The analyte was analyzed for, but not detected above the reported quantitation limit.

J - The analyte was positively identified: the associated numerical value is the approximate concentration of the analyte in the sample.

NA - Not analyzed

SB-45 was inadvertently not sampled for VOCs.

Table 9. Summary of Volatile Organic Compounds Detected in Geoprobe™ Groundwater Samples Collected During the Completion of Investigation Activities on the BSPA, Exxon Mobil Corporation Buffalo Terminal, Buffalo, New York.

Parameters (Concentrations in µg/L)	**Sample Designation:** / **Sample Date:** / **Method:**	SB-64 07/06/00 SW-846 8021	SB-70 07/10/00 SW-846 8021	SB-71 07/10/00 SW-846 8021
Benzene		250	120	9.9
Toluene		120	2	1.1
Ethylbenzene		230	1.2	1 U
Xylenes (total)		1500	4.4	5.2
1,1,1-Trichloroethane		2 U	1 U	1 U
1,1-Dichloroethane		2 U	1 U	1 U
1,2,4-Trimethylbenzene		560	5.4	3.4
1,2-Dichlorobenzene		2 U	59	1 U
1,3,5-Trimethylbenzene		160	2	3.8
1,3-Dichlorobenzene		2 U	13	1 U
1,4-Dichlorobenzene		2 U	120	14
Chlorobenzene		2 U	360	150
cis-1,2-Dichloroethene		2 U	1 U	1 U
Dichlorodifluoromethane		2 U		
Isopropylbenzene		29	11	9.2
m+p-Xylene		990	2.4	2 U
Methylene Chloride		2.7	1.3	1 U
MTBE		5.1	33	5.7
n-Butylbenzene		96	6.8	7.5
n-Propylbenzene		71	12	5.4
Naphthalene		160	4.2	4.4
o-Xylene		460	2	3.4
p-Isopropyltoluene		18	1 U	1 U
sec-Butylbenzene		27	11	9
tert-Butylbenzene		13	4.3	6.6
Tetrachloroethene		2 U	1 U	1 U
Trichloroethene		2 U	1 U	1 U
Trichlorofluoromethane		2 U	1 U	1 U
Total VOCS				

Notes:

µg/L - Micrograms per liter

U - The analyte was analyzed for, but not detected above the reported quantitation limit.

J - The analyte was positively identified: the associated numerical value is the approximate concentration of the analyte in the sample.

NA - Not analyzed

SB-45 was inadvertently not sampled for VOCs.

Table 10. Summary of Semivolatile Organic Compounds Detected in Geoprobe™ Groundwater Samples Collected During the Completion of Investigation Activi
Exxon Mobil Corporation Buffalo Terminal, Buffalo, New York.

Parameters (Concentrations in µg/L)	**Sample Designation:**	SB-45	SB-46	SB-48	SB-49	SB-50	SB-51	SB-58
	Sample Date:	10/06/00	10/06/00	07/13/00	07/13/00	07/12/00	07/14/00	07/17/00
Acenaphthene		1 U	1 U	1 U	1 U	1 U	1 U	1 U
Anthracene		1 U	1 U	1 U	1 U	1 U	1 U	1 U
Benzo[a]anthracene		1 U	1	1 U	1 U	1 U	1 U	1 U
Benzo[a]pyrene		1 U	1 U	1 U	1 U	1 U	1 U	1 U
Benzo[b]fluoranthene		1 U	1 U	1 U	1 U	1 U	1 U	1 U
Benzo[g,h,i]perylene		1 U	1 U	1 U	1 U	1 U	1 U	1 U
Benzo[k]fluoranthene		1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chrysene		1 U	1	1 U	1 U	1 U	1 U	2
Dibenzo[a,h]anthracene		1 U	1 U	1 U	1 U	1 U	1 U	1 U
Fluoranthene		1 U	2	1 U	1 U	1 U	1 U	1 U
Fluorene		1 U	1 U	1 U	1 U	1 U	1 U	1 U
Indeno[1,2,3-cd]pyrene		1 U	1 U	1 U	1 U	1 U	1 U	1 U
Naphthalene		1 U	1 U	1 U	1 U	1 U	1 U	1 U
Phenanthrene		1 U	1	1 U	1 U	1 U	1 U	1
Pyrene		1 U	2	1 U	1 U	1 U	1 U	1 U

Notes:
µg/L - Micrograms per liter
U - The analyte was analyzed for, but not detected above the reported quantitation limit.
J - The analyte was positively identified: the associated numerical value is the approximate concentration of the analyte in the sample.
NA - Not analyzed

Table 10. Summary of Semivolatile Organic Compounds Detected in Geoprobe™ Groundwater Samples Collected During the Completion of Investigation Activites on the BSPA Exxon Mobil Corporation Buffalo Terminal, Buffalo, New York.

Parameters (Concentrations in µg/L)	**Sample Designation:**	SB-59	SB-62	SB-64	SB-70	SB-71
	Sample Date:	07/17/00	07/12/00	07/06/00	07/10/00	07/10/00
Acenaphthene		1 U	1	13	13	89
Anthracene		1 U	1 U	17	9	99
Benzo[a]anthracene		3	1 U	7	4	48
Benzo[a]pyrene		3	1 U	3	2	19
Benzo[b]fluoranthene		1	1 U	3	1	13
Benzo[g,h,i]perylene		1	1 U	2	1 U	10
Benzo[k]fluoranthene		1 U	1 U	1 U	1 U	5 U
Chrysene		4	1 U	12	5	69
Dibenzo[a,h]anthracene		1 U	1 U	1 U	1 U	6
Fluoranthene		1	1 U	6	4	53
Fluorene		1 U	2	29	26	200
Indeno[1,2,3-cd]pyrene		1 U	1 U	1	1 U	7
Naphthalene		1 U	15	210	1 U	5 U
Phenanthrene		4	2	88	15	470
Pyrene		8	1 U	22	13	130

Notes:

µg/L - Micrograms per liter

U - The analyte was analyzed for, but not detected above the reported quantitation limit.

J - The analyte was positively identified: the associated numerical value is the approximate concentration of the analyte in the sample.

NA - Not analyzed

Table 11. Summary of Metals Detected in Geoprobe ™ Groundwater Samples Collected During the Completion of Investigation Activities on the BSPA, Exxon Mobil Corporation Buffalo Terminal, Buffalo, New York.

Sample Designation:	SB-45	SB-46	SB-48	SB-49	SB-50	SB-51	SB-58	SB-59	SB-62
Sample Date:	10/06/00	10/06/00	07/13/00	07/13/00	07/12/00	07/14/00	07/17/00	07/17/00	07/12/00
Parameter (Concentrations in mg/L)									
Cadmium	0.0009 U	0.0189	0.0045 U	0.0045 U	0.0045 U	0.0009 U	0.0045 U	0.0045 U	0.0045 U
Chromium	0.0256	0.108	1.36	0.565	5.53	0.286	0.821	1.13	1.13
Lead	0.142	0.0709	12.3	0.803	0.423	0.213	0.338	0.287	0.29
Mercury	0.00036	0.00011	0.0074	0.00078	0.00091	0.00048 U	0.0019	0.00083	0.0005 U
Nickel	0.019	0.305	2.64	0.813	4.66	0.443	1.31	1.61	1.55
Selenium	0.0035 U	0.0234	0.207	0.0296	0.186	0.0294	0.0716	0.0664	0.0783
Thallium	0.0095 U	0.0095 U	0.0475 U	0.0475 U	0.0475 U	0.0095 U	0.0475 U	0.0475 U	0.0475 U
Vanadium	0.0453	0.14	1.31	0.393	1.63	0.259	0.887	0.868	1.1

Notes:

mg/L - Milligrams per liter

U - The analyte was analyzed for, but not detected above the reported quantitation limit.

J - The analyte was positively identified: the associated numerical value is the approximate concentration of the analyte in the sample.

NA - Not analyzed

Table 11. Summary of Metals Detected in Geoprobe ™ Groundwater Samples Collected During the Completion of Investigation Activities on tl
Exxon Mobil Corporation Buffalo Terminal, Buffalo, New York.

Sample Designation:	SB-64	SB-70	SB-71
Sample Date:	07/06/00	07/10/00	07/10/00
Parameter (Concentrations in mg/L)			
Cadmium	0.0045 U	0.0009 U	0.0009 U
Chromium	1.26	0.316	0.248
Lead	3.05	0.114	0.195
Mercury	0.0029	0.00048 U	0.00073
Nickel	1.46	0.435	0.342
Selenium	0.0175 U	0.0084	0.0035 U
Thallium	0.0663	0.0102	0.0303
Vanadium	1.14	0.0673	0.0996

Notes:
mg/L - Milligrams per liter
U - The analyte was analyzed for, but not detected above the reported quantitation limit.
J - The analyte was positively identified: the associated numerical value is the approximate concentration of the analyte in the sample.
NA - Not analyzed

Table 12. Summary of Volatile Organic Compounds Detected in Groundwater Samples From Selected Wells in the BSPA Collected During January and A
Exxon Mobil Corporation Buffalo Terminal, Buffalo, New York.

Sample Designation:	B-3MW	B-3MW	B-4MW	B-4MW	MW-2	MW-2	MW-22	MW-22
Sample Date:	01/19/01	04/25/01	01/16/01	04/25/01	01/16/01	04/25/01	01/16/01	04/25/01
Parameter (Concentrations in µg/L)								
Benzene	0.2 U	1 U	0.2 U	1 U	0.2 U	1 U	3.7	5.4
Toluene	0.2 U	1 U	0.2 U	1 U	0.2 U	1 U	1 U	10 U
Ethylbenzene	0.2 U	1 U	0.2 U	1 U	0.2 U	1 U	1 U	10 U
o-Xylene	0.2 U	1 U	0.2 U	1 U	0.2 U	1 U	1 U	10 U
Xylenes (total)	0.6 U	3 U	0.6 U	3 U	0.6 U	3 U	2.4	30 U
1,2,4-Trimethylbenzene	0.2 U	1 U	0.2 U	1 U	0.2 U	1 U	4.2	3.1
1,3,5-Trimethylbenzene	0.2 U	1 U	0.2 U	1 U	0.2 U	1 U	2.2	2
Isopropylbenzene	0.2 U	0.4	0.2 U	1 U	0.2 U	1 U	4.2	2.9
m+p-Xylene	0.4 U	2 U	0.4 U	2 U	0.4 U	2 U	2.4	20 U
MTBE	0.2 U	1 U	0.2 U	1 U	0.2 U	1 U	1 U	10 U
n-Butylbenzene	0.2 U	0.5	0.2 U	1 U	0.2 U	1 U	4.8	4
n-Propylbenzene	0.3	0.2	0.2 U	1 U	0.2 U	1 U	2.3	10 U
Naphthalene	0.2 U	1U	0.2 U	1U	0.2 U	1U	5.2	5.8
p-Isopropyltoluene	0.2 U	0.2	0.2 U	1 U	0.2 U	1 U	1 U	20 U
sec-Butylbenzene	0.2 U	0.7	0.2 U	1 U	0.2 U	1 U	8.5	5.1
tert-Butylbenzene		0.3		1 U		1 U		2.6

Notes:

µg/L - Micrograms per liter

U - The analyte was analyzed for, but not detected above the reported quantitation limit.

J - The analyte was positively identified: the associated numerical value is the approximate concentration of the analyte in the sample.

NA - Not analyzed

Table 12. Summary of Volatile Organic Compounds Detected in Groundwater Samples From Selected Wells in the BSPA Collected During January and April 20
Exxon Mobil Corporation Buffalo Terminal, Buffalo, New York.

Sample Designation:	MW-24	MW-24	MW-26	MW-26	SB-11/LB-1	SB-11/LB-1	SB-12	SB-12
Sample Date:	01/17/01	04/25/01	01/17/01	04/25/01	01/16/01	04/25/01	01/19/01	04/25/01
Parameter (Concentrations in µg/L)						-	-	-
Benzene	2 U	10 U	1.6	1.4	46	49	1 U	1 U
Toluene	2.2	10 U	1.5	0.8	4 U	5.2	1 U	1 U
Ethylbenzene	2 U	10 U	2.2	1.5	4 U	7.9	1 U	1 U
o-Xylene	2 U	10 U	4.5	3.5	4 U	20 U	1 U	1 U
Xylenes (total)	6 U	30 U	28.5	19.5	12 U	60 U	3 U	3 U
1,2,4-Trimethylbenzene	2.5	10 U	46	29	4 U	4.1	1 U	1 U
1,3,5-Trimethylbenzene	2 U	10 U	0.4	0.3	4 U	20 U	1 U	1 U
Isopropylbenzene	7.3	5.6	7.4	5.2	4 U	20 U	1 U	1 U
m+p-Xylene	4 U	20 U	24	16	8 U	40 U	2 U	2 U
MTBE	1000	600	0.2 U	1 U	4 U	20 U	4.6	1 U
n-Butylbenzene	3.9	3.6	4.3	4.1	7.3	20 U	1 U	1 U
n-Propylbenzene	3.9	2.6	7.6	4.3	4.2	6.6	1 U	0.2
Naphthalene	4.1	4.7	10	4.6	4 U	20U	1 U	1U
p-Isopropyltoluene	2 U	10 U	0.9	0.9	50 U	50 U	1 U	1 U
sec-Butylbenzene	4	3.7	2.5	2.1	4 U	20 U	1.1	1 U
tert-Butylbenzene		10 U		0.5		20 U	1 U	1 U

Notes: Micrograms per liter
µg/L - The analyte was analyzed for, but not detected above the reported quantitation limit.
U - The analyte was positively identified: the associated numerical value is the approximate concentration
J - of the analyte in the sample.
The analyte was not detected above the reported quantitation limit. However the reported quantitation
NA - Analyte detected

Table 12. Summary of Volatile Organic Compounds Detected in Groundwater Samples From Selected Wells in the BSPA Collected During January and April 2001, Exxon Mobil Corporation Buffalo Terminal, Buffalo, New York.

Sample Designation:	SB-19	SB-19	SB-31	SB-31	SB-37	SB-37
Sample Date:	01/17/01	04/26/01	01/17/01	04/25/01	01/19/01	04/25/01
Parameter (Concentrations in µg/L)	-	-	-			
Benzene	2.9	1 U	0.2 U	1 U	0.6	0.9
Toluene	0.2	0.2	0.2 U	1 U	0.2 U	1 U
Ethylbenzene	0.2 U	1 U	0.2 U	1 U	0.2 U	0.3
o-Xylene	0.2 U	0.2	0.2 U	0.2	0.2 U	1 U
Xylenes (total)	0.6 U	0.2	0.6 U	0.2	0.6 U	3 U
1,2,4-Trimethylbenzene	0.3	0.7	0.4	0.3	0.7	0.3
1,3,5-Trimethylbenzene	0.2 U	0.3	0.2 U	1 U	0.4	0.3
Isopropylbenzene	0.6	2	0.3	1 U	0.3	0.7
m+p-Xylene	0.4 U	2 U	0.4 U	2 U	0.4 U	2 U
MTBE	0.2 U	1.6	5	1.8	0.2 U	1 U
n-Butylbenzene	0.5	1.4	0.3	0.2	1.9	0.9
n-Propylbenzene	0.2 U	0.3	0.3	1 U	0.8	0.8
Naphthalene	1	3.7	0.7	0.3	1.2	0.9
p-Isopropyltoluene	0.2 U	1 U	0.5	0.4	2 U	1 U
sec-Butylbenzene	0.7	1.6	0.2 U	1 U	0.8	0.9
tert-Butylbenzene		0.7		0.4		0.5

Notes:

µg/L - Micrograms per liter

U - The analyte was analyzed for, but not detected above the reported quantitation limit.

J - The analyte was positively identified: the associated numerical value is the approximate concentration of the analyte in the sample.

NA - Not analyzed

Table 13. Summary of Semivolatile Organic Compounds Detected in Groundwater Samples From Selected Wells in the BSPA Collected During January and April 2001, Exxon Mobil Corporation Buffalo Terminal, Buffalo, New York.

Sample Designation:	B-3MW	B-3MW	B-4MW	B-4MW	MW-2	MW-2	MW-22	MW-22	MW-24	MW-24
Sample Date:	01/19/01	04/25/01	01/16/01	04/25/01	01/16/01	04/25/01	01/16/01	04/25/01	01/17/01	04/25/01
Parameters (Concentrations in µg/L)										
Acenaphthene	1 U	10 U	1 U	10 U	1 U	10 U	1 U	3	6	7
Anthracene	1 U	10 U	1 U	10 U	1 U	3	1 U	2	5	8
Benzo[a]anthracene	1 U	10 U	1 U	10 U	3	8	1 U	2	2	4
Benzo[a]pyrene	1 U	10 U	1 U	10 U	9	23	1 U	10 U	1 U	2
Benzo[b]fluoranthene	1 U	10 U	1 U	10 U	14	33	1 U	10 U	1 U	2
Benzo[g,h,i]perylene	1 U	10 U	1 U	10 U	21	36	1 U	10 U	1 U	10 U
Benzo[k]fluoranthene	1 U	10 U	1 U	10 U	5	12	1 U	10 U	1 U	10 U
Chrysene	1 U	10 U	1 U	10 U	6	12	1 U	2	3	5
Dibenzo[a,h]anthracene	1 U	10 U	1 U	10 U	3	7	1 U	10 U	1 U	10 U
Fluoranthene	1 U	10 U	1 U	10 U	5	16	1 U	1	2	4
Fluorene	1 U	10 U	1 U	10 U	1 U	10 U	2	4	10	10
Indeno[1,2,3-cd]pyrene	1 U	10 U	1 U	10 U	17	35	1 U	10 U	1 U	10 U
Naphthalene	1 U	10 U	1 U	10 U	1 U	10 U	1 U	10 U	1	1
Phenanthrene	1 U	10 U	1 U	10 U	1	4	1 U	2	19	16
Pyrene	1 U	10 U	1 U	10 U	5	14	1 U	7	8	17

Notes:

µg/L - Micrograms per liter

U - The analyte was analyzed for, but not detected above the reported quantitation limit.

J - The analyte was positively identified: the associated numerical value is the approximate concentration of the analyte in the sample.

NA - Not analyzed

Table 13. Summary of Semivolatile Organic Compounds Detected in Groundwater Samples From Selected Wells in the BSPA During January and April 2001, Exxon Mobil Corporation Buffalo Terminal, Buffalo, New York.

Sample Designation:	MW-26	MW-26	SB-11/LB-1	SB-11/LB-1	SB-12	SB-12	SB-19	SB-19
Sample Date:	01/17/01	04/25/01	01/16/01	04/25/01	01/19/01	04/25/01	01/17/01	04/26/01
Parameters (Concentrations in µg/L)								
Acenaphthene	4	3	1 U	11 U	12 U	10 U	1 U	8
Anthracene	3	3	1 U	11 U	12 U	10 U	1 U	16
Benzo[a]anthracene	1	2	3	11 U	12 U	10 U	3	31
Benzo[a]pyrene	1 U	10 U	9	11 U	12 U	10 U	2	32
Benzo[b]fluoranthene	1 U	10 U	13	11 U	12 U	10 U	4	43
Benzo[g,h,i]perylene	1 U	10 U	18	11 U	12 U	10 U	2	23
Benzo[k]fluoranthene	1 U	10 U	5	11 U	12 U	10 U	2	19
Chrysene	2	2	5	11 U	12 U	10 U	3	45
Dibenzo[a,h]anthracene	1 U	10 U	3	11 U	12 U	10 U	1 U	8
Fluoranthene	1 U	2	5	1	12 U	10 U	6	65
Fluorene	5	5	1 U	1	12 U	10 U	1 U	15
Indeno[1,2,3-cd]pyrene	1 U	10 U	17	11 U	12 U	10 U	2	26
Naphthalene	7	2	1 U	1	12 U	10 U	1 U	3
Phenanthrene	10	9	1	11 U	12 U	10 U	1	31
Pyrene	4	6	5	3	12 U	1	5	73

Notes:

µg/L - Micrograms per liter

U - The analyte was analyzed for, but not detected above the reported quantitation limit.

J - The analyte was positively identified: the associated numerical value is the approximate concentration of the analyte in the sample.

NA - Not analyzed

Table 13. Summary of Semivolatile Organic Compounds Detected in Groundwater Samples From Selected Wells in the BSPA During January and April Exxon Mobil Corporation Buffalo Terminal, Buffalo, New York.

Sample Designation:	SB-31	SB-31	SB-37	SB-37
Sample Date:	01/17/01	04/25/01	01/19/01	04/25/01
Parameters (Concentrations in µg/L)				
Acenaphthene	1 U	11 U	1 U	10 U
Anthracene	1 U	11 U	1 U	10 U
Benzo[a]anthracene	1 U	11 U	1 U	10 U
Benzo[a]pyrene	1 U	11 U	1 U	10 U
Benzo[b]fluoranthene	1 U	11 U	1 U	10 U
Benzo[g,h,i]perylene	1 U	11 U	1 U	10 U
Benzo[k]fluoranthene	1 U	11 U	1 U	10 U
Chrysene	1 U	11 U	1 U	10 U
Dibenzo[a,h]anthracene	1 U	11 U	1 U	10 U
Fluoranthene	1 U	11 U	1 U	10 U
Fluorene	1 U	11 U	1 U	10 U
Indeno[1,2,3-cd]pyrene	1 U	11 U	1 U	10 U
Naphthalene	1 U	1	1 U	10 U
Phenanthrene	1 U	11 U	1 U	10 U
Pyrene	1 U	11 U	1 U	10 U

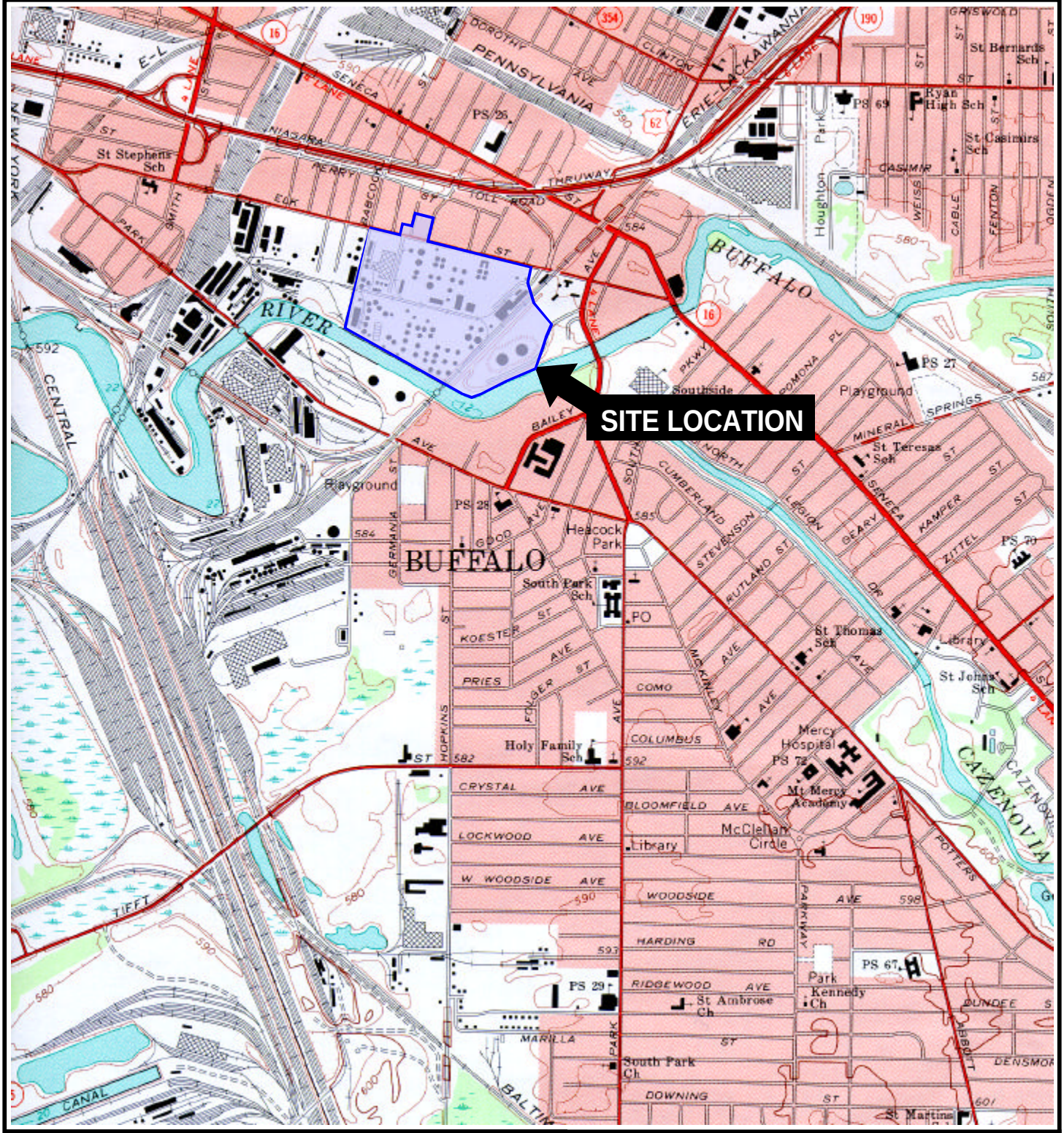
Notes:

µg/L - Micrograms per liter

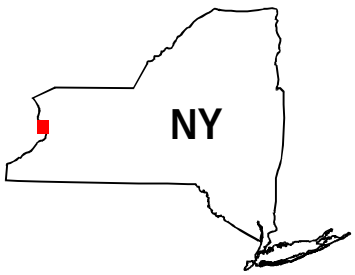
U - The analyte was analyzed for, but not detected above the reported quantitation limit.

J - The analyte was positively identified: the associated numerical value is the approximate concentration of the analyte in the sample.

NA - Not analyzed



QUADRANGLE LOCATION



N

0 2000’

SOURCE:
USGS; 1965, Buffalo SE, New York
7.5 Minute Topographic Quadrangle

Title:

SITE LOCATION MAP

BUFFALO TERMINAL

Prepared for:

EXXON MOBIL CORPORATION

ROUX ASSOCIATES, INC.
Environmental Consulting & Management

Compiled by: N.C.		Date: 21MAY01	FIGURE
Prepared by: G.M.		Scale: AS SHOWN	1
Project Mgr.: N.C.		Office: NY	
File No.: MC5214008.CDR		Project No.: 17252Y03	

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ELK STREET PROPERTIES AREA

BABCOCK STREET

PARCELS #1, #2 AND #3

GORHAM STREET

PARCEL #4

WINONA STREET

PARCEL #5

BRADFORD STREET

ELK STREET

BABCOCK STREET

LEASED TO CUSTOM TOP SOIL

FORMER REFINERY AREA

NORTHERN TANK YARD AREA

NORTHEAST PROCESS AND STORAGE AREA

ADMINISTRATIVE OFFICES AND OPERATIONS AREA

CENTRAL RAIL AND PROCESS AREA

BABCOCK STREET PROPERTIES AREA

SOUTHERN TANK YARD AREA

EASTERN TANK YARD AREA (FORMER DISPOSAL AREA)

BUFFALO RIVER

BUFFALO RIVER

80 75 25 26 90 99 38 97 171 87 104 105 175 176

N

LEGEND

- EXISTING TANK
- EXISTING STRUCTURE
- CURRENT PROPERTY LINE (BASED ON DENLUCK–O'NEILL ENGINEERING AND SURVEYING, DEC. 15, 1988; AND NUSSBAUMER & CLARKE, INC. FEBRUARY 6, 1995)
- GEOGRAPHIC AREA BOUNDARY AND/OR FORMER PROPERTY LINES

250' 0 250'

Title:

GEOGRAPHIC AREAS OF THE BUFFALO TERMINAL

BUFFALO TERMINAL, BUFFALO, NEW YORK

Prepared For:

EXXON MOBIL CORPORATION

ROUX ASSOCIATES, INC.
Environmental Consulting & Management

Compiled by: N.C.	Date: 21MAY01	FIGURE
Prepared by: R.K.	Scale: AS SHOWN	2
Project Mgr: N.C.	Office: NY	
File No: MC5214011	Project: 17252Y03	

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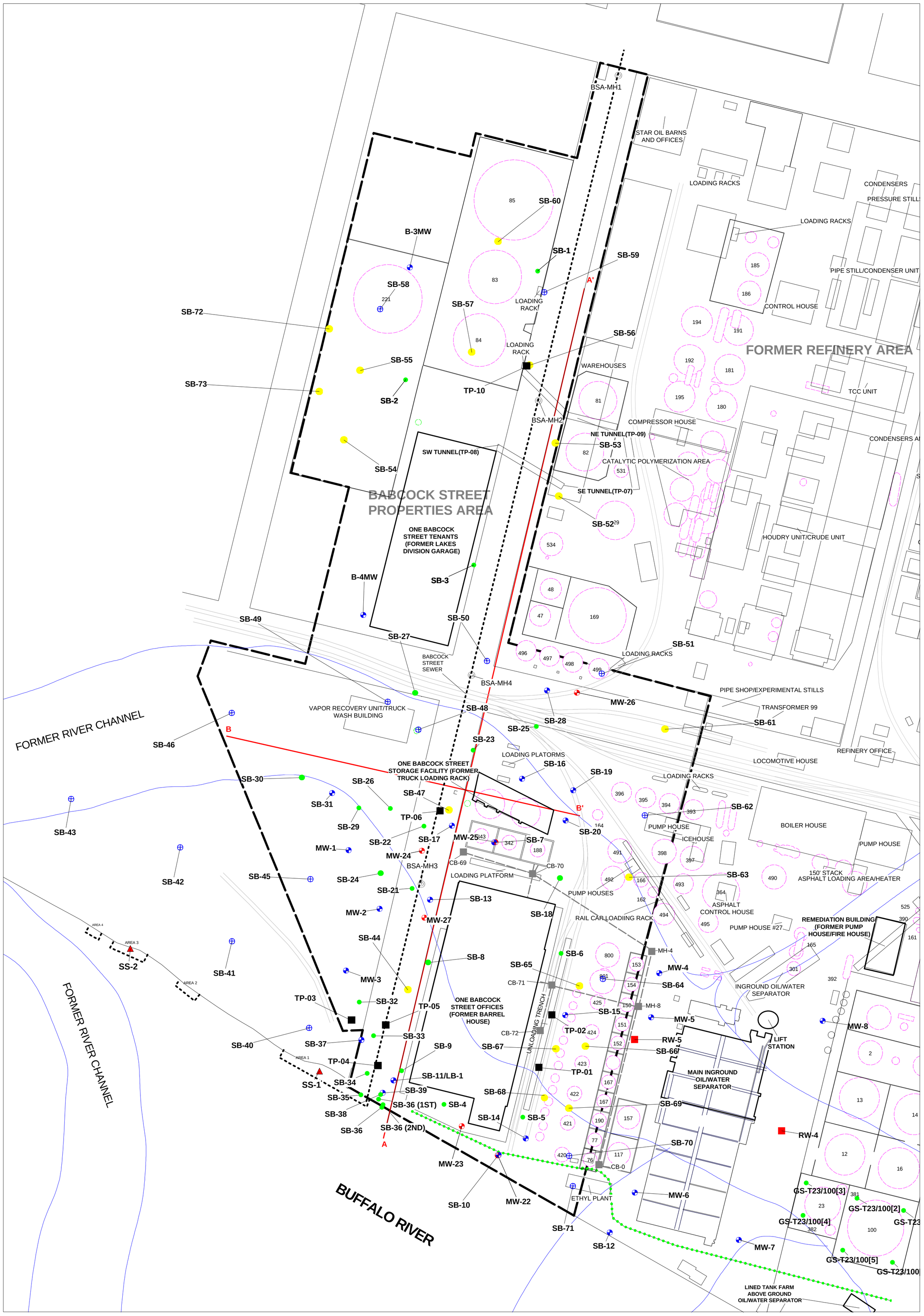


BSPA BORDER
WELL POINT SYSTEM
SEEPAGE AREA LIMITS
FORMER ABOVEGROUND STORAGE TANK
FORMER UNDERGROUND STORAGE TANK

EXPLANATION

FORMER RIVER CHANNEL
EXISTING STRUCTURE
FORMER STRUCTURE
FORMER RAILROAD TRACKS
A — A' LOCATION OF HYDROGEOLOGIC CROSS-SECTION

NEW SOIL BORING
NEW SOIL BORING WITH GROUNDWATER SAMPLE
NEW MONITORING WELL
TEST PIT LOCATION
SEDIMENT SAMPLE LOCATION

EXISTING MONITORING WELL
EXISTING MONITORING WELL
EXISTING SOIL BORING
CATCH BASIN
STORM SEWER PIPING
BSA SEWER MANHOLE

N

Title:

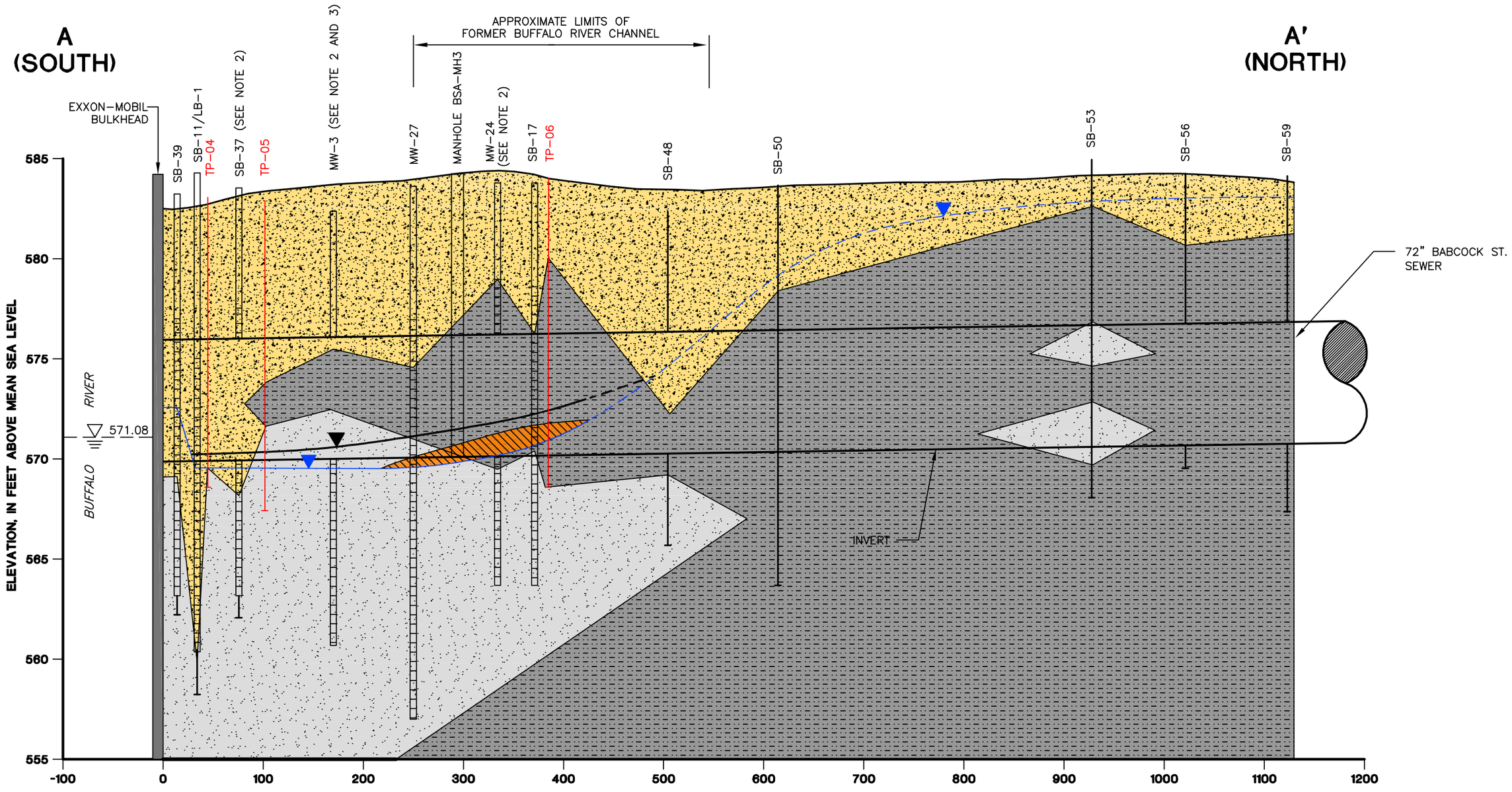
SITE LOCATION MAP WITH SAMPLING LOCATIONS

Prepared For:

EXXON MOBIL CORPORATION

ROUX ASSOCIATES INC
Environmental Consulting & Management

Compiled by: NC	Date: 5/21/01	PLATE	
Prepared by: NC	Scale: 1" = 70'		1
Project Mgr: NC	Office: NY		
File No: MCS2140Y01.WOR	Project: 17252Y03		



LEGEND

- GROUNDWATER TABLE ELEVATION ON THE WEST SIDE OF THE BABCOCK STREET SEWER (DASHED WHERE INFERRED)
- GROUNDWATER TABLE ELEVATION ON THE EAST SIDE OF THE BABCOCK STREET SEWER (DASHED WHERE INFERRED)
- RIVER LEVEL ELEVATION
- FILL MATERIAL CONSISTING OF BLACK CINDERS, CONCRETE, BRICK, GLASS, SLAG, WOOD, SILT, GRAVEL AND SAND
- ALLUVIAL DEPOSITS (SAND, SAND AND SILT, SAND AND GRAVEL, SILT AND SILTY SAND)
- CLAY (INCLUDES CLAY, SILT AND CLAY AND SAND AND CLAY)
- SEPARATE–PHASE PRODUCT
- MONITORING WELL LOCATION
- SOIL BORING LOCATION
- TEST PIT LOCATION

NOTES:

1. FOR LOCATION OF CROSS–SECTION A–A', SEE PLATE 1.
2. WELLS/BORINGS SB–37, MW–3, MW–24, SB–48, SB–56 AND SB–59 ARE LOCATED ON THE WEST SIDE OF THE BABCOCK STREET STREET SEWER. THE REMAINING WELLS/ BORINGS ARE LOCATED ON THE EAST SIDE OF THE SEWER.
3. FOR MW–3, THE ELEVATION OF THE TOP OF THE WELL SCREEN IS 573.9.
4. WATER/PRODUCT LEVEL DATA SHOWN WAS COLLECTED ON APRIL 19 AND 20, 2001.
5. AT TP–06, 13–15.5 FEET BLS, WELL ROUNDED GRAVEL (POSSIBLY FORMER RIVER CHANNEL MATERIAL) WAS WAS PRESENT WITHIN THE CLAY AND SILT

Title:

GENERALIZED HYDROGEOLOGIC CROSS-SECTION A - A'

BUFFALO TERMINAL, BUFFALO, NEW YORK

Prepared For:

EXXON MOBIL CORPORATION

ROUX ASSOCIATES, INC.
Environmental Consulting & Management

Compiled by: N.C.	Date: 21MAY01	FIGURE 3
Prepared by: B.H.C.	Scale: AS SHOWN	
Project Mgr: N.C.	Office: NY	
File No: MC5214012	Project: 17252Y03	

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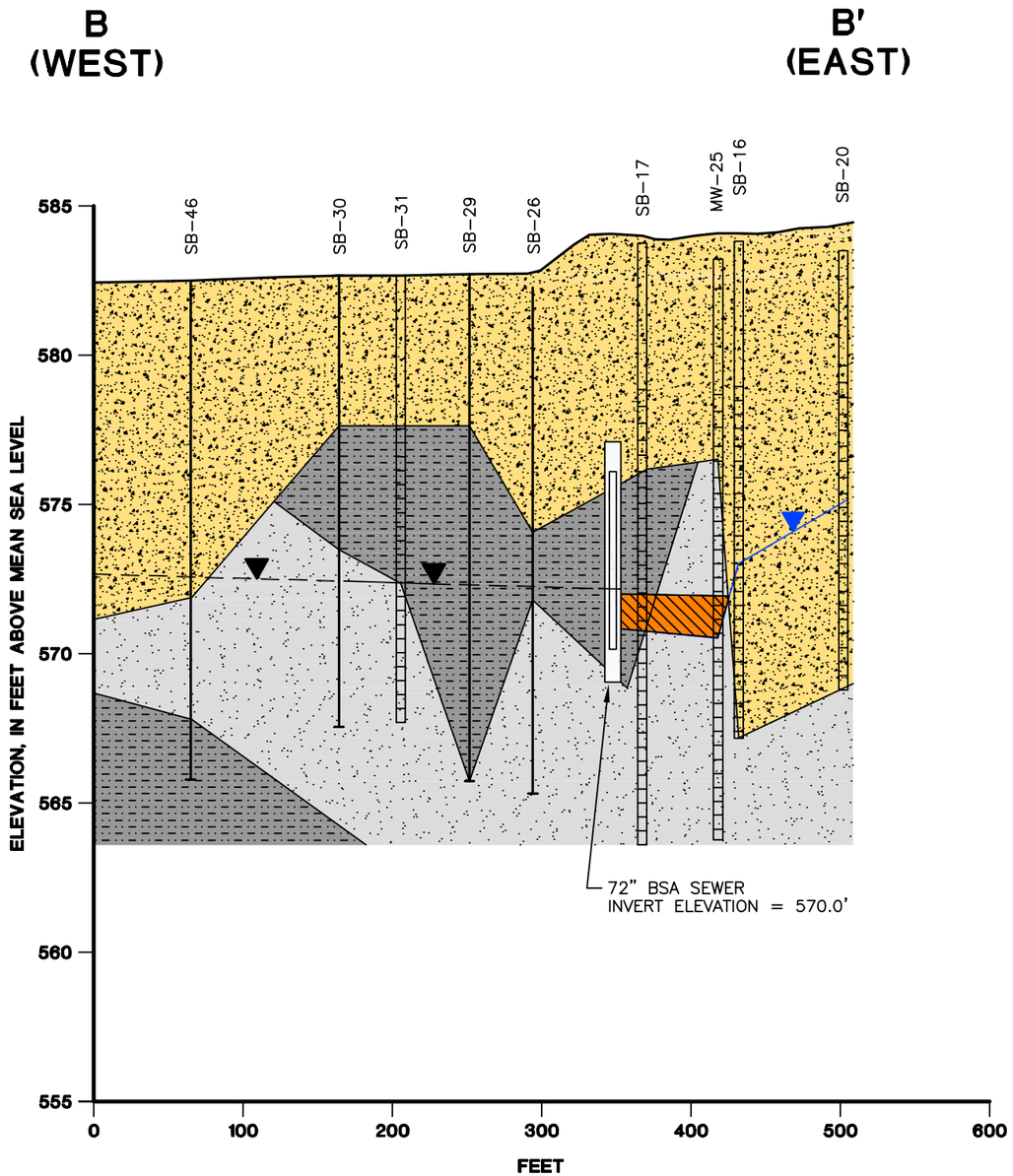

LEGEND

GROUNDWATER TABLE ELEVATION ON THE WEST SIDE OF THE BABCOCK STREET SEWER (DASHED WHERE INFERRED)

GROUNDWATER TABLE ELEVATION ON THE EAST SIDE OF THE BABCOCK STREET SEWER (DASHED WHERE INFERRED)

FILL MATERIAL CONSISTING OF BLACK CINDERS, CONCRETE, BRICK, GLASS, SLAG, WOOD, SILT, GRAVEL AND SAND

ALLUVIAL DEPOSITS (SAND, SAND AND SILT, SAND AND GRAVEL, SILT AND SILTY SAND)

CLAY (INCLUDES CLAY AND SAND AND CLAY)

SEPARATE-PHASE PRODUCT

MONITORING WELL LOCATION

SOIL BORING LOCATION

NOTES:
1. FOR LOCATION OF CROSS SECTION, SEE PLATE 1.
2. WATER/PRODUCT LEVEL DATA SHOWN WAS COLLECTED ON APRIL 19 AND 20, 2001.

Title:
GENERALIZED HYDROGEOLOGIC CROSS-SECTION B-B'

BUFFALO TERMINAL, BUFFALO, NEW YORK

Prepared For:
EXXON MOBIL CORPORATION

ROUX ASSOCIATES, INC.
Environmental Consulting & Management

Compiled by: N.C.	Date: 21MAY01	FIGURE
Prepared by: B.H.C.	Scale: AS SHOWN	4
Project Mgr: N.C.	Office: NY	
File No: MC5214013	Project: 17252Y03	

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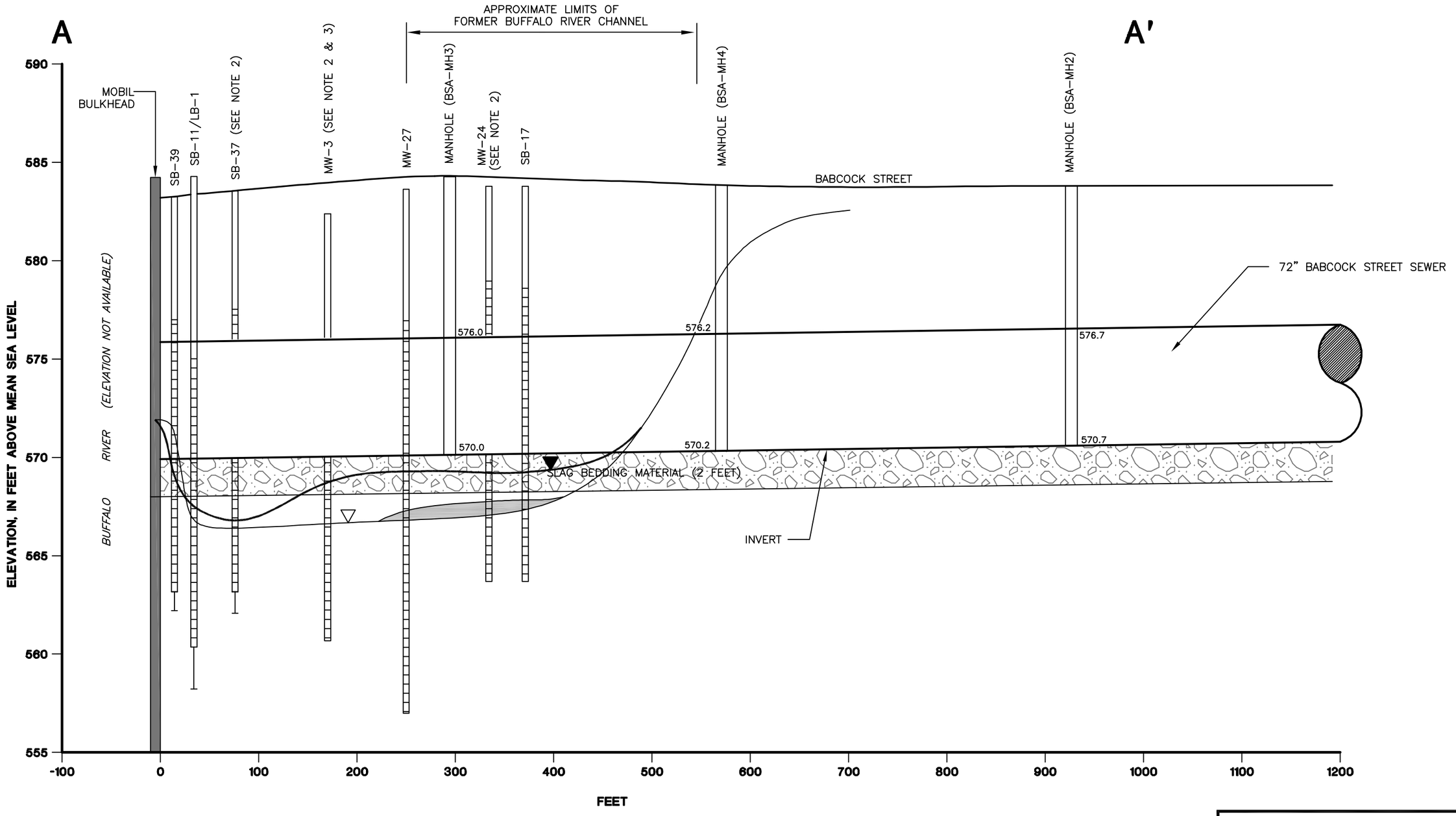

LEGEND

- GROUNDWATER TABLE ELEVATION ON THE WEST SIDE OF THE BABCOCK STREET SEWER
- GROUNDWATER TABLE ELEVATION ON THE EAST SIDE OF THE BABCOCK STREET SEWER
- SEPARATE PHASE PRODUCT

NOTES:

1. FOR LOCATION OF CROSS-SECTION A-A', SEE PLATE 1.
2. WELLS SB-37, MW-3 AND MW-24 ARE LOCATED ON THE WEST SIDE OF THE BABCOCK STREET SEWER. THE REMAINING WELLS ARE LOCATED ON THE EAST SIDE OF THE SEWER.
3. FOR MW-3, THE ELEVATION OF THE TOP OF THE WELL SCREEN IS 573.9.
4. BUFFALO RIVER ELEVATION WAS NOT AVAILABLE DUE TO RIVER BEING FROZEN.

Title:

CROSS-SECTION OF BABCOCK STREET SEWER WITH JANUARY 18 AND 19, 2001 WATER-LEVEL DATA

BUFFALO TERMINAL, BUFFALO, NEW YORK

Prepared For:

EXXON MOBIL CORPORATION

ROUX ASSOCIATES, INC.
Environmental Consulting & Management

Compiled by: N.C.	Date: 21MAY01	FIGURE
Prepared by: B.H.C.	Scale: AS SHOWN	5
Project Mgr: N.C.	Office: NY	
File No: MC5214009	Project: 17252Y03	

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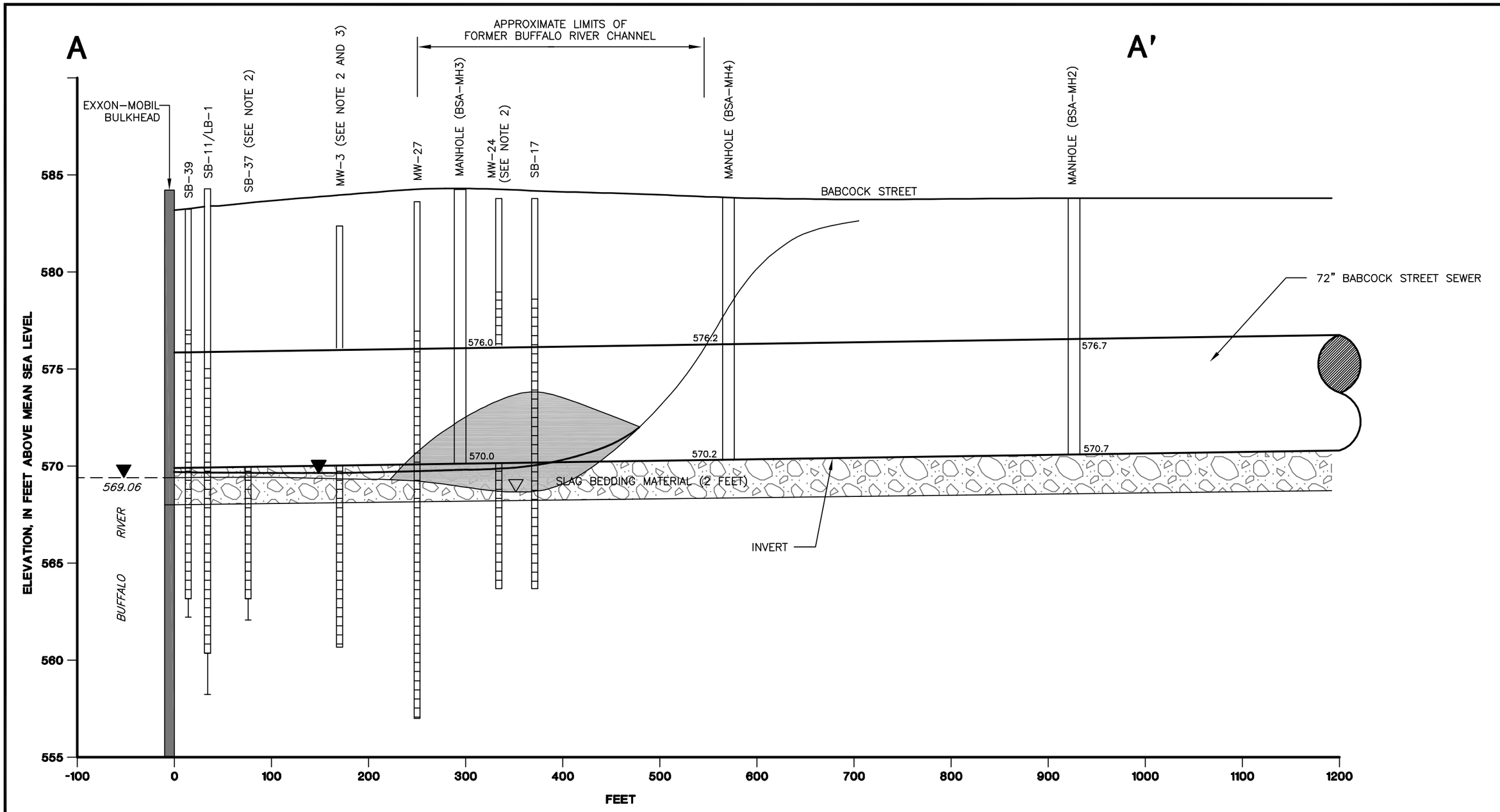

LEGEND

- GROUNDWATER TABLE ELEVATION ON THE WEST SIDE OF THE BABCOCK STREET SEWER
- GROUNDWATER TABLE ELEVATION ON THE EAST SIDE OF THE BABCOCK STREET SEWER
- RIVER LEVEL ELEVATION
- SEPARATE PHASE PRODUCT

NOTES:

1. FOR LOCATION OF CROSS–SECTION A–A', SEE PLATE 1.
2. WELLS SB–37, MW–3 AND MW–24 ARE LOCATED ON THE WEST SIDE OF THE BABCOCK STREET SEWER. THE REMAINING WELLS ARE LOCATED ON THE EAST SIDE OF THE SEWER.
3. FOR MW–3, THE ELEVATION OF THE TOP OF THE WELL SCREEN IS 573.9.
4. SB–39 AND MW–24 COULD NOT BE LOCATED DURING THE GAUGING ROUND.

