

915040

PHASE II INVESTIGATION REPORT

**Buffalo Terminal Disposal Site
City Of Buffalo, Erie County, New York
NYS ID #915040**

Prepared For

**MOBIL OIL CORPORATION
BUFFALO, NEW YORK**

March 1986

PHASE II INVESTIGATION REPORT

BUFFALO TERMINAL DISPOSAL SITE
CITY OF BUFFALO, ERIE COUNTY, NEW YORK
NYS ID #915040

PREPARED FOR

MOBIL OIL CORPORATION
BUFFALO, NEW YORK

BY

URS COMPANY, INC.
625 DELAWARE AVENUE
BUFFALO, NEW YORK 14202

TABLE OF CONTENTS

	<u>Page</u>
Executive Summary	i
1. Introduction	1-