Title:

CROSS-SECTION OF BABCOCK STREET SEWER WITH MARCH 16, 2001 WATER-LEVEL DATA

BUFFALO TERMINAL, BUFFALO, NEW YORK

Prepared For:

EXXON MOBIL CORPORATION

ROUX ASSOCIATES, INC.
Environmental Consulting & Management

Compiled by: N.C.	Date: 21MAY01	FIGURE
Prepared by: B.H.C.	Scale: AS SHOWN	6
Project Mgr: N.C.	Office: NY	
File No: MC5214010	Project: 17252Y03	

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AREA	Structure Number	Current Structure Name (Original Structure Name)
Northeast Process and Storage Area	21	Leased to Police Community Services (Main Office)
	22	Former Biotreatment Cell
	23	Gated Entrance
Northern Tank Yard Area	35	Sub-Station C
Former Refinery Area	69	Main Inground Oil/Water Separator
	73	Remediation Building (Pump House #25, Fire House)
Central Rail and Process Area	105	Brick Building (Dehydrator/Pipe Line Pump House #38)
	112	Tank Truck Loading Rack
Southern Tank Yard Area	133	Vapor Recovery Unit
Babcock Street Properties Area	135	One Babcock Street Offices (Barrel House)
	140	Various Tenants of One Block of Babcock Street (Lakes Division Garage)
	141	One Babcock Street Storage Building (Truck Loading Rack)
Administrative Offices and Operations Area	146	Electrical Sub-Station A (Furnace Room)
	150	Laboratory Building
	152	Main Office/Mechanical Shops
	153	Store House
Elk Street Properties Area		Parcel #4
		Parcel #5

LEGEND

- EXISTING TANK
- 153 — EXISTING STRUCTURE
- CURRENT PROPERTY LINE (BASED ON DENLUCK–O'NEILL ENGINEERING AND SURVEYING, DEC. 15, 1988; AND NUSSBAUMER & CLARKE, INC. FEBRUARY 6, 1995)
- GEOGRAPHIC AREA BOUNDARY AND/OR FORMER PROPERTY LINES
- MW-4 — LOCATION AND DESIGNATION OF MONITORING WELL
- RW-5 — LOCATION AND DESIGNATION OF RECOVERY WELL
- 569.07 / 5.20 — GROUNDWATER ELEVATION, MEASURED IN FEET ABOVE MEAN SEA LEVEL; FREE-PRODUCT THICKNESS IN FEET
- NM — NOT MEASURED
- ND — NOT DETECTED
- 584 — LINE OF EQUAL GROUNDWATER ELEVATION, MEASURED IN FEET ABOVE MEAN SEA LEVEL (DASHED WHERE INFERRED)
- APPROXIMATE GROUNDWATER FLOW DIRECTION
- WELL POINT SYSTEM
- SECTION OF WELL POINT SYSTEM NOT OPERATIONAL
- MH — LOCATION AND DESIGNATION OF MANHOLE
- SEPERATE-PHASE PRODUCT

WELL DESIGNATION	AVERAGE FLOW RATE FOR APRIL 2001 (GALLONS PER MINUTE)
RW-1 (7)	–
RW-2 (1)	–
RW-3	0.2
RW-4	1.3
RW-5	0.8
EASTERN WPS	94
WESTERN WPS (8)	–

NOTE:

1. THE RECOVERY WELL RW-2 DID NOT OPERATE DURING THE THIRD QUARTER.
2. LF-2D GROUNDWATER ELEVATION NOT USED; SCREENED AT DEEPER INTERVAL.
3. LF-2S AND ESI-5 GROUNDWATER ELEVATION NOT USED FOR CONTOURING DUE TO ANOMALOUSLY HIGH READING.
4. MW-4 GROUNDWATER ELEVATIONS NOT USED FOR CONTOURING DUE TO SUSPECTED PERCHED WATER ZONE.
5. SB-28 WATER TABLE ELEVATION WAS NOT USED AS IT WAS REPLACED BY WELL MW-26.
6. SB-7, SB-13 AND SB-10 WERE NOT GAUGED AS THEY WERE REPLACED BY MW-25, MW-27 AND MW-22, RESPECTIVELY.
7. RECOVERY WELL RW-1 DID NOT OPERATE DURING APRIL 2001.
8. FLOW METER WAS NOT FUNCTIONING PROPERLY DURING APRIL 2001.

120' 0 120'

Title:

GROUNDWATER POTENTIOMETRIC MAP APRIL 19 AND 20, 2001

BUFFALO TERMINAL, BUFFALO, NEW YORK

Prepared For:

EXXON MOBIL CORPORATION

ROUX ASSOCIATES, INC. Environmental Consulting & Management

Compiled by: N.C.	Date: 30MAY01	PLATE	3
Prepared by: R.K.	Scale: AS SHOWN		
Project Mgr: N.C.	Office: NY		
File No: MC5214007	Project: 17252Y03		

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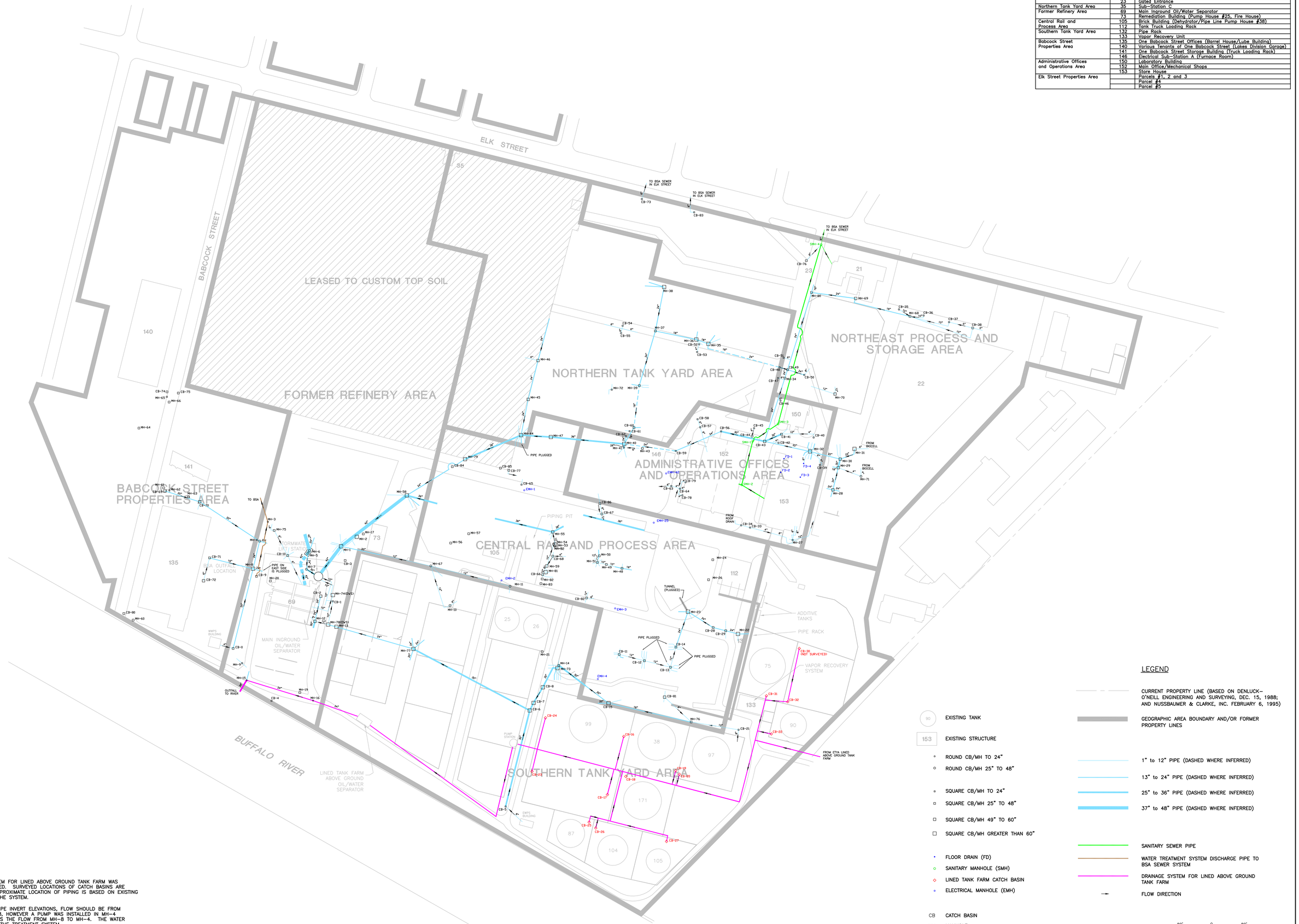
AREA	Structure Number	Current Structure (Original Structure Name)
Northeast Process and Storage Area	21	Leased to Police Community Services (Main Office)
	22	Biotreatment Cell
	23	Gated Entrance
Northern Tank Yard Area	35	Sub-Station C
Former Refinery Area	69	Main Inground Oil/Water Separator
	73	Remediation Building (Pump House #25, Fire House)
Central Rail and Process Area	105	Brick Building (Dehydrator/Pipe Line Pump House #38)
	112	Tank Truck Loading Rack
Southern Tank Yard Area	132	Pipe Rack
	133	Vapor Recovery Unit
Babcock Street Properties Area	135	One Babcock Street Offices (Barrel House/Lube Building)
	140	Various Tenants of One Babcock Street (Lakes Division Garage)
	141	One Babcock Street Storage Building (Truck Loading Rack)
Administrative Offices and Operations Area	146	Electrical Sub-Station A (Furnace Room)
	150	Laboratory Building
	152	Main Office/Mechanical Shops
	153	Store House
Elk Street Properties Area		Parcels #1, 2 and 3
		Parcel #4
		Parcel #5



NOTES:

1. DRAINAGE SYSTEM FOR LINED ABOVE GROUND TANK FARM WAS NOT INVESTIGATED. SURVEYED LOCATIONS OF CATCH BASINS ARE SHOWN AND APPROXIMATE LOCATION OF PIPING IS BASED ON EXISTING DRAWINGS OF THE SYSTEM.
2. BASED UPON PIPE INVERT ELEVATIONS, FLOW SHOULD BE FROM MH-4 TO MH-8, HOWEVER A PUMP WAS INSTALLED IN MH-4 WHICH REVERSES THE FLOW FROM MH-8 TO MH-4. THE WATER IS PUMPED TO THE TREATMENT SYSTEM.
3. ARROWS INDICATED DIRECTION OF FLOW. FLOW DIRECTION IS UNCERTAIN WHERE NOT INDICATED.
4. DETAILS REGARDING LINE SIZES NOT SHOWN ON THIS MAP ARE PRESENTED ON THE FIELD DATA SHEETS INCLUDED AS APPENDIX ___.
5. ONLY STRUCTURES CURRENTLY EXISTIG ON THE SITE ARE SHOWN.
6. EASTERN TANK YARD AREA (ETYA) AND DRAINAGE SYSTEM ASSOCIATED WITH THE LINED ABOVE GROUND TANK FARM ARE NOT SHOWN.

LEGEND

- 90 EXISTING TANK
- 153 EXISTING STRUCTURE
- ROUND CB/MH TO 24"
- ROUND CB/MH 25" TO 48"
- SQUARE CB/MH TO 24"
- SQUARE CB/MH 25" TO 48"
- SQUARE CB/MH 49" TO 60"
- SQUARE CB/MH GREATER THAN 60"
- FLOOR DRAIN (FD)
- SANITARY MANHOLE (SMH)
- LINED TANK FARM CATCH BASIN
- ELECTRICAL MANHOLE (EMH)

CB CATCH BASIN
MH MANHOLE
BSA BUFFALO SEWER AUTHORITY
EWPS EASTERN LEG OF WELL POINT SYSTEM
WWPS WESTERN LEG OF WELL POINT SYSTEM

- CURRENT PROPERTY LINE (BASED ON DENLUCK–O'NEILL ENGINEERING AND SURVEYING, DEC. 15, 1988; AND NUSSBAUMER & CLARKE, INC. FEBRUARY 6, 1995)
- GEOGRAPHIC AREA BOUNDARY AND/OR FORMER PROPERTY LINES
- 1" to 12" PIPE (DASHED WHERE INFERRED)
- 13" to 24" PIPE (DASHED WHERE INFERRED)
- 25" to 36" PIPE (DASHED WHERE INFERRED)
- 37" to 48" PIPE (DASHED WHERE INFERRED)
- SANITARY SEWER PIPE
- WATER TREATMENT SYSTEM DISCHARGE PIPE TO BSA SEWER SYSTEM
- DRAINAGE SYSTEM FOR LINED ABOVE GROUND TANK FARM
- FLOW DIRECTION

80' 0 80'

Title:

SEWER SYSTEM MAP

BUFFALO TERMINAL, BUFFALO, NEW YORK

Prepared For:

EXXON MOBIL CORPORATION

ROUX ASSOCIATES, INC. Environmental Consulting & Management

Compiled by: N.C.	Date: 21MAY01	PLATE
Prepared by: B.H.C.	Scale: AS SHOWN	2
Project Mgr: N.C.	Office: NY	
File No: MC5214014	Project: 17252Y03	

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APPENDIX A

Field Change Forms

FIELD CHANGE DOCUMENTATION

DATE: 6/15/00

FIELD CHANGE #: 1

PERSON REQUESTING CHANGE: N. Clarke

COMPANY/TITLE: Roux Associates / PM

FIELD CHANGE: Soil Boring location SB-48 moved approximately 25 feet east and 40 feet west of original location

REASON FOR FIELD CHANGE: Location moved per the request of NYSDEC to investigate the former underground structures associated with the VRU / Truck Wash building. Boring was moved also to avoid a tanker truck parked in the revised location.

ACKNOWLEDGEMENT:

WORK PLAN ADDENDUM REQUIRED (Y/(N)):

ADDENDUM SUBMITTED TO:

ADDENDUM SUBMITTED TO:

FIELD CHANGE DOCUMENTATION

DATE: 6/29/00 FIELD CHANGE #: 2

PERSON REQUESTING CHANGE: M Falzone

COMPANY/TITLE: GEI /PM

FIELD CHANGE: Soil boring Location
SB-45 moved approximately 30 feet
east of original location

REASON FOR FIELD CHANGE:
Pinto Construction's piles of gravel/stone
were covering the original location.

ACKNOWLEDGEMENT:

WORK PLAN ADDENDUM REQUIRED (Y/N): (N)

ADDENDUM SUBMITTED TO:

ADDENDUM SUBMITTED TO:

FIELD CHANGE DOCUMENTATION

DATE: 6/29/00 FIELD CHANGE #: 3

PERSON REQUESTING CHANGE: M. Falzone

COMPANY/TITLE: GEI/PM

FIELD CHANGE: Excavation at test pit locations TP-07, TP-08 and TP-09 was not necessary

REASON FOR FIELD CHANGE: Existing tunnel access structures would be used to inspect the pipe tunnels beneath Babcock Street.

ACKNOWLEDGEMENT:

WORK PLAN ADDENDUM REQUIRED (Y/(N):

ADDENDUM SUBMITTED TO:

ADDENDUM SUBMITTED TO:

FIELD CHANGE DOCUMENTATION

DATE: 7/6/00 - 10/5/00 FIELD CHANGE #: 4

PERSON REQUESTING CHANGE: M. Falzone

COMPANY/TITLE: GES / PM

FIELD CHANGE: Drilling at Soil boring location SB-67 was postponed in July to october. The location was moved approximately 20 feet east of the orginal location

REASON FOR FIELD CHANGE:

Boring was postponed and moved due to encountering piping and refusal at the orginal location and several intermediate locations.

ACKNOWLEDGEMENT:

WORK PLAN ADDENDUM REQUIRED (Y/(N)):

ADDENDUM SUBMITTED TO:

ADDENDUM SUBMITTED TO:

FIELD CHANGE DOCUMENTATION

DATE: 7/7/00 FIELD CHANGE #: 5

PERSON REQUESTING CHANGE: M. Falzone

COMPANY/TITLE: GES / PM

FIELD CHANGE: Test pit location TP-03 moved from PVS chemicals property onto the BSPA (approximately 45 feet northeast)

REASON FOR FIELD CHANGE: Location was moved due to access issues with PVS chemicals.

ACKNOWLEDGEMENT:

WORK PLAN ADDENDUM REQUIRED (Y/(N)):

ADDENDUM SUBMITTED TO:

ADDENDUM SUBMITTED TO:

FIELD CHANGE DOCUMENTATION

DATE: 7/11/2000 FIELD CHANGE #: 6

PERSON REQUESTING CHANGE: M. Falzone

COMPANY/TITLE: GEI/PM

FIELD CHANGE: Soil boring location SB-47 move approximately 30 feet west and 15 feet south of original location

REASON FOR FIELD CHANGE: Original location was inside the containment area for Pinto construction's aboveground Storage tank. Location was moved further west to avoid a gas line.

ACKNOWLEDGEMENT:

WORK PLAN ADDENDUM REQUIRED (Y/(N)):

ADDENDUM SUBMITTED TO:

ADDENDUM SUBMITTED TO:

FIELD CHANGE DOCUMENTATION

DATE: 7/12/00

FIELD CHANGE #: 1

PERSON REQUESTING CHANGE: M. Falzone

COMPANY/TITLE: GBS / PM

FIELD CHANGE: Eliminate geoprobe groundwater sample at SB-56 location.

REASON FOR FIELD CHANGE:
Sample was collected but product was present. Sample was discarded.

ACKNOWLEDGEMENT:

WORK PLAN ADDENDUM REQUIRED (Y/(N))

ADDENDUM SUBMITTED TO:

ADDENDUM SUBMITTED TO:

FIELD CHANGE DOCUMENTATION

DATE: 7/19/00

FIELD CHANGE #: 8

PERSON REQUESTING CHANGE: M. Falzone

COMPANY/TITLE: GES / P.M.

FIELD CHANGE: Boring SB-44 moved 15-20 Ft due west of original location

REASON FOR FIELD CHANGE: Encountered refusal which appears to be a drain line, situated N-S

ACKNOWLEDGEMENT:

WORK PLAN ADDENDUM REQUIRED (Y/(N)):

ADDENDUM SUBMITTED TO:

ADDENDUM SUBMITTED TO:

FIELD CHANGE DOCUMENTATION

DATE: 7/19/00 FIELD CHANGE #: 9

PERSON REQUESTING CHANGE: M. Falzone

COMPANY/TITLE: GES / PM

FIELD CHANGE: Boring SB-65 moved ~20-25 ft East and ~5 ft south of the original location

REASON FOR FIELD CHANGE:

At the original location and 2 "close-by" offset locations the subcontractor encountered piping.

ACKNOWLEDGEMENT:

WORK PLAN ADDENDUM REQUIRED (Y/(N))

ADDENDUM SUBMITTED TO:

ADDENDUM SUBMITTED TO:

FIELD CHANGE DOCUMENTATION

DATE: 7/19/00 FIELD CHANGE #: 10

PERSON REQUESTING CHANGE: M. Falzone

COMPANY/TITLE: GES/PM

FIELD CHANGE: Boring SB-68 be moved 15 ft East from original location

REASON FOR FIELD CHANGE: The first two locations attempted were unsuccessful subsurface piping was encountered

ACKNOWLEDGEMENT:

WORK PLAN ADDENDUM REQUIRED (Y/(N)):

ADDENDUM SUBMITTED TO:

ADDENDUM SUBMITTED TO:

FIELD CHANGE DOCUMENTATION

DATE: 7/19/00 FIELD CHANGE #: 11

PERSON REQUESTING CHANGE: M. Falzone

COMPANY/TITLE: GES/ P.M.

FIELD CHANGE: Use ziplock bag to containerize all soil removed from sample liner. PID immediatly, then set bag in cooler. Upon completion of borings, the soil would be ~~contaminated~~ placed into bottles

REASON FOR FIELD CHANGE: Needed to provide enough time to complete log, assist driller, and screen samples

ACKNOWLEDGEMENT:

WORK PLAN ADDENDUM REQUIRED (Y/(N))

ADDENDUM SUBMITTED TO:

ADDENDUM SUBMITTED TO:

FIELD CHANGE DOCUMENTATION

DATE: 10/2000

FIELD CHANGE #: 12

PERSON REQUESTING CHANGE: N. Clarke

COMPANY/TITLE: Roux Associates / PM

FIELD CHANGE: Added locations SB-72 and SB-73 (shallow soil borings)

REASON FOR FIELD CHANGE:
2 additional shallow soil borings required along western BSPA border north of Prentiss street to complete delineation.

ACKNOWLEDGEMENT:

WORK PLAN ADDENDUM REQUIRED (Y/(N):

ADDENDUM SUBMITTED TO:

ADDENDUM SUBMITTED TO:

FIELD CHANGE DOCUMENTATION

DATE: 4/5/01 FIELD CHANGE #: 13

PERSON REQUESTING CHANGE: Marc Falzone

COMPANY/TITLE: GES / PM

FIELD CHANGE: 1) SB-43 moved approx 20' SW of original location 2) Moved SB-42 approx 25' NE.

REASON FOR FIELD CHANGE: 1) Requests by PVS Chemical representative to move boring to a location outside of a truck parking area.
2) Location of SB-42 was on a concrete slab, a Hampton 8 locations closer to original location

ACKNOWLEDGEMENT:

WORK PLAN ADDENDUM REQUIRED (Y/(N)):

ADDENDUM SUBMITTED TO:

ADDENDUM SUBMITTED TO:

APPENDIX B

Building Reconnaissance Field Notes

CONTENTS

PAGE NO.	REFERENCE	DATE

6/28/00 17252Y03 (1)

0915 N.C. arrives @ Terminal & checks in the office.

0930 N.C goes to Pinto construction to meet J. Abel & Exxon Mobil and checks in w/ Pinto

0935 J. Abel arrives @ Pinto construction

Weather: Sunny, warm

Purpose & site visit: Building Inspections on Babcock Street Properties Area (BSPA)

Brief meeting held in Pinto construction office (Former Barrel House / Lube Building) to discuss the plan for building inspections and remediations issues. George and Jim Panapinto were present.

Purpose & building inspections is to identify drains within the buildings or other potential remedial concerns.

nme

~10:00 Begin building inspections at the building constructed at the former Loading Rack Location.

Former Loading Rack

- Building used for storage of construction equipment and supplies

- Building exterior walls were installed over existing Loading Rack Canopy. Loading Rack Piping inside building was removed.

- No drains were visible inside the building except for roof drains that ran along the inside of the building walls then exited building. The roof drains were re-piped by Pinto with PVC. The ultimate discharge location of the roof drains was not known but may be

MMC

UST located on west side of bldg.

- The floor inside the former Loading Rack Building was very wet in several areas. The Panapintos explained that water comes in under the doors and puddles inside the building.

Former Vapor Recovery Unit (VRU)/ Truck Wash Bldg

- Identified a hole in the ground on the east side of the former VRU with a metal plate covering it.
- Should check into its purpose during the sewer investigation.

Former Lakes Division Garage

- Building occupied by several tenants

MMC

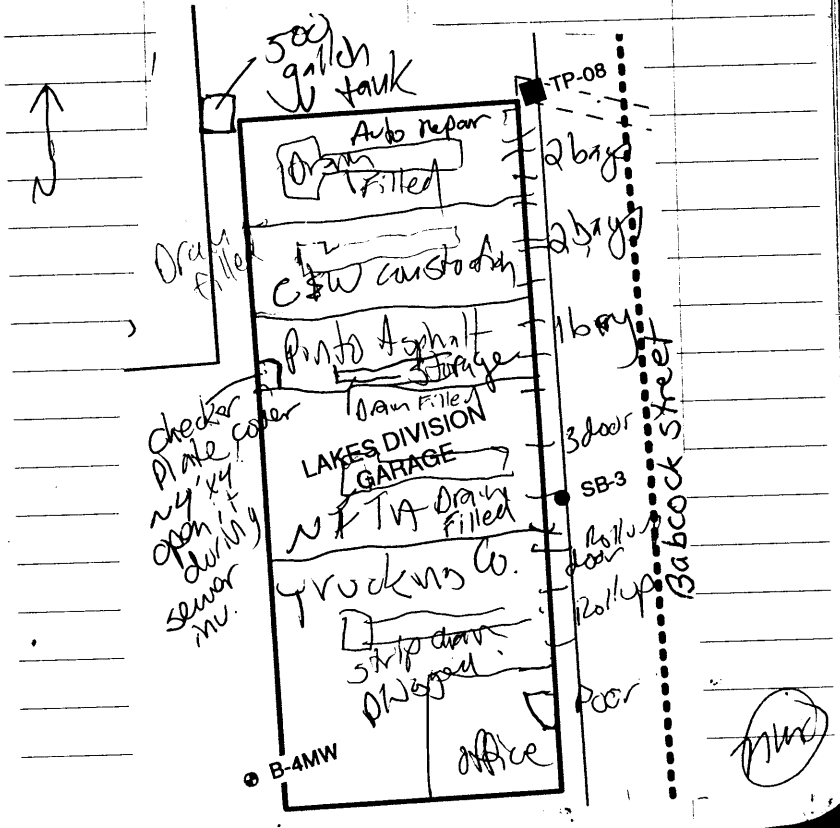
- Each portion of the building that is occupied by a different tenant has a strip drain running from west to east across the building. The drains were all filled in with concrete. Pinto filled in several of the drains recently after cleaning them out. Pinto has the manifests for the material removed. One of the drains had been filled some time before Pinto completed their recent work. The Panapintos ~~were~~ did not believe the drains were connected to each other. They also did not know where the drains discharged to.

- Identified a 4'x4' metal plate in Pinto's asphalt storage bay (southwest corner).
  * Remove cover and check during sewer investigation

NMC

- Panapintos identified the location of a 500 gallon fuel oil UST at the northwest corner of the building. The tank was removed.

~~(Add notes taken on plan)~~



NMC

- Walked area near former pipe tunnels
- The southern tunnel exists and is filled with water at both ends. Tunnel can be accessed from the ends. The entrance on the west side of Babcock street was covered with wire fencing material. The entrance on the east side of Babcock is inside the fence separating BSPA from FRA (on FRA side).
- Need to relocate test pits and borings on east side of Babcock b/c they are located on/near natl gas main.
- The entrance to the northern pipe tunnel on the east side of Babcock st exists. It

MMC

is a pit with sewer pipes - briefly examined construction drawing - will return later to look at plan

C. Panapinto leaves

Former Barrel House / Lube Building

- J. Abel, N. Clarke & J. Panapinto inspect building
- First Floor
  - A plugged floor drain exists near the entrance to first floor on northwest side of building
  - A bathroom with a sink exists at the south west end of building. Use and discharge location unknown.
  - Many product pipes are

MMC

visible on first floor. Several pipes exit the building on the east side.

- Drain lines (roof drains) exit the building on the first floor on east and west sides of building. One drain on the southwest side was re-piped with PVC out a window to the ground
- There are 3 drains that lead from the second floor through the ceiling of the first floor. The pipes are manifolded together and then connect to the roof drain at the ~~west~~ east side of building (3rd column from SE corner). It appears that there was a restroom on the second floor and that the discharge from

nme

the restroom combined with the roof drainage before exiting the building. The pipes on the second floor are cut flush with the floor and are inactive

J. Abel and J. Panapinto inspected the tanks and kettles on second and third floors.

- the roof was inspected and was dry.
- Roof drains were visible and lead down through the building first floor and out
- Completed building inspections at ~ 12:00.

J Abel & W. Clarke left site for lunch

nme

APPENDIX C

Soil Boring and Monitoring Well Logs

ROUX ASSOCIATES, INC.
Environmental Consulting & Management

1377 Motor Parkway
Islandia, NY 11749
Telephone: 631-232-2600
Fax: 631-232-9898

WELL CONSTRUCTION LOG

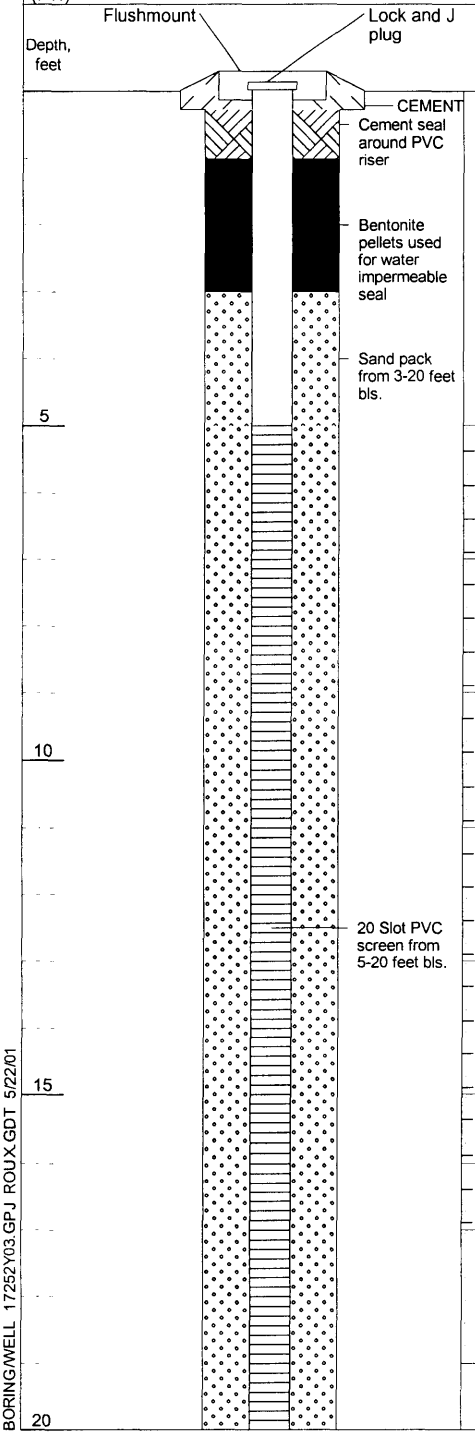
WELL NO.	NORTHING	EASTING
MW-22		

PROJECT NO./NAME	LOCATION
17252Y03 / ExxonMobil Buffalo Terminal	**625 Elk Street**
APPROVED BY: **N. Clarke** / LOGGED BY: **M. Falzone**	**Buffalo, New York**
DRILLING CONTRACTOR/DRILLER: **SJB / Art**	GEOGRAPHIC AREA: **BSPA**

DRILL BIT DIAMETER/TYPE	BOREHOLE DIAMETER	DRILLING EQUIPMENT/METHOD	SAMPLING METHOD	START-FINISH DATE
4-in. /	**10 1/4-inches**	**ICME 75 / HSA**	**2" Split Spoon**	**-7/20/00**

CASING MAT./DIA.: **PVC / 4-inch** — SCREEN: TYPE **Slotted** MAT. **PVC** TOTAL LENGTH **15.0** DIA. **4-inch** SLOT SIZE **20-Slot**

ELEVATION OF: (FT.) GROUND SURFACE / TOP OF WELL CASING / TOP & BOTTOM SCREEN **/** GW SURFACE / GRAVEL PACK



Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
5		Coarse SAND with some Clay, black staining; Moist to wet	1, 3, 1	77.5	Petroleum odor, 25% recovery
		Olive-grey coarse to medium SAND and Clay, some Silt, fine Gravel, black staining; Moist	2, 1, 2, 2	108.5	Petroleum odor, 50% recovery
10		Olive-grey soft CLAY with some fine to medium Sand, little Silt, black staining; Moist to wet	1, 1, 1	155	Petroleum odor, 50% recovery
		Olive-grey fine to medium loose SAND with some Clay, little Silt, black staining; Wet	2, 1, 1, 2	46.5	Petroleum odor
		Olive-grey fine to medium loose SAND with some Clay, little Silt	2, 1, 2, 2	92.0	Petroleum odor
15		Olive-grey fine to medium loose SAND, little Clay and Silt	18, 1	124	Petroleum odor
		Olive-grey fine to medium loose SAND, little Clay and Silt, some wood chips			
		Olive-grey fine, medium and coarse very loose SAND, with lenses of fine Gravel (subrounded to rounded)	2, 1, 2	139.5	Petroleum odor
20					Bottom of boring at 19 feet bls., bottom of well at 20 feet bls.

BORING/WELL 17252Y03.GPJ ROUX.GDT 5/22/01

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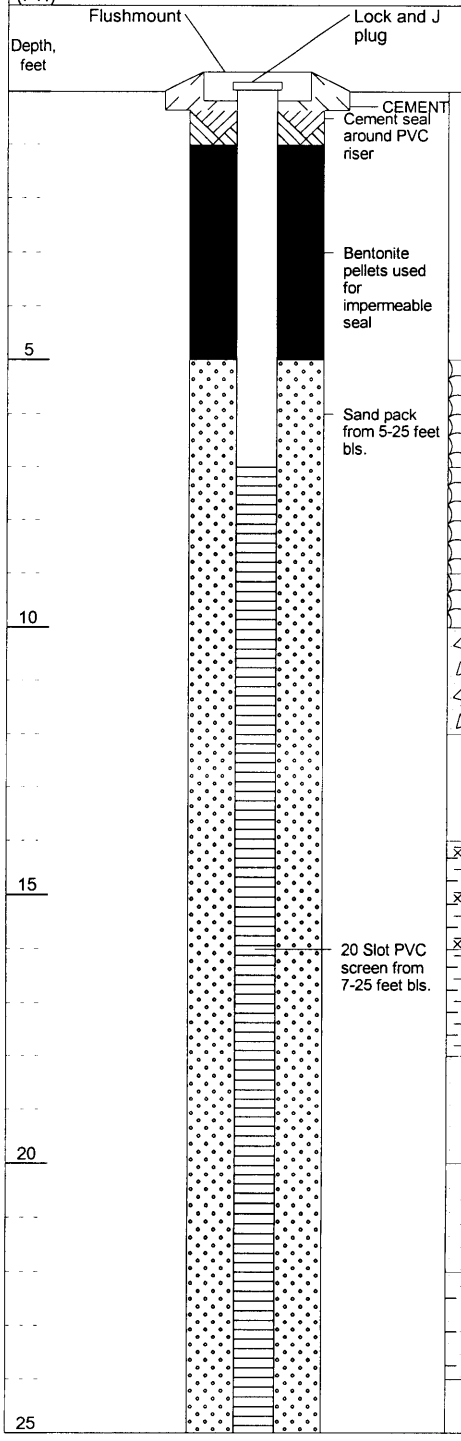
WELL CONSTRUCTION LOG

WELL NO.	NORTHING	EASTING		
MW-23				
PROJECT NO./NAME		LOCATION		
17252Y03 / ExxonMobil Buffalo Terminal		**625 Elk Street**		
APPROVED BY	LOGGED BY	**Buffalo, New York**		
N. Clarke	**M. Falzone**			
DRILLING CONTRACTOR/DRILLER		GEOGRAPHIC AREA		
SJB / Art		**BSPA**		
DRILL BIT DIAMETER/TYPE	BOREHOLE DIAMETER	DRILLING EQUIPMENT/METHOD	SAMPLING METHOD	START-FINISH DATE
2-in. /	**10 1/4-inches**	**ICME 75 / HSA**	**2" Split Spoon**	**7/20/00-7/20/00**
CASING MAT./DIA.	SCREEN:			
PVC / 4-inch	TYPE **Slotted** MAT. **PVC** TOTAL LENGTH **18.0** DIA. **4-inch** SLOT SIZE **20-Slot**			
ELEVATION OF: (FT.)	GROUND SURFACE	TOP OF WELL CASING	TOP & BOTTOM SCREEN /	GW SURFACE / GRAVEL PACK



Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
5		FILL - Black coarse SAND, some Silt and Brick; Moist	2 1 1 2	0.0	5% recovery
		FILL - Olive grey CLAY, some Silt, Brick, Wood, and Concrete	2 1 2 2	0.0	75% recovery
10		FILL - Olive-gray/Light-brown coarse SAND, some Silt, Ash, and Slag throughout; Wet	1 1	0.0	50% recovery
		FILL - Olive-gray/light-brown coarse to medium SAND with some Silt, Ash and Slag grading to a Clay with little Silt, black staining	1 1 1 1	32.7	Petroleum odor, 60% recovery
		No recovery			
15		Olive-grey CLAY with little Silt and fine Sand, Black staining thoughout		73.1	Petroleum odor, 75% recovery
		Olive-grey fine to medium SAND, trace of Clay		108	Petroleum odor, 75% recovery
		Olive-grey fine to medium SAND, trace of Clay		72.5	Petreleum odor, 75% recovery
20		Olive-grey fine to medium SAND, trace of Clay		62	Petroleum odor
		Olive-grey fine to medium SAND with little Clay, lenses of Silt and Clay noted from 22-23 feet bls.	1 1 2 2	462	Petroleum odor
25					Bottom of boring at 24 feet bls., bottom of well at 25 feet bls.

BORING/WELL 17252Y03.GPJ ROUX.GDT 5/22/01

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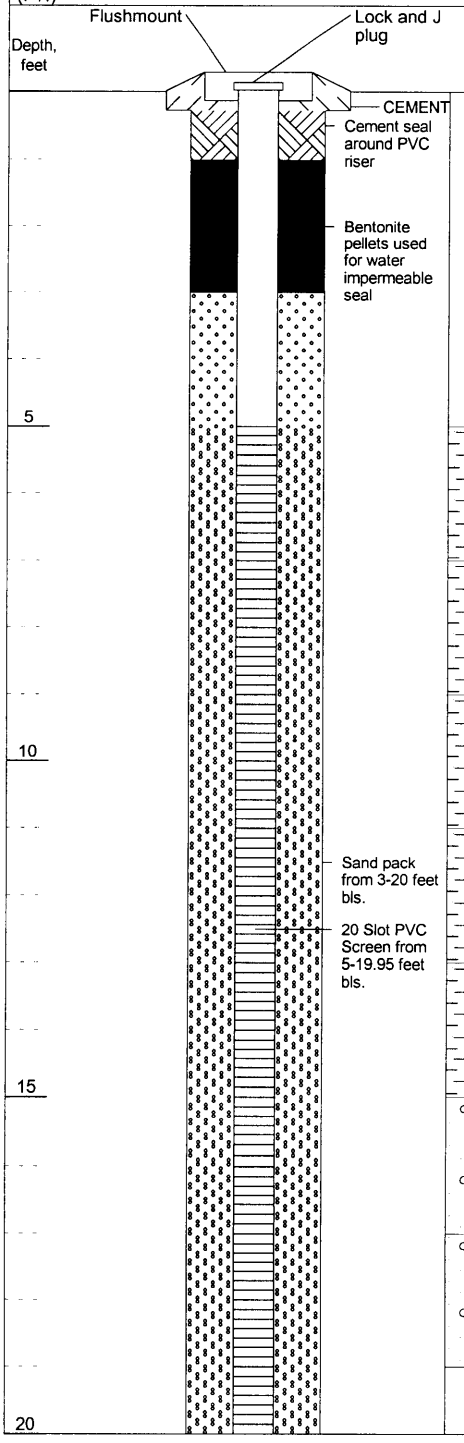
WELL CONSTRUCTION LOG

WELL NO.	NORTHING	EASTING		
MW-24				
PROJECT NO./NAME		LOCATION		
17252Y03 / ExxonMobil Buffalo Terminal		**625 Elk Street**		
APPROVED BY	LOGGED BY	**Buffalo, New York**		
N. Clarke	**M. Falzone**			
DRILLING CONTRACTOR/DRILLER		GEOGRAPHIC AREA		
SJB / Art		**BSPA**		
DRILL BIT DIAMETER/TYPE	BOREHOLE DIAMETER	DRILLING EQUIPMENT/METHOD	SAMPLING METHOD	START-FINISH DATE
2-in. /	**10 1/4-inches**	**ICME 75 / HSA**	**2" Split Spoon**	**7/21/00-7/21/00**
CASING MAT./DIA.	SCREEN:			
PVC / 4-inch	TYPE **Slotted** MAT. **PVC** TOTAL LENGTH **15.0** DIA. **4-inch** SLOT SIZE **20-Slot**			
ELEVATION OF: (FT.)	GROUND SURFACE	TOP OF WELL CASING	TOP & BOTTOM SCREEN /	GW SURFACE / GRAVEL PACK



Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
5		Olive-grey CLAY with some coarse to medium Sand, trace of fine to coarse Gravel, Wood noted; Moist	1 6 2	4	40% recovery
		Red-brown CLAY with little coarse Sand, trace angular Gravel	3 2 2 2	42	Petroleum odor, 50% recovery
10		Red-brown CLAY with little soft medium to coarse Sand, trace angular Gravel; Wet	1 1 2	40	Petroleum odor, 25% recovery
		Red-brown/light-brown soft CLAY with some coarse Sand, little angular Gravel	2 1 3 3	68	Sheen, petroleum odor, 60% recovery
		Red-brown/light-brown soft CLAY with some coarse Sand, little angular Gravel	1 1 1	5	Sheen, petroleum odor, 5% recovery
15		Olive-grey medium to coarse loose SAND with some angular Gravel, little Clay	1 1 1	68	Sheen, petroleum odor
		Olive-grey medium to coarse loose SAND with some angular Gravel, trace of Clay grading to a red-brown Till: Clay with little angular Gravel, trace fine Sand	1 1 1	0.0	
20					Bottom of boring at 19 feet bls., bottom of well at 19.95 feet bls.

BORING/WELL 17252Y03.GPJ ROUX.GDT 5/22/01

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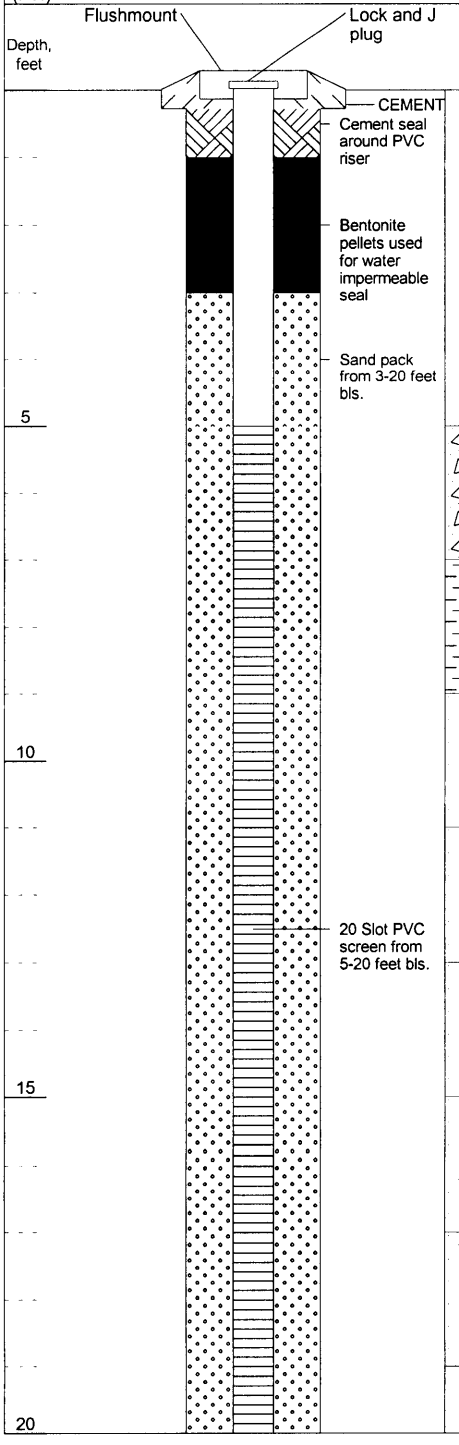
WELL CONSTRUCTION LOG

WELL NO.: **MW-25**	NORTHING:	EASTING:		
PROJECT NO./NAME: **17252Y03 / ExxonMobil Buffalo Terminal**		LOCATION: **625 Elk Street**		
APPROVED BY: **N. Clarke**	LOGGED BY: **M. Falzone**	**Buffalo, New York**		
DRILLING CONTRACTOR/DRILLER: **SJB / Art**		GEOGRAPHIC AREA: **BSPA**		
DRILL BIT DIAMETER/TYPE: **2-in. /**	BOREHOLE DIAMETER: **10 1/4-inches**	DRILLING EQUIPMENT/METHOD: **ICME 75 / HSA**	SAMPLING METHOD: **2" Split Spoon**	START-FINISH DATE: **7/21/00-7/21/00**
CASING MAT./DIA.: **PVC / 4-inch**	SCREEN: TYPE **Slotted** MAT. **PVC**	TOTAL LENGTH **15.0**	DIA. **4-inch**	SLOT SIZE **20-Slot**
ELEVATION OF: (FT.)	GROUND SURFACE	TOP OF WELL CASING	TOP & BOTTOM SCREEN **/**	GW SURFACE / GRAVEL PACK



Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
5		FILL - Brown coarse SAND and fine angular Gravel, some Brick; Wet	1 1 1	350	Product globules noted, 20% recovery
		Red-brown TILL, medium stiff CLAY, trace of coarse angular Gravel; Wet	12 1 1	280	Product globules noted
10		Olive-grey medium to coarse SAND with some fine angular Gravel	2 4 5	320	Product globules noted, 50% recovery
		Olive-grey medium coarse SAND with little fine subrounded Gravel and Clay	7 8 2 2	385	Product noted, 75% recovery
		Olive-grey medium coarse SAND with little fine subrounded Gravel and Clay	1 2 2 2		Product noted, 10% recovery
15		Olive-grey medium coarse SAND with little fine angular Gravel and Clay	1 3 2 2	180	Product noted, 10% recovery, wood in basket
		Olive-grey/grey coarse SAND and fine angular Gravel, pieces of organic material	3 5 5 3	220	Product noted, 50% recovery
20					Bottom of boring at 19 feet bls., bottom of well 20 feet bls.

BORING/WELL 17252Y03.GPJ ROUX.GDT 5/22/01

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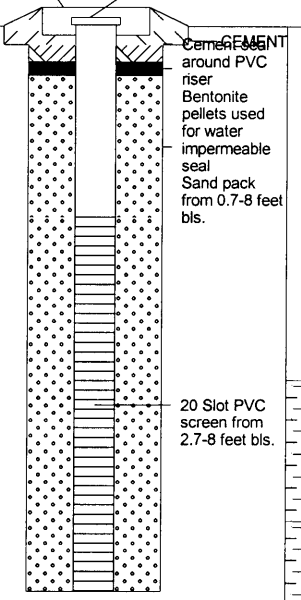
WELL CONSTRUCTION LOG

WELL NO.	NORTHING	EASTING			
MW-26					
PROJECT NO./NAME		LOCATION			
17252Y03 / ExxonMobil Buffalo Terminal		**625 Elk Street**			
APPROVED BY	LOGGED BY	**Buffalo, New York**			
N. Clarke	**M. Falzone**				
DRILLING CONTRACTOR/DRILLER		GEOGRAPHIC AREA			
SJB / Art		**BSPA**			
DRILL BIT DIAMETER/TYPE	BOREHOLE DIAMETER	DRILLING EQUIPMENT/METHOD	SAMPLING METHOD	START-FINISH DATE	
2-in. /	**10 1/4-inches**	**ICME 75 / HSA**	**2" Split Spoon**	**7/24/00-7/24/00**	
CASING MAT./DIA.	SCREEN:				
PVC / 4-inch	TYPE **Slotted** MAT. **PVC** TOTAL LENGTH **7.3** DIA. **4-inch** SLOT SIZE **20-Slot**				
ELEVATION OF:	GROUND SURFACE	TOP OF WELL CASING	TOP & BOTTOM SCREEN	GW SURFACE	GRAVEL PACK
(FT.)			/		



Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
					Thin layer of product on water at 1 foot bls.
5		Olive-grey/yellow-orange CLAY with some coarse to medium, medium-stiff Sand, trace of Silt and Gravel; Moist to dry	4 5 6	15.5	Petroleum odor, 50% recovery
		Olive-grey/yellow-orange stiff CLAY with little fine Sand and Silt; Moist	4 5 9 9	15.9	Petroleum odor, 75% recovery
		Olive-grey/yellow-orange CLAY with trace of fine Sand and Silt, thin lenses of fine Sand	1 3 4 8	0.0	85% recovery
10		Olive-grey soft CLAY with trace of fine Sand and Silt, occasional lense of fine Sand; Moist to wet	4 6 7 8	0.0	100% recovery
		Olive-grey soft CLAY with trace of fine Sand and Silt, occasional lense of yellow-orange fine Sand; Wet	1 1 1	0.0	100% recovery
15		Olive-grey soft CLAY, trace of fine Sand and Silt	2 1	0.0	100% recovery
		Olive-grey soft CLAY with little fine to medium Sand, trace of Silt	2 2 2		100% recovery Bottom of boring at 19 feet bls, bottom of well at 8 feet bls.

BORING/WELL 17252Y03.GPJ ROUX.GDT 5/22/01

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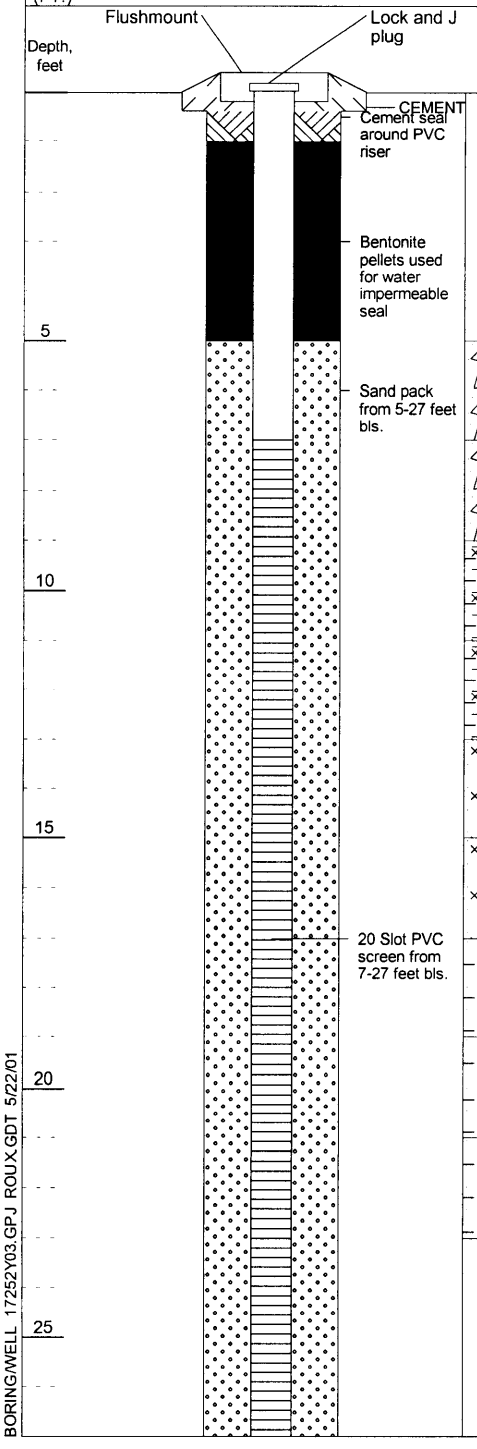
WELL CONSTRUCTION LOG

WELL NO.: **MW-27**	NORTHING	EASTING			
PROJECT NO./NAME: **17252Y03 / ExxonMobil Buffalo Terminal**		LOCATION: **625 Elk Street**			
APPROVED BY: **N. Clarke**	LOGGED BY: **M. Falzone**	**Buffalo, New York**			
DRILLING CONTRACTOR/DRILLER: **SJB / Art**		GEOGRAPHIC AREA: **BSPA**			
DRILL BIT DIAMETER/TYPE: **2-in. /**	BOREHOLE DIAMETER: **10 1/4-inches**	DRILLING EQUIPMENT/METHOD: **ICME 75 / HSA**	SAMPLING METHOD: **2" Split Spoon**	START-FINISH DATE: **7/24/00-7/24/00**	
CASING MAT./DIA.: **PVC / 4-inch**	SCREEN: TYPE **Slotted** MAT. **PVC**	TOTAL LENGTH **20.0**	DIA. **4-inch**	SLOT SIZE **20-Slot**	
ELEVATION OF: (FT.)	GROUND SURFACE	TOP OF WELL CASING	TOP & BOTTOM SCREEN **/**	GW SURFACE	GRAVEL PACK



Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
5		FILL- Olive-grey medium to coarse SAND with some Silt and Clay, little fine to coarse Gravel; Moist	1 1 2	186	Petroleum odor, 50% recovery
		FILL - Olive-grey medium to coarse SAND and CLAY with little fine to coarse Gravel; Moist to wet	2 3 2 2	139	Petroleum odor, 60% recovery
10		Olive-grey CLAY with some Silt and little fine to medium Sand; Moist	12 1 2	151	Petroleum odor, 75% recovery
		Olive-grey CLAY with some Silt and fine to medium Sand; Moist to wet	1 3 3 2	77.5	Petroleum odor, 100% recovery
		Olive-grey fine to medium SAND with some Silt, little Clay	12 1 1	188	Petroleum odor, 100% recovery
15		Olive-grey fine to medium SAND with varying proportions of Silt and Clay	12 1 1	155	Petroleum odor, 75% recovery
		Olive-grey fine to medium SAND with little Clay and Silt; Wet		232	Petroleum odor, 100% recovery
20		Olive-grey fine to medium SAND with some Clay, little Silt		45.4	80% recovery
		Olive-grey fine to medium SAND with some Clay grading to a medium to coarse firm Sand	1 3 7 5	29.5	75% recovery
25					Bottom of boring at 23 feet bls., bottom of well at 27 feet bls.

BORING/WELL 17252Y03.GPJ ROUX.GDT 5/22/01

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1377 Motor Parkway
Islandia, NY 11749
Telephone: 631-232-2600
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SOIL BORING LOG

WELL NO.	NORTHING	EASTING		
SB-40				
PROJECT NO./NAME		LOCATION		
17252Y03 / ExxonMobil Buffalo Terminal		**625 Elk Street**		
APPROVED BY	LOGGED BY	**Buffalo, New York**		
N. Clarke	**M. Falzone**			
DRILLING CONTRACTOR/DRILLER		GEOGRAPHIC AREA		
ZEBRA /		**BSPA**		
DRILL BIT DIAMETER/TYPE	BOREHOLE DIAMETER	DRILLING EQUIPMENT/METHOD	SAMPLING METHOD	START-FINISH DATE
2-in. /	**2-inches**	**Geoprobe 5400 / Geoprobe**	**2" Macro-Core**	**4/5/01-4/5/01**
LAND SURFACE ELEVATION	DEPTH TO WATER	BACKFILL		
(FT.)	**(Feet BLS)**			

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
5		Red brown/olive gray fine SAND and Silt, some Clay; Moist-wet		0.0	Sulfur odor.
		Red brown/olive gray/yellow fine SAND and Silt, little Clay; Moist		0.0	Sulfur odor.
		Red brown/yellow fine to medium SAND, little Silt, trace Clay; Dry		0.0	Sulfur odor.
10		Red brown/ olive gray fine to medium SAND (firm), trace Silt; Wet		0.0	Sulfur odor. Soil sample collected.
		Olive gray fine to medium SAND (well sorted), loose, trace Silt and Clay; Wet		0.0	Sulfur odor.
15		Olive gray fine to medium SAND (well sorted), loose, trace Silt and Clay; Wet		0.0	Sulfur odor. Soil and groundwater samples collected at 15 feet bls.
					Bottom of boring at 17 feet bls.

BORING/WELL 17252Y03.GPJ ROUX.GDT 5/22/01

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SOIL BORING LOG

WELL NO.	NORTHING	EASTING		
SB-41				
PROJECT NO./NAME		LOCATION		
17252Y03 / ExxonMobil Buffalo Terminal		**625 Elk Street**		
APPROVED BY	LOGGED BY			
N. Clarke	**M. Falzone**	**Buffalo, New York**		
DRILLING CONTRACTOR/DRILLER		GEOGRAPHIC AREA		
ZEBRA /		**BSPA**		
DRILL BIT DIAMETER/TYPE	BOREHOLE DIAMETER	DRILLING EQUIPMENT/METHOD	SAMPLING METHOD	START-FINISH DATE
2-in. /	**2-inches**	**Geoprobe 5400 / Geoprobe**	**2" Macro-Core**	**4/5/01-4/5/01**
LAND SURFACE ELEVATION	DEPTH TO WATER	BACKFILL		
(FT.)	**(Feet BLS)**			

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
5		Olive gray fine SAND, some Clay, little Silt; Moist-Wet		0.0	70% recovery.
		Olive gray fine SAND, some Clay, little Silt grading to olive gray Clay with some stiff Silt, trace fine Sand; Moist		0.0	Sulfur odor.
10		Olive gray fine SAND, some Silt and Clay; Moist-Wet		0.0	Sulfur odor. 70% recovery. Soil sample collected. Grounwater sample collected at 9-13 feet bls. Slow recharge, purge approx.1 qt.
		Olive gray fine to medium SAND, little Silt, trace Clay; Wet		0.0	Sulfur odor.
		Olive gray fine to medium SAND with lenses of Clay and Silt grading to olive gray fine to medium SAND; Wet		+/-1	Sulfur odor. Fluctuation of PID reading due to moisture.
15		Olive gray fine to medium SAND with lenses of Clay-Silt; Wet		+/-4	Sulfur odor. Fluctuation of PID reading due to moisture.
					Bottom of boring at 17 feet bls.

BORING/WELL 17252Y03.GPJ ROUX.GDT 6/4/01

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SOIL BORING LOG

WELL NO.	NORTHING	EASTING		
SB-42				
PROJECT NO./NAME		LOCATION		
17252Y03 / ExxonMobil Buffalo Terminal		**625 Elk Street**		
APPROVED BY	LOGGED BY			
N. Clarke	**M. Falzone**	**Buffalo, New York**		
DRILLING CONTRACTOR/DRILLER		GEOGRAPHIC AREA		
ZEBRA /		**BSPA**		
DRILL BIT DIAMETER/TYPE	BOREHOLE DIAMETER	DRILLING EQUIPMENT/METHOD	SAMPLING METHOD	START-FINISH DATE
2-in. /	**2-inches**	**Geoprobe 5400 / Geoprobe**	**2" Macro-Core**	**4/5/01-4/5/01**
LAND SURFACE ELEVATION	DEPTH TO WATER	BACKFILL		
(FT.)	**(Feet BLS)**			

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
5		Olive gray fine SAND, some Silt, trace Clay; Wet		0.0	90% recovery.
		Olive gray fine SAND and Silt, little Clay throughout; little organic material at 9 ft; Moist		0.0	
		Olive gray fine SAND and Silt, little organic material throughout, trace Clay; Moist		0.0	90% recovery.
10		Olive gray fine to medium SAND, some Silt, trace Clay; Wet		0.0	Soil sample collected.
		Olive gray fine to medium SAND, trace Silt, Gravel and Clay, lenses of Silty Clay; Wet		0.0	Soil sample collected at 13 feet bls.
15		Olive gray fine to medium SAND, trace Silt, Gravel and Clay, lenses of Silty Clay; Wet		0.0	Groundwater sample collected at 11-15 feet bls. Removed 1 qt, slow recovery.
					Bottom of boring at 17 feet bls.

BORING/WELL 17252Y03.GPJ ROUX.GDT 6/4/01

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SOIL BORING LOG

WELL NO.	NORTHING	EASTING		
SB-43				
PROJECT NO./NAME		LOCATION		
17252Y03 / ExxonMobil Buffalo Terminal		**625 Elk Street**		
APPROVED BY	LOGGED BY	**Buffalo, New York**		
N. Clarke	**M. Falzone**			
DRILLING CONTRACTOR/DRILLER		GEOGRAPHIC AREA		
ZEBRA /		**BSPA**		
DRILL BIT DIAMETER/TYPE	BOREHOLE DIAMETER	DRILLING EQUIPMENT/METHOD	SAMPLING METHOD	START-FINISH DATE
2-in. /	**2-inches**	**Geoprobe 5400 / Geoprobe**	**2" Macro-Core**	**4/5/01-4/5/01**
LAND SURFACE ELEVATION	DEPTH TO WATER	BACKFILL		
(FT.)	**(Feet BLS)**			

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
					Wet at 2 ft below grade.
5		FILL-Yellow-light gray CLAY, medium to coarse Gravel and medium to coarse Sand, wood brick noted; Moist-wet		0.0	Black staining noted at 6-7 ft. Sulfur odor. 80% recovery.
		FILL-Dark gray medium to coarse SAND (black staining throughout), some organic material, trace fine to coarse Gravel; Moist-wet		0.0	Black staining. Petroleum odor. 80% recovery.
		Light brown CLAY with lenses of medium to coarse Sand (Clay is medium soft); Wet		0.0	70% recovery.
10		Light brown CLAY and medium to coarse Sand, little fine Gravel; Wet		0.0	Petroleum odor. Staining. Soil sample collected at 11-13 ft.
		Light gray/olive gray medium to coarse SAND (loose/well sorted) with lenses of subrounded Gravel; Wet		0.0	80% recovery.
15		Olive gray medium to coarse SAND (loose/well sorted) with lenses of mixed Sand and Clay; Wet		0.0	Petroleum odor. Staining at 17 ft. Groundwater sample collected at 11-15 feet bls. (Petroleum odor and sheen noted).
					Bottom of boring at 17 feet bls.

BORING/WELL 17252Y03.GPJ ROUX.GDT 6/4/01

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SOIL BORING LOG

WELL NO.	NORTHING	EASTING		
SB-44				
PROJECT NO./NAME		LOCATION		
17252Y03 / ExxonMobil Buffalo Terminal		**625 Elk Street**		
APPROVED BY	LOGGED BY	**Buffalo, New York**		
N. Clarke	**M. Falzone**			
DRILLING CONTRACTOR/DRILLER		GEOGRAPHIC AREA		
ZEBRA / C. Donovan		**BSPA**		
DRILL BIT DIAMETER/TYPE	BOREHOLE DIAMETER	DRILLING EQUIPMENT/METHOD	SAMPLING METHOD	START-FINISH DATE
2-in. /	**2-inches**	**Geoprobe 5400 / Geoprobe**	**2" Macro-Core**	**7/13/00-7/17/00**
LAND SURFACE ELEVATION	DEPTH TO WATER	BACKFILL		
(FT.)	**(Feet BLS)**			

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		ASPHALT			0-5 ft logged by Zebra. Soil sample collected at 0-0.5 feet bls.
		CONCRETE			
		FILL- coarse Sand and Gravel.			
		FILL- SAND, some Silt and Clay.			Petroleum odor
		FILL- CLAY			Petroleum odor
5		FILL - coarse Sand, fine angular Gravel; Wet.		0.0	Petroleum odor, 90% recovery
		Olive-gray fine to medium SAND with some Clay, little Silt; Wet.			Petroleum odor
		Olive-gray fine to medium SAND, some Clay, little Silt; Moist.		0.0	Petroleum odor, 100% recovery
		Olive-gray medium dense fine to medium SAND, some Silt and Clay, portions of Black staining; Moist		0.0	
10		Olive-gray medium dense SAND, some Silt and Clay, portions of black staining		0.0	
		Olive-gray fine to medium SAND, some Clay and Silt; Wet.		18.5	Petroleum odor, 100% recovery
15		Olive-gray fine to medium SAND, some Clay and Silt, black staining throughout		94.7	Petroleum odor. Soil sample collected at 15-17 feet bls.
					Bottom of boring at 17 feet

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SOIL BORING LOG

WELL NO.	NORTHING	EASTING		
SB-45				
PROJECT NO./NAME		LOCATION		
17252Y03 / ExxonMobil Buffalo Terminal		**625 Elk Street**		
APPROVED BY	LOGGED BY	**Buffalo, New York**		
N. Clarke	**M. Falzone**			
DRILLING CONTRACTOR/DRILLER		GEOGRAPHIC AREA		
ZEBRA / C. Donovan		**BSPA**		
DRILL BIT DIAMETER/TYPE	BOREHOLE DIAMETER	DRILLING EQUIPMENT/METHOD	SAMPLING METHOD	START-FINISH DATE
2-in. /	**2-inches**	**Geoprobe 5400 / Geoprobe**	**2" Macro-Core**	**10/5/00-10/6/00**
LAND SURFACE ELEVATION	DEPTH TO WATER	BACKFILL		
(FT.)	**(Feet BLS)**			

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
					Soil sample collected at 0-0.5 feet bls.
5					5
		Olive-gray fine medium-dense SAND, some Silt, little Clay; Moist		0.0	80% recovery
		Olive-gray fine medium-dense SAND, little Silt and Clay, lenses of fine Sand		0.0	80% recovery
		Olive-gray medium to coarse SAND, little angular loose Gravel grading to fine Sand and Silt; Wet		0.0	80% recovery
10					10
		Olive-gray fine SAND, some Silt, little/trace Clay; Moist to wet		0.0	80% recovery
		Olive-gray fine SAND, little Silt, trace Clay; Wet		0.0	100% recovery, collected soil sample from 13-15 feet bls. Collected water sample from 12-16 feet bls.
15					15
		Olive-gray fine SAND, little Silt, trace Clay grading to a fine to medium loose Sand		0.0	100% recovery
					Bottom of boring at 17 feet bls.

BORING/WELL 17252Y03.GPJ ROUX.GDT 5/22/01

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SOIL BORING LOG

WELL NO.	NORTHING	EASTING		
SB-46				
PROJECT NO./NAME		LOCATION		
17252Y03 / ExxonMobil Buffalo Terminal		**625 Elk Street**		
APPROVED BY	LOGGED BY			
N. Clarke	**M. Falzone**	**Buffalo, New York**		
DRILLING CONTRACTOR/DRILLER		GEOGRAPHIC AREA		
ZEBRA / C. Donovan		**BSPA**		
DRILL BIT DIAMETER/TYPE	BOREHOLE DIAMETER	DRILLING EQUIPMENT/METHOD	SAMPLING METHOD	START-FINISH DATE
2-in. /	**2-inches**	**Geoprobe 5400 / Geoprobe**	**2" Macro-Core**	**7/7/00-10/6/00**
LAND SURFACE ELEVATION	DEPTH TO WATER	BACKFILL		
(FT.)	**(Feet BLS)**			

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
					Soil sample collected at 0-0.5 feet bls.
5		FILL - coarse SAND, Gravel, Slag and Ash, portions of Clay throughout; Moist		0.0	Petroleum odor, 75% recovery
		FILL - coarse SAND, Gravel, Slag and Ash, portions of Clay throughout grading to a red-brown firm Clay		0.0	75% recovery
10		FILL - coarse to medium SAND, little Silt and fine Gravel; Moist to wet		0.0	Petroleum odor, 100% recovery
		Gray medium to coarse SAND, little fine Gravel, black staining; Wet		0.0	Petroleum odor, 100% recovery. Collected soil sample at 11-13 feet bls. PID reading fluctuated. PID wet.
		Medium coarse SAND, some staining		0.0	Petroleum odor, low recovery. PID readings fluctuated. PID wet. Groundwater sample collected from 13-17 feet bls. Sheen or water.
15		Gray CLAY, sheen noted on soil		0.0	Petroleum odor, 10% recovery. PID readings fluctuated. PID wet.
					Bottom of boring at 17 feet bls.

BORING/WELL 17252Y03.GPJ ROUX.GDT 6/4/01

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SOIL BORING LOG

WELL NO.	NORTHING	EASTING		
SB-47				
PROJECT NO./NAME		LOCATION		
17252Y03 / ExxonMobil Buffalo Terminal		**625 Elk Street**		
APPROVED BY	LOGGED BY	**Buffalo, New York**		
N. Clarke	**M. Falzone**			
DRILLING CONTRACTOR/DRILLER		GEOGRAPHIC AREA		
ZEBRA / C. Donovan		**BSPA**		
DRILL BIT DIAMETER/TYPE	BOREHOLE DIAMETER	DRILLING EQUIPMENT/METHOD	SAMPLING METHOD	START-FINISH DATE
2-in. /	**2-inches**	**Geoprobe 5400 / Geoprobe**	**2" Macro-Core**	**7/11/00-7/11/00**
LAND SURFACE ELEVATION	DEPTH TO WATER	BACKFILL		
(FT.)	**(Feet BLS)**			

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		ASPHALT			
		FILL - Coarse Sand with some Silt and Gravel			Soil sample collected from 1-1.5 feet bls.
					Water noted at 3.5 feet bls.
					Petroleum odor
5		FILL- PEA GRAVEL; Wet		0.0	Product noted, 60% recovery
		FILL- PEA GRAVEL (7 to 8.5 feet), Olive-gray Clay with little Silt		230	Product noted, 60% recovery
		Red-brown CLAY with little Silt, lenses of coarse Sand and Gravel		46.5	Product noted, 80% recovery
10		Red-brown CLAY with little Silt, lenses of coarse Sand and Gravel		93.5	Product noted, 100% recovery
		Red-brown CLAY with little Silt grading to an Olive-gray fine to medium Sand with some Silt and Clay		294	Product noted, 100% recovery. Soil sample collected at 13-15 feet bls.
15		Olive-gray fine to medium SAND with little Clay grading to Olive-gray fine to medium Sand		139	Product noted
					Bottom of boring at 17 feet bls.

BORING/WELL 17252Y03.GPJ ROUX.GDT 5/22/01

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SOIL BORING LOG

WELL NO.	NORTHING	EASTING		
SB-48				
PROJECT NO./NAME		LOCATION		
17252Y03 / ExxonMobil Buffalo Terminal		**625 Elk Street**		
APPROVED BY	LOGGED BY			
N. Clarke	**M. Falzone**	**Buffalo, New York**		
DRILLING CONTRACTOR/DRILLER		GEOGRAPHIC AREA		
ZEBRA / C. Donovan		**BSPA**		
DRILL BIT DIAMETER/TYPE	BOREHOLE DIAMETER	DRILLING EQUIPMENT/METHOD	SAMPLING METHOD	START-FINISH DATE
2-in. /	**2-inches**	**Geoprobe 5400 / Geoprobe**	**2" Macro-Core**	**7/12/00-10/5/00**
LAND SURFACE ELEVATION	DEPTH TO WATER	BACKFILL		
(FT.)	**(Feet BLS)**			

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		ASPHALT/Sub-base			0-5 feet logged by Zebra. Soil sample collected at 1-1.5 feet bls.
		FILL - coarse Black Sand and Gravel			
		FILL - Sand, little Gravel			
5		FILL - Slag, Orange to white Ash mixed with coarse Sand, little Gravel; Moist		0.0	100% recovery
		FILL - Slag, Orange to white Ash mixed with coarse Sand, little Gravel; Moist		0.0	100% recovery
		FILL - Black Ash; Moist		0.0	Petroleum odor, 80% recovery
10		Red-brown TILL: medium soft Clay with coarse Gravel			
		Red-brown TILL: medium stiff Clay with coarse Gravel grading to a medium coarse Sand, some Olive-gray Gravel; Wet		0.0	Petroleum odor. Soil sample collected at 11-13 feet bls.
		Olive-gray medium to coarse SAND, portions of Olive-gray Clay		0.0	Petroleum odor, 70% recovery. Groundwater sample collected at 13-17 feet bls.
15		Olive-gray medium to coarse SAND, portions of Olive-gray Clay		0.0	Petroleum odor, 70% recovery
					Bottom of boring at 17 feet bls.

BORING/WELL 17252Y03.GPJ ROUX.GDT 6/4/01

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SOIL BORING LOG

WELL NO.	NORTHING	EASTING		
SB-49				
PROJECT NO./NAME		LOCATION		
17252Y03 / ExxonMobil Buffalo Terminal		**625 Elk Street**		
APPROVED BY	LOGGED BY			
N. Clarke	**M. Falzone**	**Buffalo, New York**		
DRILLING CONTRACTOR/DRILLER		GEOGRAPHIC AREA		
ZEBRA / C. Donovan		**BSPA**		
DRILL BIT DIAMETER/TYPE	BOREHOLE DIAMETER	DRILLING EQUIPMENT/METHOD	SAMPLING METHOD	START-FINISH DATE
2-in. /	**2-inches**	**Geoprobe 5400 / Geoprobe**	**2" Macro-Core**	**7/5/00-7/13/00**
LAND SURFACE ELEVATION	DEPTH TO WATER	BACKFILL		
(FT.)	**(Feet BLS)**			

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		FILL - dark Brown coarse Sand with Gravel, some Brick and Concrete, Ash			Soil sample collected from 0-0.5 feet bls.
5		FILL - Slag: Orange and white, black Ash, some coarse Sand, Concrete and Brick; Wet		0.0	50% recovery
		FILL - Slag: Orange and white, black Ash, some coarse Sand, Concrete and Brick		0.0	
10		Olive-gray coarse SAND and Gravel with some Clay, little Fill material; Moist to wet		0.0	Petroleum odor, 80% recovery. Soil sample collected at 9-11 feet bls.
		Olive-gray coarse SAND and fine to medium subrounded Gravel with some Clay; Wet		0.0	Petroleum odor
		Olive-gray coarse SAND and fine to medium subrounded Gravel, Shell, little Clay		0.0	Petroleum odor. Groundwater sample collected at 13-17 feet bls.
15		Olive-gray coarse SAND and fine to medium subrounded Gravel, Shell, little Clay		0.0	Petroleum odor
					Bottom of boring at 17 feet bls.

BORING/WELL 17252Y03.GPJ ROUX.GDT 6/4/01

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SOIL BORING LOG

WELL NO.	NORTHING	EASTING		
SB-50				
PROJECT NO./NAME		LOCATION		
17252Y03 / ExxonMobil Buffalo Terminal		**625 Elk Street**		
APPROVED BY	LOGGED BY			
N. Clarke	**M. Falzone**	**Buffalo, New York**		
DRILLING CONTRACTOR/DRILLER		GEOGRAPHIC AREA		
ZEBRA / C. Donovan		**BSPA**		
DRILL BIT DIAMETER/TYPE	BOREHOLE DIAMETER	DRILLING EQUIPMENT/METHOD	SAMPLING METHOD	START-FINISH DATE
2-in. /	**2-inches**	**Geoprobe 5400 / Geoprobe**	**2" Macro-Core**	**7/11/00-7/12/00**
LAND SURFACE ELEVATION	DEPTH TO WATER	BACKFILL		
(FT.)	**(Feet BLS)**			

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		ASPHALT		0.0	0-5 feet bls logged by Zebra.
		CONCRETE			
		FILL: Coarse Sand and Gravel with some Clay			Petroleum odor from 2.5-5 feet bls. Soil sample collected from 2-2.5 feet bls.
				0.0	
5		Olive-gray CLAY with little Silt and fine Sand, thin lenses of fine to medium Sand throughout; Moist		0.0	100% recovery
		Olive-gray CLAY to yellowish-orange Clay with little Silt and fine Sand, thin lenses of fine to medium Sand throughout		0.0	100% recovery
		No sample retrieved			Rock in shoe - no recovery
10					
		Olive-gray soft CLAY with little Silt, fine Sand and fine Gravel; Moist to wet		0.0	100% recovery. Soil sample collected at 13-15 feet bls. Groundwater sample collected at 13-17 feet bls.
15		Olive-gray soft CLAY with little Silt, fine Sand and fine Gravel			100% recovery
					Bottom of boring at 17 feet bls.

BORING/WELL 17252Y03.GPJ ROUX.GDT 6/4/01

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SOIL BORING LOG

WELL NO.	NORTHING	EASTING		
SB-51				
PROJECT NO./NAME		LOCATION		
17252Y03 / ExxonMobil Buffalo Terminal		**625 Elk Street**		
APPROVED BY	LOGGED BY	**Buffalo, New York**		
N. Clarke	**M. Falzone**			
DRILLING CONTRACTOR/DRILLER		GEOGRAPHIC AREA		
ZEBRA / C. Donovan		**BSPA**		
DRILL BIT DIAMETER/TYPE	BOREHOLE DIAMETER	DRILLING EQUIPMENT/METHOD	SAMPLING METHOD	START-FINISH DATE
2-in. /	**2-inches**	**Geoprobe 5400 / Geoprobe**	**2" Macro-Core**	**7/7/00-7/14/00**
LAND SURFACE ELEVATION	DEPTH TO WATER	BACKFILL		
(FT.)	**(Feet BLS)**			

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		FILL: coarse to medium SAND and coarse Gravel			Petroleum odor, black staining at 1 foot, product noted, water at 0.5 feet bls. Soil sample collected at 0-0.5 feet bls.
5		FILL: coarse SAND and Gravel, some medium Sand; Wet		31	Product noted, 70% recovery. Soil sample collected at 5-7 feet bls.
		Red-brown soft CLAY with some Silt and fine Sand; Moist		15.5	Petroleum odor
		Olive-gray medium soft CLAY with lenses of fine to medium Sand; Moist		0.0	Petroleum odor, wet within lenses of sand
10		Olive-gray to yellowish-orange stiff CLAY with thin fine to medium Sand		0.0	Wet within lenses of sand
		Olive-gray to yellowish-orange stiff CLAY with thin fine to medium lenses of Sand		31	Petroleum odor, sample appears to be coated with shallow sub-surface product, wet within lenses of sand. Groundwater sample collected at 13-17 feet bls.
15		Olive-gray to yellowish-orange stiff CLAY with thin fine to medium lenses of Sand			Wet within lenses of sand
					Bottom of boring at 17 feet bls.

BORING/WELL 17252Y03.GPJ ROUX.GDT 6/4/01

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SOIL BORING LOG

WELL NO.	NORTHING	EASTING		
SB-52				
PROJECT NO./NAME		LOCATION		
17252Y03 / ExxonMobil Buffalo Terminal		**625 Elk Street**		
APPROVED BY	LOGGED BY	**Buffalo, New York**		
N. Clarke	**M. Falzone**			
DRILLING CONTRACTOR/DRILLER		GEOGRAPHIC AREA		
ZEBRA / C. Donovan		**BSPA**		
DRILL BIT DIAMETER/TYPE	BOREHOLE DIAMETER	DRILLING EQUIPMENT/METHOD	SAMPLING METHOD	START-FINISH DATE
2-in. /	**2-inches**	**Geoprobe 5400 / Geoprobe**	**2" Macro-Core**	**7/12/00-7/14/00**
LAND SURFACE ELEVATION	DEPTH TO WATER	BACKFILL		
(FT.)	**(Feet BLS)**			

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		FILL- Coarse SAND and Gravel		0.0	Water with sheen noted at 2.5 feet bls. Soil sample collected at 0-0.5 feet bls.
		FILL- SILT			
		FILL- CLAY			Petroleum odor
5		FILL: Coarse SAND and medium Gravel, black staining		16.5	Petroleum odor, 100% recovery
		Olive-gray to yellow-orange CLAY with some firm Silt; Moist.		0.0	Petroleum odor, staining, 70% recovery
		Olive-gray to yellow-orange CLAY with some Silt, little fine Sand		16.9	Petroleum odor, 100% recovery
10		Olive-gray to yellow-orange CLAY with some Silt, little fine Sand		0.0	Petroleum odor, 100% recovery
		Olive-gray, fine SAND and Silt from 13 to 14 feet; Wet		16.9	Petroleum odor, 70% recovery. Soil sample collected at 13-15 feet bls.
		Olive-gray to yellow-orange CLAY, little Silt and fine Sand; Wet			
15		Olive-gray to yellow-orange medium to firm CLAY with little Silt and fine Gravel; Wet.		0.0	Bottom of boring at 17 feet bls.

BORING/WELL 17252Y03.GPJ ROUX.GDT 5/22/01

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SOIL BORING LOG

WELL NO.	NORTHING	EASTING		
SB-53				
PROJECT NO./NAME		LOCATION		
17252Y03 / ExxonMobil Buffalo Terminal		**625 Elk Street**		
APPROVED BY	LOGGED BY	**Buffalo, New York**		
N. Clarke	**M. Falzone**			
DRILLING CONTRACTOR/DRILLER		GEOGRAPHIC AREA		
ZEBRA / C. Donovan		**BSPA**		
DRILL BIT DIAMETER/TYPE	BOREHOLE DIAMETER	DRILLING EQUIPMENT/METHOD	SAMPLING METHOD	START-FINISH DATE
2-in. /	**2-inches**	**Geoprobe 5400 / Geoprobe**	**2" Macro-Core**	**7/12/00-7/14/00**
LAND SURFACE ELEVATION	DEPTH TO WATER	BACKFILL		
(FT.)	**(Feet BLS)**			

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		FILL- Surface Soil		0.0	0-0.5 feet bls logged by Zebra. Soil sample collected at 0-0.5 feet bls.
		CLAY with Silt and Gravel			Petroleum odor
		CLAY			
5		Olive-gray CLAY with little Silt; Wet		0.0	Petroleum odor, black staining
		Olive-gray, fine SAND and Silt with little Clay		68.7	Petroleum odor, black staining, 70% recovery. Soil sample collected at 7-9 feet bls.
		Olive-gray CLAY with some Silt		33.8	Petroleum odor, black staining, 70% recovery.
10		Olive-gray, fine SAND and Silt with little Clay		50.7	Petroleum odor, black staining
		Olive-gray fine SAND and Silt, grading to Olive-gray Clay with some Silt, little fine soft Sand		0.0	Petroleum odor, 80% recovery
15		Olive-gray CLAY with some Silt, little fine soft Sand, grading to a red-brown stiff Clay with little Silt; Moist		0.0	Bottom of boring at 17 feet bls.

BORING/WELL 17252Y03.GPJ ROUX.GDT 5/22/01

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SOIL BORING LOG

WELL NO.	NORTHING	EASTING		
SB-54				
PROJECT NO./NAME		LOCATION		
17252Y03 / ExxonMobil Buffalo Terminal		**625 Elk Street**		
APPROVED BY	LOGGED BY			
N. Clarke	**M. Falzone**	**Buffalo, New York**		
DRILLING CONTRACTOR/DRILLER		GEOGRAPHIC AREA		
ZEBRA / C. Donovan		**BSPA**		
DRILL BIT DIAMETER/TYPE	BOREHOLE DIAMETER	DRILLING EQUIPMENT/METHOD	SAMPLING METHOD	START-FINISH DATE
2-in. /	**2-inches**	**Geoprobe 5400 / Geoprobe**	**2" Macro-Core**	**7/12/00-7/17/00**
LAND SURFACE ELEVATION	DEPTH TO WATER	BACKFILL		
(FT.)	**(Feet BLS)**			

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		Surface soil		0.0	0-5 feet bls. logged by Zebra. Soil sample collected at 0-0.5 feet bls.
		CONCRETE			
		FILL- coarse SAND and Gravel; Wet at 3 feet		0.0	Collected soil sample from 2-2.5 feet bls.
		CLAY		0.0	Staining, petroleum odor
5		Coase SAND with fine angular Gravel grading to fine to medium Sand, some olive-gray Silt; Wet			Petroleum odor, 80% recovery 5
				0.0	
		Olive-gray/yellow-orange CLAY with little fine Sand and Silt			Petroleum odor
				0.0	
		Olive-gray CLAY, little fine Sand and Silt; Wet			Petroleum odor, sheen/product globules, 90% recovery. Soil sample collected at 9-11 feet bls.
10				0.0	10
		Olive-gray soft to medium stiff CLAY, grading to light brown/yellow-orange stiff Clay, lenses of fine to medium Sand; Moist			
				0.0	
		Olive-gray very soft CLAY; Wet			
				0.0	10% recovery
15					15
					Bottom of boring at 16 feet bls.

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SOIL BORING LOG

WELL NO.	NORTHING	EASTING		
SB-55				
PROJECT NO./NAME		LOCATION		
17252Y03 / ExxonMobil Buffalo Terminal		**625 Elk Street**		
APPROVED BY	LOGGED BY	**Buffalo, New York**		
N. Clarke	**M. Falzone**			
DRILLING CONTRACTOR/DRILLER		GEOGRAPHIC AREA		
ZEBRA / C. Donovan		**BSPA**		
DRILL BIT DIAMETER/TYPE	BOREHOLE DIAMETER	DRILLING EQUIPMENT/METHOD	SAMPLING METHOD	START-FINISH DATE
2-in. /	**2-inches**	**Geoprobe 5400 / Geoprobe**	**2" Macro-Core**	**7/12/00-7/17/00**
LAND SURFACE ELEVATION	DEPTH TO WATER	BACKFILL		
(FT.)	**(Feet BLS)**			

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
1		Surface SOIL			0-5 feet bls. logged by Zebra. Soil sample collected at 0-0.5 feet bls.
2		CONCRETE			
3		SAND, some Silt, staining			Petroleum odor, soil sample collected from 2-2.5 feet bls., water with sheen at 2.5 feet bls.
4		CLAY			Petroleum odor
5					
6		Olive-gray CLAY grading to red-brown CLAY; Moist		0.0	Standing water at 3 feet bls., 100% recovery
7					
8		Olive-gray/red-brown CLAY, little Silt and fine Sand		0.0	Sample needed to be knocked out of spoon, liner was crushed
9					
10		Red-brown CLAY, little stiff Silt, fine Sand		0.0	80% recovery
11					
12		Red-brown CLAY, little Silt, fine Sand, soft Clay; Wet		0.0	Soil sample collected at 11-13 feet bls.
13					Bottom of boring at 13 feet bls.

BORING/WELL 17252Y03.GPJ ROUX.GDT 5/22/01

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SOIL BORING LOG

WELL NO.	NORTHING	EASTING		
SB-56				
PROJECT NO./NAME		LOCATION		
17252Y03 / ExxonMobil Buffalo Terminal		**625 Elk Street**		
APPROVED BY	LOGGED BY	**Buffalo, New York**		
N. Clarke	**M. Falzone**			
DRILLING CONTRACTOR/DRILLER		GEOGRAPHIC AREA		
ZEBRA / C. Donovan		**BSPA**		
DRILL BIT DIAMETER/TYPE	BOREHOLE DIAMETER	DRILLING EQUIPMENT/METHOD	SAMPLING METHOD	START-FINISH DATE
2-in. /	**2-inches**	**Geoprobe 5400 / Geoprobe**	**2" Macro-Core**	**7/12/00-7/12/00**
LAND SURFACE ELEVATION	DEPTH TO WATER	BACKFILL		
(FT.)	**(Feet BLS)**			

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		FILL - Gravel		0.0	Soil sample collected from 0-0.5 feet bls.
		FILL - coarse Sand and Gravel, black staining, sheen			Petroleum odor. Water at 2.5 feet bls.
		CLAY		0.0	
5		Olive-gray/yellowish-orange CLAY, little Silt and fine Sand		0.0	100% recovery
		Olive-gray/light-brown CLAY, little Silt and fine Sand; Wet		0.0	Product noted, 100% recovery. Soil sample collected at 7-9 feet bls.
		Olive-gray CLAY with lenses of fine to medium Sand		0.0	Product noted, 70% recovery
10		Olive-gray CLAY with lenses of fine to medium Sand		0.0	Product noted
				0.0	5% recovery. Groundwater sample collected at 13-17 feet bls. but discarded because of product noted.
15					Bottom of boring at 15 feet bls.

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SOIL BORING LOG

WELL NO.	NORTHING	EASTING		
SB-57				
PROJECT NO./NAME		LOCATION		
17252Y03 / ExxonMobil Buffalo Terminal		**625 Elk Street**		
APPROVED BY	LOGGED BY			
N. Clarke	**M. Falzone**	**Buffalo, New York**		
DRILLING CONTRACTOR/DRILLER		GEOGRAPHIC AREA		
ZEBRA / C. Donovan		**BSPA**		
DRILL BIT DIAMETER/TYPE	BOREHOLE DIAMETER	DRILLING EQUIPMENT/METHOD	SAMPLING METHOD	START-FINISH DATE
2-in. /	**2-inches**	**Geoprobe 5400 / Geoprobe**	**2" Macro-Core**	**7/11/00-7/13/00**
LAND SURFACE ELEVATION	DEPTH TO WATER	BACKFILL		
(FT.)	**(Feet BLS)**			

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		FILL - Brown coarse to medium Sand with some Gravel			0-5 feet bls. logged by Zebra. Soil sample collected at 0-0.5 feet bls.
5		Olive-gray/yellowish-orange CLAY with some stiff Silt; Moist.		0.0	100% recovery
		Olive-gray/yellowish-orange CLAY with some stiff Silt with lenses of fine Sand		0.0	
		Olive-gray/yellowish-orange CLAY with some Silt and lenses of fine Sand; Wet.		0.0	75% recovery
10		Olive-gray/yellow-orange soft CLAY with Silt, grading to a red-brown stiff Clay. Olive-gray Clay saturated, red-brown Clay moist.		0.0	100% recovery
					No recovery. Soil sample collected at 13-15 feet bls.
15					No recovery
					Bottom of boring at 17 feet bls.

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SOIL BORING LOG

WELL NO.	NORTHING	EASTING		
SB-58				
PROJECT NO./NAME		LOCATION		
17252Y03 / ExxonMobil Buffalo Terminal		**625 Elk Street**		
APPROVED BY	LOGGED BY	**Buffalo, New York**		
N. Clarke	**M. Falzone**			
DRILLING CONTRACTOR/DRILLER		GEOGRAPHIC AREA		
ZEBRA / C. Donovan		**BSPA**		
DRILL BIT DIAMETER/TYPE	BOREHOLE DIAMETER	DRILLING EQUIPMENT/METHOD	SAMPLING METHOD	START-FINISH DATE
2-in. /	**2-inches**	**Geoprobe 5400 / Geoprobe**	**2" Macro-Core**	**7/12/00-7/17/00**
LAND SURFACE ELEVATION	DEPTH TO WATER	BACKFILL		
(FT.)	**(Feet BLS)**			

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		FILL - coarse Sand and Gravel		15.5	0-5 feet logged by Zebra. Soil sample collected from 0-0.5 feet bls. Water at 0.5 feet bls.
		FILL - Gravel			
		CLAY, some Silt and Gravel			Petroleum odor, staining
		CLAY			Petroleum odor
5		Light Brown/yellow-orange CLAY, little Silt and fine hard Sand		18.5	Petroleum odor, 75% recovery. Soil sample collected at 5-7 feet bls.
		Light Brown/yellow-orange CLAY, little Silt and fine hard Sand		0.0	
		Light Brown/yellow-orange CLAY, little Silt and fine hard Sand		0.0	75% recovery
10		Red-brown/yellow-orange medium to stiff CLAY; Moist		0.0	
		Red-brown/olive-grey soft CLAY, little Silt, fine Sand, thin lenses of fine Sand; Wet		0.0	Groundwater sample collected at 13-17 feet bls.
15		Red-brown/olive-grey soft CLAY, little Silt, fine Sand, thin lenses of fine Sand		0.0	
					Bottom of boring at 17 feet bls.

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SOIL BORING LOG

WELL NO.	NORTHING	EASTING		
SB-59				
PROJECT NO./NAME		LOCATION		
17252Y03 / ExxonMobil Buffalo Terminal		**625 Elk Street**		
APPROVED BY	LOGGED BY	**Buffalo, New York**		
N. Clarke	**M. Falzone**			
DRILLING CONTRACTOR/DRILLER		GEOGRAPHIC AREA		
ZEBRA / C. Donovan		**BSPA**		
DRILL BIT DIAMETER/TYPE	BOREHOLE DIAMETER	DRILLING EQUIPMENT/METHOD	SAMPLING METHOD	START-FINISH DATE
2-in. /	**2-inches**	**Geoprobe 5400 / Geoprobe**	**2" Macro-Core**	**7/11/00-7/17/00**
LAND SURFACE ELEVATION	DEPTH TO WATER	BACKFILL		
(FT.)	**(Feet BLS)**			

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		FILL - Gravel and coarse Sand		0.0	0-5 feet bls. logged by Zebra. Soil sample collected from 0-0.5 feet bls.
		FILL- TAR with Gravel			
		FILL- TAR with Gravel			Petroleum odor
		CLAY			
5		Olive-gray/yellowish-orange CLAY, thin lenses of fine to medium Sand; Moist		0.0	Product globules noted along sampling sleeve, 100% recovery
		Olive-gray/yellowish-orange CLAY, thin lenses of fine to medium Sand; Moist		0.0	100% recovery
10					No recovery
		Olive-gray TILL - soft Clay with little fine Silt and angular Gravel; Wet		0.0	Product noted, 100% recovery. Soil sample collected at 13-15 feet bls. Groundwater sample collected at 13-17 feet bls.
15		Olive-gray soft CLAY, little Silt		0.0	100% recovery
					Bottom of boring at 17 feet bls.

BORING/WELL 17252Y03.GPJ ROUX.GDT 6/4/01

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SOIL BORING LOG

WELL NO. **SB-60**	NORTHING	EASTING		
PROJECT NO./NAME **17252Y03 / ExxonMobil Buffalo Terminal**		LOCATION **625 Elk Street**		
APPROVED BY **N. Clarke**	LOGGED BY **M. Falzone**	**Buffalo, New York**		
DRILLING CONTRACTOR/DRILLER **ZEBRA / C. Donovan**		GEOGRAPHIC AREA **BSPA**		
DRILL BIT DIAMETER/TYPE **2-in. /**	BOREHOLE DIAMETER **2-inches**	DRILLING EQUIPMENT/METHOD **Geoprobe 5400 / Geoprobe**	SAMPLING METHOD **2" Macro-Core**	START-FINISH DATE **7/11/00-7/13/00**
LAND SURFACE ELEVATION **(FT.)**	DEPTH TO WATER **(Feet BLS)**	BACKFILL		

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		Surface SOIL		0.0	0-5 feet bls. logged by Zebra. Soil sample collected from 0-0.5 feet bls.
		CONCRETE			
		FILL - coarse Sand and Gravel			
					Water at 3 feet bls.
		CLAY			Petroleum odor and staining
5					5
		Olive-gray/red-brown dense CLAY grading to fine Sand and Silt; Wet		0.0	100% recovery
		Olive-gray medium to coarse firm SAND		0.0	100% recovery. Soil sample collected at 7-9 feet bls.
		Olive-gray fine to medium firm SAND		0.0	80% recovery
10					10
		Olive-gray fine to medium firm SAND		0.0	
		Olive-gray fine to medium SAND, some Silt, little Clay		0.0	100% recovery
15					15
		Olive-gray soft CLAY with little Silt and fine Sand		0.0	
					Bottom of boring at 17 feet bls.

BORING/WELL 17252Y03.GPJ ROUX.GDT 5/22/01

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SOIL BORING LOG

WELL NO.	NORTHING	EASTING		
SB-61				
PROJECT NO./NAME		LOCATION		
17252Y03 / ExxonMobil Buffalo Terminal		**625 Elk Street**		
APPROVED BY	LOGGED BY			
N. Clarke	**M. Falzone**	**Buffalo, New York**		
DRILLING CONTRACTOR/DRILLER		GEOGRAPHIC AREA		
ZEBRA / C. Donovan		**BSPA**		
DRILL BIT DIAMETER/TYPE	BOREHOLE DIAMETER	DRILLING EQUIPMENT/METHOD	SAMPLING METHOD	START-FINISH DATE
2-in. /	**2-inches**	**Geoprobe 5400 / Geoprobe**	**2" Macro-Core**	**7/7/00-7/11/00**
LAND SURFACE ELEVATION	DEPTH TO WATER	BACKFILL		
(FT.)	**(Feet BLS)**			

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		FILL - Coarse Sand, some Silt and Gravel, black staining		0.0	0-0.5 feet bls. logged by Zebra. Soil sample collected from 0-0.5 feet bls. Petroleum odor
5		Olive-gray CLAY with little fine Sand and Silt with lenses of fine to medium Sand; Moist		0.0	Petroleum odor, black staining, water from shallow depth within spoon, 100% recovery. Soil sample collected at 5-7 feet bls.
		Yellowish-orange SILT with some Clay, little fine Sand		0.0	Water from shallow depth within spoon
		Light Brown CLAY with some Silt and fine Sand		0.0	50% recovery. Liner crushed, sample knocked out
10		Light Brown CLAY with some Silt and fine Sand		0.0	
		Light Brown soft CLAY with some Silt and fine Sand; Moist to wet		0.0	50% recovery
15					Bottom of boring at 16 feet bls.

BORING/WELL 17252Y03.GPJ ROUX.GDT 5/22/01

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SOIL BORING LOG

WELL NO.	NORTHING	EASTING		
SB-62				
PROJECT NO./NAME		LOCATION		
17252Y03 / ExxonMobil Buffalo Terminal		**625 Elk Street**		
APPROVED BY	LOGGED BY			
N. Clarke	**M. Falzone**	**Buffalo, New York**		
DRILLING CONTRACTOR/DRILLER		GEOGRAPHIC AREA		
ZEBRA / C. Donovan		**BSPA**		
DRILL BIT DIAMETER/TYPE	BOREHOLE DIAMETER	DRILLING EQUIPMENT/METHOD	SAMPLING METHOD	START-FINISH DATE
2-in. /	**2-inches**	**Geoprobe 5400 / Geoprobe**	**2" Macro-Core**	**7/7/00-7/12/00**
LAND SURFACE ELEVATION	DEPTH TO WATER	BACKFILL		
(FT.)	**(Feet BLS)**			

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		FILL - Coarse Sand and Gravel			0-0.5 feet bls. logged by Zebra. Soil sample collected from 0-0.5, petroleum odor, tar-like substance noted at 2 feet bls., water with sheen noted
		Olive-gray CLAY			Petroleum odor
5		Greenish-gray CLAY with some Silt and fine Sand, grading to a yellowish-orange Clay with Silt and fine to medium Sand; Moist		5	Petroleum odor. Soil sample collected at 5-7 feet bls.
		Yellow-orange CLAY with some Silt and fine Sand grading to a yellow-orange fine to medium Sand with little Clay; Wet		0.0	Petroleum odor, 100% recovery
		Yellow-orange and grey CLAY with some Silt with thin lenses of fine Tan Sand; Dry		0.0	100% recovery
10		Yellow-orange and grey CLAY with little Silt and thin lenses of fine Sand; Moist		0.0	100% recovery
		Yellow-orange and grey CLAY with little Silt and thin lenses of fine Sand			100% recovery. Groundwater sample collected at 13-16 feet bls.
15		Light Brown CLAY with little soft Silt; Moist		0.0	100% recovery Bottom of boring at 16 feet bls.

BORING/WELL 17252Y03.GPJ ROUX.GDT 6/4/01

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SOIL BORING LOG

WELL NO. **SB-63**	NORTHING	EASTING		
PROJECT NO./NAME **17252Y03 / ExxonMobil Buffalo Terminal**		LOCATION **625 Elk Street**		
APPROVED BY **N. Clarke**	LOGGED BY **M. Falzone**	**Buffalo, New York**		
DRILLING CONTRACTOR/DRILLER **ZEBRA / C. Donovan**		GEOGRAPHIC AREA **BSPA**		
DRILL BIT DIAMETER/TYPE **2-in. /**	BOREHOLE DIAMETER **2-inches**	DRILLING EQUIPMENT/METHOD **Geoprobe 5400 / Geoprobe**	SAMPLING METHOD **2" Macro-Core**	START-FINISH DATE **7/5/00-7/10/00**
LAND SURFACE ELEVATION **(FT.)**	DEPTH TO WATER **(Feet BLS)**	BACKFILL		

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		FILL - coarse to medium Sand with Gravel, staining		28	0-5 feet bls. logged by Zebra. Soil sample collected from 0-0.5 feet bls. Petroleum odor
5		Light Brown SILT with some Clay and fine Sand; Moist		40	Petroleum odor, 70% recovery
		Gray-black FILL - Slag and Ash; Wet		180	Petroleum odor, product noted, 70% recovery. Soil sample collected at 7-9 feet bls.
		Black FILL - Slag with little Ash		180	Petroleum odor, product noted, 70% recovery
10		Black FILL - Slag with little Ash		150	Product noted. 70% recovery
		Black stained FILL - Brick, Concrete imbedded in organic material, clay-like consistancy; Moist		170	Sticky "tar-like" product noted, 70% recovery
15		Olive-gray medium to fine coarse SAND, little Clay; Wet		50	Petroleum odor, product noted, 70% recovery Bottom of boring at 16 feet bls.

BORING/WELL 17252Y03.GPJ ROUX.GDT 6/4/01

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SOIL BORING LOG

WELL NO.	NORTHING	EASTING		
SB-64				
PROJECT NO./NAME		LOCATION		
17252Y03 / ExxonMobil Buffalo Terminal		**625 Elk Street**		
APPROVED BY	LOGGED BY			
N. Clarke	**M. Falzone**	**Buffalo, New York**		
DRILLING CONTRACTOR/DRILLER		GEOGRAPHIC AREA		
ZEBRA / C. Donovan		**BSPA**		
DRILL BIT DIAMETER/TYPE	BOREHOLE DIAMETER	DRILLING EQUIPMENT/METHOD	SAMPLING METHOD	START-FINISH DATE
2-in. /	**2-inches**	**Geoprobe 5400 / Geoprobe**	**2" Macro-Core**	**7/5/00-7/6/00**
LAND SURFACE ELEVATION	DEPTH TO WATER	BACKFILL		
(FT.)	**(Feet BLS)**			

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		FILL - coarse Sand and Gravel, significant Brick		0.0	0-5 feet bls. logged by Zebra. Soil sample collected from 0-0.5 feet bls.
5		Red-brown CLAY, little Silt and fine Sand, medium to coarse Sand noted throughout; Wet.		25	Product noted at 6-6.5 feet bls. within sand and gravel lense, 100% recovery
		Red-brown CLAY, with little Silt and fine Sand, lenses of Red/brown medium to coarse Sand with coarse Gravel; Wet.		11	Petroleum odor
10		Red-brown CLAY, little Silt and fine Sand grading to olive-gray medium to coarse Sand with little angular Gravel.		1.0	Petroleum odor, sample liner crushed. Knocked sample out on plastic. 75% recovery.
		Olive-grey medium to coarse SAND with some dense, fine, angular Gravel		9.4	Petroleum odor Groundwater sample collected at 12-16 feet bls.
15		Olive-grey medium coarse SAND with fine, angular Gravel.		8.4	Petroleum odor, product noted, 100% recovery Soil sample collected at 14.5-16 feet bls.
				67	Bottom of boring at 16 feet bls.

BORING/WELL 17252Y03.GPJ ROUX.GDT 6/4/01

ROUX ASSOCIATES, INC.
Environmental Consulting & Management

1377 Motor Parkway
Islandia, NY 11749
Telephone: 631-232-2600
Fax: 631-232-9898

SOIL BORING LOG

WELL NO.	NORTHING	EASTING		
SB-65				
PROJECT NO./NAME		LOCATION		
17252Y03 / ExxonMobil Buffalo Terminal		**625 Elk Street**		
APPROVED BY	LOGGED BY	**Buffalo, New York**		
N. Clarke	**M. Falzone**			
DRILLING CONTRACTOR/DRILLER		GEOGRAPHIC AREA		
ZEBRA / C. Donovan		**BSPA**		
DRILL BIT DIAMETER/TYPE	BOREHOLE DIAMETER	DRILLING EQUIPMENT/METHOD	SAMPLING METHOD	START-FINISH DATE
2-in. /	**2-inches**	**Geoprobe 5400 / Geoprobe**	**2" Macro-Core**	**7/11/00-7/11/00**
LAND SURFACE ELEVATION	DEPTH TO WATER	BACKFILL		
(FT.)	**(Feet BLS)**			

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		ASPHALT			0-5 feet bls. logged by Zebra
		FILL- Coarse Sand, Gravel and Brick			Soil sample collected from 0.6 to 1.0 feet bls., product noted
		FILL- CLAY with some Silt			Petroleum odor
		FILL- CLAY			Product noted, petroleum odor
5		FILL - Coarse Sand and Gravel with pieces of Wood and Brick, some Ash; Wet		186	Petroleum odor, product noted, 50% recovery
		FILL - Coarse Sand and Gravel with fine to medium Sand, pieces of Wood and Brick, some Ash, fine to medium Sand at 9 feet bls.; Wet		155	Petroleum odor, product noted, 50% recovery
		Red-brown soft CLAY with little Silt and medium Sand, product			Product noted, 70% recovery
10		Red-brown soft CLAY with little medium Sand and Silt, grading to a medium to coarse olive-gray Sand with sub-rounded Gravel; Moist		217	Petroleum odor, product noted, 70% recovery
		Red-brown Gray TILL, soft Clay with some medium angular Gravel; Wet		175	Product noted, 100% recovery. Soil sample collected at 13-15 feet bls.
15		Red-brown to Gray TILL - soft Clay with some fine to medium angular Gravel with lenses of medium to coarse Sand and Gravel		46.5	Product noted, 100% recovery
					Bottom of boring at 17 feet bls.

BORING/WELL 17252Y03.GPJ ROUX.GDT 5/22/01

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Environmental Consulting & Management

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Telephone: 631-232-2600
Fax: 631-232-9898

SOIL BORING LOG

WELL NO.	NORTHING	EASTING		
SB-66				
PROJECT NO./NAME		LOCATION		
17252Y03 / ExxonMobil Buffalo Terminal		**625 Elk Street**		
APPROVED BY	LOGGED BY	**Buffalo, New York**		
N. Clarke	**M. Falzone**			
DRILLING CONTRACTOR/DRILLER		GEOGRAPHIC AREA		
ZEBRA / C. Donovan		**BSPA**		
DRILL BIT DIAMETER/TYPE	BOREHOLE DIAMETER	DRILLING EQUIPMENT/METHOD	SAMPLING METHOD	START-FINISH DATE
2-in. /	**2-inches**	**Geoprobe 5400 / Geoprobe**	**2" Macro-Core**	**7/5/00-7/6/00**
LAND SURFACE ELEVATION	DEPTH TO WATER	BACKFILL		
(FT.)	**(Feet BLS)**			

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		FILL - Brown coarse Sand and Gravel			0-5 feet bls. logged by Zebra. Soil sample collected from 0-0.5 feet bls.
5		Red-brown TILL- Clay with little Silt and fine to coarse Gravel; Wet.		1.0	Petroleum odor, 100% recovery
		Red-brown TILL- Clay with little Silt and fine to coarse gravel grading to medium coarse Sand at 9 feet bls.		22.5	Petroleum odor, product noted, 100% recovery
		Olive-gray, fine to coarse loose to medium SAND, product noted at 9-10 feet bls.		72.7	Petroleum odor, product noted
10		Olive-gray fine to coarse SAND; Moist to wet			Petroleum odor, 100% recovery
		Olive-gray, fine to coarse SAND with fine Gravel.		55	Petroleum odor, 100% recovery
		Olive-gray, fine to coarse SAND with some Silt, little fine to coarse Gravel; Wet		74	Petroleum odor, 75% recovery
15		Olive-gray fine to coarse SAND with some Silt		110	Petroleum odor, petroleum staining. Soil sample collected at 15-17 feet bls.
					Bottom of boring at 17 feet bls.

BORING/WELL 17252Y03.GPJ ROUX.GDT 5/22/01

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Islandia, NY 11749
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Fax: 631-232-9898

SOIL BORING LOG

WELL NO.	NORTHING	EASTING		
SB-67				
PROJECT NO./NAME		LOCATION		
17252Y03 / ExxonMobil Buffalo Terminal		**625 Elk Street**		
APPROVED BY	LOGGED BY			
N. Clarke	**M. Falzone**	**Buffalo, New York**		
DRILLING CONTRACTOR/DRILLER		GEOGRAPHIC AREA		
ZEBRA / C. Donovan		**BSPA**		
DRILL BIT DIAMETER/TYPE	BOREHOLE DIAMETER	DRILLING EQUIPMENT/METHOD	SAMPLING METHOD	START-FINISH DATE
2-in. /	**2-inches**	**Geoprobe 5400 / Geoprobe**	**2" Macro-Core**	**7/6/00-10/5/00**
LAND SURFACE ELEVATION	DEPTH TO WATER	BACKFILL		
(FT.)	**(Feet BLS)**			

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
					Soil sample collected at 0-0.5 feet bls.
5		FILL - Red-brown CLAY, Brick fragments, Gravel intermixed, sheen on soil			5
		FILL - Red-brown CLAY, Brick fragments, Gravel intermixed, sheen on soil, grading to medium to coarse Sand; staining			Collected soil sample from 7-9 feet bls. Heavy rain and puddling caused slough. PID not operating.
		Gray medium to coarse SAND, little coarse Gravel grading to a fine to medium grey Sand			75% recovery. PID not operating.
10					10
		Gray fine to medium SAND, trace Gravel, sheen noted on soil; Wet		195	Petroleum odor, 75% recovery
		Gray fine to medium loose SAND, trace coarse Gravel, sheen noted on soil		200	Petroleum odor, 30% - 40% recovery
15					15
		Gray fine to medium loose SAND, trace coarse Gravel, sheen noted on soil		224	Petroleum odor, 30% - 40% recovery

BORING/WELL 17252Y03.GPJ ROUX.GDT 5/22/01

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Environmental Consulting & Management

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Fax: 631-232-9898

SOIL BORING LOG

WELL NO.	NORTHING	EASTING		
SB-68				
PROJECT NO./NAME		LOCATION		
17252Y03 / ExxonMobil Buffalo Terminal		**625 Elk Street**		
APPROVED BY	LOGGED BY	**Buffalo, New York**		
N. Clarke	**M. Falzone**			
DRILLING CONTRACTOR/DRILLER		GEOGRAPHIC AREA		
ZEBRA / C. Donovan		**BSPA**		
DRILL BIT DIAMETER/TYPE	BOREHOLE DIAMETER	DRILLING EQUIPMENT/METHOD	SAMPLING METHOD	START-FINISH DATE
2-in. /	**2-inches**	**Geoprobe 5400 / Geoprobe**	**2" Macro-Core**	**7/6/00-7/10/00**
LAND SURFACE ELEVATION	DEPTH TO WATER	BACKFILL		
(FT.)	**(Feet BLS)**			

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		CONCRETE		0.0	0-5 feet bls. logged by Zebra
		FILL - Coarse Sand, some Gravel and Silt			Soil sample collected from 1-1.5 feet bls.
		CLAY with some Silt			Petroleum odor, staining
5		FILL - Red-brown Clay with some Silt, inter-mixed with loose Sand and Gravel; Wet		2	100% recovery
		Olive-gray fine to medium, medium dense SAND, little Silt; Moist		170	Petroleum odor, 100% recovery
10		Olive-gray fine to medium, medium dense SAND, little Silt; Moist to Wet		120	Petroleum odor, product noted at 10 feet bls, 100% recovery
		Olive-gray fine to medium, medium dense SAND, with little Silt; Wet		200	Petroleum odor, product noted. Soil sample collected at 11-13 feet bls.
		Olive-gray fine to medium loose SAND with some Clay, little Silt		151	Petroleum odor, product noted, 100% recovery
15		Olive-gray fine to medium dense SAND, little Silt; Moist		181	Petroleum odor, product noted, 100% recovery
					Bottom of boring at 17 feet bls.

BORING/WELL 17252Y03.GPJ ROUX.GDT 5/22/01

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SOIL BORING LOG

WELL NO.	NORTHING	EASTING		
SB-69				
PROJECT NO./NAME		LOCATION		
17252Y03 / ExxonMobil Buffalo Terminal		**625 Elk Street**		
APPROVED BY	LOGGED BY			
N. Clarke	**M. Falzone**	**Buffalo, New York**		
DRILLING CONTRACTOR/DRILLER		GEOGRAPHIC AREA		
ZEBRA / C. Donovan		**BSPA**		
DRILL BIT DIAMETER/TYPE	BOREHOLE DIAMETER	DRILLING EQUIPMENT/METHOD	SAMPLING METHOD	START-FINISH DATE
2-in. /	**2-inches**	**Geoprobe 5400 / Geoprobe**	**2" Macro-Core**	**7/5/00-7/6/00**
LAND SURFACE ELEVATION	DEPTH TO WATER	BACKFILL		
(FT.)	**(Feet BLS)**			

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		FILL - Brown coarse Sand and Gravel, some Concrete and Brick			0-5 feet bls. logged by Zebra. Soil sample collected from 0-0.5 feet bls.
5		Red-brown medium to coarse SAND with some Clay, black petroleum stained; Wet.		21.2	Petroleum odor, black petroleum staining
		Olive-gray fine to medium SAND with Silt grading to fine to medium dense poorly sorted Sand; Wet to moist.		187	Petroleum odor
10		Olive-gray fine to medium SAND with some Silt; Moist.		28.9	Petroleum staining, product noted
		Olive-gray fine to medium SAND, with some Silt		115	Petroleum odor. Soil sample collected at 11-13 feet bls.
		Olive-gray fine to medium SAND with some Silt, little dense Clay; Wet.		50	Petroleum odor, product noted
15		Olive-gray fine to medium SAND with some Silt, little dense Clay		35.6	Petroleum odor, product noted
					Bottom of boring at 17 feet bls.

BORING/WELL 17252Y03.GPJ ROUX.GDT 5/22/01

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SOIL BORING LOG

WELL NO.	NORTHING	EASTING		
SB-70				
PROJECT NO./NAME		LOCATION		
17252Y03 / ExxonMobil Buffalo Terminal		**625 Elk Street**		
APPROVED BY	LOGGED BY	**Buffalo, New York**		
N. Clarke	**M. Falzone**			
DRILLING CONTRACTOR/DRILLER		GEOGRAPHIC AREA		
ZEBRA / C. Donovan		**BSPA**		
DRILL BIT DIAMETER/TYPE	BOREHOLE DIAMETER	DRILLING EQUIPMENT/METHOD	SAMPLING METHOD	START-FINISH DATE
2-in. /	**2-inches**	**Geoprobe 5400 / Geoprobe**	**2" Macro-Core**	**7/5/00-7/10/00**
LAND SURFACE ELEVATION	DEPTH TO WATER	BACKFILL		
(FT.)	**(Feet BLS)**			

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		Brown coarse SAND, some organic material		0	0-5 feet bls. logged by Zebra. Soil sample collected from 0-0.5 feet bls.
5					5
		Black stained fine to medium SAND with some Silt, little dense Clay; Wet		39	Petroleum odor, staining
		Olive-gray fine to medium SAND, some Silt, little Clay, dense		131	Black petroleum staining
		Olive-gray fine to medium SAND, some Silt, little Clay, medium dense			Black petroleum staining
10					10
		Olive-gray fine to medium SAND, some Silt, little Clay, medium dense		78	Black petroleum staining, 10% recovery
		Black stained fine to medium SAND, some Silt		144	Petroleum odor, 75% recovery. Soil sample collected at 13-15 feet bls. Groundwater sample collected at 13-17 feet bls. Bottom of boring at 15 feet bls.
15					15

BORING/WELL 17252Y03.GPJ ROUX.GDT 6/4/01

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Environmental Consulting & Management

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Islandia, New York 11749
Telephone: 631-232-2600
Fax: 631-232-9898

SOIL BORING LOG

WELL NO. **SB-71**	NORTHING	EASTING		
PROJECT NO./NAME **17252Y03 / ExxonMobil Buffalo Terminal**		LOCATION **625 Elk Street**		
APPROVED BY **N. Clarke**	LOGGED BY **M. Falzone**	**Buffalo, New York**		
DRILLING CONTRACTOR/DRILLER **ZEBRA / C. Donovan**		GEOGRAPHIC AREA **BSPA**		
DRILL BIT DIAMETER/TYPE **2-in. /**	BOREHOLE DIAMETER **2-inches**	DRILLING EQUIPMENT/METHOD **Geoprobe 5400 / Geoprobe**	SAMPLING METHOD **2" Macro-Core**	START-FINISH DATE **7/5/00-7/10/00**
LAND SURFACE ELEVATION **(FT.)**	DEPTH TO WATER **(Feet BLS)**	BACKFILL		

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		FILL - Brown coarse SAND and Gravel		0.0	Soil sample collected from 0-0.5 feet bls.
				0.0	
5					5
		Olive-gray fine to medium SAND with some Silt, little Clay; Wet		30	Petroleum odor, black petroleum staining
		Olive-gray fine to medium, medium dense SAND, little Silt grading to medium to coarse Sand with little Gravel		50	Petroleum odor
		Olive-gray, fine to medium SAND little medium dense Silt		110	Petroleum odor, product noted
10					10
		Olive-gray, fine to medium SAND little medium dense Silt		85	Petroleum odor, product noted
		Olive-gray fine to medium SAND with some Silt and Clay grading to olive-grey fine to medium dense Sand		70	Petroleum odor, product noted. Groundwater sample collected at 13-17 feet bls.
15					15
		Olive-gray medium to coarse SAND		130	Petroleum odor, product noted. Soil sample collected at 15-17 feet bls.
					Bottom of boring at 17 feet bls.

BORING/WELL 17252Y03.GPJ ROUX.GDT 6/4/01

APPENDIX D

Test Pit and Tunnel Inspection Logs,
Photographs and Notes

Groundwater & Environmental Services, Inc.

TEST PIT LOG

PROJECT: MBT

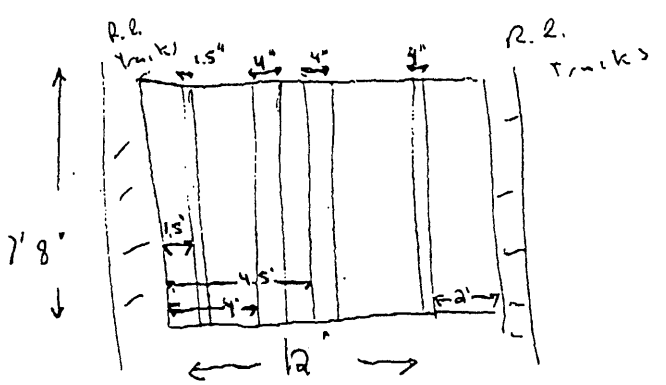
4 - picture of soil below concrete
5 - picture of open excavation

TEST PIT No. 01

SURFACE ELEV. _____ **FEET**

DEPTH IN FEET	DESCRIPTION
0 (Bottom of Unloading Trench = 0)	Concrete varying in thickness from 3"-6", Gravel + sand below concrete is saturated, no noticeable odor
	3"-6" - 3' - C. gravel, trace C. sand water w/ product @ ~2' BG
5	
10	
15	
20	

Plan View



See Field notes

DATE EXCAVATED: 8/9/00 & 8/11 **INSPECTED BY:** M. Falzone

DEPTH OF WATER: 2.00' **DATE:** 8/9/00 **EXCAVATED BY:** M. Falzone

Groundwater & Environmental Services, Inc.

TEST PIT LOG

PROJECT: MBT

8/9/00

1+2- surface concrete + soil
3- water @ 2' BG

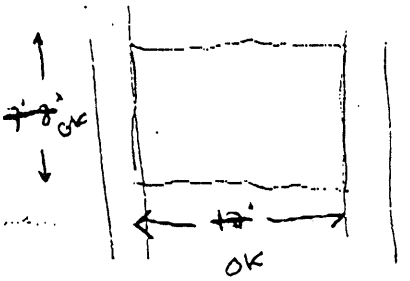
TEST PIT No. 02

SURFACE ELEV. _____ FEET

DEPTH IN FEET		DESCRIPTION
Bottom of Unloading Trench=0	0-6"	concrete varying in thickness from 3"-6", soil @ 3"-6" has no visible impacts (cobble + sand)
	6"-2.0'	Fill c. Stone/gravel some brick m-c sand w/ concrete block
	2.0'	Encountered water w/ product (.01")
	3.0'	Bottom of Trench -

Plan View

N↑



DATE EXCAVATED: 8/9/00 & 8/11 INSPECTED BY: M. Falzone

DEPTH OF WATER: 2.0' DATE: 8/9/00 EXCAVATED BY: Safety Kleen

Groundwater & Environmental Services, Inc.

TEST PIT LOG

PROJECT: MBT

Pictures 7+8

TEST PIT No. 03

SURFACE ELEV. _____ FEET

DEPTH IN FEET		DESCRIPTION
0	0'-3'	FILL - C-M Sand w/ portions of Olive Gry - Clay w/ Silt, brick and ash, lenses of tar like substance noted throughout
	3'-7'	F-med yellow orange SAND grading to a Yellow Orange SAND w/ some silt, little clay
5	7'-13'	Olive Gray Silt w/ some clay little f. Sand - no petro odor/stainings water percolating through side wall @ ~9' BG
10		Plan view: 2' × 13' BG, 7'
15		Collected Soil sample @ 9-10' @ 4:30 and Sw sample @ 13' from bottom of excavation, no visible staining or odor noted in grab sample
20		

DATE EXCAVATED: 8/9/00 INSPECTED BY: _____

DEPTH OF WATER: _____ DATE: _____ EXCAVATED BY: _____

Groundwater & Environmental Services, Inc.

TEST PIT LOG

PROJECT: MBT - BSPA

TEST PIT No. 04

SURFACE ELEV. _____ FEET

DEPTH IN FEET		DESCRIPTION
0	0-6"	Asphalt
	6"-1.5'	Concrete
	1.5-5'	Fill - slag, brick + c. sand
5	5-8	Brown c-m SAND -/ trace brick, encountered - broken tree back
	8	Olive Gray clay -/ some silt trace F. sand. no odor
	9	SAA, slt petro odor
10	9-13.5	Olive Gray clay -/ some silt trace f. sand, slt petro odor @ 13.5
	13.5-14.5	Olive Gray F. SAND w/ some silt little clay, str. petro odor
15		PID 431 Bottom of sewer encountered End of Test Pit
20		

DATE EXCAVATED: 9/12 INSPECTED BY: MF

DEPTH OF WATER: _____ DATE: _____ EXCAVATED BY: Sofet, Klean

Groundwater & Environmental Services, Inc.

TEST PIT LOG

PROJECT: MBT - BSPA

TEST PIT No. 05

SURFACE ELEV. _____ FEET

DEPTH IN FEET		DESCRIPTION
0	0-2"	Asphalt
	2"-8"	Broken Concrete
	8"-5'	Fill; Brown - med-c. sand -/ little silt, trace clay + gravel
5	5-7	Olive Gray - Gray Med SAND w/ some silt, little clay
	7-9	Olive Gray - Gry Fine SAND w/ some silt, trace clay Blue "organic" material throughout odor note - decomposed organic material
10	9'	No sign of backfill, moved west 5'
		encountered side wall of BSA outfall @ 9', Top of line @ 7'
15	9-14.5	9ft Olive Gray silt + clay w/ trace Sand moist, wet str petro odor, blk staining, PID - 57 ppm
	11.5	Olive Gray f. med Sand w/ some silt, little clay, str petro odor, wet PID - 461
20	14.5	SAA w/ PID of 421 End of Test Pit Bottom of Sewer encountered Pictures collected by Mr. Cox

DATE EXCAVATED: 9/12 INSPECTED BY: MP

DEPTH OF WATER: _____ DATE: _____ EXCAVATED BY: Scott Kleen

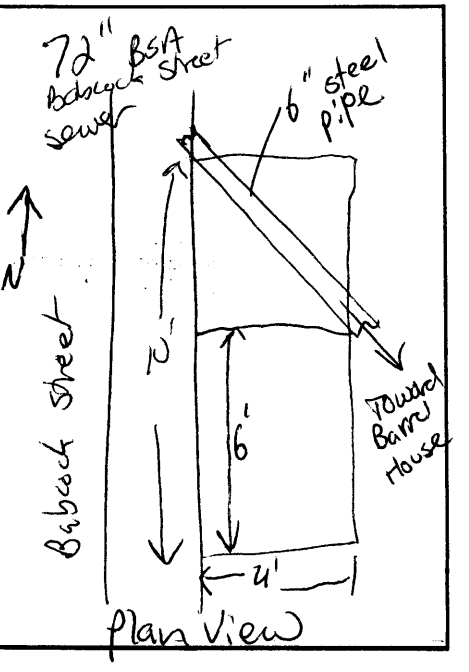
ROUX ASSOCIATES INC

TEST PIT LOGS

CLIENT: Exxon Mobil Corp
PROJECT: Buffalo Terminal
DATE: 9/13/00
MMC

TP No. 06

Depth (Ft.)	Code	Description
0	0-0.5'	Asphalt
	0.5-1.0'	concrete
	1.0-4.0'	Fill - Clay with brick & concrete
3		
	4-5.5'	Clay and silt
		Petroleum odor @ 5 ft to bottom of boring
6	6-11.0	Clay & silt, black staining
		petroleum odor @ 6-6.5
9		
	11-12.5	Clay and silt, product noted
		petroleum odor
12	13-15.5	Clay and silt with well rounded gravel (up to 1.5 inches in diameter), product noted, petroleum odor, product pooled in bottom of excavation
15		Bottom of sewer encountered



TP No. ——

Depth (Ft.)	Code	Description
0		
1		
2		
3		
4		
5		
6		
7		
8		
9		

Groundwater & Environmental Services, Inc.

TEST PIT LOG

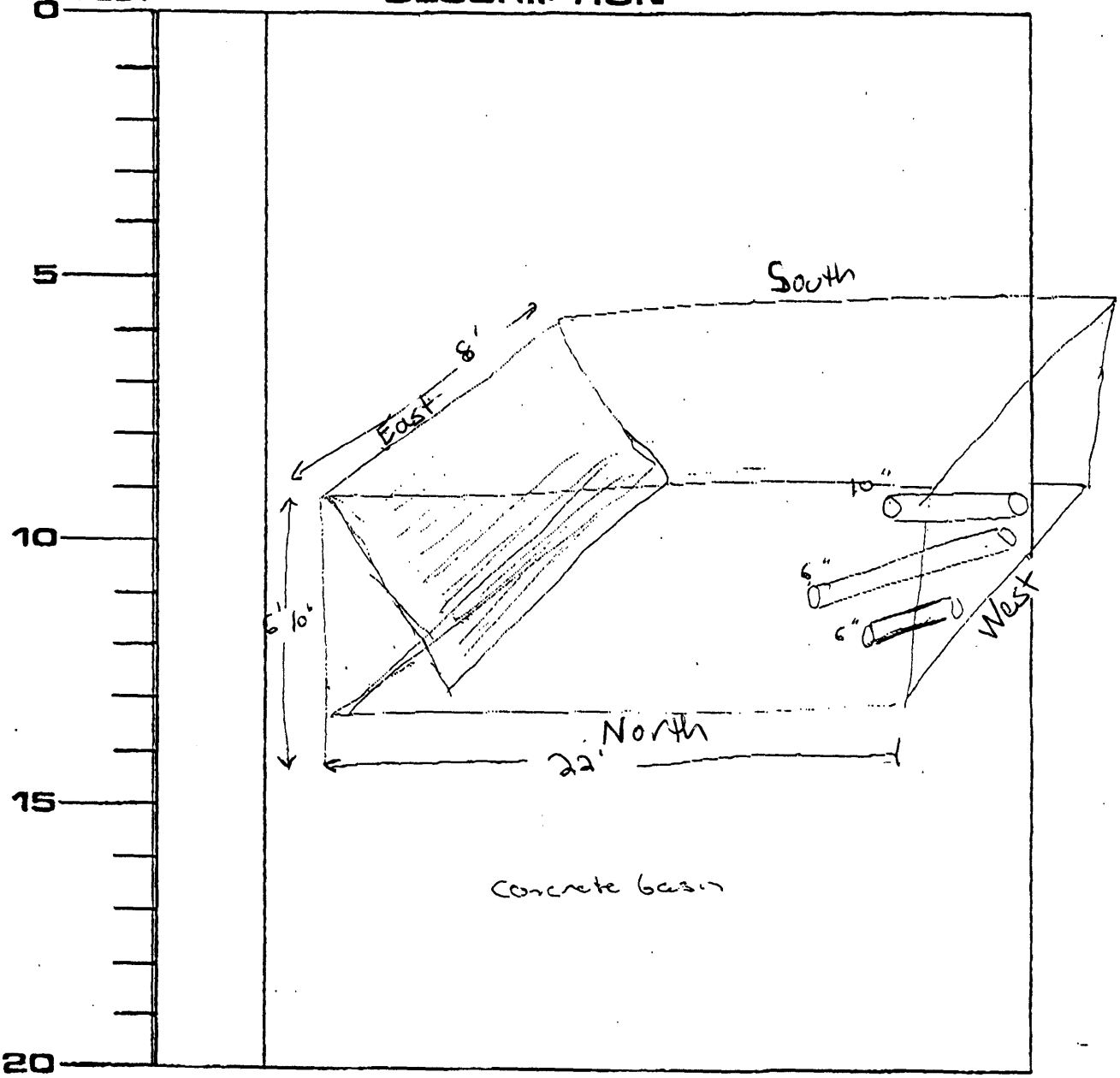
PROJECT: MRT

TEST PIT No. 07 (South Tunnel, east entrance)

SURFACE ELEV. _____ FEET

DEPTH IN FEET

DESCRIPTION



Concrete basin

DATE EXCAVATED: 8/10/00 INSPECTED BY: M. Falzone

DEPTH OF WATER: _____ DATE: _____ EXCAVATED BY: _____

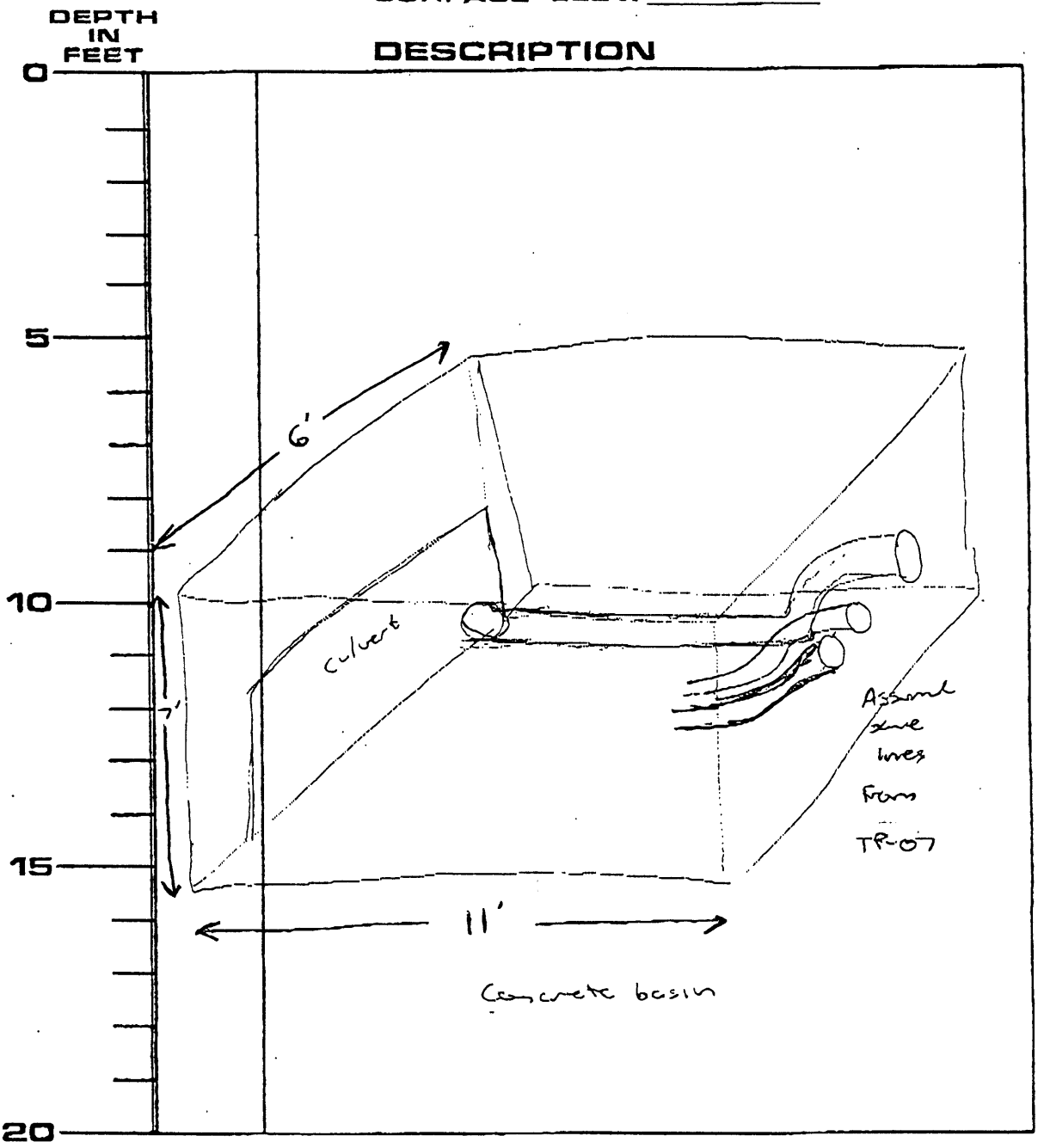
Groundwater
& Environmental Services, Inc.

TEST PIT LOG

PROJECT: MBT

TEST PIT No. TP-08 (South Tunnel, West entrance)

SURFACE ELEV. _____ FEET



DATE ~~EXCAVATED~~: _____ INSPECTED BY: M. Falcone

DEPTH OF WATER: _____ DATE: 8/10/00 ~~EXCAVATED BY~~: _____

Groundwater
& Environmental Services, Inc.

TEST PIT LOG

PROJECT: MBT

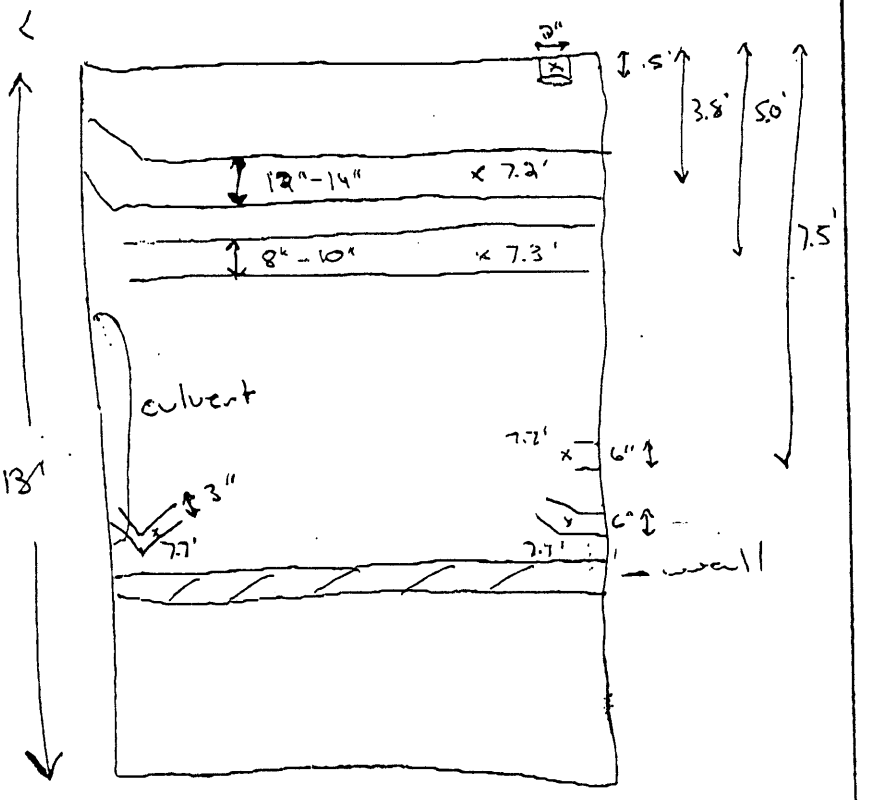
TEST PIT No. TP-09 (North tunnel, East Entrance)

SURFACE ELEV. _____ FEET

DEPTH IN FEET

DESCRIPTION

0
5
10
15
20



DATE ~~EXCAVATED~~: 8/14/00 INSPECTED BY: _____

DEPTH OF WATER: _____ DATE: _____ EXCAVATED BY: _____

Groundwater
& Environmental Services, Inc.

TEST PIT LOG

PROJECT: MBT

TEST PIT No. TP-10 (TP @ west end of north tunnel)

SURFACE ELEV. _____ FEET

DEPTH IN FEET

DESCRIPTION

Coarse Sand & Grave w/ large pieces of concrete throughout, heavily impacted black stained, product evident

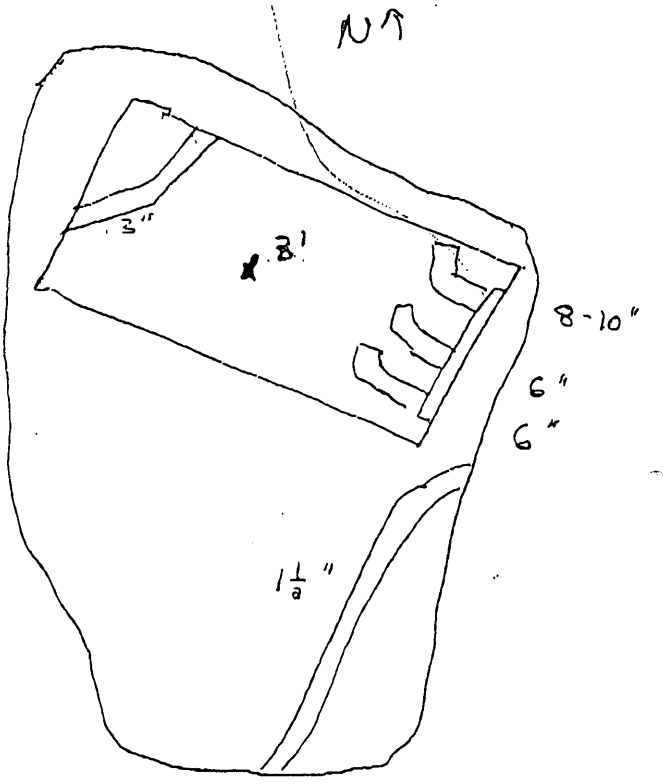
0

5

10

15

20



DATE EXCAVATED: _____ INSPECTED BY: _____

DEPTH OF WATER: _____ DATE: _____ EXCAVATED BY: _____

8/9/00 MBT, MF

7:00 - M.F arrives on site prep for field activities met w/ Joe Abel + Billy (Safety klean) awaiting breaker (ram-hoe) to penetrate concrete @ TP-02

9:30 Backhoe w/ breaker setup to open concrete @ TP-02
See TP-02 log

10:30 Backhoe w/ breaker setup to open concrete @ TP-01
See TP-01 log

1:00 Caved off both TP-02 + TP-01 will return on 8/10/00 to remove liquid from Test Pits

MBT 8/9/00

2:00 - 4:30 - Excavated TP-02
See TP-02 Log.
Collected samples @ 4-3-
From 9' BG (soil) and 13' BG
for groundwater - W.T. interface @ 9'
Billy backfilled test pit upon completion of sampling

4:30 - 6:00 M.F pack samples close gates, ship samples to Joe Abel for shipment via UPS

Mark Fry 8/9/00

Note: Removed 3 drums of product @ TP-09

8/10/00 MRT

7:00 - M.F arrives on site

8:00 Scaped river near WPS-E to check on any sheen, no sheen visible, Preparation for field activities discussed w/ Joe Abel

8:40 - 10^{00} Evacuate TP-08 removed 6400 gallons of (2 loads) water, no evidence of product. TP-08 is a concrete basin with dimensions of 11'x6'x6'3" (picture # 9 3 pipes w/ 90°-diam: 6", 6", & 10" within TP-08 trench)

Sheen is visible

3 pipes appear to be aligned East-west with the east portion of pipe within a culvert (dimensions =) located on East wall of concrete basin @ bottom of basin (picture # 10, east wall of TP08)

note: Some water flow from east wall culvert

Removed 2 loads of total fluids from TP-08

10^{00} - 12^{30} TP-07, Evacuate water w/ vac truck, TP-07 is a concrete basin w/ dimensions of ~23' x ~8' x 6'10" (picture # 11 depicts the size of TP-07) Sheen noted on water, no visible product

Removed 3 + 1/3 loads (16,000 gallons) of total fluid from TP-09 w/ a TBD amount of product.

3rd load was off loaded to frac tank, the initial 2 1/3 loads off loaded into lift station

Free phase product evident from 10' pipe aligned east - west adjacent to South wall of basin. Product removed contained within 3rd load.

Collected PID readings from center of TP-09

PID reading 5.4 ppm.

Tim D on site from 900 - 1230, he observed work completed @ TP-08 + TP-07.

Billy (safety-kleen) entered basin noted dimension + location of 3 pipes. The three pipes all entered from the west wall culvert and were open (see TP-07 log)

Collected PID @ TP-08 equal to background reading of 1.1 ppm

Billy could not identify a open connection between TP-07 + TP-08 culvert, culvert appears to be filled with soil.

Picture #12 is of piping within TP-07 basin

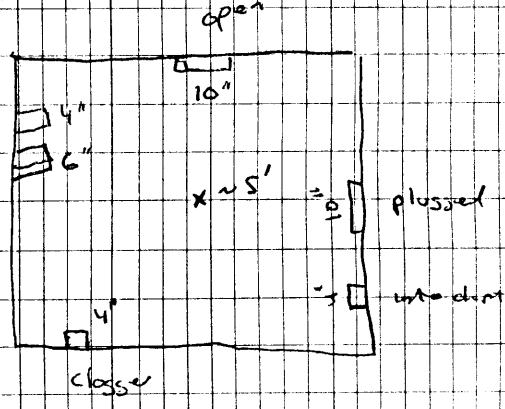
1:00 - 1

Evacuated semi-solids from CB-0 approx 15' East of WPS-W building

Removed approx 3 yards of ~~soil~~ semi solids.

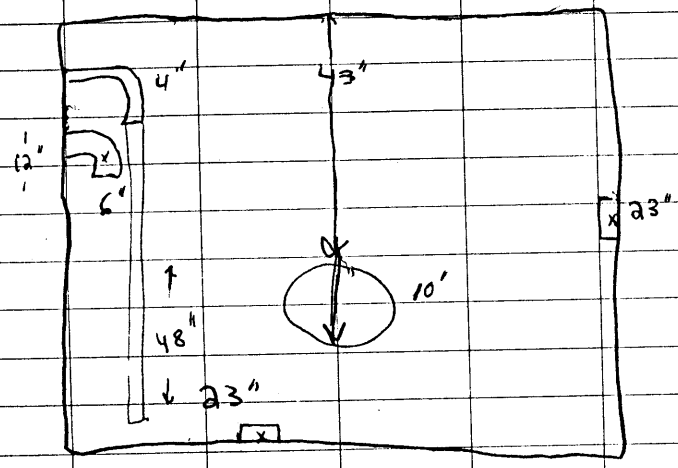
Jetted the 4" + liner from WPS-W to CB-0 near outfall of system

TOP VIEW



MBT 8/10/00

SIDE VIEW



MBT - 8/11/00

7:00- Arrived on site, assessed pondins of water from morning rainfall (2.5") Pondins of water throughout excavation, property & BSPR crew. All open test pits flooded water at surface.

Safety Meeting to evaluate risks @ TP-02 & TP-01, CR-71 & CR-72. Reviewed w/ Bill.

SM. checked system confirm operation of both C.F.V. stations pumps & East cups & flow meter total flow from between flow ~1100 spm time for vacuum cycle @ 9:00

~11:00 Hand dug & cleared TP-02 bottom, used vac truck to clear water from bottom. (Pictures 13, 14, 15 from TP-02)

11:30 Penetrated through base of TP-02, first 6" appear to be concrete (3") & sub-base (3"), dug into soil to 6"+12"

soil stained, sign fast impact, appearance of product from within hole. (picture #16 within hole

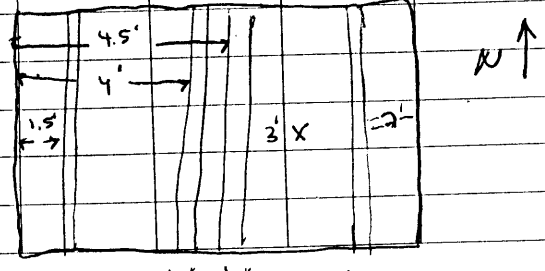
Safety Kleen to tap 4" line (aligned N-S) @ TP-01 & evacuate water approx 3' from East edge

From TP-02.

1155 Safety Kleen cold tapped line, line appears full w/ water, no visible product

Safety Kleen to cut & vac

1130 Evacuated water from TP-01, appearance of concrete ~~p~~ floor, 3 - 4" lines and 1 - 1.5" line aligned N-S



~~All~~ Three lines from W-E are sloping North (checked w/ level) the East most 4" line is level. (picture #17 depicts pipes)

water entering trench is heavily impacted with product noted on water

1130 penetrated center of trench soil stained & heavily impacted immediately under the 3" subbase The impacted "fill" is approx 2"-3" thick, below the fill @ ~9" below bottom of TP-01 is a red brown clay that has no visible impact and no noticeable odor (picture #18 indicates location of hole within TP-01)

TIMO from MPSPEC off 5.40 @ 1145

Clos boosters cleared line between CB-71 & MH-8, could not confirm penetration into

MH-8, though there appeared to be same flow @ MH-8.

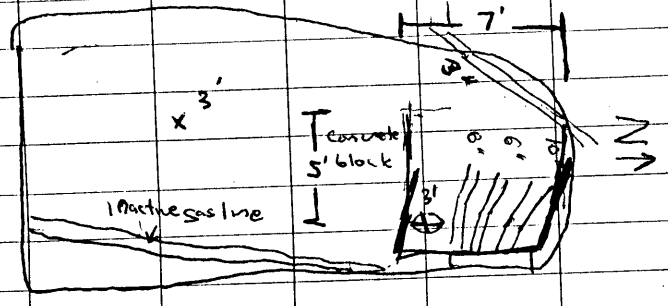
MBT

7:00 MF arrive on site met w/ Billy from Safety Kleen review work completed over weekend work completed included dewatering of MH-4 + removal of gravel @ MH-4 (partial), cleaned + confirmed connection between clay tile line from CB-20 to MH-4

8:00 Safety-Kleen tapped the three (3) lines @ TP-08, removed product and water from the 10 inch line, removal water only from the two 6 inch lines (picture #19 shows plugs in tapped lines)

Safety-K excavated TP-10 parallel to TP-08, ~~confirmed~~ ~~location of MH-10~~

TP-10 is heavily impacted w/ product, shallow water @ ~ 2'6G shows evidence of product encountered what appears to be a inactive gas line along the east end of Test Pit



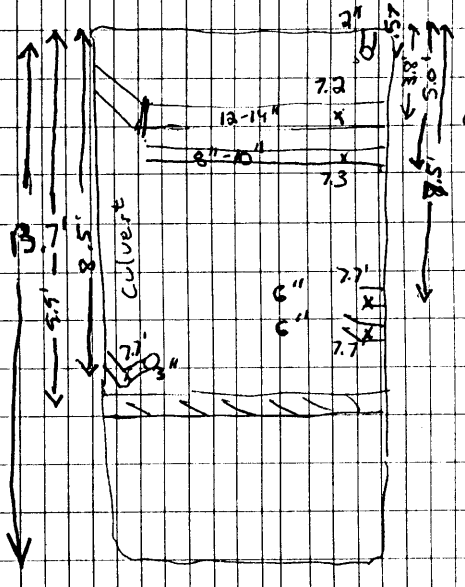
At approx 3 ft BG encountered concrete block. Ceased excavation until nearby vehicles can be moved.

12:10 - Excavated TP-09, visible product (.01') on water will attempt to uncover pipings

12:45 Located pipe ~ 3' from north well at TP-09

Continued to excavate @ TP-10 uncovered 4 lines one 10", two 6", and one 3" line See TP-10 log. Pictures 20, 21, 22

5:00 Vac truck continue @ TP-09, drew basin to bottom continued to pump down product Pictures 23, 24, 25



MBT 9/12/00 TP-05 MF

715 M.F arrives on site spoke w/ SM, Trans-2 down 2 ft statics high - SM cleaning Basket Strainer then put back on line

720 Met w/ Billy, started to remove asphalt @ TP-05

805 met w/ w.c discussed system operations, reviewed scope of work

815 spoke w/ JA explained system condition ie high fluid condition, unable to product in tanks-3 + 4. JA asked w.c remove product as soon as vac truck is available

~9:00 Stan Radon of NYSDEC stopped by to inspect test pits Nothing completed at this point N.C to call when TP is underway

MBT 9/12/00 TP05 MF

1000 Penetrated through concrete, started excavating soil

1030 Excavated to 5'-8" encountered water @ 4' bgs in sandy silt soil concrete @ bottom of tank pit

0-2" - Asphalt
2"-8" - Broken concrete
8"+ - Brown sand w/ little silt, trace clay and gravel
5'+ Olive clay w/ some silt, little clay
7-9' Olive grey clay w/ some silt, trace wood
Bulk organic material throughout (some odor of decomposed matter noted)

10:55- MBT 9/11/00

~~9'~~ no

At 9' BG no sign of "backfill" material, Billy from Safety Klean re position to dig further west closer to ~~line~~ outfall line.

encountered sidewall of BSA sewer line @ ~9', Top of line @ ~7' BG

9'+ Soil has significant (strong) petroleum odor, wet, no product impact, Soil type: Olive Gray ~~f Sand~~ ~~Some~~ silt ~~little~~ clay w/ trace F. sand moist-wet

PID-57

11.5' Olive Gray - F-med sand, w/ some silt, little clay strong petroleum odor, wet, no product

PID-1461

14.5 SAA w/ PID of 1121

MBT 9/12/00

1st + 2nd Picture - Top of BSA line

3rd Picture - Excavation to ~11'

Remaining pictures taken by N.C. show various pictures of TP-05

12.30 Sample collected @ bottom of Excavation ~ 14.5' TP-05

11.15 Stalled penetrating Asphalt/concrete TP-01 broke through concrete

0-6" - Asphalt

6-1.5' - Concrete

1.5'-5' - ~~Stone~~ - Fill - Clay, brick, & Sand

5' 2' - B.G. - Sandy silt trace brick, encountered small pieces of brick in the spoon no odor

8 - Olive Gray clay w/ some silt ~~lens~~ trace F. sand, - no odor

9/12/00

5' - SAA w/ slt petro. odor noted

5 - 13.5 Olive grey cly w/ some silt trace f. sand strong petro odor @ 13.5

13.5 - 14 - Olive Grey f-sand w/ some silt, little clay strong petro oda

PID @ 431

2:30 - START LOADING OF MSAC ON SITE TO OBSERVE TP-04 excavation

MBT 10/4/00

Met w/ ZOBER @ 7:00

reviewed H&S plan, + had Basic mtg, received work permits

and ZOBRA removed from offloaded vehicle. Geoprobe

and ZOBRA setup and operated

1st sample @ 0-4'

→ see drill log

11:00 ZOBRA having trouble w/ pneumatic sampler from 26'-30'. will need to remove sampler + make 3rd attempt

Noticed heavy sheen along river bank, will check down the investigation

Visible product noticed at several locations along shoreline outside of Eastern Tank Farm

Added DA, Items necessary for pt

@ 1000

sewer, we check with Jim Panapinto to determine where their water service enters the building. It was not marked out. Jim told us that he thinks it comes in on the west side of the building toward the north near the office, but he is not positive. JP said the water line is encased of cast iron. The valve looks to be about 5 feet deep. We will be looking carefully for the service line.

Billy sets up over location and scrapes asphalt from TP-06. We decide to wait til 9/13 to dig pit.

N.C & MF go to treatment building to label samples and set up equipment

(nmc)

for tomorrow.

1700 Billy finishes with removing asphalt, replaces material & brings to grade with gravel from Panapinto (ok with JP)

NC & MF go out to TP-04 & TP-05 locations to set up cones around asphalt pile and caution tape around TP locations.

MF Discussed completion of TPs with Joe Abel & Billy. Material in TP-04 & 05 will be compacted (Billy to get equipment from Hertz) and the remaining space will be filled with stone. For TP-06, which is in the line of traffic for Pinto Const.

(nmc)

(32) 1725204003 9/12/00

At TP-06 the material removed from the hole will be returned up to 1/2 way up the Babcock st. sewer. The rest of the way will be filled with stone/gravel. Marc will arrange for paving by the end of this week or early next week.

The remaining material from TP-06 will be transported to the terminal & staged. Asphalt debris will also be moved to terminal. Billy will arrange for a dump trucks.

1730 Route 4 Safety Kleen left site.

MM

9/13/00 1725204003 (33)

Weather:
Clear
Sunny
Cool in morning (54°)

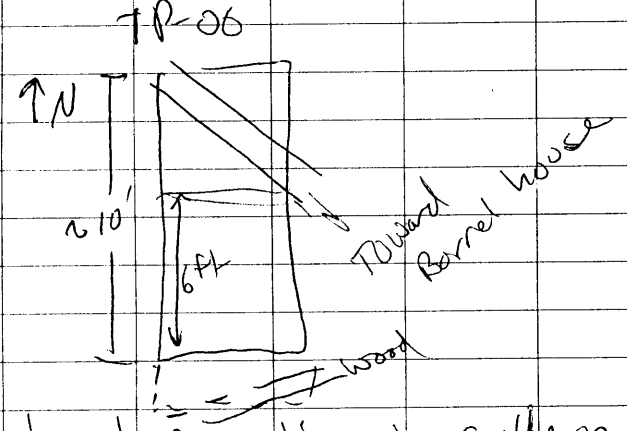
0740 N. Clarke arrives on site Safety Kleen & Spill Busters already on site. Check out sewer investigation progress. They are working in area west of bio cell/S. of police where the 4 former tanks were located. Several of the lines were found to dead end within the area and before entering the access road to the west.

Spoke w/ Billy about TP-06. He won't deliver a dump truck until 10-1100. We will start digging w/o the truck

(34)

0900 Begin to dig TP-06

Approx 3ft BLS encountered a 6" steel pipe running through excavation. CHand dug to find pipe after pulling up yellow tape reading "Caution Buried Electric Line"



Continued excavation in southern portion of hole. Wood (2x4) encountered at southern end of hole

~~0-4 feet~~

0-6" asphalt

6-12" concrete

nm

(35)

12"

12-4ft - ~~mostly~~ Fill mostly clay some brick & concrete

1000 called Stan Radon he will come out after a 10:00 conference call

4-5.5 ft BLS - Clay & Silt

5.0 ft: petroleum odor

Petroleum impact @ 6-6.5 ft

Black staining / odor

6.5 - 8.5 ft no pipes encountered Billy will scrape side to see if he can find Babcock st sewer

Down to 9.5' BLS - still no sign of sewer - moving further west.

1048 Sewer encountered @ 7 ft BLS. Photo taken with TAPP at top of sewer & hole w/o tape

1115 Billy finishes loading some of the soil into dump truck & resumes diggings TP06

Product @ 11.0 ft BGS / Clay/Silt

11 - 12.5 Silt/Clay / Product present

~13 ft clay/silt w/ well rounded gravel. product present

14.25 ft Clay/silt w/ well rounded (varying sizes) up to 4.5" gravel - product. petroleum odor

14.75 ft Clay/silt w/ well rounded stone - product petroleum odor

140 Bottom of hole 15'-7". N.C collected samples from last bucket. Product present. product pooling at bottom

9/13/00 17252Y03 (31)

of excavation (1-2 inches)

Stan Radar onsite - saw excavation completed

Billy Backfilling excavation will replace soil to the top of the sewer and then use stone to compact to grade.

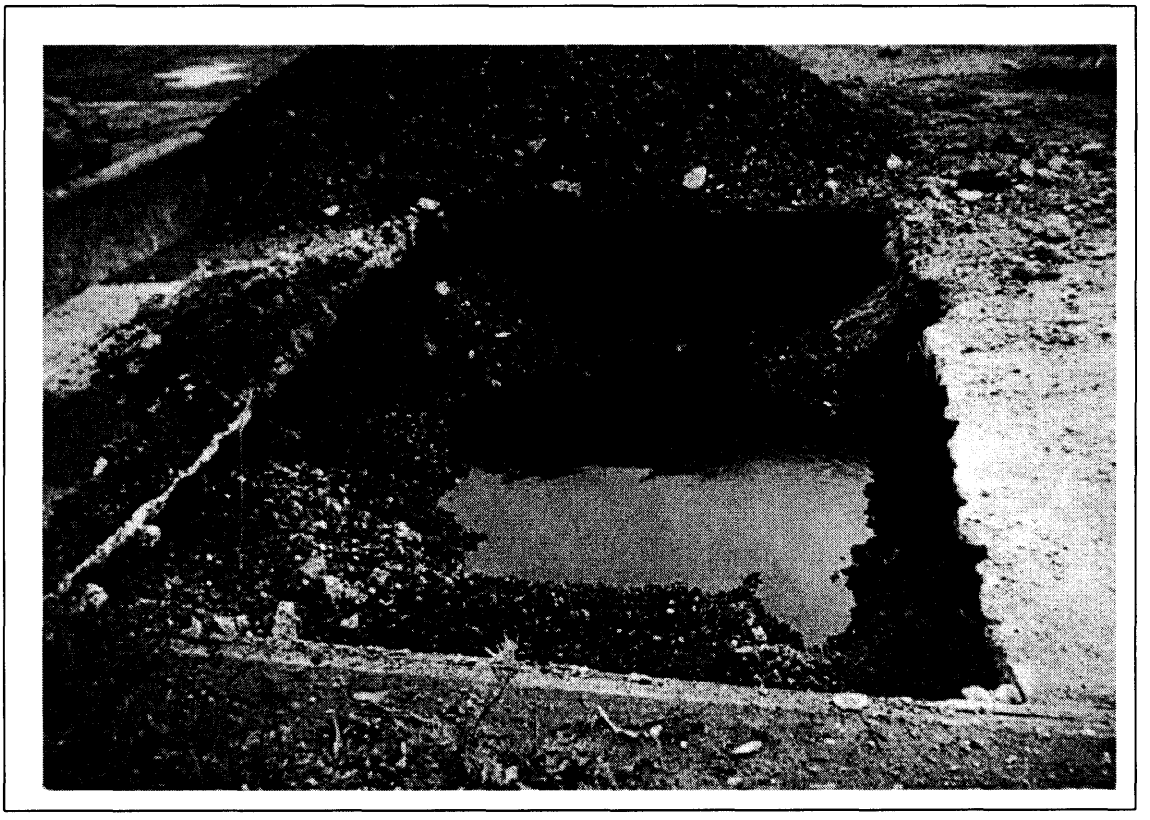
1200 Call Joe Abel to see if he wants the samples from TP-06 sent to lab. No need to send samples b/c product is present & she have samples from other locations in the area.

1230 → 1300 observed sewer investigation progress

PID of TP-06 sample = 164 ppm

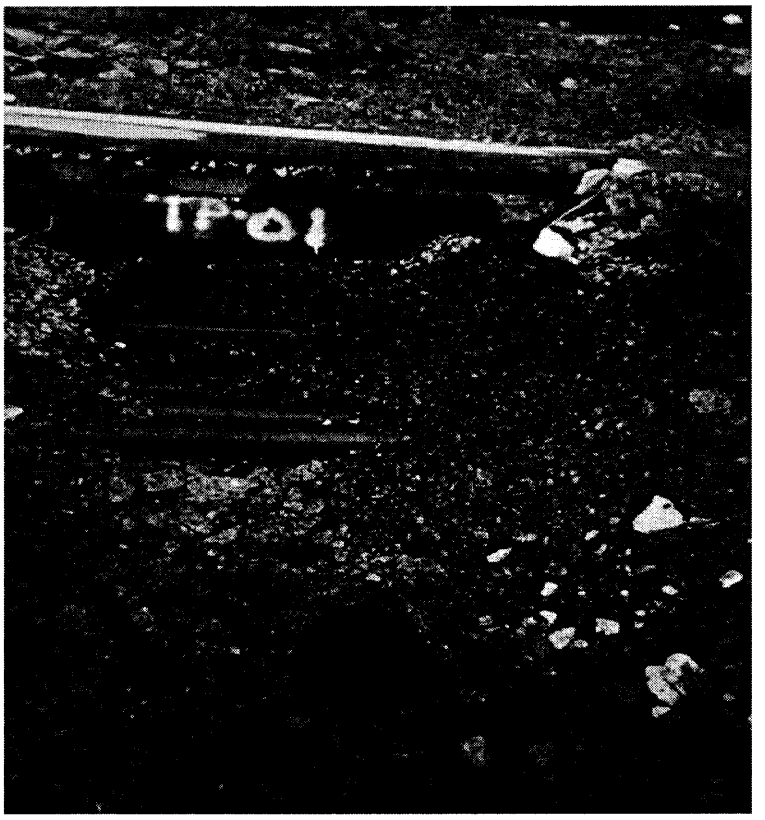
1530 Checked 3 TP locations. and left site

nme

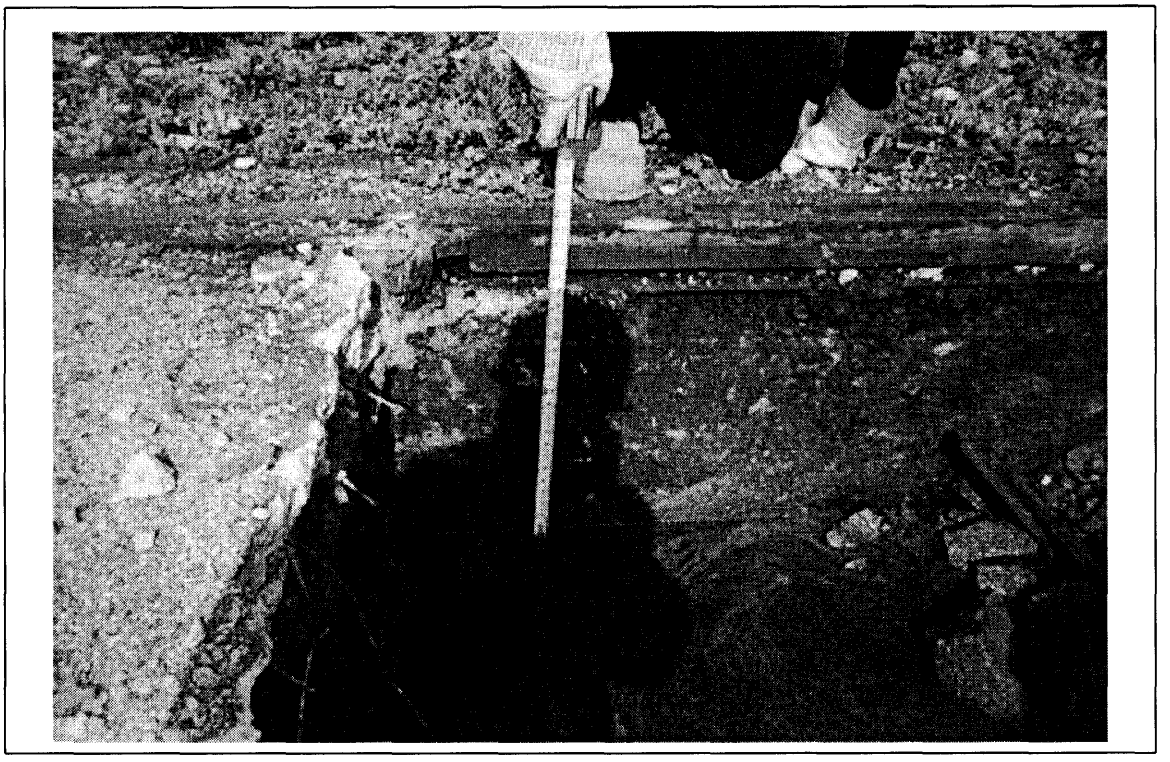


View from the west of TP-01. Shows depth to water, no appearance of petroleum impact.

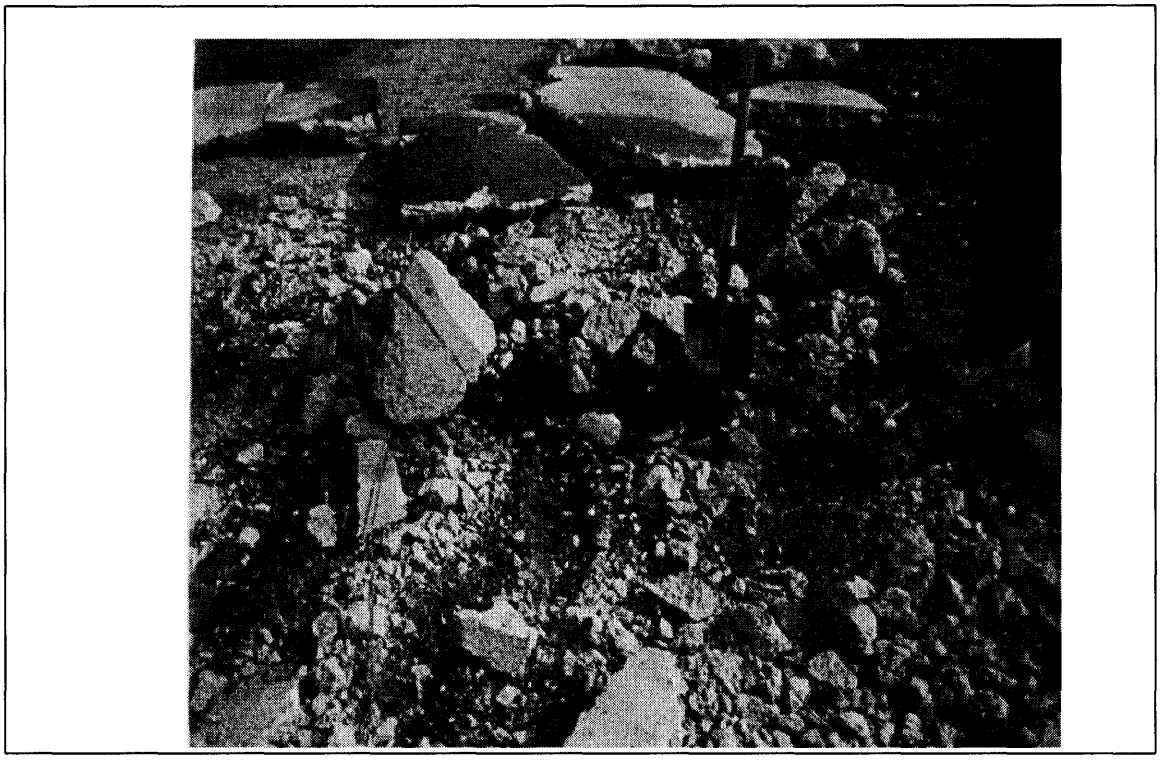
View of TP-01. Picture shows soil conditions below concrete. No visible impacts noted.



View of TP-01, three (3) pipes aligned north-south, one(1) 1.5" diameter pipe and two(2) 4" diameter pipes. A 4" pipe on the east side of the trench cannot be observed. The concrete bottom is observed at 2 ftbgs, and a hole cut through the concrete is observed in the fore ground.



View from East of TP-02. Shows depth to water.

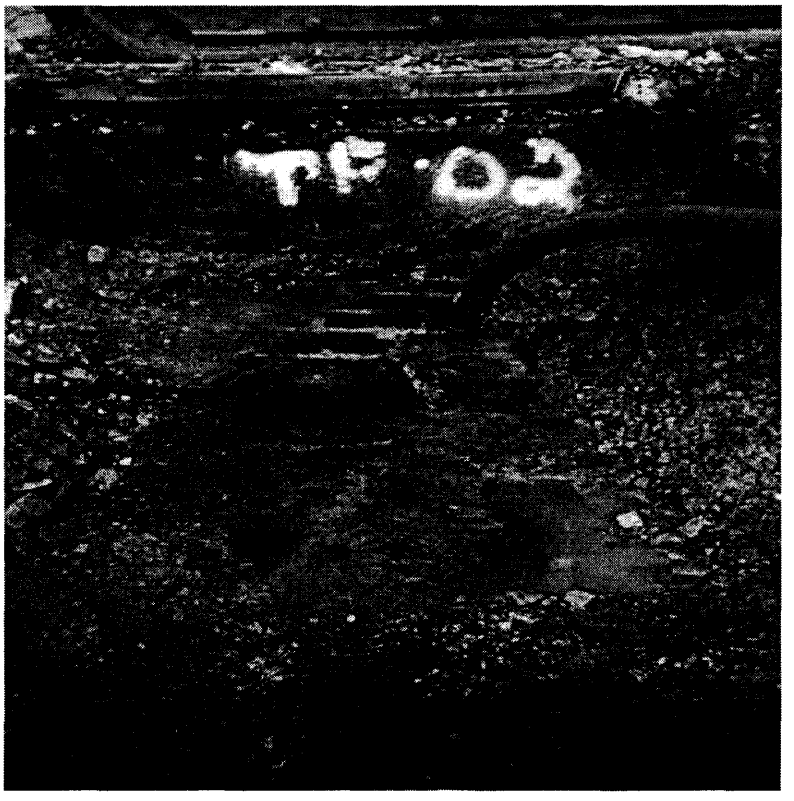


View of TP-02. Picture shows soil conditions just below concrete.

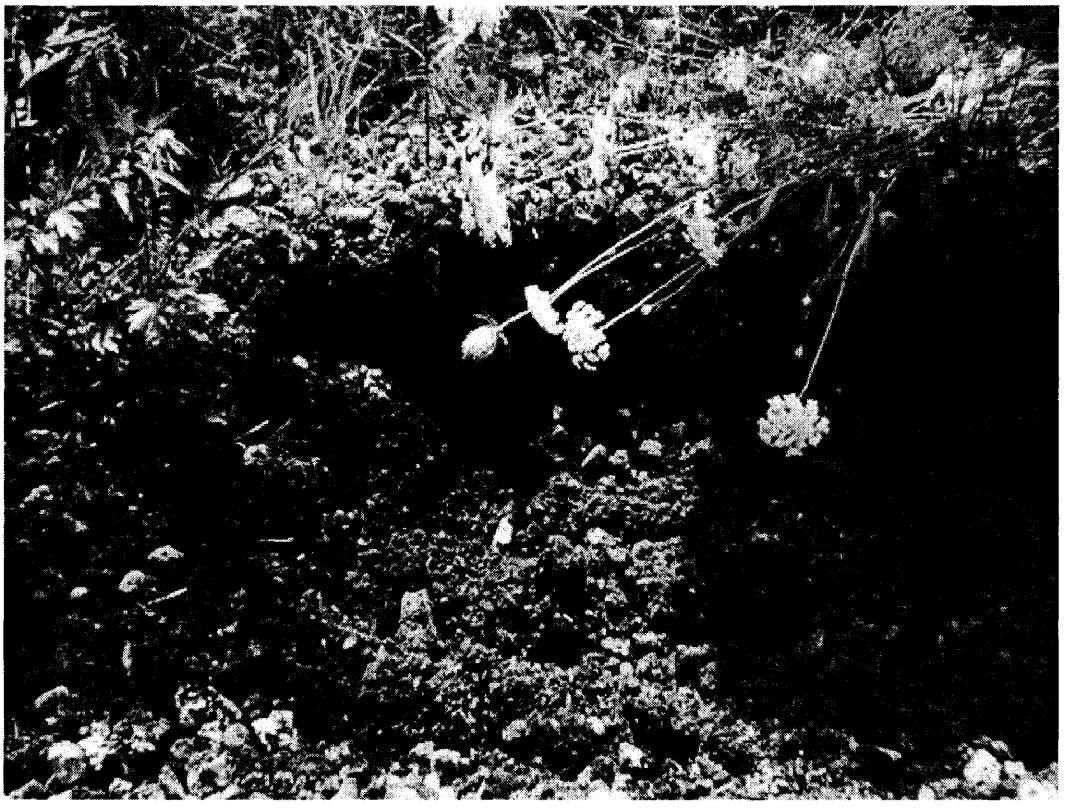
View from west to east of TP-02.

View from top of TP-02.Picture shows the removal of liquid via vacuum truck.

View of soil below concrete at TP-02. Soil is stained and product noted.

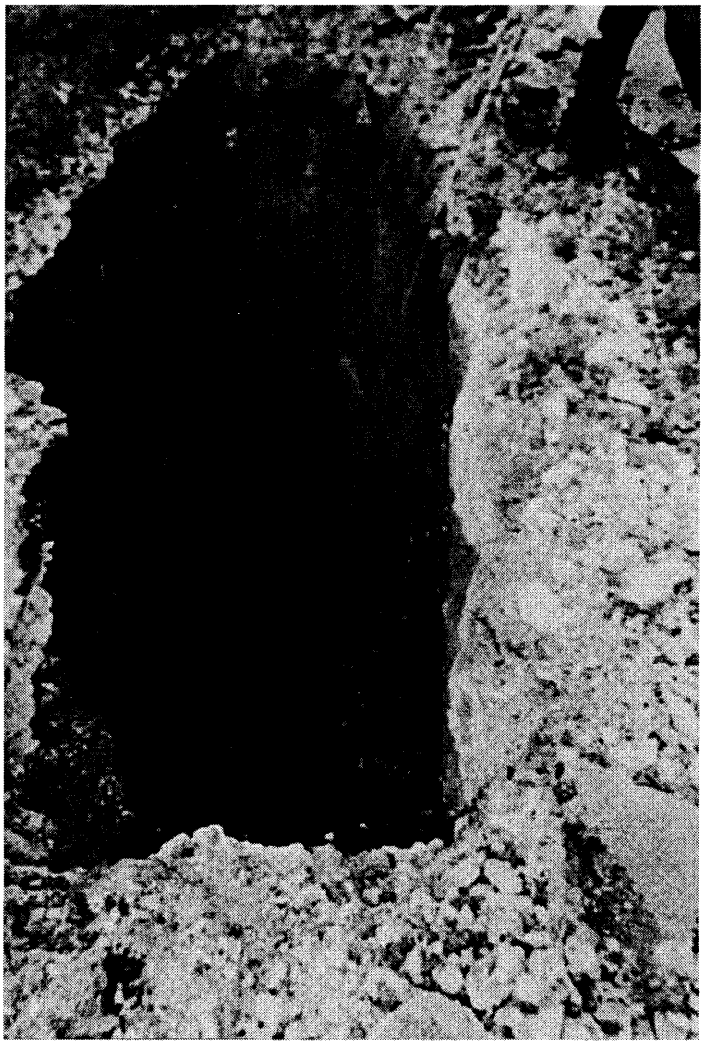


View from the west to east of TP-02.

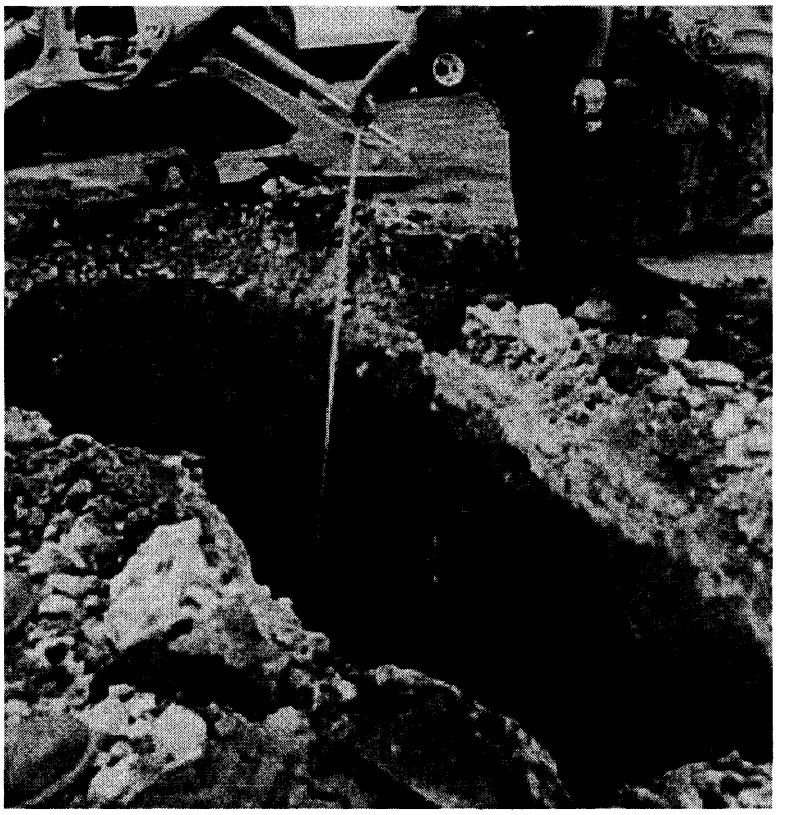


View of TP-03. Picture show the condition of soils at surface. No petroleum impacts noted.

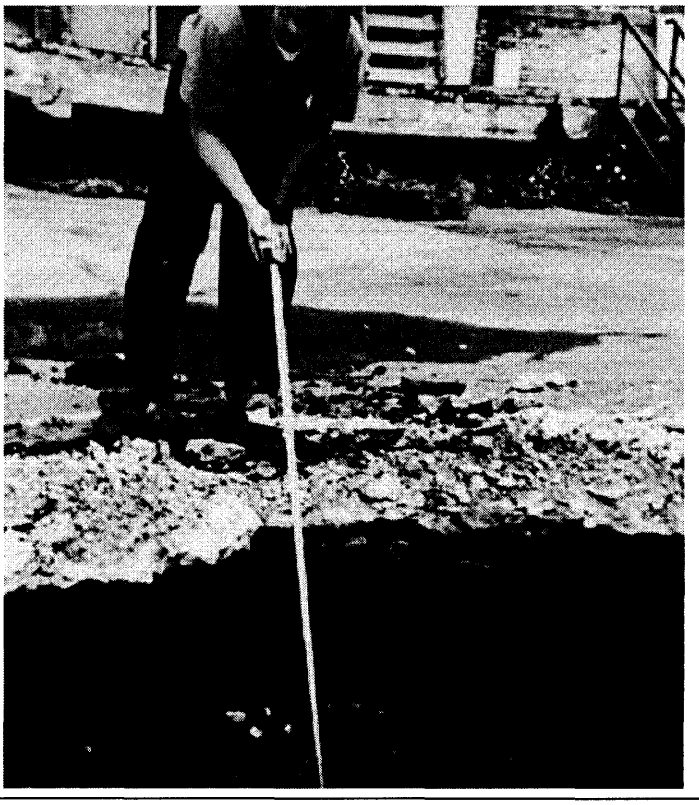
View of TP-03, showing material at 1 ftbgs. The red material appears to be paint. No petroleum impacts noted.



View of TP-04 from south to north. Bottom of excavation at approximately 14 feet bls.

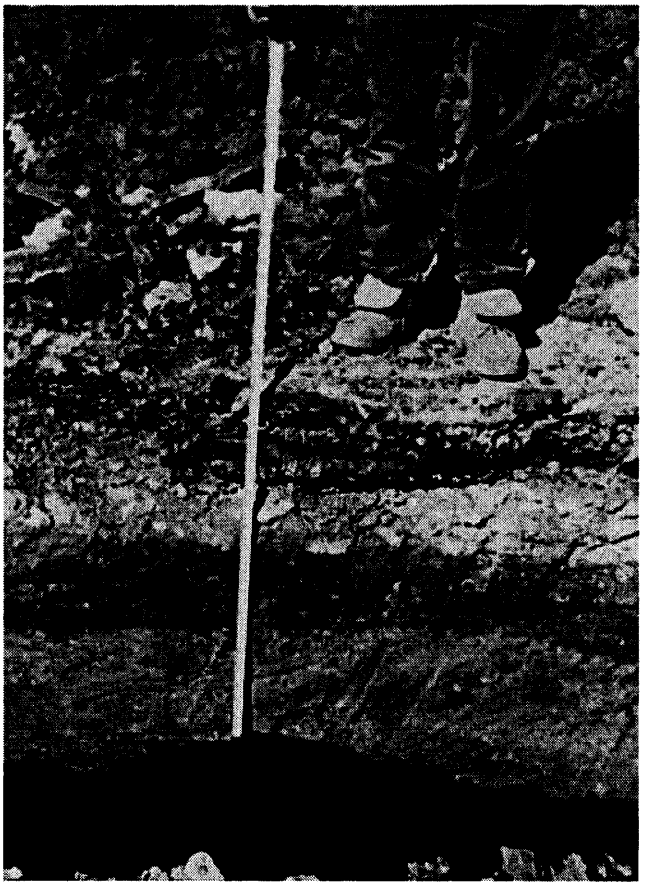


View of TP-05, bottom of excavation at approximately 14 feet bls.

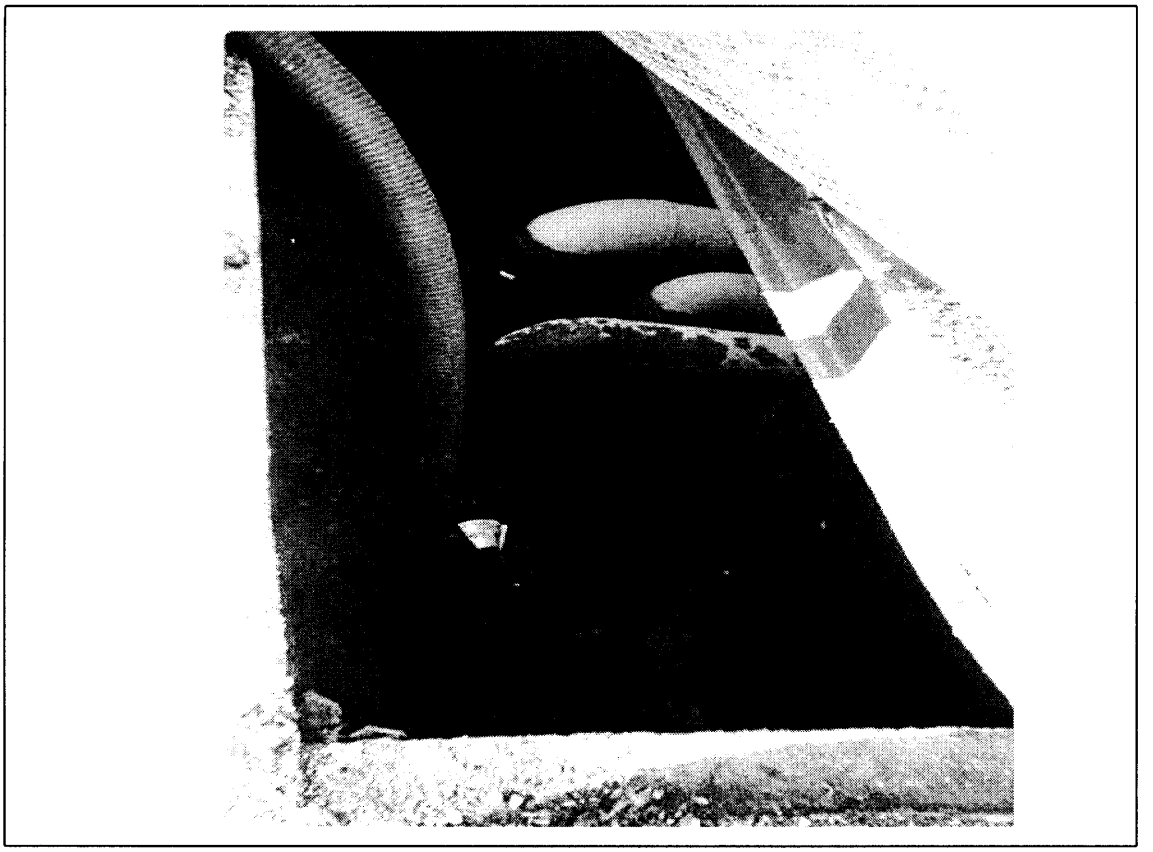


View of TP-05, bottom of excavation approximately 14.5 feet bls.

View of TP-06 location from north looking toward east.



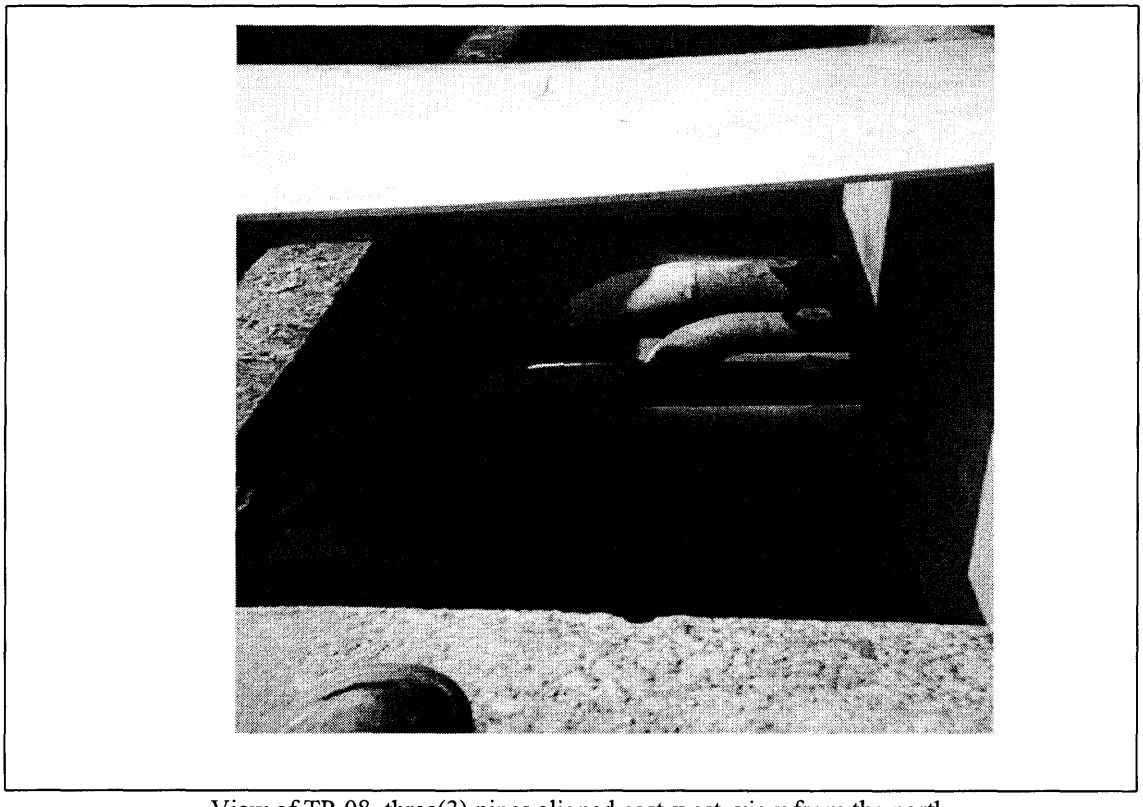
View of TP-06. Bottom of excavation approximately 15 feet bls.



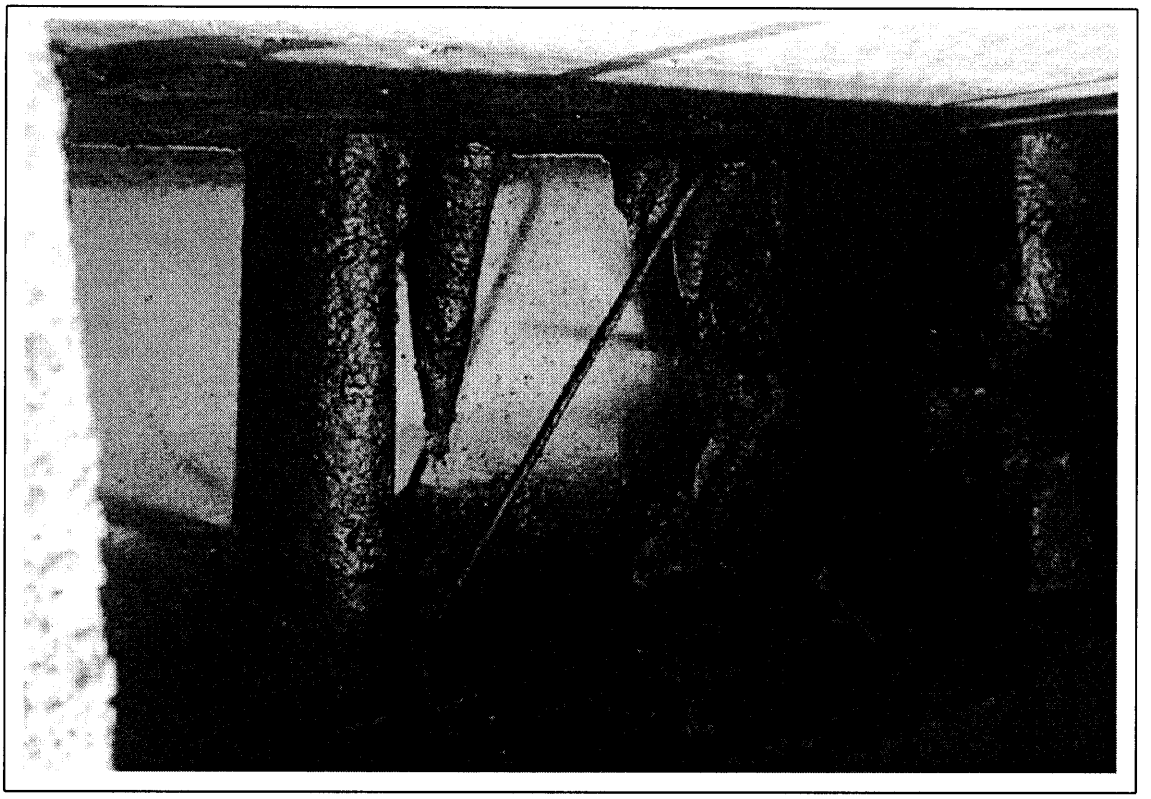
View from north of TP-07. Pictures shows three(3) steel lines, two (2) 6" lines and one(1) 10", the 10-inch line is shown to the south. Line on left side is vacuum hose.

View from west of TP-07, after evacuation of water.

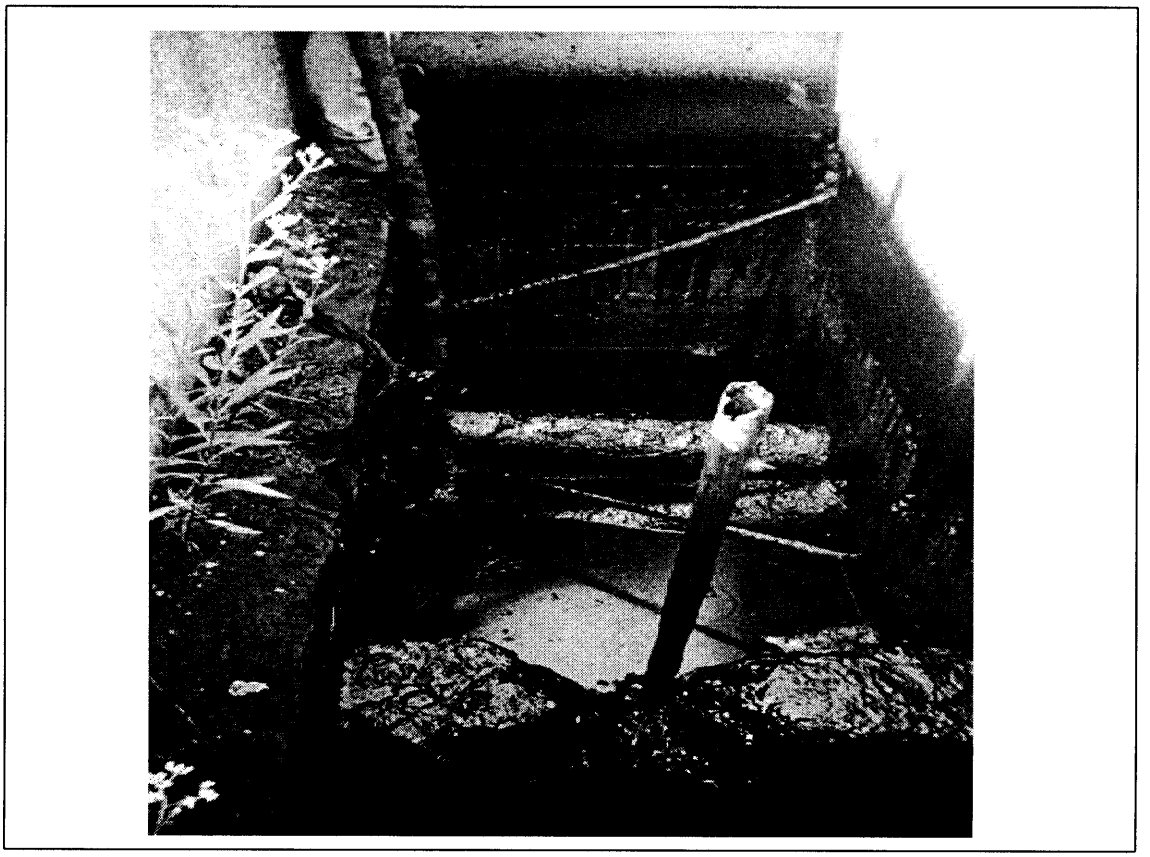
View from top at TP-08



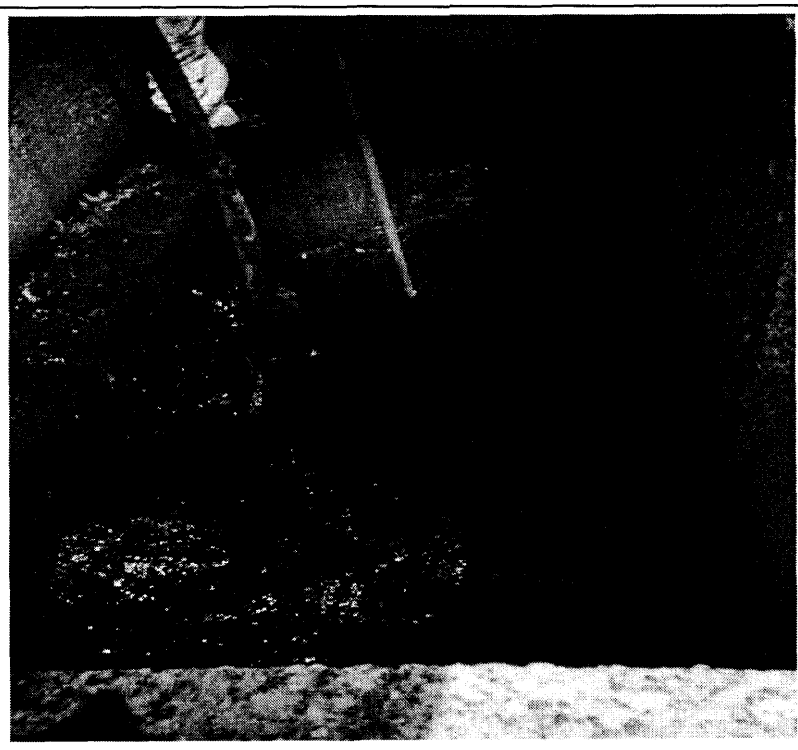
View of TP-08, three(3) pipes aligned east-west, view from the north.



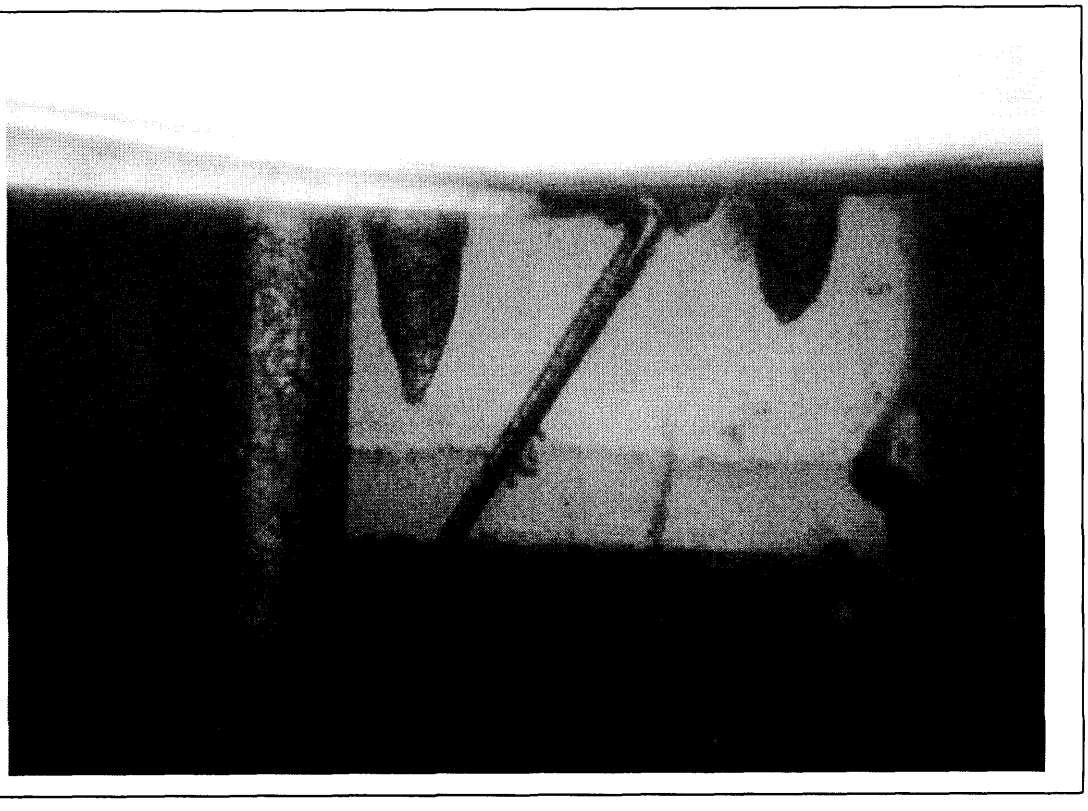
View of pipes from top at TP-09. Picture show east-west alignment of pipes.



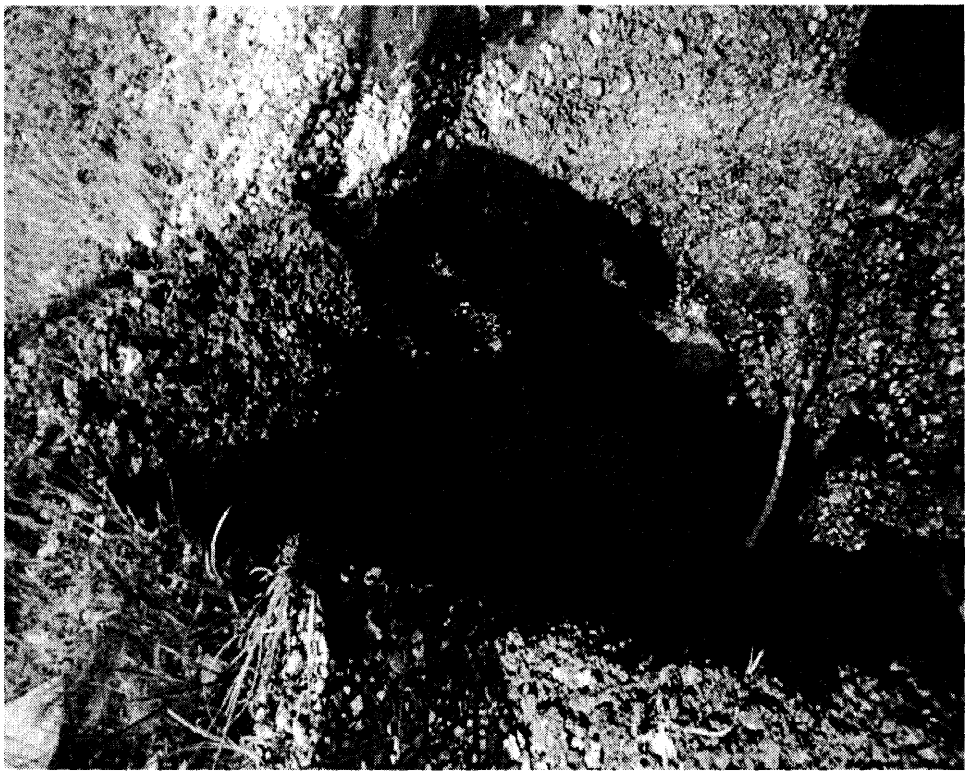
View from south of pipes at TP-09.



View of TP-09 during product/water removal via vacuum truck.



View of TP-09, View from Top.



View of TP-10 from top, showing shallow product/water at less than 2 ft.

View of TP-10 of pipes entering from the east jutting upwards. The two(2) pipes in foreground are 6" diameter, and one(1) 10" diameter pipe in background. All pipes appear to end at this point. A 3-inch pipe crossing the west side of the trench, aligned north-south cannot be observed.

APPENDIX E

Well Development Notes

7/25/00 MBT Sunny 80°F MF

SSB arrives on site @ 7:30, load equipment, ste... clean augers

8:15 SSB setup @ MW-22 to develop well:

DTP - 10.65
DTW - 10.66
DTB - 19.10

no visual evidence of product on tape

approximate sediment accumulation of .5 Ft

- will setup to pump out sediment using ¾ H.P Flowtech submersible

Flowrate = 20sec/5 gallons ~ 15gpm

heavy sediment in water

Pumped out ± 30 gallons total, water cloudy but no longer having heavy sediment. Strong putrid odor, sheen

4" well = .65

7/25/00 MBT

Recharged DTB, DTB = 19.27

9:00 AM Surge Block 10-13 ft interval
9:10 AM Surge Block 13-16
9:20 Surge Block 16-19

Pumped out well, recharged flowrate ± 20sec = 5 gallons

Set submersible @ bottom of well removed ±Apprx 40 gallons heavy sediment in water (6 blocks) water remained cloudy. strong odor, sheen; well sustaining pumping rate

~~SB-2~~ MW-23

DTP - ND
DTW - 14.37
DTB - 20.8'

Approximate sediment accumulation of 24.5 - 20.8 = 3.7'

TO: Noelle Clark
ROUX

From: Marc Falzone
GES

9:38 | 7/25/00 | MBT

MW-22 Continue to surge block @ 5 minute intervals

9:57:45 - 10:00:10

Heavy black sediment, cleared up within 30sec to ~ "cloudy" water sheen, sl. petro odor approximate 30 gallons removed

Total fluid removed ~100gallons
Total surge time ~45 minutes

10:10 - Set up MW-23, set pump to remove sediment pump not functioning, will attempt to repair.

10:35 Pump repaired, set pump down slowly, removed approx. 5 gallons, drew well down quickly, slow re-charge

MBT 7/25/00

Heavy sediment (black) in water re measured bottom DTB - 24.44

11:05 Recharge slow DTW - 10.86
will start surge blocking from 14'-12'

MW-27

DTP - NP
DTW - 10.78
DTB - 26.20
Depth for pump - 27.20
NO appreciable sediment

11:20 18-21

11:30 21 - 24.5

11:45 Set up pump to purge sediment, pumped for approx 30 sec, pumped 6 gallons total gallons removed ~ 15 gallons sl petro odor, sheen

MBT 7/25/00

2:38 well rebounded to 12.5' BG, pumped down removed ~ 10 gallons (olive grey sediment in water, (light) sheen, petro odor

2:50 well rebounded to 14', pumped down removed < 10 gallons, cloudy - light sediment in water stream

---

moved pump to MW-24, surged block 10-15' and 15-17.5, 30 min total

2:55 Pumped MW-24 for 30 sec removed ~ 7-8 gallons med. heavy Red Brown sediment

Await re-charge and surge block.

MBT 7/25/00

~~2:05~~

3:10 MW-24 rebound to 12.05 ft, set up to surge block and to pump

3:25 Pumped down MW-24, removed ~ 5-6 gallons med sediment, will recharge and pump again

---

MW-25

DTP 10.55

DTW 11.38

DTB 19.30

Depth from stick: 19.80

330 Setup to surge block 10.5-11.5 14.5-15.0, 15 minutes each interval

---

3:45 MW-24 recharge to 11' BG Pumped down, removed approx 15 gallons, low yield

7/25/00

MW-25

Purged well - set pmp to bottom of well, sustainable well yield @ 15 spm, cloudy to clear water w/ little gray sediment, removed approx - 60 gallons, st petro odor, product noted

~~MW-26~~ DTP - NP
After Development DTW - 5.45
DTB - 19.32

4:45

MW-26

DTP - NP
DTW - .88'
DTB - 7.82

Surge Block - 1-4, 4-8
Pumped for 10 sec, removed approx 2.5 gallons, heavy olive gas

7/25/00

sediment, petro odor.

Surge Block for addl. time (5 min) 2.5 per interval

Pumped for 16 sec removed approx 3.5 gallons water, heavy olive gas sediment in water, petro odor, sheen

- well moved up approx 3 inches during development

5:20 well development complete, approx 15 gal

6:30 M.F load equipment w/ SSB, demob

APPENDIX F

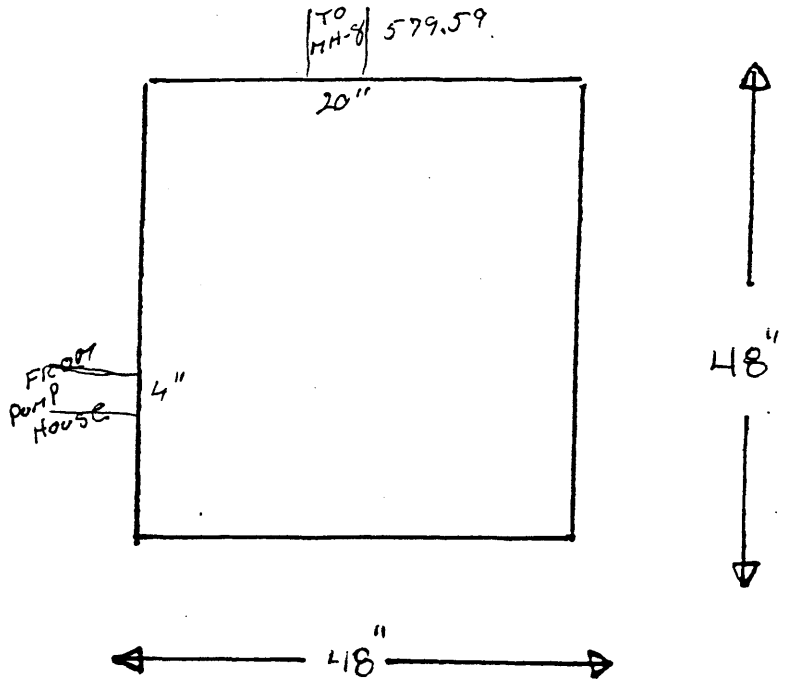
Field Notes for Sewer Manhole and
Catch Basin Cleaning and Inspection

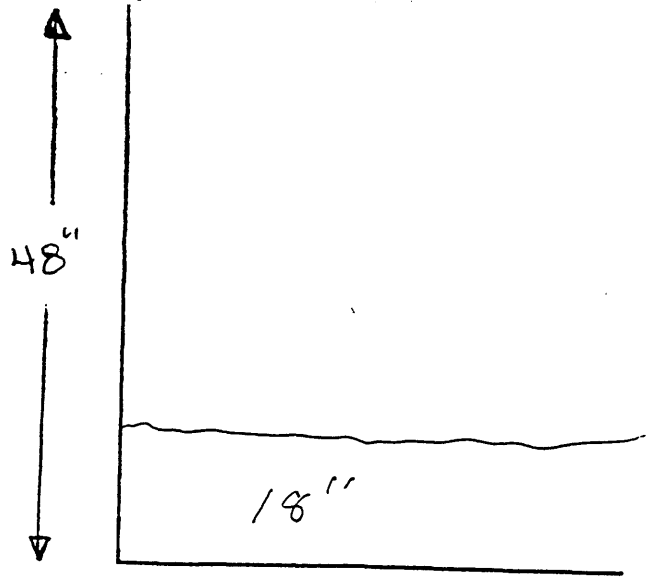
1-10-01

N

Notes: BC 8/10/00
- LINES JETTED

Structure # CB-O





Rim Elevation:

Depth to Bottom:

Constructed of: BRICK

Sediment: 18"

Product: SHEEN

Surrounding Area: GRAVEL

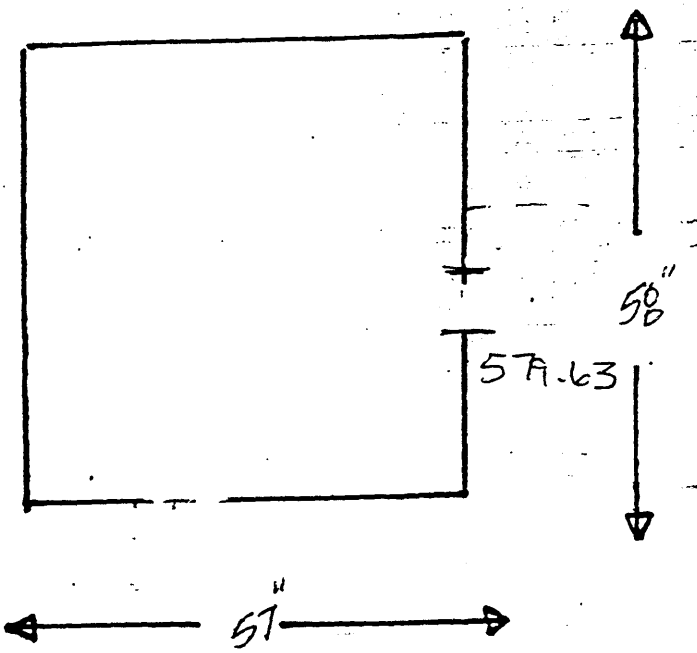
Flow: NORTH TO MH-8

1-10-01 (6)

N

Notes:

Structure # CB-69



Rim Elevation:

Depth to Bottom:

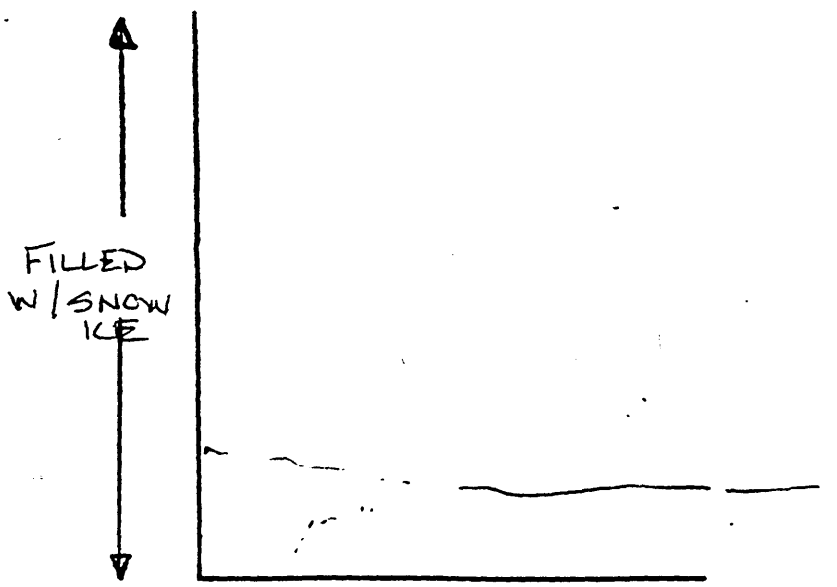
Constructed of:

Sediment:

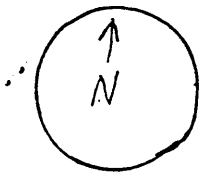
Product:

Surrounding Area:

Flow:



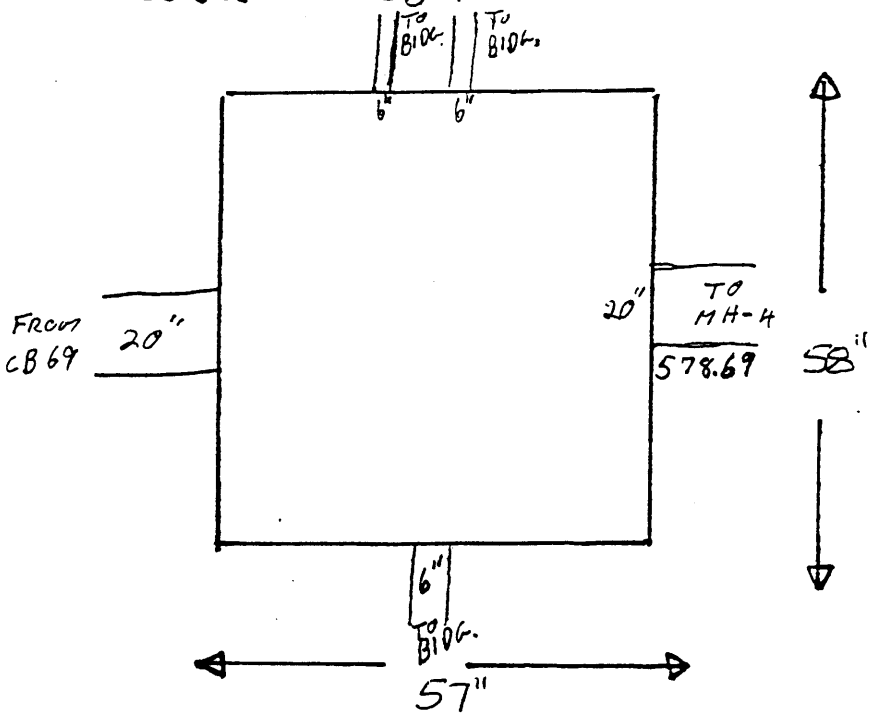
1-10-01 (B)



Notes: BC 8/10/00

CATCH BASIN
20" LINE TO MH-4 HAS
3" VALVE CEMENTED IN
CENTER VALVE CLOSED.
VALVE REMOVED 9/30/00
ALLOWING FLOW TO MH-4

Structure # CB 70



Rim Elevation:

Depth to Bottom:

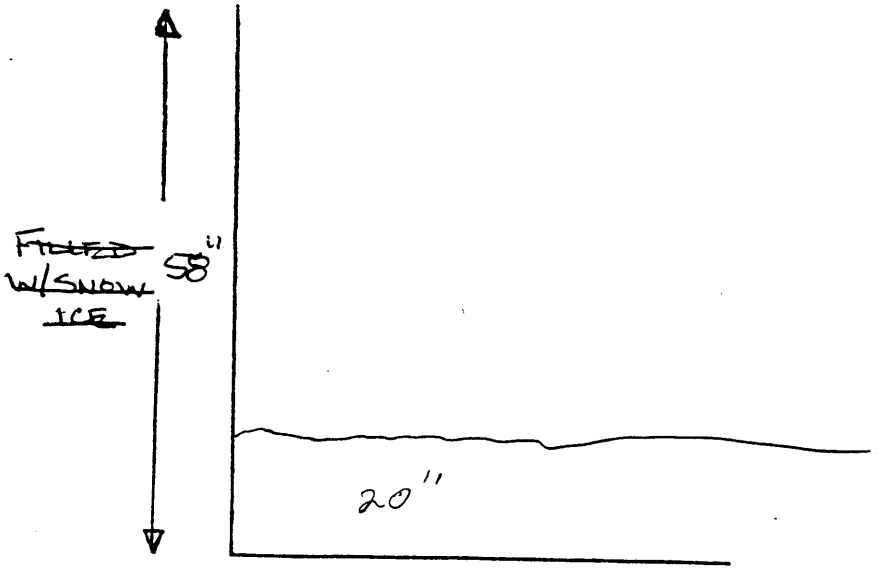
Constructed of: BRICK AND CONCRETE

Sediment: 20" silty SAND.

Product: SHEEN

Surrounding Area: PAVED

Flow: ~~WEST~~ EAST TO MH-4



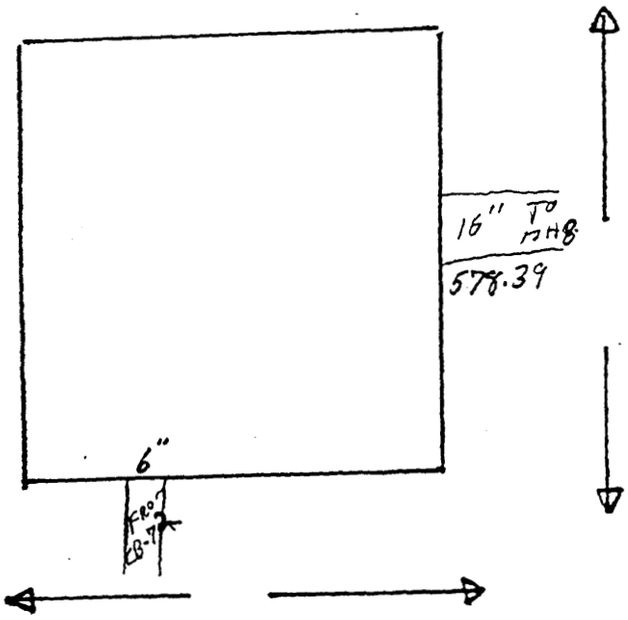
1-10-01 BC

N

* COULD NOT FIND IN SNOW DRIFT

Notes: BC 8/10/00
- CONCRETE CONSTRUCTION
- LINES JETTED CLEAN.
- GOOD FLOW FROM CB-72 AND GOOD FLOW TO MH-8.

Structure # CB 71A (CB-72)



Rim Elevation:

Depth to Bottom:

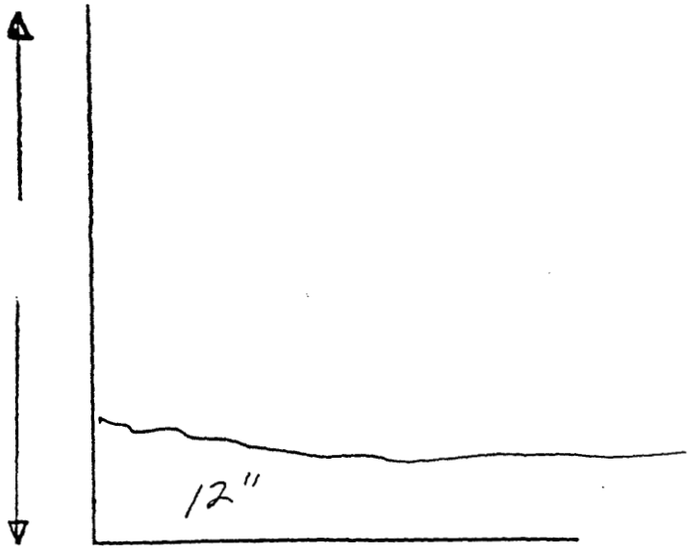
Constructed of: CEMENT

Sediment: 1 FOOT

Product: SHEEN

Surrounding Area: ~~ASPHALT~~ CONCRETE/ASPHALT

Flow: EAST TO MH-8



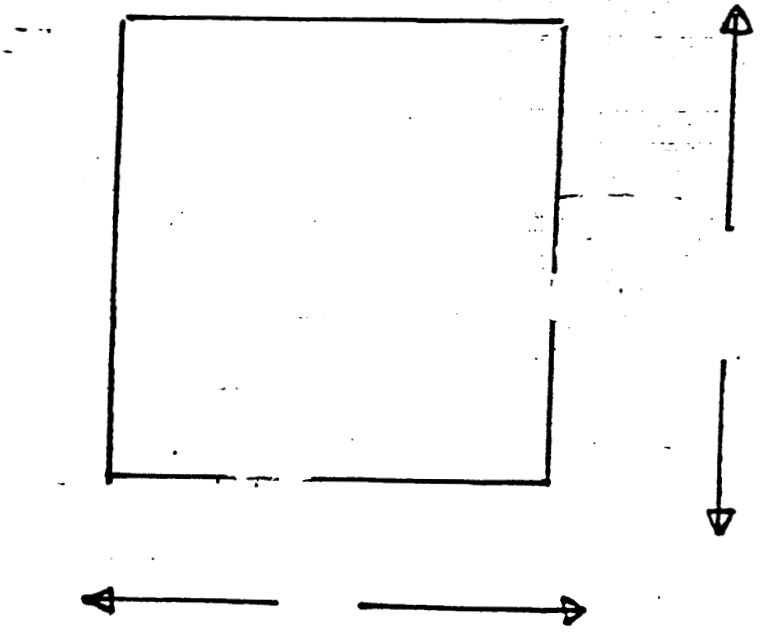
N

1-10-01

(B)

Notes:

Structure # CB-72



BASIN BOTTOM

580.26

Rim Elevation:

Depth to Bottom:

Constructed of:

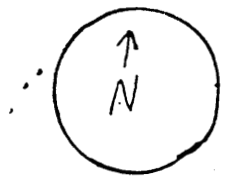
Sediment:

Product:

Surrounding Area:

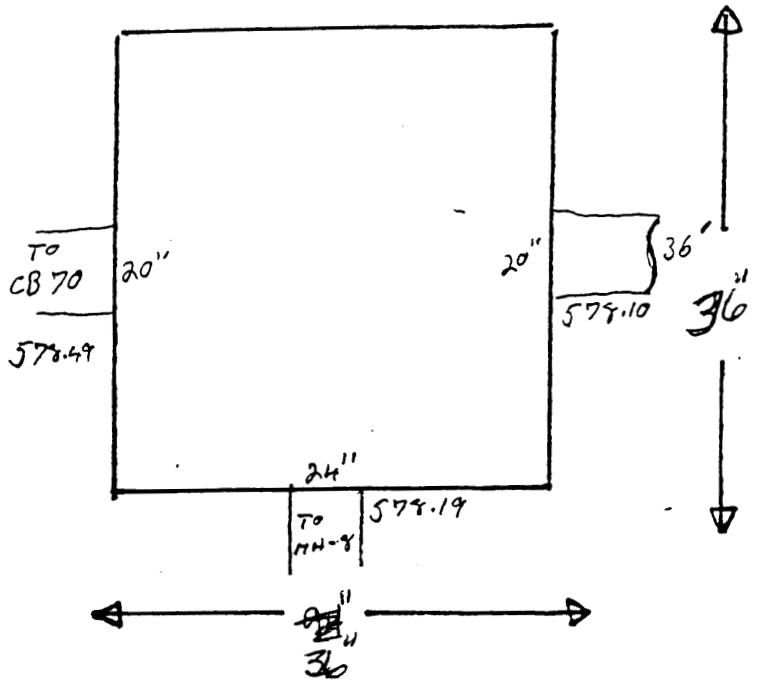
Flow:

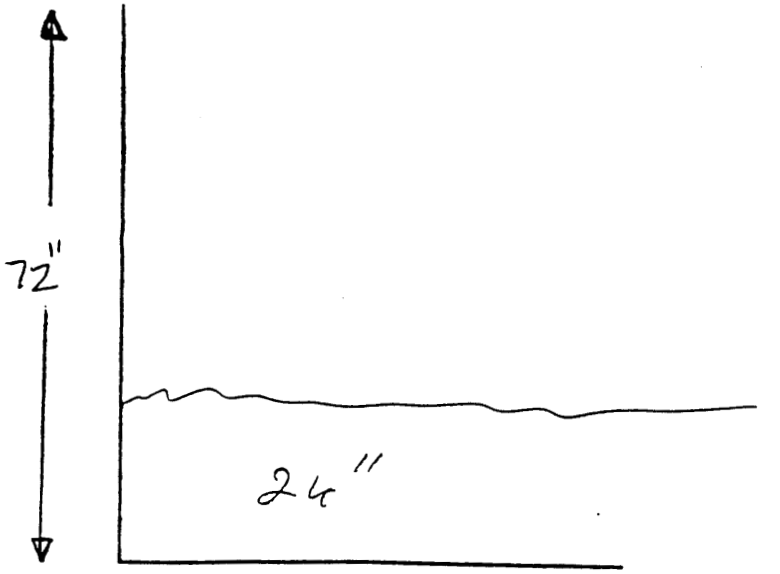
1-10-01 (P)



Notes: 8/10/00 BC
- LINES JETTED
- GOOD FLOW BTWN. MH-4 & MH-8
- PIPE TO EAST PLUGGED 9/30/00 Removed
- VALVE ~~OPENED~~ IN CB-70 TO ALLOW FLOW FROM CB-70
- WELL SCREEN & PUMP INSTALLED
- ? INVERT ON WEST PIPE DUE TO ANGLE OF PIPE COMING IN TO MH-4

Structure # MH-4





Rim Elevation:

Depth to Bottom:

Constructed of: BRICK

Sediment: 2'

Product: SHEEN

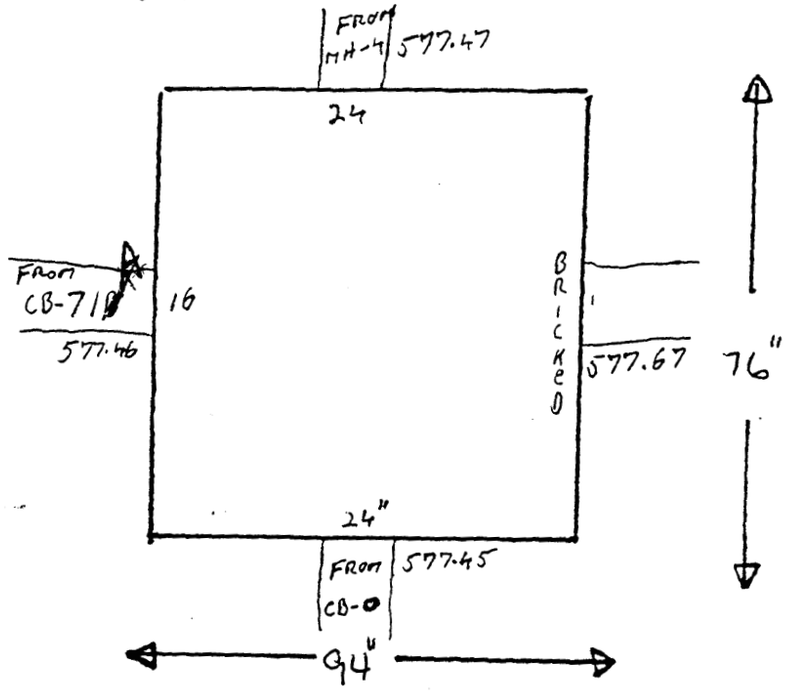
Surrounding Area: GRAVEL

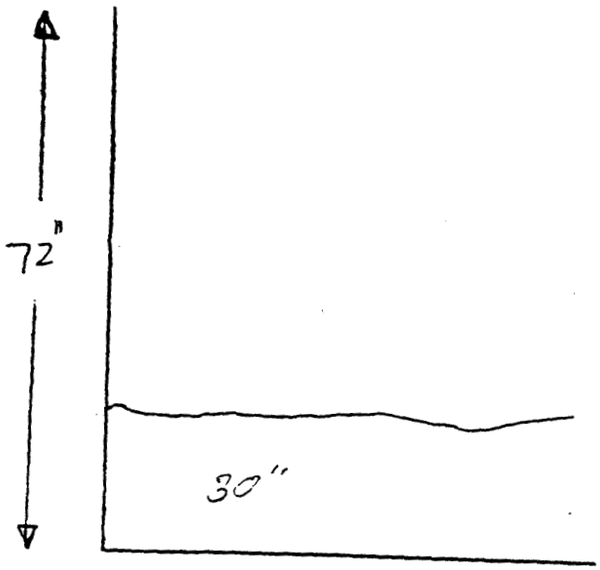
Flow: SOUTH TO MH-8

1-10-01 BR

Notes: 8/10/00 BR
- LINES JETTED.
- INVERTS ARE NOT 100% ACCURATE ON NORTH & SOUTH PIPES, ARE BELIED INTO MH-8. CONFINE SPACE ENTR. WAS MADE TO OBTAIN INVERTS.

Structure # MH-8





Rim Elevation:

Depth to Bottom:

Constructed of: BRICK

Sediment: 30"

Product: SHEEN.

Surrounding Area: GRAVEL

Flow: TO MH-4 NOW THAT PUMP IS INSTALLED.

Tim D on site from 900 - 1230, he observed work completed @ TP-08 + TP-07.

Billy (safety-kleen) entered basin + noted dimension + location of 3 pipes. The three pipes all entered from the west wall culvert and were open (see TP-07 log)

Collected PID @ TP-08 equal to background reading of 1.1 ppm

Billy could not identify a open connection between TP-07 + TP-08 culvert, culvert appears to be filled with soil.

Picture #12 is of piping within TP-07 basin

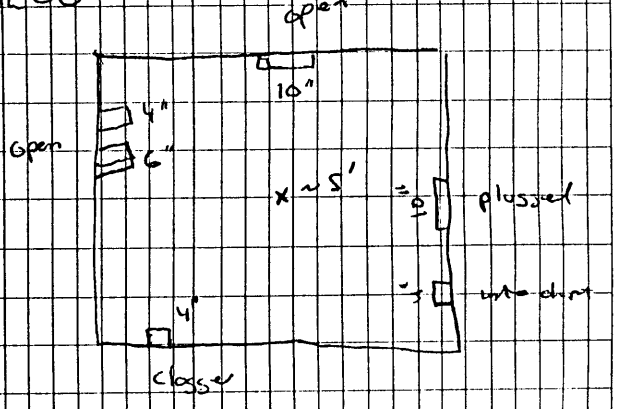
1:00 - 1

Evacuated semi-solids from CB-0 approx 15' East of WPS-W building.

Removed approx 8 yards of ~~soil~~ semi solids.

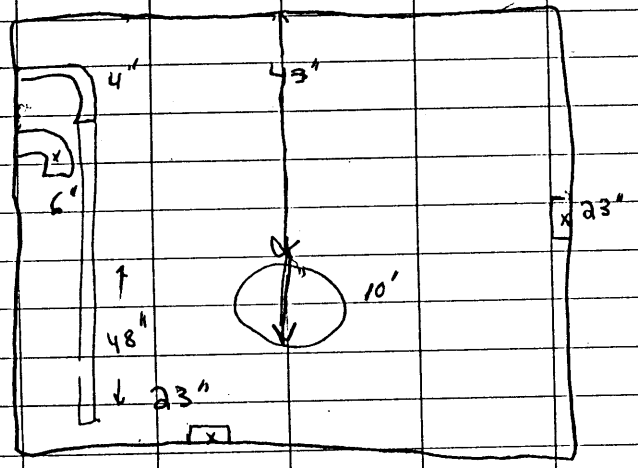
Jetted the 4" + liner from WPS-W to CB-0 near outfall of System

TOP VIEW



MBT 8/10/00

SIDE VIEW



MBT - 8/11/00

7:00 - Arrived on site, assessed ponding of water from morning rain (2.5") Ponding of water throughout Exxon-Mobil property & ESPA area. All open test pits flooded w/ water at surface.

Safety Meeting to evaluate work @ TP-02 & TP-01, CS-71 & CS-72. Reviewed w/ Bills.

SM checked system confirm operation of both C.F.F. systems pumps & both cups & flow meter total flow between 9:00 - 11:00 spm time on MySpace cell @ 9:00

~11:00 Hand dug & cleared TP-02 bottom, used vac truck to clear water from bottom (Pictures 13, 14, 15 from TP-02)

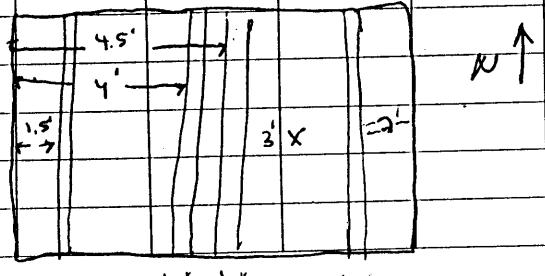
11:30 Penetrated through bottom of TP-02, first 6" appear to be concrete (3") & (6-8") (3'), dug out soil to 6"-12"

soil stained, sign. fast impact, appearance of product from within hole (picture #16 within hole

Safety Kleen to tap 4" line (aligned N-S) @ TP-01 & evacuate water approx 3' from East edge from TP-02.

1155 Safety Kleen cold tapped line, line appears full w/ water, no visible product. Safety Kleen to cut & vac

1330 Evacuated water from TP-01, appearance of concrete floor, 3 - 4" lines and 1 - 1.5" line aligned N-S



~~All~~ Three lines from W-E are sloping North (checked w/ level) the East most 4" line is level. (picture #17 depicts pipes)

water entering trench is heavily impacted with product noted on water

1430 penetrated center of trench soil stained & heavily impacted immediately under the 3" sch 40 The impacted "fill" is approx 2"-3" thick, below the fill @ ~9" below bottom of TP-01 is a red brown clay that has no visible impact and no noticeable odor (picture #18 indicates location of hole within TP-01).

TIMO from MPSDEC off site @ 2:45

Clop loosens cleared line between CB-71 & MH-8, could not confirm penetration into

MH-8, though there appeared to be some flow @ MH-4.

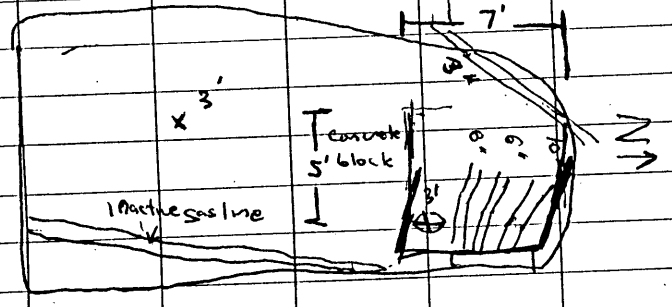
MBT

7:00 M.H arrive on site met w/ Billy from Safety Kleen review work completed over weekend work completed included dewatering of MH-4 + removal of gravel @ MH4 (partial), cleaned & confirm connection between clay tile line from CB-30 to MH-4

8:00 Safety Kleen tapper the three (3) lines @ TP-08, removed product and water from the 10 inch line, removal water only from the two 6 inch lines (picture #19 shows plugs in tapped lines)

Safety-K excavated TP-10 parallel to TP-08, ~~[illegible]~~

TP-10 is heavily impacted w/ product, shallow water ~ 2.66 shows evidence of product encountered what appears to be a inactive gas line along the east end of Test Pit



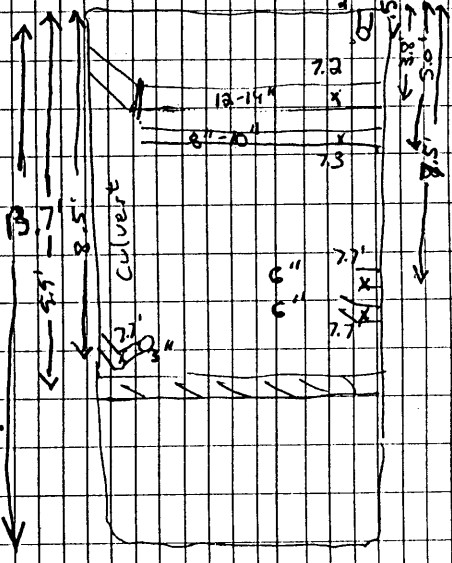
At approx 3 ft BG encountered concrete block. Ceased excavation until nearby vehicles can be moved.

12:10 - Excavated TP-09, visible product (.01') as water will attempt to uncover pipeline

12:45 located pipe ~ 3' from water well in TP-09

Continued to excavate @ TP-10 encountered 4 lines one 10", two 6", and one 3" line see TP-10 log. Pictures 20, 21, 22

5:00 Vac truck continue @ TP-09, drew basin to bottom continued to pump down product Pictures 23, 24, 25



MBT 8/14/00

Set wellpoint system west into CB-70 in order to de-water MH-4 + MH-8 used hose from fire hydrant to cool pump during operation. Demobilized from site @ 8:30 after ~ 45 of successful operation @ WPS-W, left pump operating.

[signature] 8/14/00

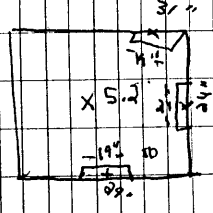
MBT 8/15/00

700 MF arrives on S.C.C. met w/ SH regarding scope: re-start WPS-W remove equipment from MH-4

De-water MH-4 + MH-8 CB-70 + CB-67

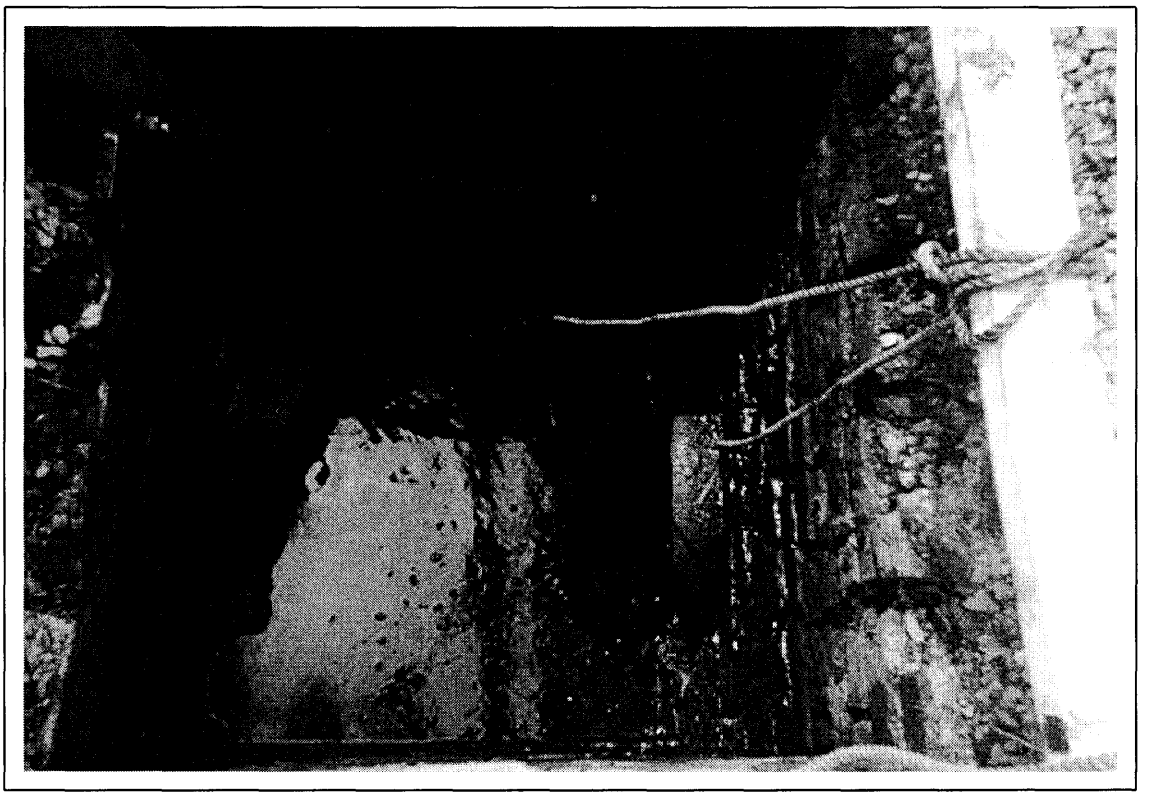
Safety Kleen set up submersed @ MH-8, de watering into liftstation

In addition, vac truck operating @ MH-4, (removed 3 loads w/ vac truck)

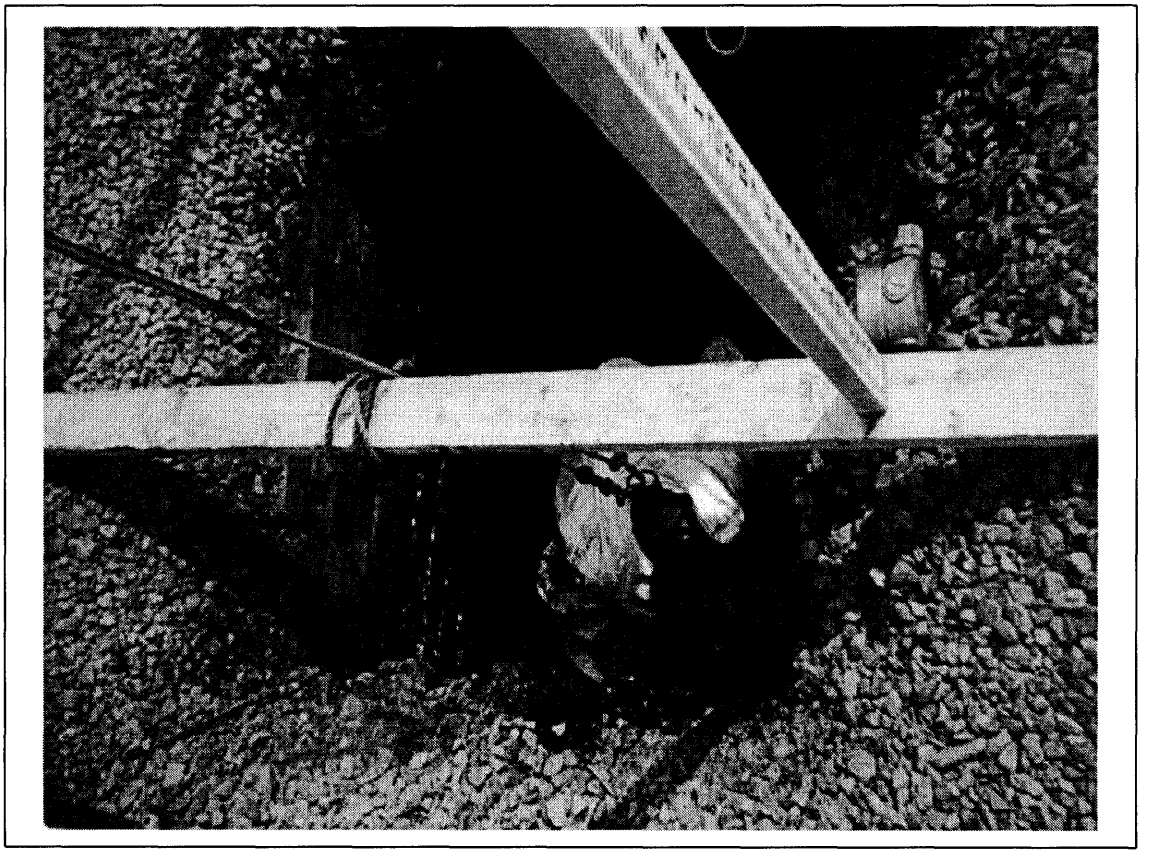


initial 2 loads into L.station
3rd load into Frac
4th load into Frac

Product entering through east pipe, water enters from South + west pipe



View of product within MH-8, View from Top.

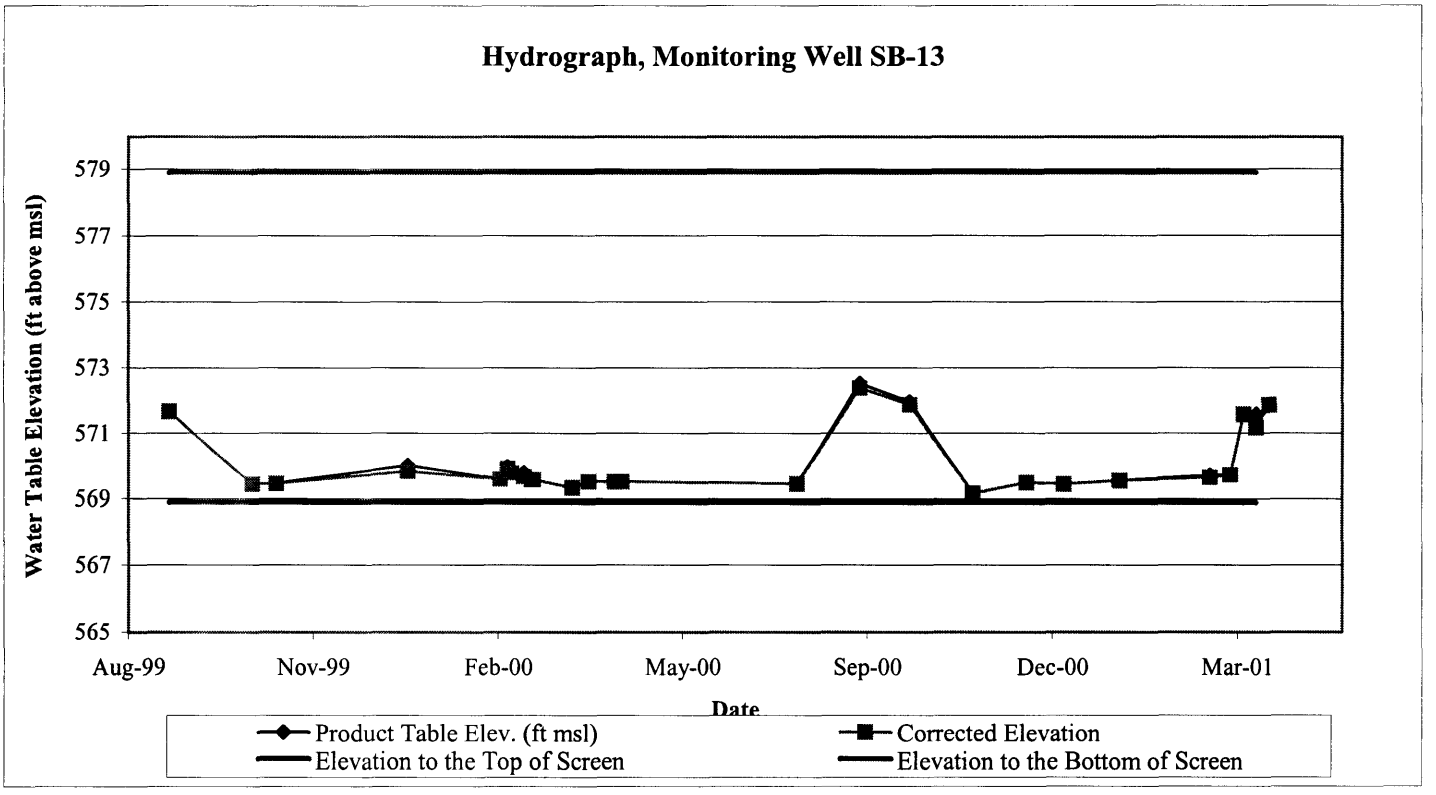


View Safety-Kleen Technician entering MH- 8, View from Top.

APPENDIX G

Hydrographs

Figure G-1. Hydrographs for SB-13 (BSPA), Buffalo Terminal, Exxon Mobil Corporation, Buffalo, New York



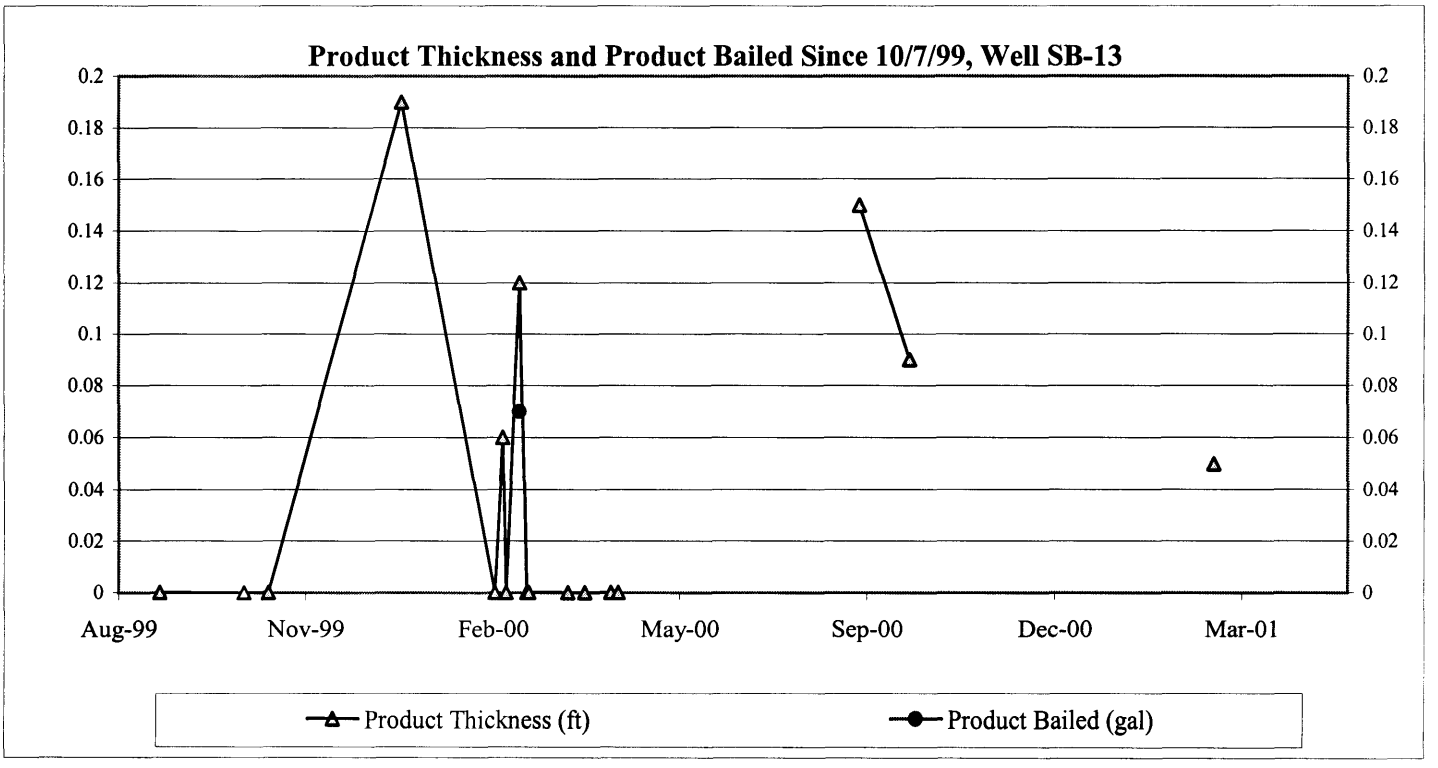


Figure G-2. Hydrograph for SB-15 (BSPA), Buffalo Terminal, Exxon Mobil Corporation, Buffalo, New York

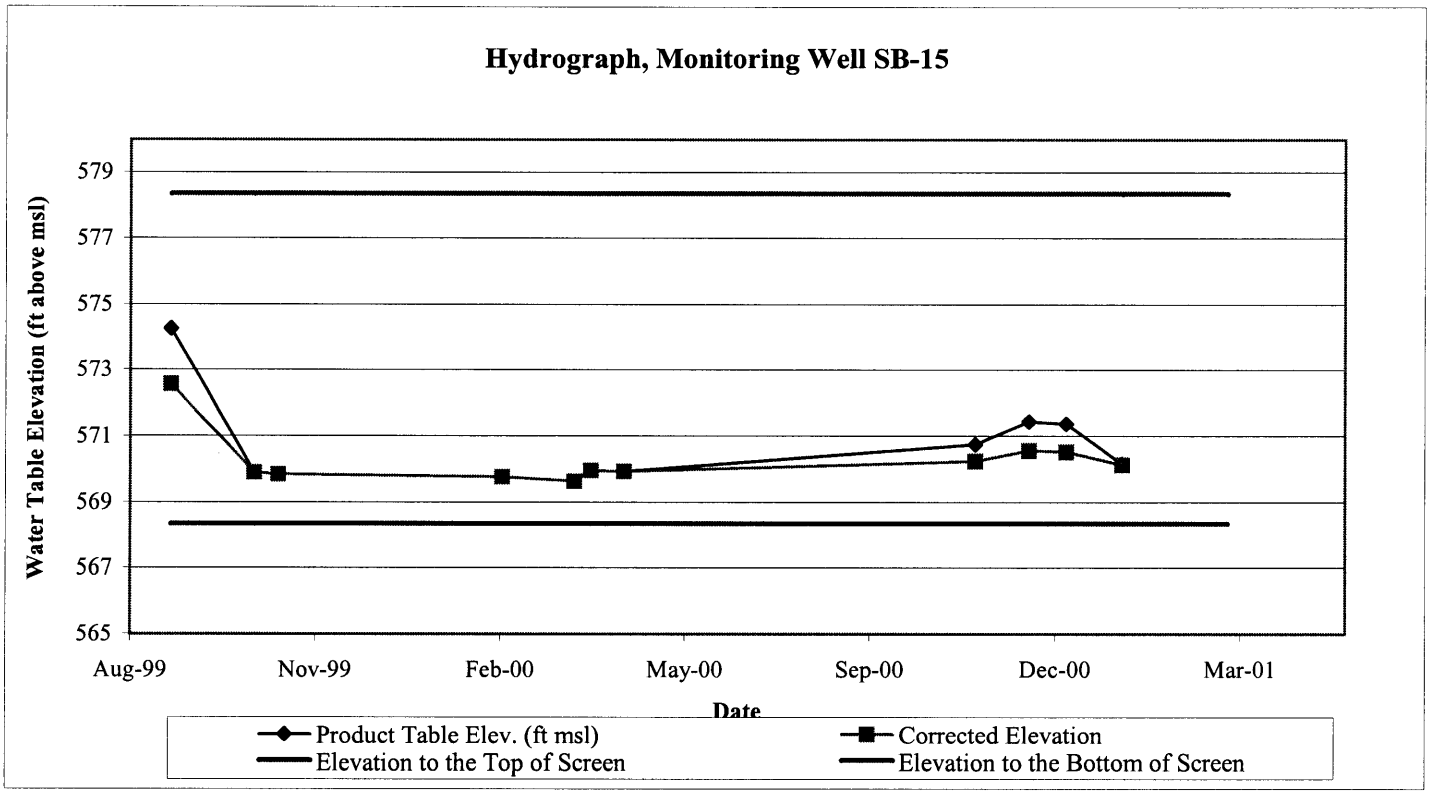
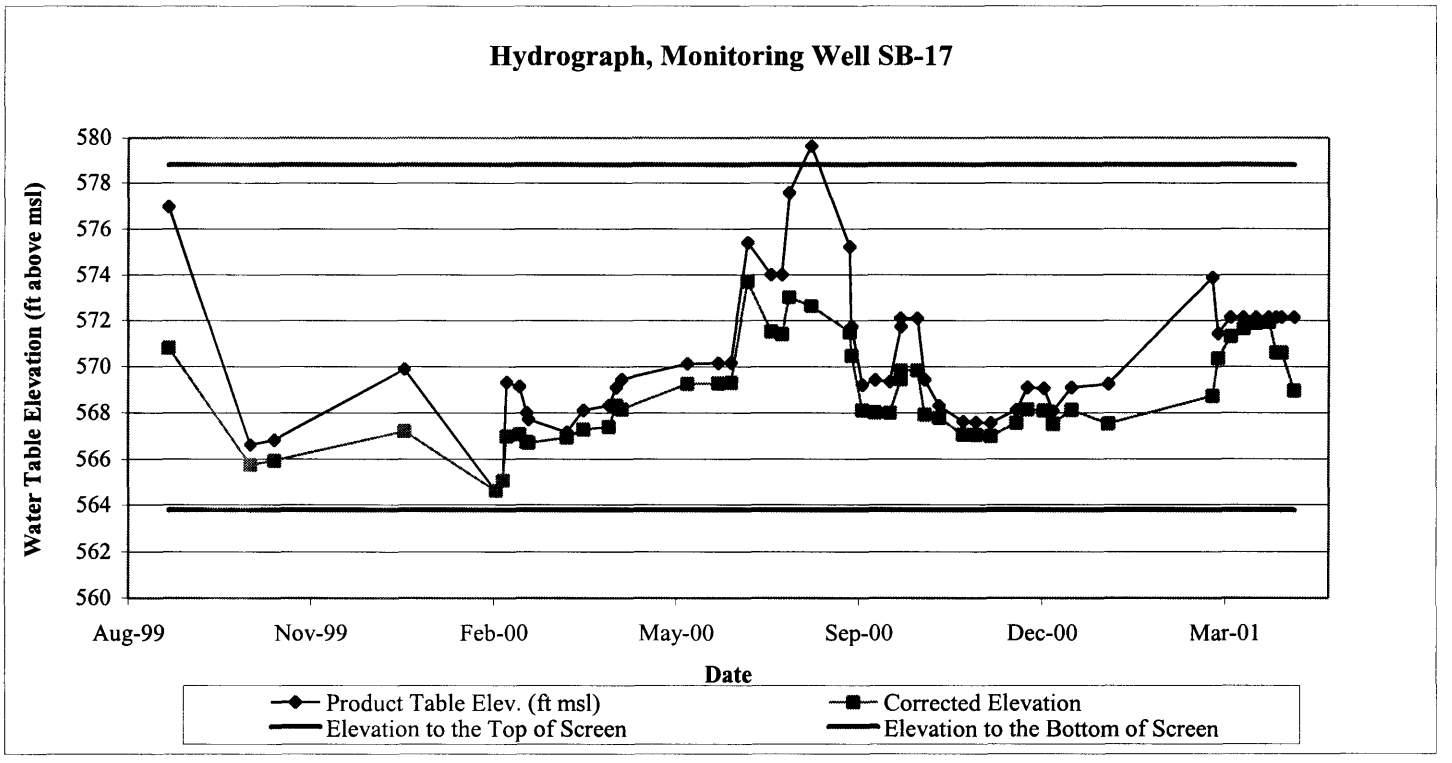


Figure G-3. Hydrographs for SB-17 (BSPA) Since August 1999, Buffalo Terminal, Exxon Mobil Corporation, Buffalo, New York



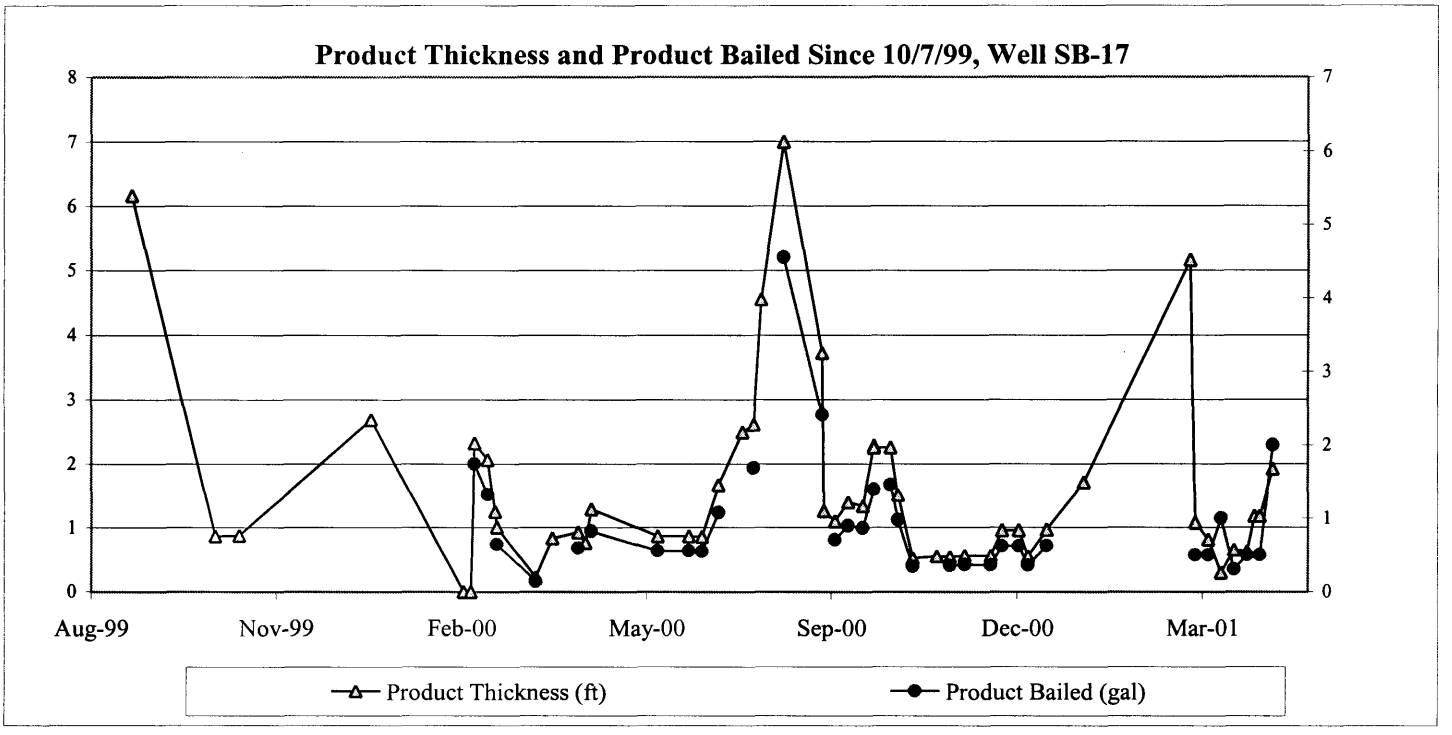
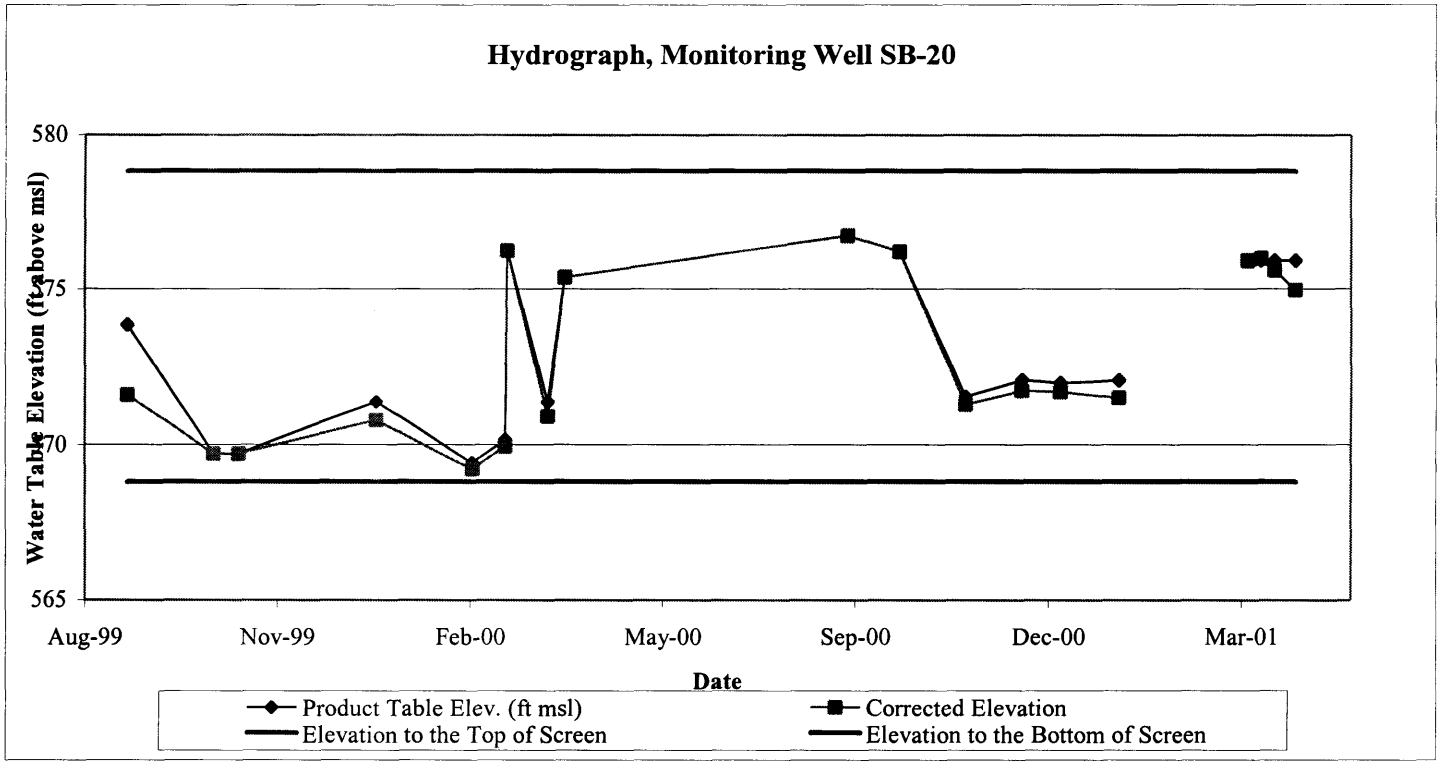


Figure G-4. Hydrographs for SB-20 (BSPA) Since August 1999, Buffalo Terminal, Exxon Mobil Corporation, Buffalo, New York



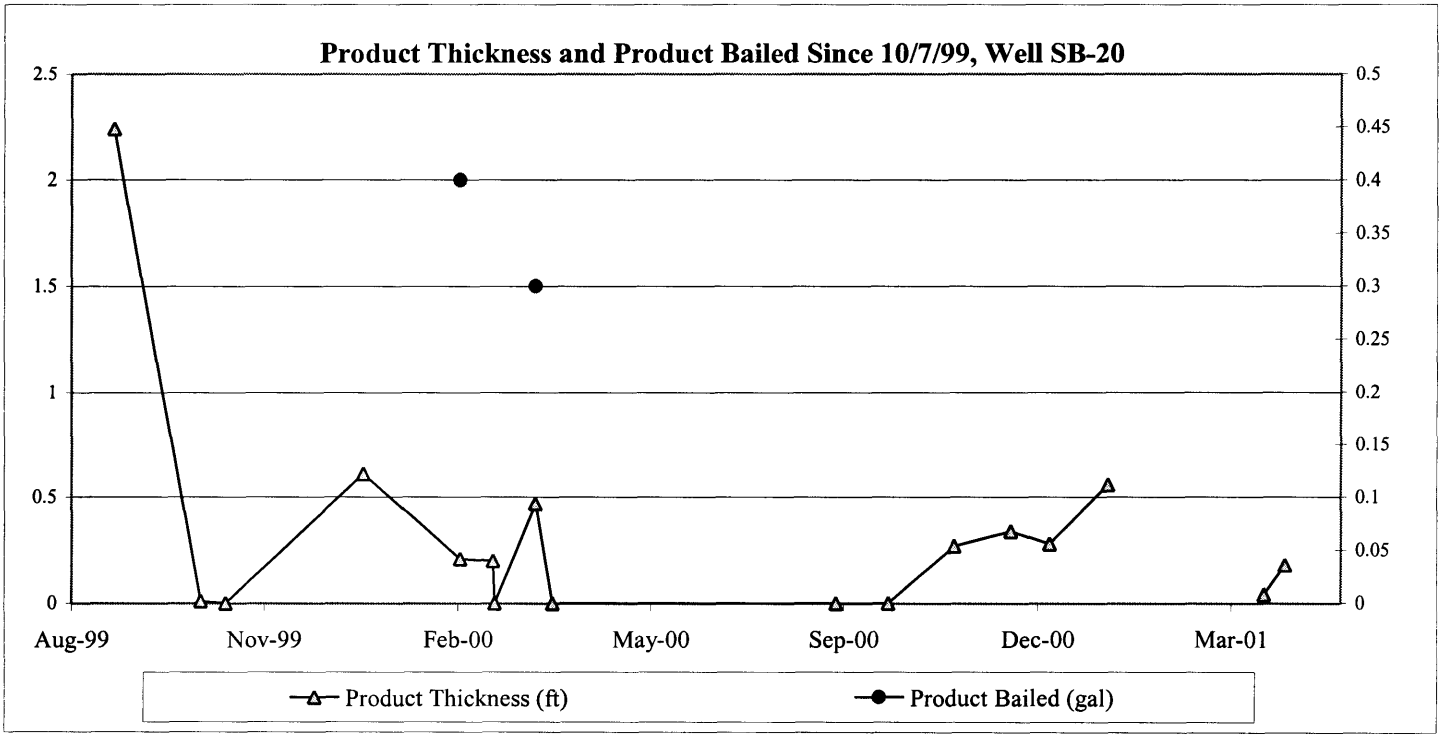
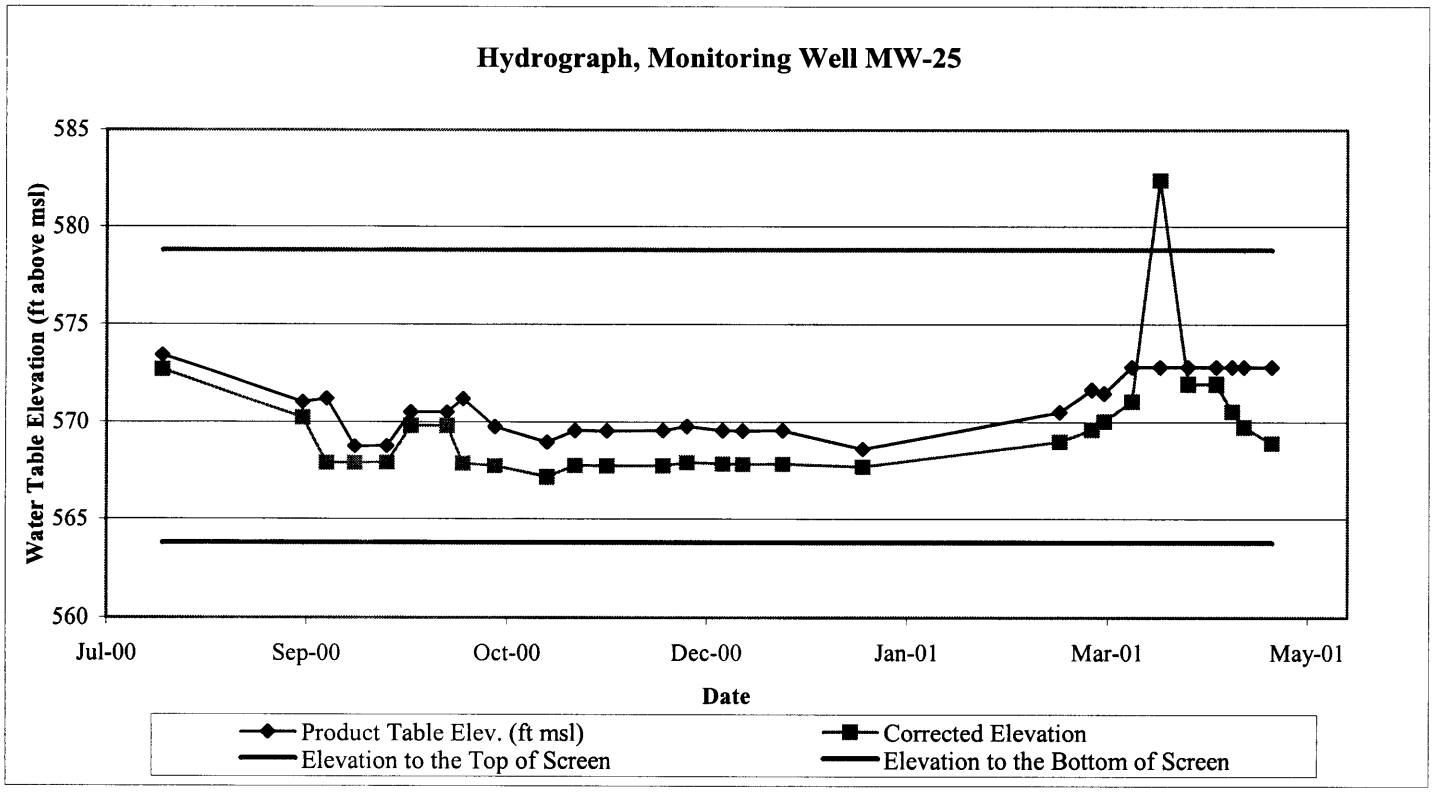


Figure G-5. Hydrographs for MW-25 (BSPA), Buffalo Terminal, Exxon Mobil Corporation, Buffalo, New York



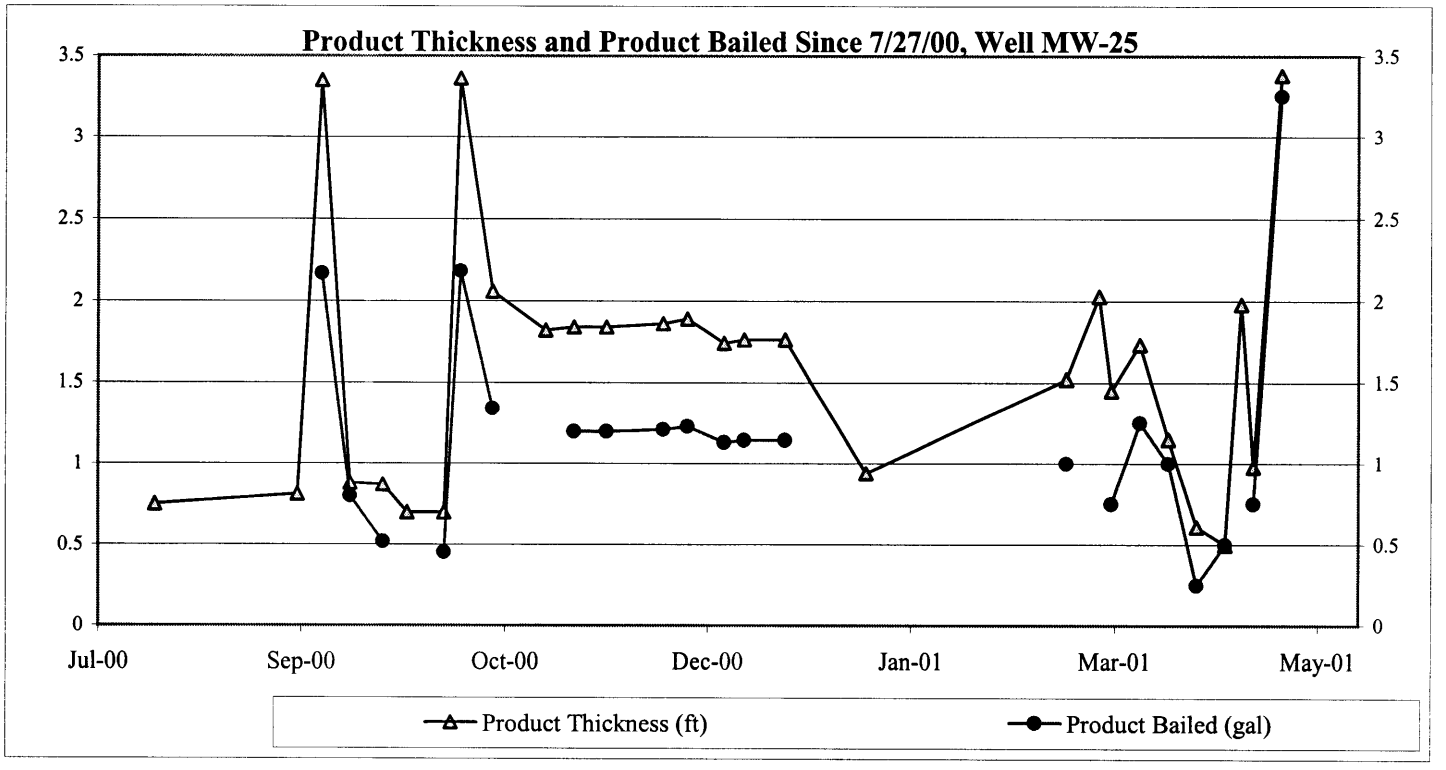
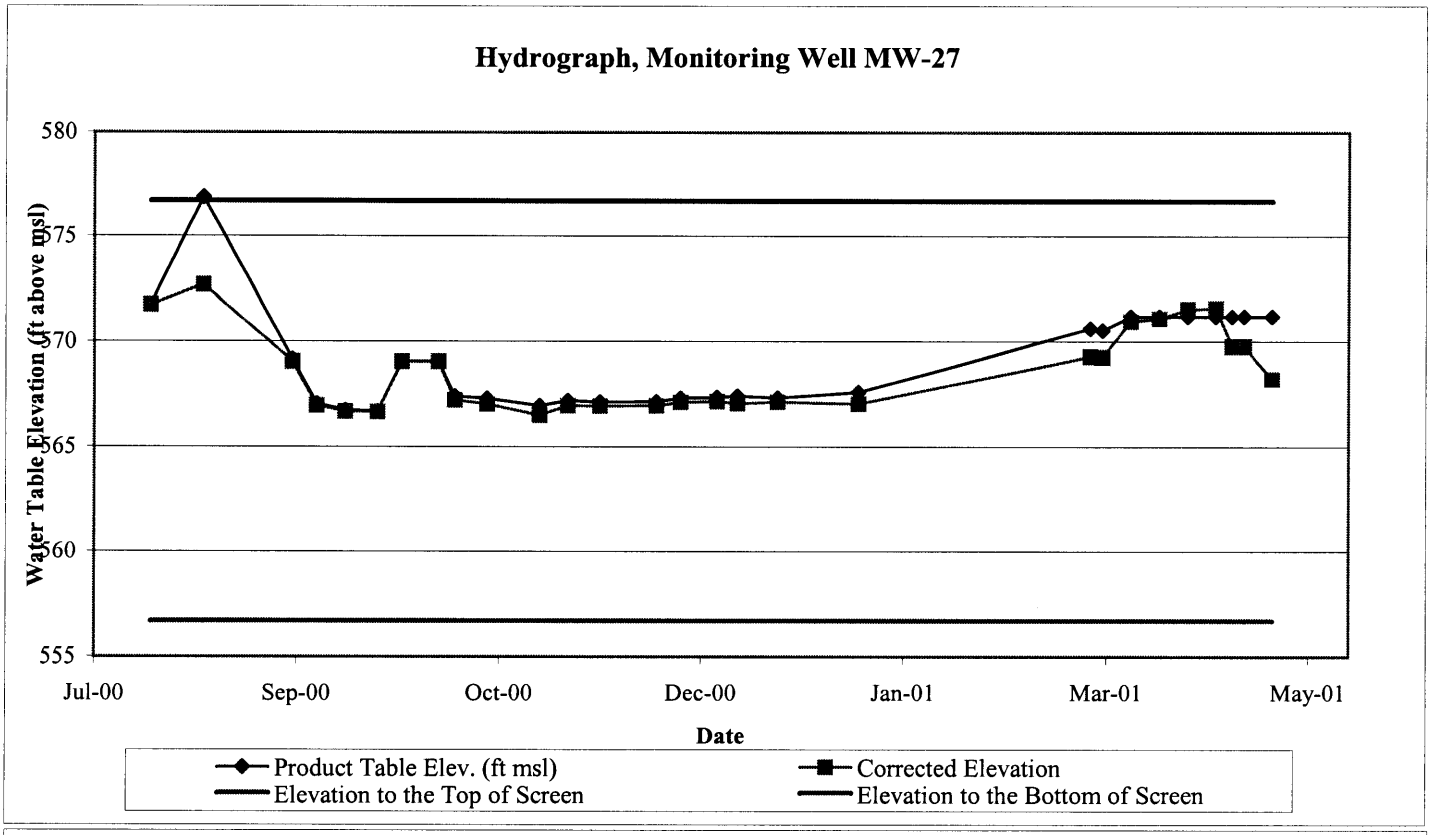


Figure G-6. Hydrographs for MW-27 (BSPA), Buffalo Terminal, Exxon Mobil Corporation, Buffalo, New York



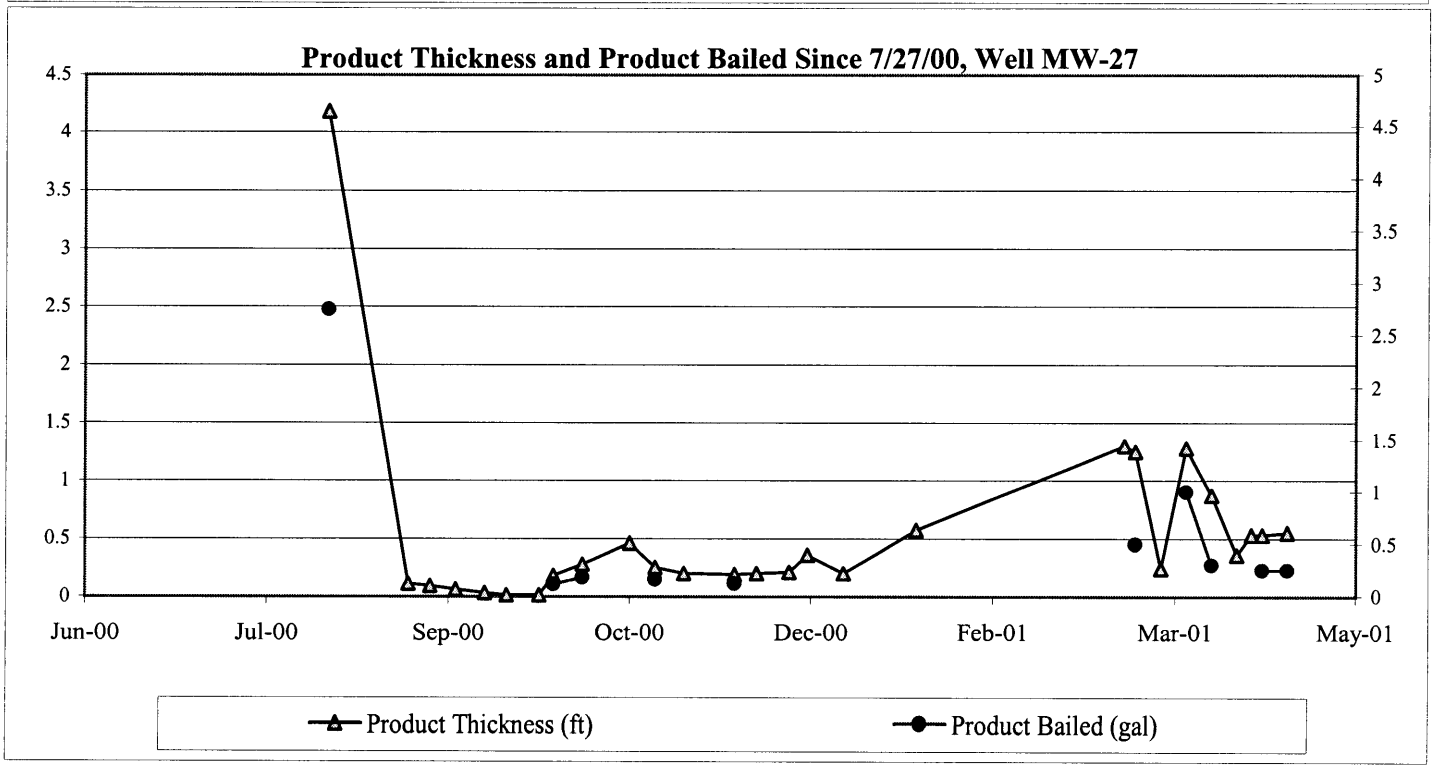
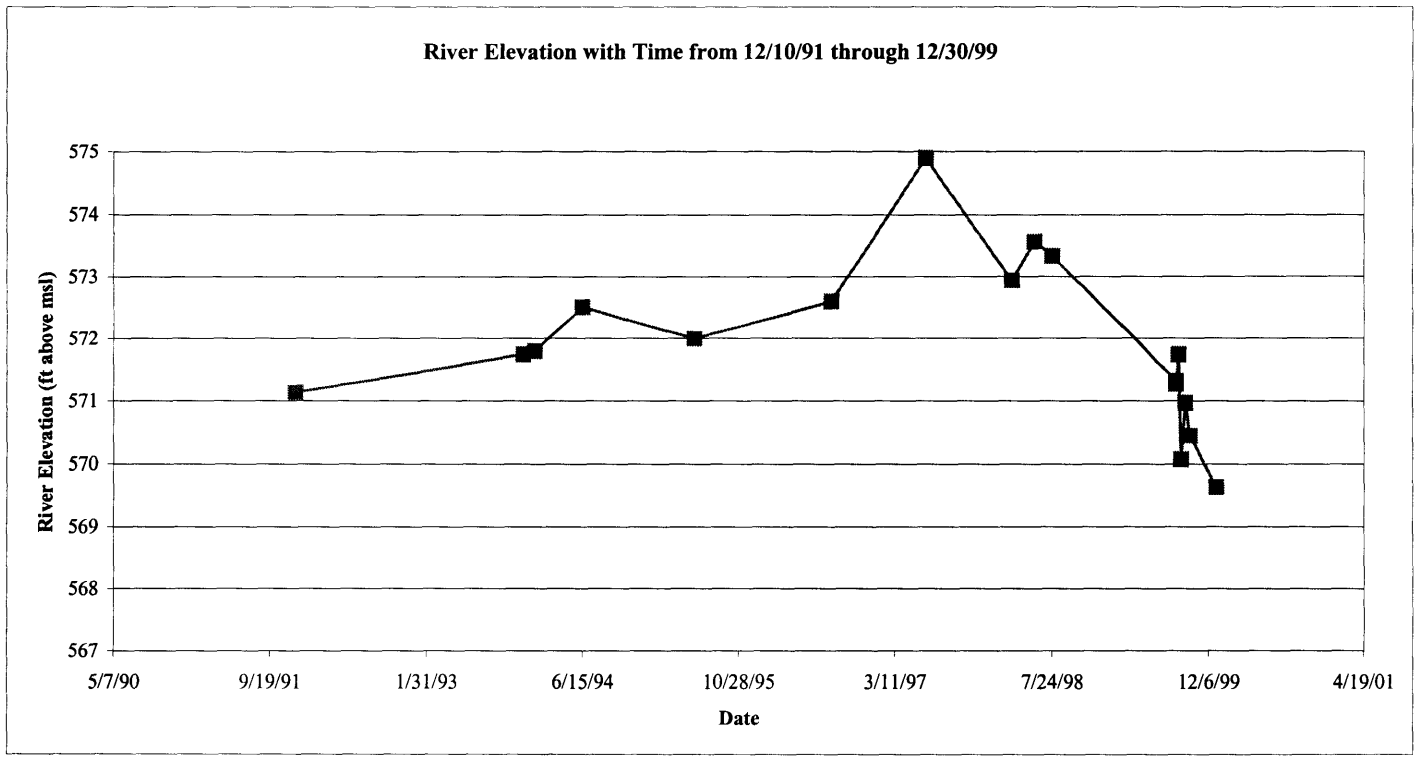
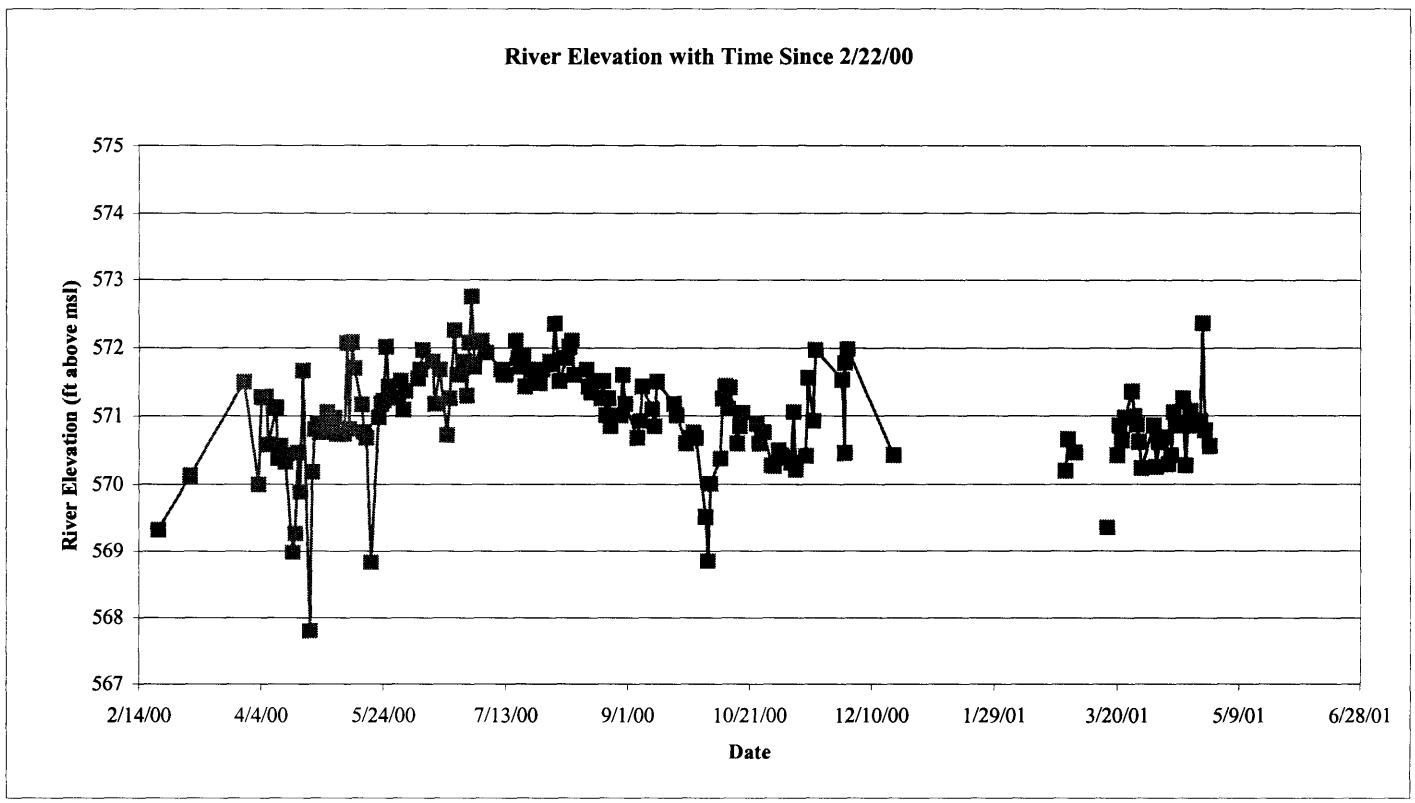
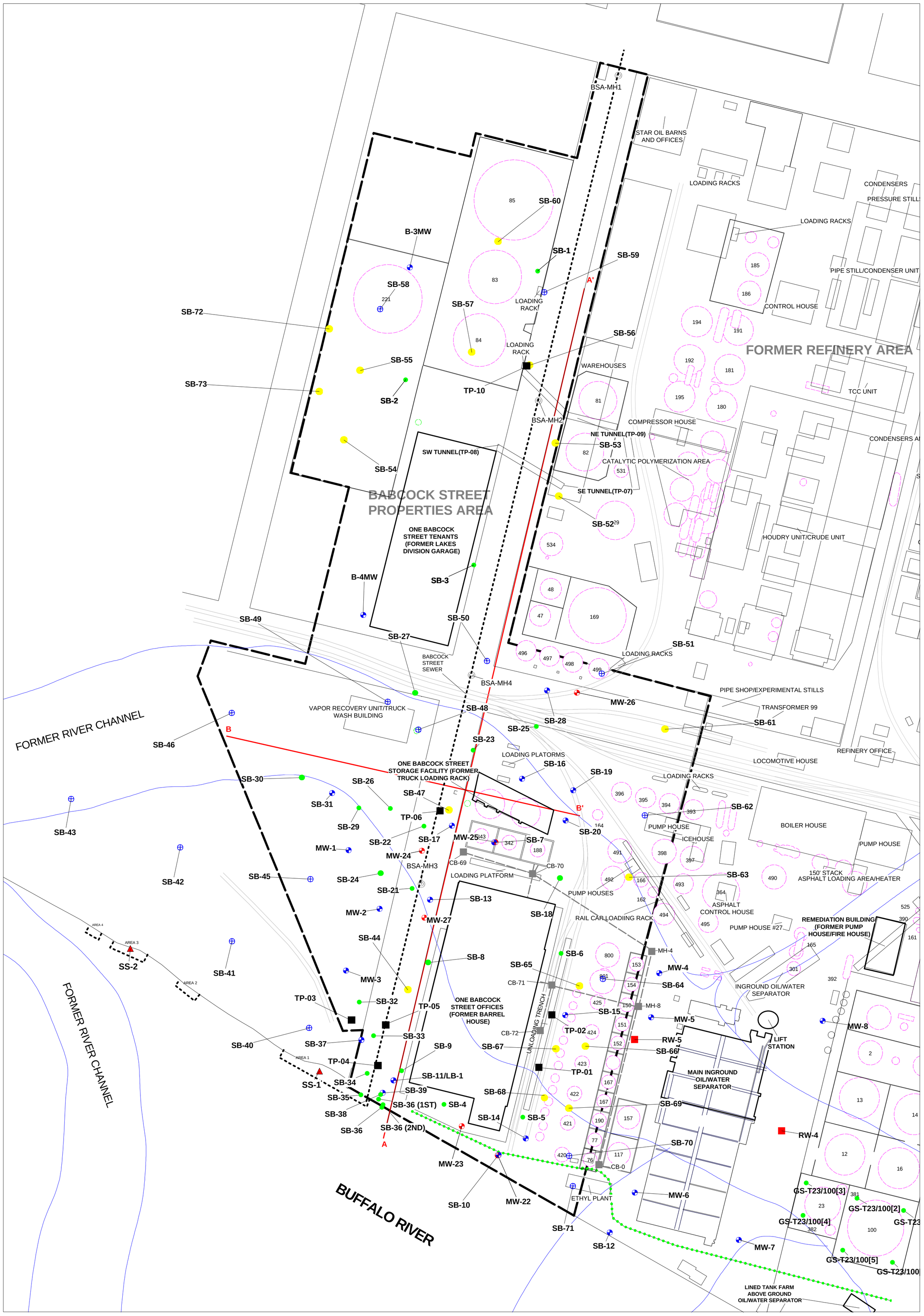


Figure G-7. River Elevation with Time, Buffalo Terminal, Exxon Mobil Corporation, Buffalo, New York







BSPA BORDER
WELL POINT SYSTEM
SEEPAGE AREA LIMITS
FORMER ABOVEGROUND STORAGE TANK
FORMER UNDERGROUND STORAGE TANK

EXPLANATION

FORMER RIVER CHANNEL
EXISTING STRUCTURE
FORMER STRUCTURE
FORMER RAILROAD TRACKS
A — A' LOCATION OF HYDROGEOLOGIC CROSS-SECTION

NEW SOIL BORING
NEW SOIL BORING WITH GROUNDWATER SAMPLE
NEW MONITORING WELL
TEST PIT LOCATION
SEDIMENT SAMPLE LOCATION

EXISTING MONITORING WELL
EXISTING MONITORING WELL
EXISTING SOIL BORING
CATCH BASIN
STORM SEWER PIPING
BSA SEWER MANHOLE

N

Title:

SITE LOCATION MAP WITH SAMPLING LOCATIONS

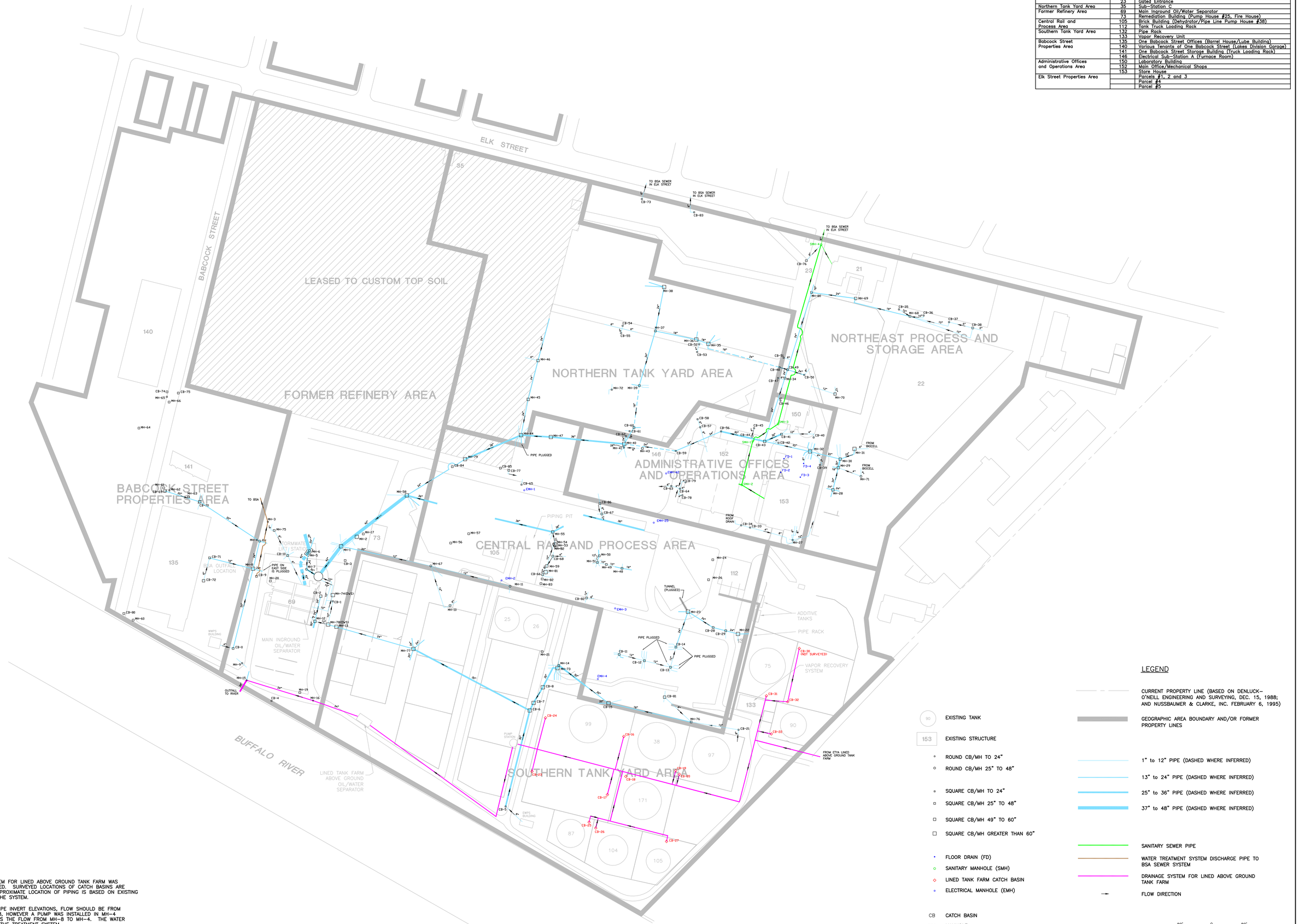
Prepared For:

EXXON MOBIL CORPORATION

ROUX ASSOCIATES INC
Environmental Consulting & Management

Compiled by: NC	Date: 5/21/01	PLATE	
Prepared by: NC	Scale: 1" = 70'		1
Project Mgr: NC	Office: NY		
File No: MCS2140Y01.WOR	Project: 17252Y03		

AREA	Structure Number	Current Structure (Original Structure Name)
Northeast Process and Storage Area	21	Leased to Police Community Services (Main Office)
	22	Biotreatment Cell
	23	Gated Entrance
Northern Tank Yard Area	35	Sub-Station C
Former Refinery Area	69	Main Inground Oil/Water Separator
	73	Remediation Building (Pump House #25, Fire House)
Central Rail and Process Area	105	Brick Building (Dehydrator/Pipe Line Pump House #38)
	112	Tank Truck Loading Rack
Southern Tank Yard Area	132	Pipe Rack
	133	Vapor Recovery Unit
Babcock Street Properties Area	135	One Babcock Street Offices (Barrel House/Lube Building)
	140	Various Tenants of One Babcock Street (Lakes Division Garage)
	141	One Babcock Street Storage Building (Truck Loading Rack)
Administrative Offices and Operations Area	146	Electrical Sub-Station A (Furnace Room)
	150	Laboratory Building
	152	Main Office/Mechanical Shops
	153	Store House
Elk Street Properties Area		Parcels #1, 2 and 3
		Parcel #4
		Parcel #5



NOTES:

1. DRAINAGE SYSTEM FOR LINED ABOVE GROUND TANK FARM WAS NOT INVESTIGATED. SURVEYED LOCATIONS OF CATCH BASINS ARE SHOWN AND APPROXIMATE LOCATION OF PIPING IS BASED ON EXISTING DRAWINGS OF THE SYSTEM.
2. BASED UPON PIPE INVERT ELEVATIONS, FLOW SHOULD BE FROM MH-4 TO MH-8, HOWEVER A PUMP WAS INSTALLED IN MH-4 WHICH REVERSES THE FLOW FROM MH-8 TO MH-4. THE WATER IS PUMPED TO THE TREATMENT SYSTEM.
3. ARROWS INDICATED DIRECTION OF FLOW. FLOW DIRECTION IS UNCERTAIN WHERE NOT INDICATED.
4. DETAILS REGARDING LINE SIZES NOT SHOWN ON THIS MAP ARE PRESENTED ON THE FIELD DATA SHEETS INCLUDED AS APPENDIX ___.
5. ONLY STRUCTURES CURRENTLY EXISTIG ON THE SITE ARE SHOWN.
6. EASTERN TANK YARD AREA (ETYA) AND DRAINAGE SYSTEM ASSOCIATED WITH THE LINED ABOVE GROUND TANK FARM ARE NOT SHOWN.

LEGEND

- 90 EXISTING TANK
- 153 EXISTING STRUCTURE
- ROUND CB/MH TO 24"
- ROUND CB/MH 25" TO 48"
- SQUARE CB/MH TO 24"
- SQUARE CB/MH 25" TO 48"
- SQUARE CB/MH 49" TO 60"
- SQUARE CB/MH GREATER THAN 60"
- FLOOR DRAIN (FD)
- SANITARY MANHOLE (SMH)
- LINED TANK FARM CATCH BASIN
- ELECTRICAL MANHOLE (EMH)

CB CATCH BASIN
MH MANHOLE
BSA BUFFALO SEWER AUTHORITY
EWPS EASTERN LEG OF WELL POINT SYSTEM
WWPS WESTERN LEG OF WELL POINT SYSTEM

- CURRENT PROPERTY LINE (BASED ON DENLUCK–O'NEILL ENGINEERING AND SURVEYING, DEC. 15, 1988; AND NUSSBAUMER & CLARKE, INC. FEBRUARY 6, 1995)
- GEOGRAPHIC AREA BOUNDARY AND/OR FORMER PROPERTY LINES
- 1" to 12" PIPE (DASHED WHERE INFERRED)
- 13" to 24" PIPE (DASHED WHERE INFERRED)
- 25" to 36" PIPE (DASHED WHERE INFERRED)
- 37" to 48" PIPE (DASHED WHERE INFERRED)
- SANITARY SEWER PIPE
- WATER TREATMENT SYSTEM DISCHARGE PIPE TO BSA SEWER SYSTEM
- DRAINAGE SYSTEM FOR LINED ABOVE GROUND TANK FARM
- FLOW DIRECTION

80' 0 80'

Title:

SEWER SYSTEM MAP

BUFFALO TERMINAL, BUFFALO, NEW YORK

Prepared For:

EXXON MOBIL CORPORATION

ROUX ASSOCIATES, INC. Environmental Consulting & Management

Compiled by: N.C.	Date: 21MAY01	PLATE
Prepared by: B.H.C.	Scale: AS SHOWN	2
Project Mgr: N.C.	Office: NY	
File No: MC5214014	Project: 17252Y03	

MC:\17252\MC52\\MC52140\14.DWG

AREA	Structure Number	Current Structure Name (Original Structure Name)
Northeast Process and Storage Area	21	Leased to Police Community Services (Main Office)
	22	Former Biotreatment Cell
	23	Gated Entrance
Northern Tank Yard Area	35	Sub-Station C
Former Refinery Area	69	Main Inground Oil/Water Separator
	73	Remediation Building (Pump House #25, Fire House)
Central Rail and Process Area	105	Brick Building (Dehydrator/Pipe Line Pump House #38)
	112	Tank Truck Loading Rack
Southern Tank Yard Area	133	Vapor Recovery Unit
Babcock Street Properties Area	135	One Babcock Street Offices (Barrel House)
	140	Various Tenants of One Block of Babcock Street (Lakes Division Garage)
	141	One Babcock Street Storage Building (Truck Loading Rack)
Administrative Offices and Operations Area	146	Electrical Sub-Station A (Furnace Room)
	150	Laboratory Building
	152	Main Office/Mechanical Shops
	153	Store House
Elk Street Properties Area		Parcel #4
		Parcel #5

LEGEND

- EXISTING TANK
- 153 — EXISTING STRUCTURE
- CURRENT PROPERTY LINE (BASED ON DENLUCK–O'NEILL ENGINEERING AND SURVEYING, DEC. 15, 1988; AND NUSSBAUMER & CLARKE, INC. FEBRUARY 6, 1995)
- GEOGRAPHIC AREA BOUNDARY AND/OR FORMER PROPERTY LINES
- MW-4 — LOCATION AND DESIGNATION OF MONITORING WELL
- RW-5 — LOCATION AND DESIGNATION OF RECOVERY WELL
- 569.07 / 5.20 — GROUNDWATER ELEVATION, MEASURED IN FEET ABOVE MEAN SEA LEVEL; FREE-PRODUCT THICKNESS IN FEET
- NM — NOT MEASURED
- ND — NOT DETECTED
- 584 — LINE OF EQUAL GROUNDWATER ELEVATION, MEASURED IN FEET ABOVE MEAN SEA LEVEL (DASHED WHERE INFERRED)
- APPROXIMATE GROUNDWATER FLOW DIRECTION
- WELL POINT SYSTEM
- SECTION OF WELL POINT SYSTEM NOT OPERATIONAL
- MH — LOCATION AND DESIGNATION OF MANHOLE
- SEPERATE-PHASE PRODUCT

WELL DESIGNATION	AVERAGE FLOW RATE FOR APRIL 2001 (GALLONS PER MINUTE)
RW-1 (7)	–
RW-2 (1)	–
RW-3	0.2
RW-4	1.3
RW-5	0.8
EASTERN WPS	94
WESTERN WPS (8)	–

NOTE:

1. THE RECOVERY WELL RW-2 DID NOT OPERATE DURING THE THIRD QUARTER.
2. LF-2D GROUNDWATER ELEVATION NOT USED; SCREENED AT DEEPER INTERVAL.
3. LF-2S AND ESI-5 GROUNDWATER ELEVATION NOT USED FOR CONTOURING DUE TO ANOMALOUSLY HIGH READING.
4. MW-4 GROUNDWATER ELEVATIONS NOT USED FOR CONTOURING DUE TO SUSPECTED PERCHED WATER ZONE.
5. SB-28 WATER TABLE ELEVATION WAS NOT USED AS IT WAS REPLACED BY WELL MW-26.
6. SB-7, SB-13 AND SB-10 WERE NOT GAUGED AS THEY WERE REPLACED BY MW-25, MW-27 AND MW-22, RESPECTIVELY.
7. RECOVERY WELL RW-1 DID NOT OPERATE DURING APRIL 2001.
8. FLOW METER WAS NOT FUNCTIONING PROPERLY DURING APRIL 2001.

120' 0 120'

Title:

GROUNDWATER POTENTIOMETRIC MAP APRIL 19 AND 20, 2001

BUFFALO TERMINAL, BUFFALO, NEW YORK

Prepared For:

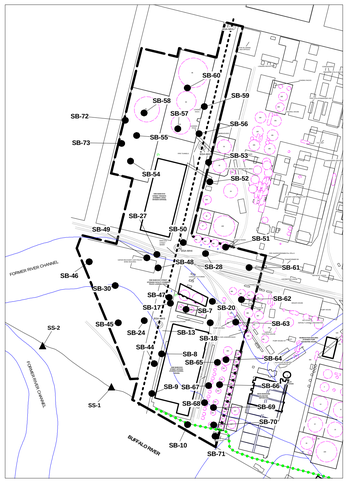
EXXON MOBIL CORPORATION

ROUX ASSOCIATES, INC. Environmental Consulting & Management

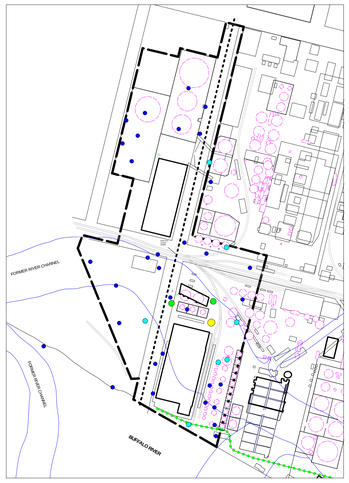
Compiled by: N.C.	Date: 30MAY01	PLATE	3
Prepared by: R.K.	Scale: AS SHOWN		
Project Mgr: N.C.	Office: NY		
File No: MC5214007	Project: 17252Y03		

N:\PROJECTS\MC5214007\MC5214007.DWG

LOCATION MAP



BENZENE



TOLUENE

ETHYLBENZENE

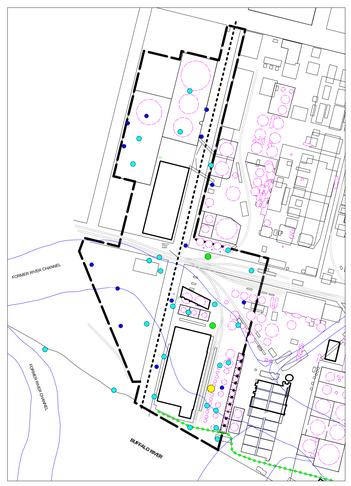
TOTAL XYLENES

MTBE

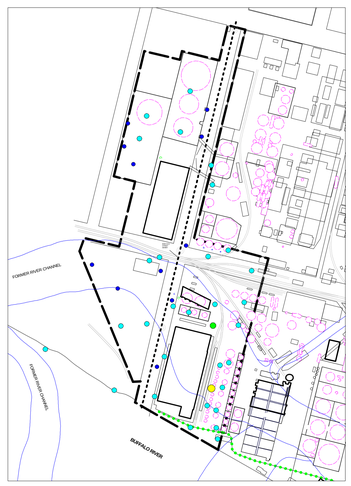
NAPHTHALENE

1,2,4-TRIMETHYLBENZENE

1,3,5-TRIMETHYLBENZENE

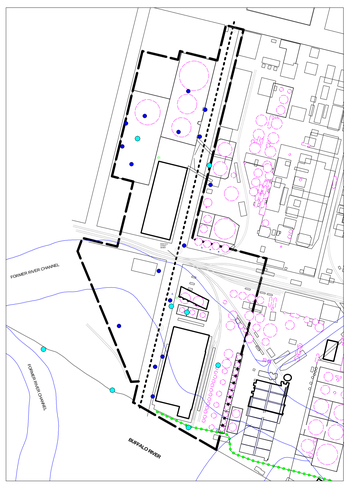


N-BUTYLBENZENE



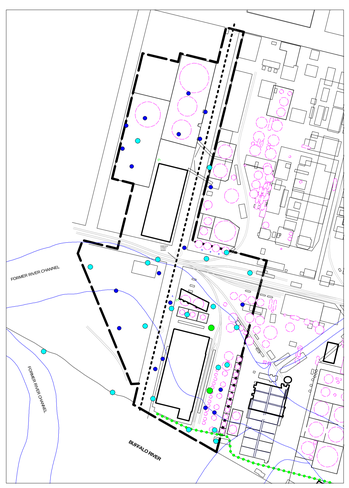
SEC-BUTYLBENZENE

TERT-BUTYLBENZENE

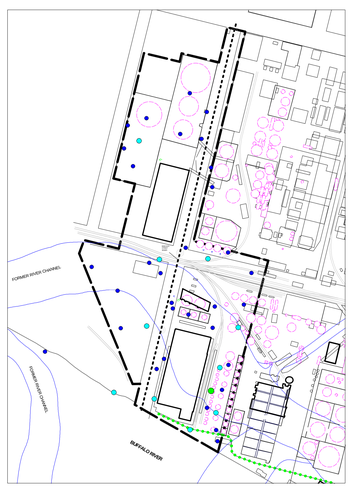


ISOPROPYLBENZENE

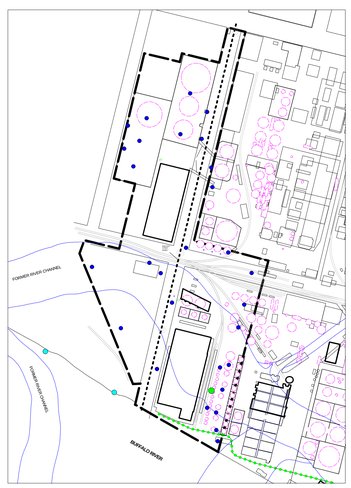
N-PROPYLBENZENE



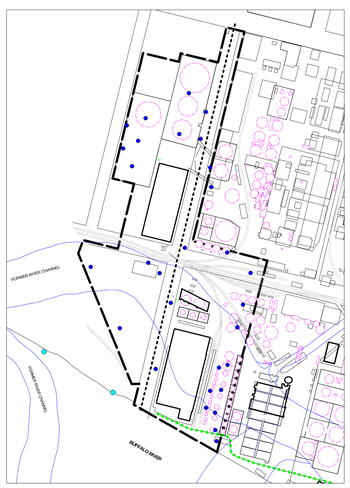
P-ISOPROPYLTOLUENE



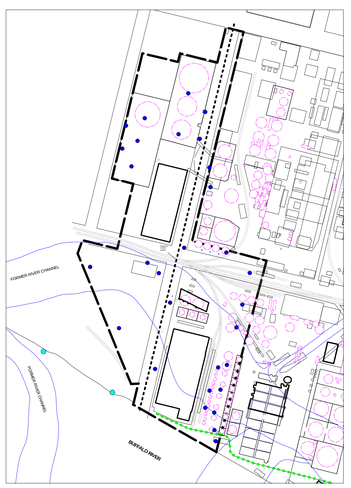
CHLOROBENZENE



1,2-DICHLOROBENZENE



1,4-DICHLOROBENZENE



EXPLANATION

● SB-54 LOCATION AND DESIGNATION OF SOIL BORING

DISTRIBUTION OF DATA RELATIVE TO NYSDEC RSCOs

- 100 to less than 1,000 times NYSDEC RSCO
- 10 to less than 100 times NYSDEC RSCO
- 1 to less than 10 times NYSDEC RSCO
- Less than NYSDEC RSCO
- Not Detected

NYS RSCOs = New York State Recommended Soil Clean-Up Objective

	NYSDEC RSCO STANDARDS (ug/kg)
BENZENE	60
TOLUENE	1,500
ETHYLBENZENE	5,500
TOTAL XYLENES	1,200
MTBE	120
NAPHTHALENE	13,000
1,2,4-TRIMETHYLBENZENE	10,000
1,3,5-TRIMETHYLBENZENE	3,300
N-BUTYLBENZENE	10,000
SEC-BUTYLBENZENE	10,000
TERT-BUTYLBENZENE	10,000

	NYSDEC RSCO STANDARDS (ug/kg)
ISOPROPYLBENZENE	2,300
N-PROPYLBENZENE	3,700
P-ISOPROPYLTOLUENE	10,000
CHLOROBENZENE	1,700
1,2-DICHLOROBENZENE	7,900
1,4-DICHLOROBENZENE	8,500

ug/kg - MICROGRAMS PER KILOGRAM

N

Title: **CONCENTRATIONS OF VOCS DETECTED IN SHALLOW SOIL RELATIVE TO NYSDEC RSCOS**

(LESS THAN 3 FEET BLS)

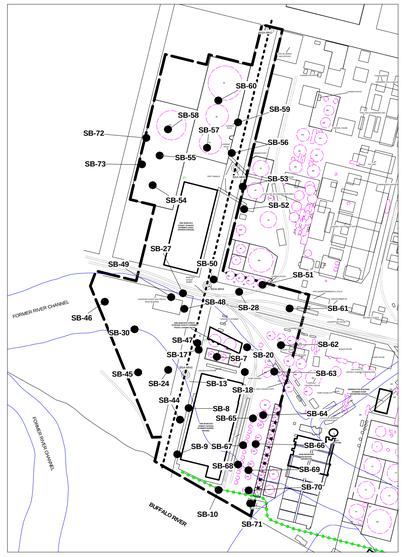
Prepared For:

EXXON MOBIL CORPORATION

ROUX ASSOCIATES INC
Environmental Consulting & Management

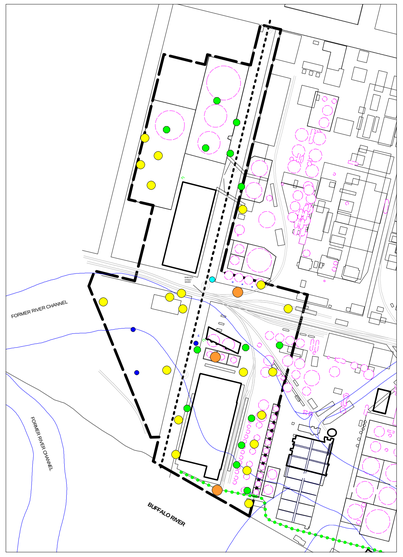
Compiled by: NC	Date: 5/20/01	PLATE
Prepared by: NC	Scale: 1" = 200'	4
Project Mgr: NC	Office: NY	
File No:MOC01402.WOR	Project: 17252Y03	

LOCATION MAP

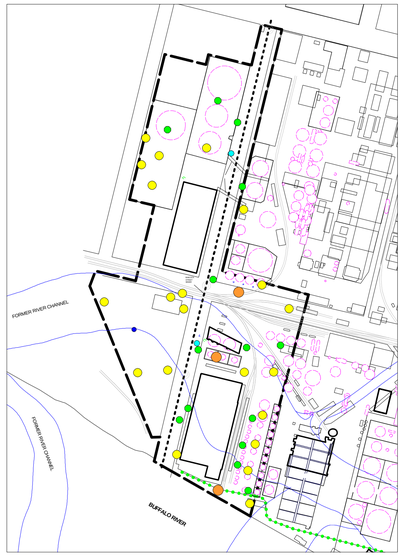


BENZO[A]ANTHRACENE

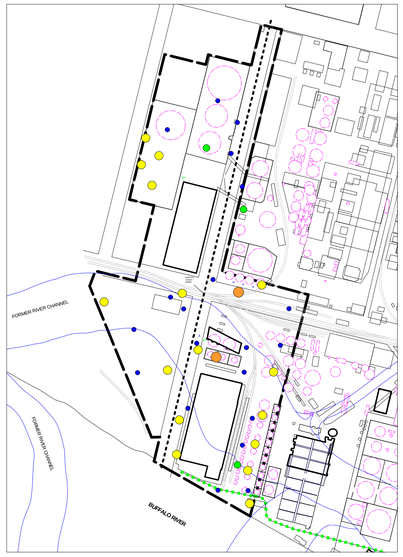
BENZO[A]PYRENE



BENZO[B]FLUORANTHENE

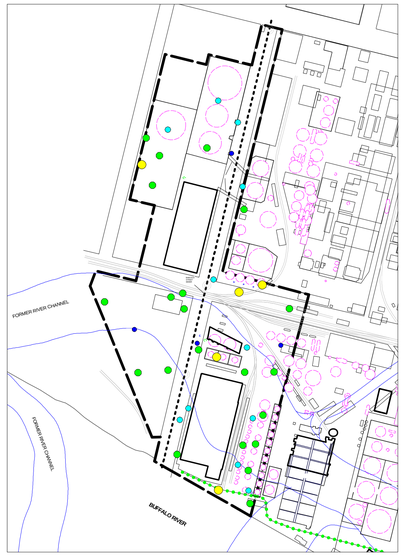


DIBENZO[A,H]ANTHRACENE



BENZO[K]FLUORANTHENE

CHRYSENE



INDENO[1,2,3-CD]PYRENE

PHENANTHRENE

PYRENE

DISTRIBUTION OF DATA RELATIVE TO NYSDEC RSCOs

- 100 to less than 1,000 times NYSDEC RSCO
- 10 to less than 100 times NYSDEC RSCO
- 1 to less than 10 times NYSDEC RSCO
- Less than NYSDEC RSCO
- Not Detected

NYS RSCOs = New York State Recommended Soil Clean-Up Objective

EXPLANATION

● SB-54 LOCATION AND DESIGNATION OF SOIL BORING

	NYSDEC RSCO STANDARDS (ug/kg)
BENZO(A)ANTHRACENE	224
BENZO(B)FLUORANTHENE	61
CHRYSENE	400
INDENO[1,2,3-CD]PYRENE	3,200
DIBENZO(A,H)ANTHRACENE	14.3
BENZO(A)PYRENE	61
BENZO(K)FLUORANTHENE	610
PHENANTHRENE	50,000
PYRENE	50,000

UG/KG - MICROGRAMS PER KILOGRAM

N

Title:

CONCENTRATIONS OF SVOCS DETECTED IN SHALLOW SOIL RELATIVE TO NYSDEC RSCOS

(LESS THAN 3 FEET BLS)

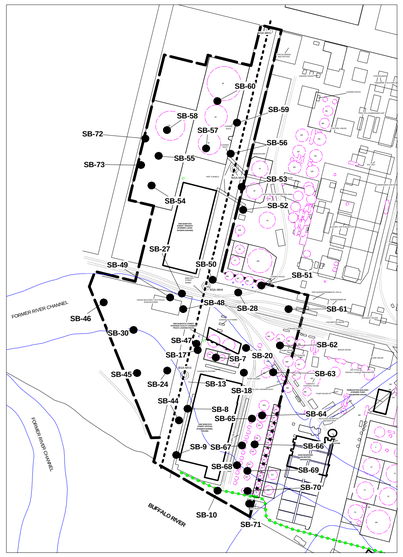
Prepared For:

EXXON MOBIL CORPORATION

ROUX ASSOCIATES INC
Environmental Consulting & Management

Compiled by: NC	Date: 5/31/01	PLATE
Prepared by: NC	Scale: 1" = 200'	5
Project Mgr: NC	Office: NY	
File No:MOS140X.WOR	Project: 17252Y03	

LOCATION MAP



MERCURY

CADMIUM

LEAD

VANADIUM

NICKEL

SELENIUM

CHROMIUM

DISTRIBUTION OF DATA RELATIVE TO NYSDEC RSCOs

- 10 to less than 100 times NYSDEC RSCO
- 1 to less than 10 times NYSDEC RSCO
- Less than NYSDEC RSCO
- Not Detected

NYS RSCOs = New York State Recommended Soil Clean-Up Objective

EXPLANATION

● SB-54 LOCATION AND DESIGNATION OF SOIL BORING

	NYS RSCOs STANDARDS (mg/kg)
MERCURY	0.1
CADMIUM	1
NICKEL	13
VANADIUM	150
CHROMIUM	10
SELENIUM	2
LEAD	500 (1)

mg/kg - MILLIGRAMS PER KILOGRAM

Notes: (1) RSCO for lead (500 mg/kg) is based on range of average background levels in metropolitan or suburban areas or near highways of 200-500 mg/kg (source: NYSDEC TAGM 4046).

N

Title:

CONCENTRATIONS OF METALS DETECTED IN SHALLOW SOIL RELATIVE TO NYSDEC RSCOS

(LESS THAN 3 FEET BLS)

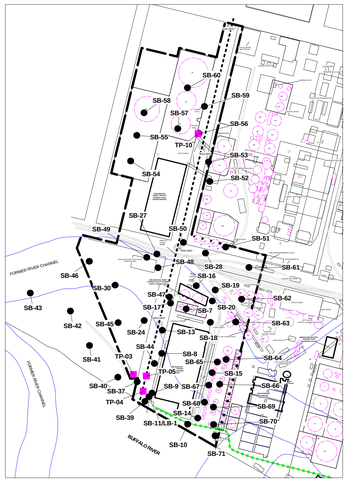
Prepared For:

EXXON MOBIL CORPORATION

ROUX ASSOCIATES INC
Environmental Consulting & Management

Compiled by: NC	Date: 5/21/01	PLATE
Prepared by: NC	Scale: 1" = 200'	
Project Mgr: NC	Office: NY	6
File No.MC5314006.WOR	Project: 172SOY03	

LOCATION MAP



BENZENE

TOLUENE

ETHYLBENZENE

TOTAL XYLENES

MTBE

NAPHTHALENE

1,2,4-TRIMETHYLBENZENE

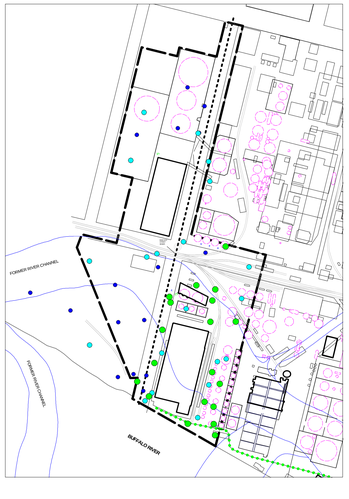
1,3,5-TRIMETHYLBENZENE

N-BUTYLBENZENE

SEC-BUTYLBENZENE

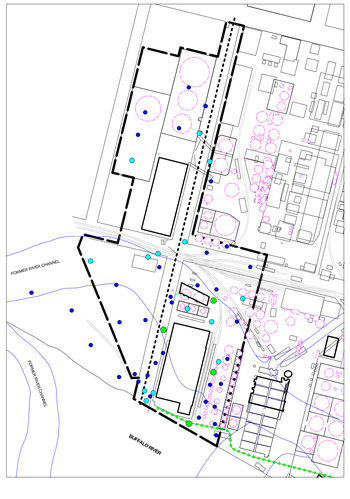
TERT-BUTYLBENZENE

ISOPROPYLBENZENE

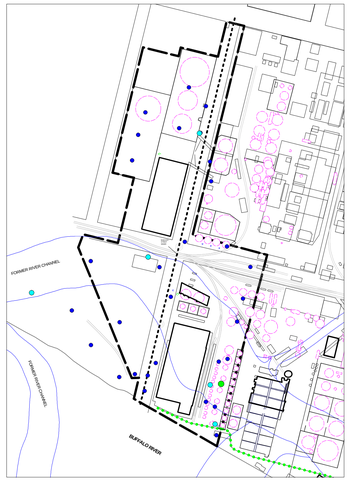


N-PROPYLBENZENE

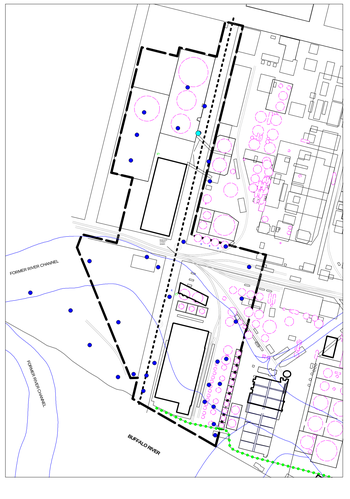
P-ISOPROPYLTOLUENE



CHLOROBENZENE



1,2-DICHLOROBENZENE



1,4-DICHLOROBENZENE

● SB-54 LOCATION AND DESIGNATION OF SOIL BORING

■ SB-54 LOCATION AND DESIGNATION OF TEST PIT

EXPLANATION

DISTRIBUTION OF DATA RELATIVE TO NYSDEC RSCOs

- 100 to less than 1,000 times NYSDEC RSCO
- 10 to less than 100 times NYSDEC RSCO
- 1 to less than 10 times NYSDEC RSCO
- Less than NYSDEC RSCO
- Not Detected

NYS RSCOs = New York State Recommended Soil Clean-Up Objective

	NYSDEC RSCO STANDARDS (ug/kg)
BENZENE	60
TOLUENE	1,500
ETHYLBENZENE	5,500
TOTAL XYLENES	1,200
MTBE	120
NAPHTHALENE	13,000
1,2,4-TRIMETHYLBENZENE	10,000
1,3,5-TRIMETHYLBENZENE	3,300
N-BUTYLBENZENE	10,000
SEC-BUTYLBENZENE	10,000
TERT-BUTYLBENZENE	10,000

	NYSDEC RSCO STANDARDS (ug/kg)
ISOPROPYLBENZENE	2,300
N-PROPYLBENZENE	3,700
P-ISOPROPYLTOLUENE	10,000
CHLOROBENZENE	1,700
1,2-DICHLOROBENZENE	7,900
1,4-DICHLOROBENZENE	8,500

ug/kg - MICROGRAMS PER KILOGRAM

N

Title:

CONCENTRATIONS OF VOCS DETECTED IN DEEP SOIL RELATIVE TO NYSDEC RSCOS

(GREATER THAN 3 FEET BLS)

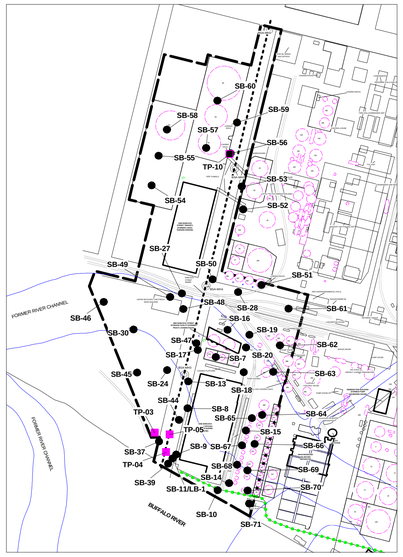
Prepared For:

EXXON MOBIL CORPORATION

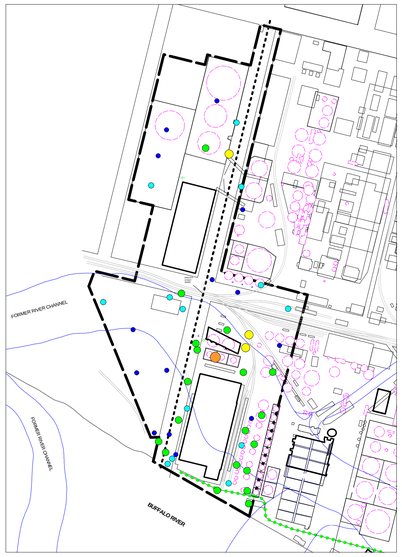
ROUX ASSOCIATES INC
Environmental Consulting & Management

Compiled by: NC	Date: 5/2/01	PLATE	
Prepared by: NC	Scale: 1" = 200'		
Project Mgr: NC	Office: NY		7
File No:MCS1/A003.MXR	Project: 17252/Y03		

LOCATION MAP



BENZO[A]ANTHRACENE



BENZO[A]PYRENE

BENZO[B]FLUORANTHENE

DIBENZO[A,H]ANTHRACENE

BENZO[K]FLUORANTHENE

CHRYSENE

INDENO[1,2,3-CD]PYRENE

PHENANTHRENE

PYRENE

● SB-54 LOCATION AND DESIGNATION OF SOIL BORING

■ TP-03 LOCATION AND DESIGNATION OF SOIL BORING

DISTRIBUTION OF DATA RELATIVE TO NYSDEC RSCOs

EXPLANATION

- 100 to less than 1,000 times NYSDEC RSCO
- 10 to less than 100 times NYSDEC RSCO
- 1 to less than 10 times NYSDEC RSCO
- Less than NYSDEC RSCO
- Not Detected

NYS RSCOs = New York State Recommended Soil Clean-Up Objective

	NYSDEC RSCO STANDARDS (ug/kg)
BENZO(A)ANTHRACENE	224
BENZO(B)FLUORANTHENE	61
CHRYSENE	400
INDENO[1,2,3-CD]PYRENE	3,200
DIBENZO(A,H)ANTHRACENE	14.3
BENZO(A)PYRENE	61
BENZO(K)FLUORANTHENE	610
PHENANTHRENE	50,000
PYRENE	50,000

UG/KG - MICROGRAMS PER KILOGRAM

N

Title:

CONCENTRATIONS OF SVOCS DETECTED IN DEEP SOIL RELATIVE TO NYSDEC RSCOS

(GREATER THAN 3 FEET BLS)

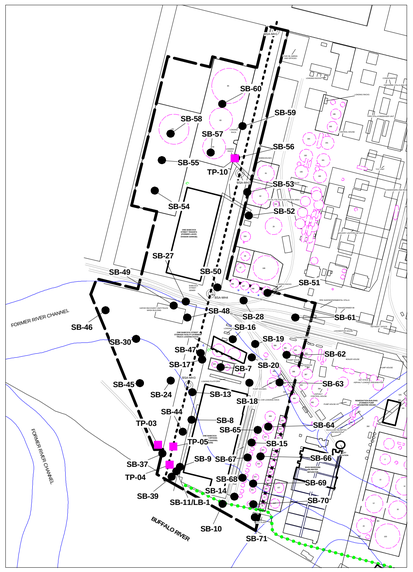
Prepared For:

EXXON MOBIL CORPORATION

ROUX ASSOCIATES INC
Environmental Consulting & Management

Compiled by: NC	Date: 5/21/01	PLATE
Prepared by: NC	Scale: 1" = 200'	8
Project Mgr: NC	Office: NY	
File No:MC5214005.WOR	Project: 172527/03	

LOCATION MAP



MERCURY

CADMIUM

LEAD

VANADIUM

NICKEL

SELENIUM

CHROMIUM

DISTRIBUTION OF DATA RELATIVE TO NYSDEC RSCOs

- Greater than 1,000 times NYSDEC RSCO
- 100 to less than 1,000 times NYSDEC RSCO
- 10 to less than 100 times NYSDEC RSCO
- 1 to less than 10 times NYSDEC RSCO
- Less than NYSDEC RSCO
- Not Detected

NYS RSCOs = New York State Recommended Soil Clean-Up Objective

EXPLANATION

- SB-54 — LOCATION AND DESIGNATION OF SOIL BORING
- TP-03 — LOCATION AND DESIGNATION OF TEST PIT

	NYS RSCOs STANDARDS (mg/kg)
MERCURY	0.1
CADMIUM	1
NICKEL	13
VANADIUM	150
CHROMIUM	10
SELENIUM	2
LEAD	500 (1)

mg/kg - MILLIGRAMS PER KILOGRAM

Notes: (1) RSCO for lead (500 mg/kg) is based on range of average background levels in metropolitan or suburban areas or near highways of 200-500 mg/kg (source: NYSDEC TAGM 4046).

N

Title:

CONCENTRATIONS OF METALS DETECTED IN DEEP SOIL RELATIVE TO NYSDEC RSCOs

(GREATER THAN 3 FEET BLS)

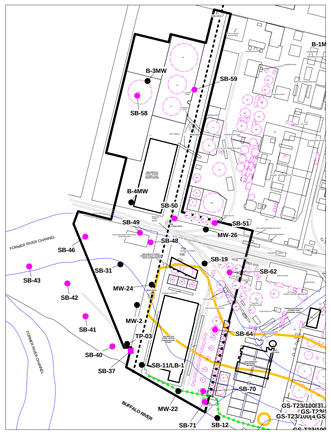
Prepared For:

EXXON MOBIL CORPORATION

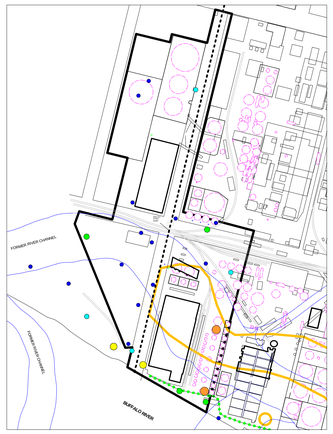
ROUX ASSOCIATES INC
Environmental Consulting & Management

Compiled by: NC	Date: 5/21/01	PLATE
Prepared by: NC	Scale: 1" = 200'	
Project Mgr: NC	Office: NY	9
File No:MC5245T WOR	Project: 17252Y03	

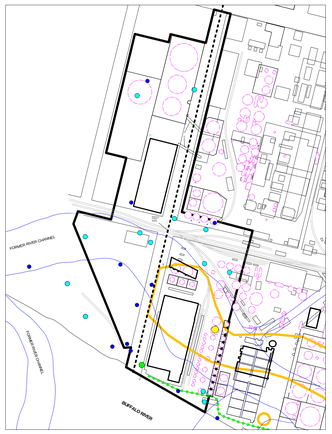
LOCATION MAP



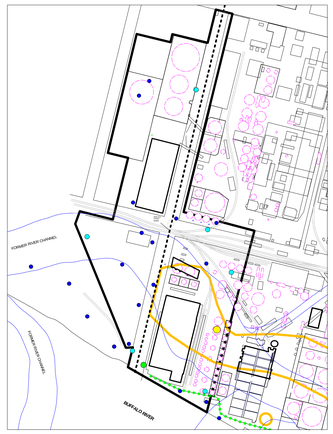
BENZENE



TOLUENE

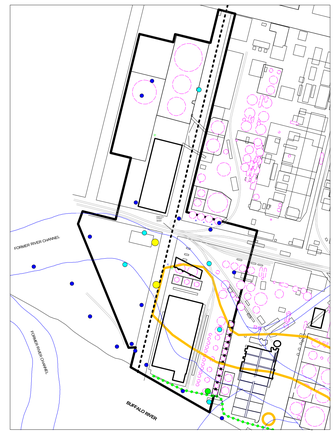


ETHYLBENZENE

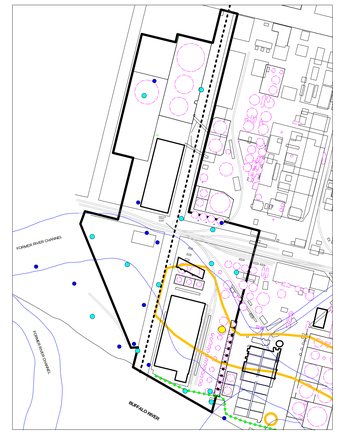


TOTAL XYLENES

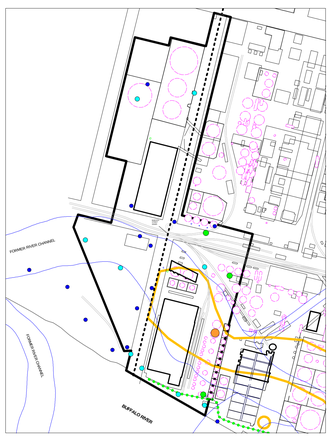
MTBE



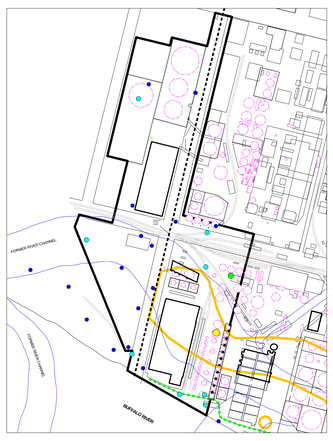
NAPHTHALENE



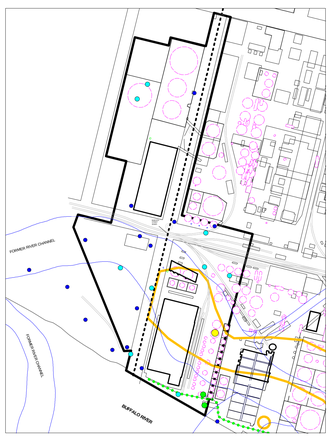
1,2,4-TRIMETHLYBENZENE



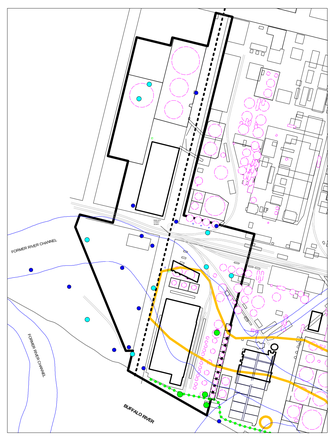
1,3,5-TRIMETHLYBENZENE



N-BUTYLBENZENE

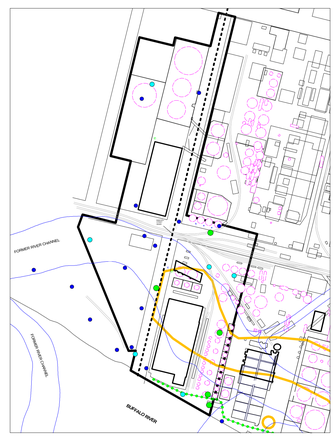


SEC-BUTYLBENZENE

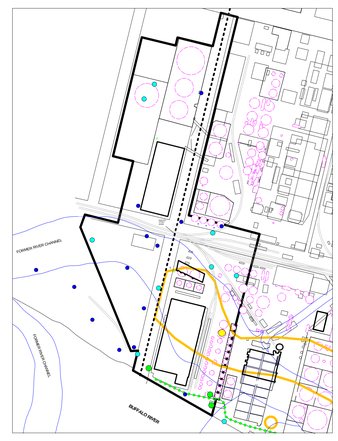


TERT-BUTYLBENZENE

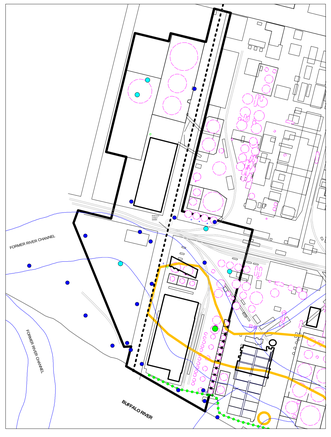
ISOPROPYLBENZENE



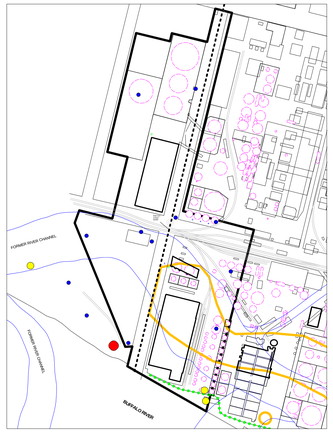
N-PROPYLBENZENE



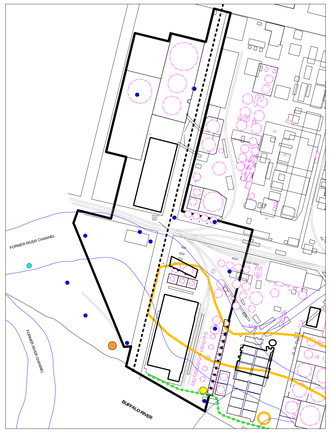
P-ISOPROPYLTOLUENE



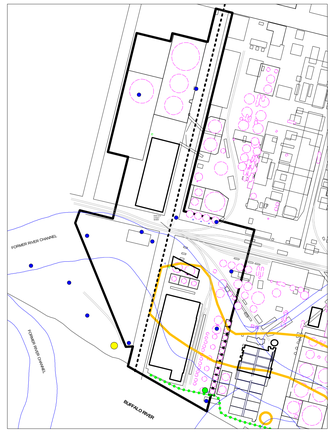
CHLOROBENZENE



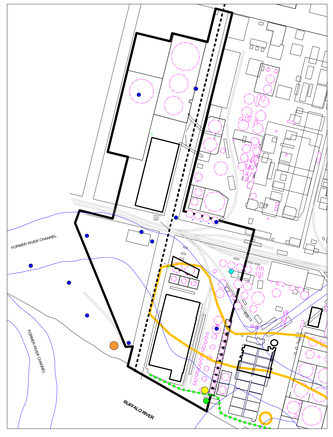
1,2-DICHLOROBENZENE



1,3-DICHLOROBENZENE



1,4-DICHLOROBENZENE



DISTRIBUTION OF DATA RELATIVE TO NYSDEC AWQSGs

- Greater than 1,000 times NYSDEC AWQSG
- 100 to less than 1,000 times NYSDEC AWQSG
- 10 to less than 100 times NYSDEC AWQSG
- 1 to less than 10 times NYSDEC AWQSG
- Less than NYSDEC AWQSG
- Not Detected

AWQSG = New York State Ambient Water Quality Standards and Guidance Values

EXPLANATION

- MW-1 — LOCATION AND DESIGNATION OF MONITORING WELL GROUNDWATER SAMPLE
- SB-40 — LOCATION AND DESIGNATION OF GEOPROBE GROUNDWATER SAMPLE
- TP-03 — LOCATION AND DESIGNATION OF TEST PIT GROUNDWATER SAMPLE
- LIMITS OF SEPARATE-PHASE PRODUCT

NYSDEC AWQSG (ug/l)

BENZENE	0.7
TOLUENE	5
ETHYLBENZENE	5
TOTAL XYLENES	5
MTBE	10
NAPHTHALENE	10
1,2,4-TRIMETHYLBENZENE	10
1,3,5-TRIMETHYLBENZENE	5

ug/l - MICROGRAMS PER LITER

NYSDEC AWQSG (ug/l)

N-BUTYLBENZENE	5
SEC-BUTYLBENZENE	5
TERT-BUTYLBENZENE	5
ISOPROPYLBENZENE	5
N-PROPYLBENZENE	5
P-ISOPROPYLTOLUENE	5
CHLOROBENZENE	5
1,2-DICHLOROBENZENE	5
1,3-DICHLOROBENZENE	5
1,4-DICHLOROBENZENE	5

N

Title: **CONCENTRATIONS OF VOCS DETECTED IN GROUNDWATER RELATIVE TO NYSDEC AWQSGS**

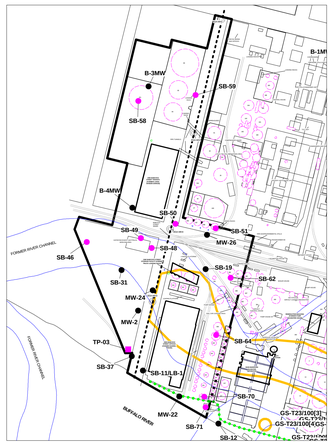
Prepared For: EXXON MOBIL CORPORATION

ROUX ASSOCIATES INC
Environmental Consulting & Management

Compiled by: NC	Date: 5/20/01
Prepared by: NC	Scale: 1" = 200'
Project Mgr: NC	Office: NY
File No:MCSU1408E.WOR	Project: 17252Y03

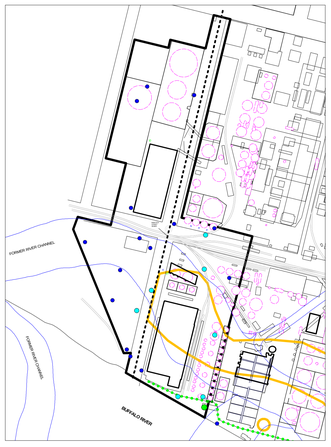
PLATE **10**

LOCATION MAP

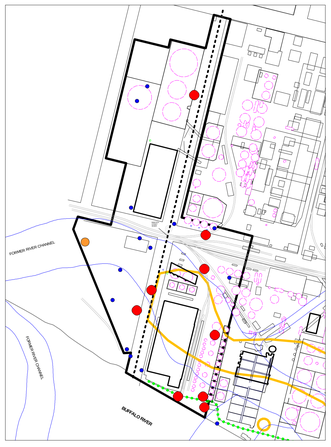


ACENAPHTHENE

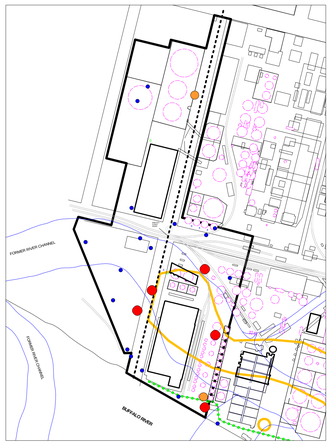
ANTHRACENE



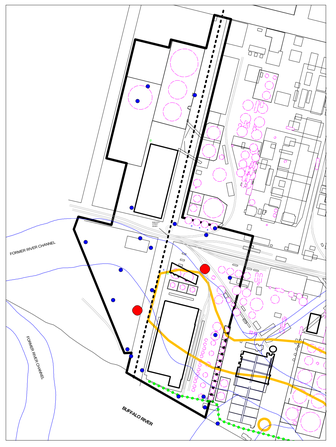
BENZO[A]ANTHRACENE



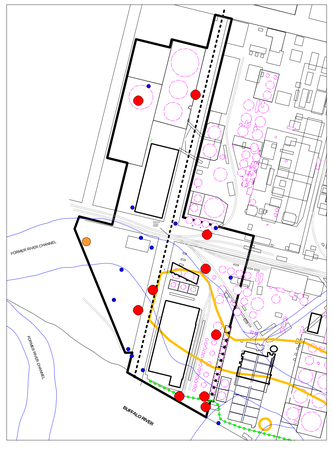
BENZO[B]FLUORANTHENE



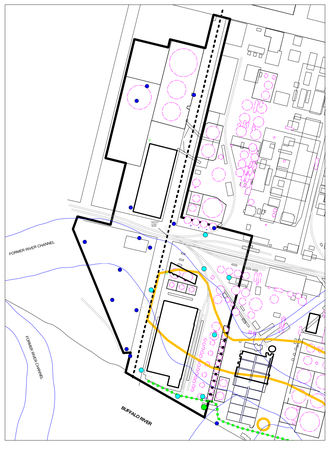
BENZO[K]FLUORANTHENE



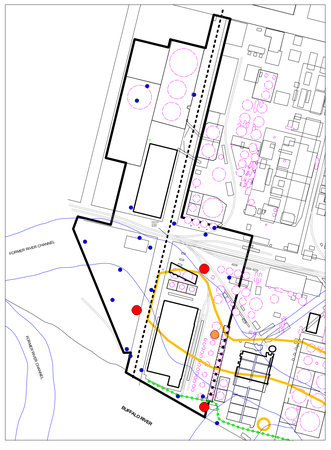
CHRYSENE



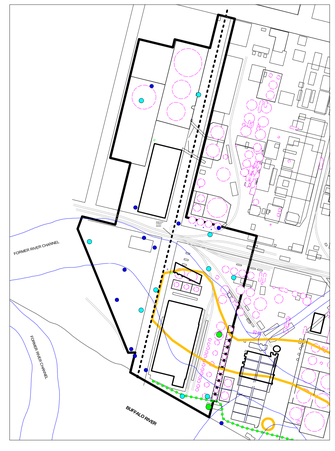
FLUORENE



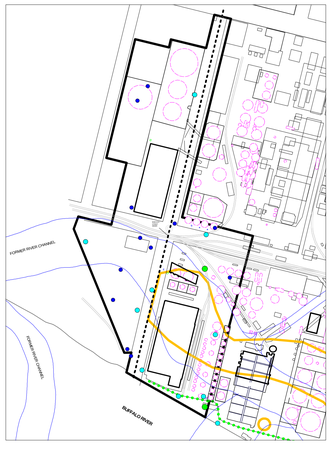
INDENO[1,2,3-CD]PYRENE



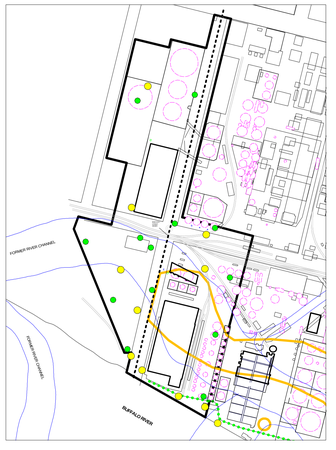
PHENANTHRENE



PYRENE



BENZO[A]PYRENE



LIMITS OF SEPARATE-PHASE PRODUCT

MW-1 LOCATION AND DESIGNATION OF MONITORING WELL GROUNDWATER SAMPLE

SB-46 LOCATION AND DESIGNATION OF GEOPROBE GROUNDWATER SAMPLE

TP-03 LOCATION AND DESIGNATION OF TEST PIT GROUNDWATER SAMPLE

EXPLANATION

DISTRIBUTION OF DATA RELATIVE TO NYSDEC AWQSGs
FOR INDIVIDUAL COMPOUNDS EXCEPT BENZO[A]PYRENE

- Greater than 1,000 times NYSDEC AWQSG
- 100 to less than 1,000 times NYSDEC AWQSG
- 10 to less than 100 times NYSDEC AWQSG
- 1 to less than 10 times NYSDEC AWQSG
- Less than NYSDEC AWQSG
- Not Detected

AWQSG = New York State Ambient Water Quality Standards and Guidance Values

CONCENTRATION OF BENZO[A]PYRENE (ug/l)

- 10 to less than 100 ug/l
- 1 to less than 10 ug/l
- Not Detected

NYSDEC AWQSG (ug/l)

ACENAPHTHENE	20
ANTHRACENE	50
BENZO(A)ANTHRACENE	20
BENZO(B)FLUORANTHENE	0.002
BENZO(K)FLUORANTHENE	0.002
CHRYSENE	0.002
FLUORENE	50
INDENO[1,2,3-CD]PYRENE	0.002
BENZO(A)PYRENE	0.0
PYRENE	50
PHENANTHRENE	50

UG/L - MICROGRAMS PER LITER

N

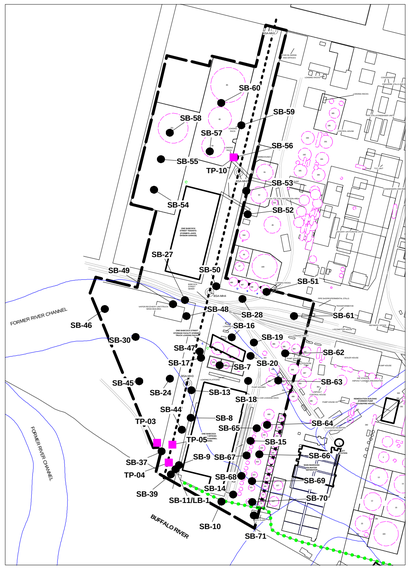
Title:
CONCENTRATIONS OF SVOCS DETECTED IN GROUNDWATER RELATIVE TO NYSDEC AWQSGS

Prepared For:
EXXON MOBIL CORPORATION

ROUX ASSOCIATES INC
Environmental Consulting & Management

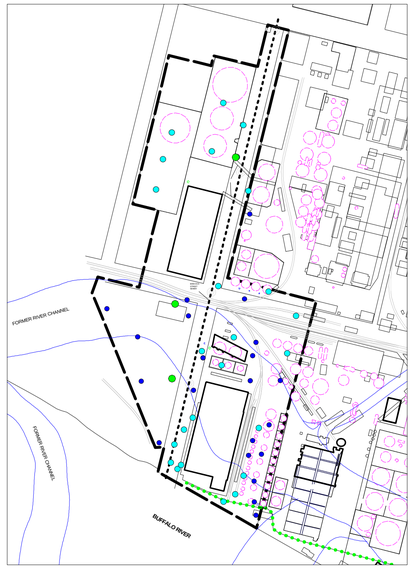
Compiled by: NC	Date: 5/20/01	PLATE
Prepared by: NC	Scale: 1" = 200'	11
Project Mgr: NC	Office: NY	
File No:MCS14008.MXR	Project: 17252Y03	

LOCATION MAP



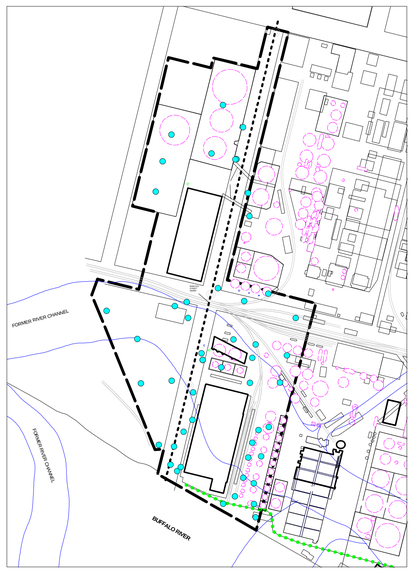
MERCURY

CADMIUM

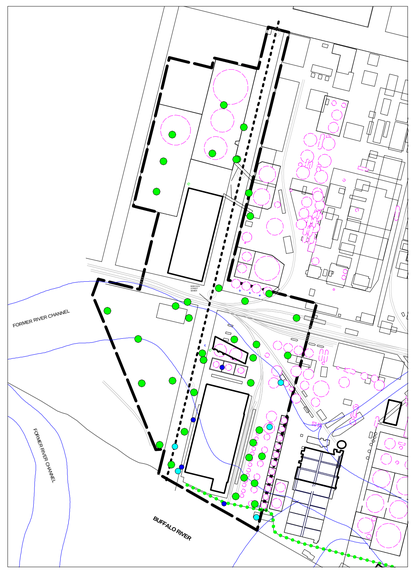


LEAD

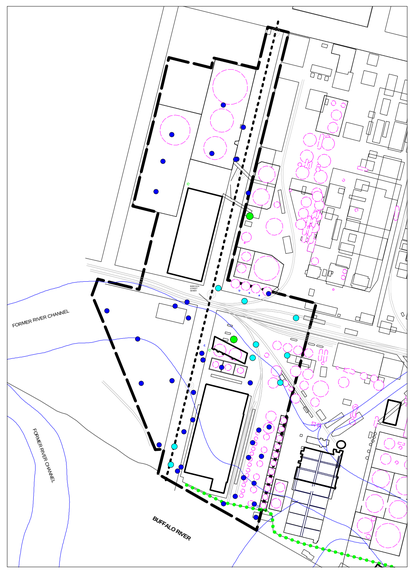
VANADIUM



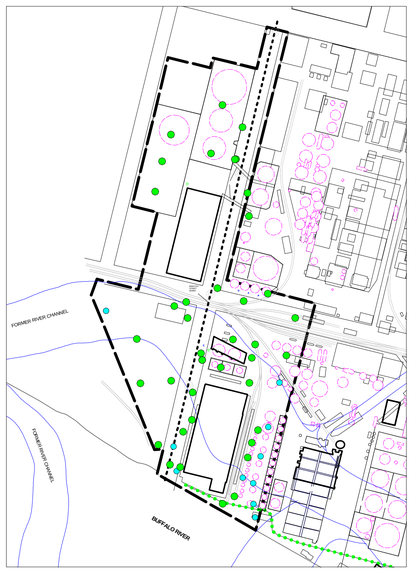
NICKEL



SELENIUM



CHROMIUM



DISTRIBUTION OF DATA RELATIVE TO NYSDEC RSCOs

- Greater than 1,000 times NYSDEC RSCO
- 100 to less than 1,000 times NYSDEC RSCO
- 10 to less than 100 times NYSDEC RSCO
- 1 to less than 10 times NYSDEC RSCO
- Less than NYSDEC RSCO
- Not Detected

NYS RSCOs = New York State Recommended Soil Clean-Up Objective

EXPLANATION

- SB-54 — LOCATION AND DESIGNATION OF SOIL BORING
- TP-03 — LOCATION AND DESIGNATION OF TEST PIT

	NYS RSCOs STANDARDS (mg/kg)
MERCURY	0.1
CADMIUM	1
NICKEL	13
VANADIUM	150
CHROMIUM	10
SELENIUM	2
LEAD	500 (1)

mg/kg - MILLIGRAMS PER KILOGRAM

Notes: (1) RSCO for lead (500 mg/kg) is based on range of average background levels in metropolitan or suburban areas or near highways of 200-500 mg/kg (source: NYSDEC TAGM 4046).

N

Title:

CONCENTRATIONS OF METALS DETECTED IN DEEP SOIL RELATIVE TO NYSDEC RSCOS

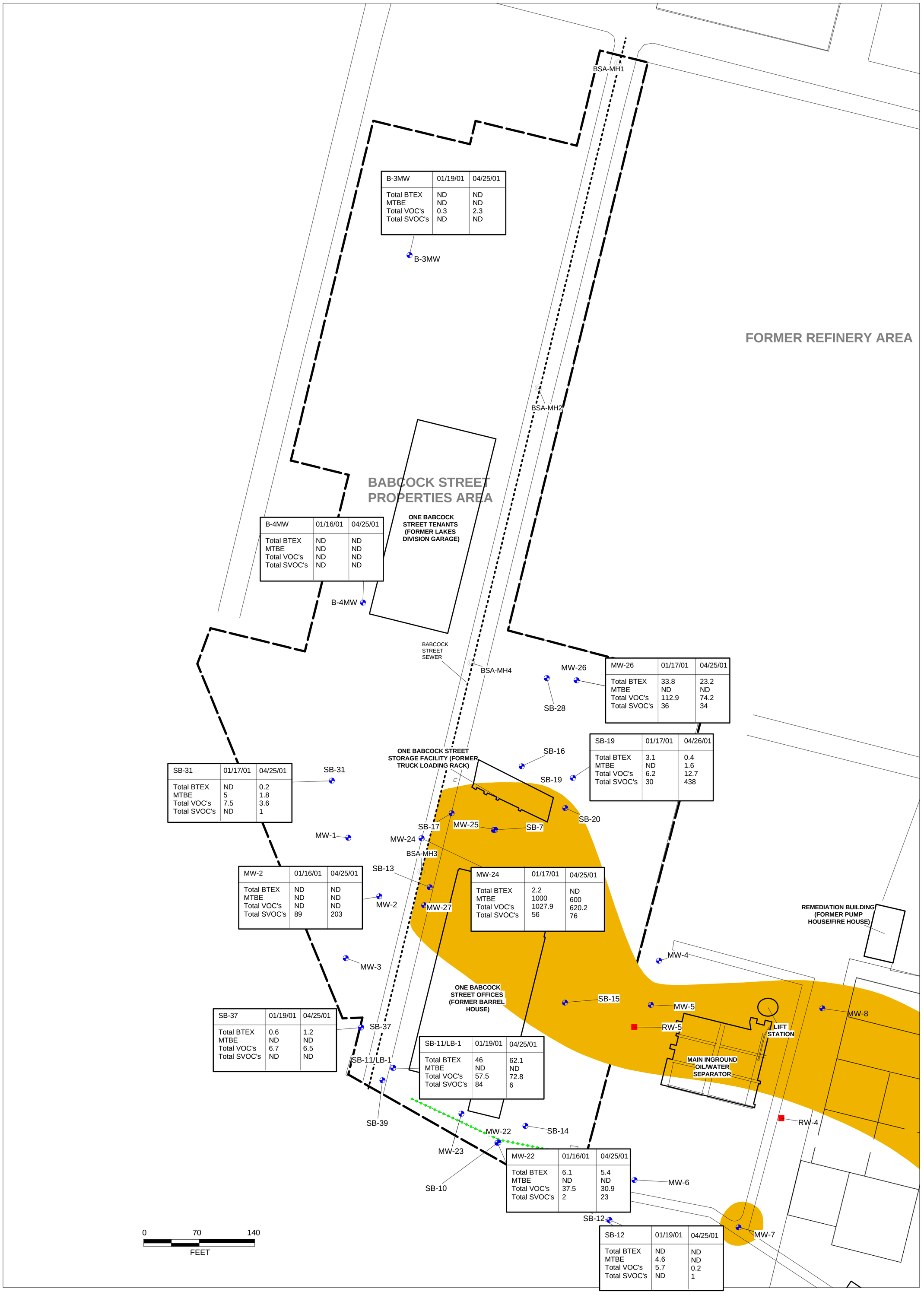
(GREATER THAN 3 FEET BLS)

Prepared For:

EXXON MOBIL CORPORATION

ROUX ASSOCIATES INC
Environmental Consulting & Management

Compiled by: NC	Date: 5/21/01	PLATE
Prepared by: NC	Scale: 1" = 200'	9
Project Mgr: NC	Office: NY	
File:\\e:\dc\2x401\ref.wor\	Project: 1725ZY03	



EXPLANATION

SEPARATE-PHASE PRODUCT

WELL POINT SYSTEM

EXISTING STRUCTURE

BSPA BORDER

MW-2 MONITORING WELL

RW-4 RECOVERY WELL

SAMPLE LOCATION

SAMPLE DATE

SB-12	01/19/01	04/25/01
Total BTEX	ND	ND
MTBE	4.6	1
Total VOC's	5.7	0.2
Total SVOC's	ND	1

TOTAL BTEX CONCENTRATION IN MICROGRAMS PER LITER

MTBE CONCENTRATION IN MICROGRAMS PER LITER

TOTAL VOC CONCENTRATION IN MICROGRAMS PER LITER

TOTAL SVOC CONCENTRATION IN MICROGRAMS PER LITER

ND NOT DETECTED
BTEX BENZENE, TOLUENE, ETHYLBENZENE AND XYLENES
MTBE METHYL TERTIARY-BUTYL ETHER
VOCs VOLATILE ORGANIC COMPOUNDS
SVOCs SEMIVOLATILE ORGANIC COMPOUNDS

N

Title:

SUMMARY OF QUARTERLY GROUNDWATER SAMPLING DATA FROM JANUARY AND APRIL 2001

Prepared For:

EXXON MOBIL CORPORATION

ROUX ASSOCIATES INC
Environmental Consulting & Management

Compiled by: NC	Date: 5/21/01
Prepared by: NC	Scale: 1" = 70'
Project Mgr: NC	Office: NY
File No: MC52140Y10.WOR	Project: 17252Y03

PLATE 13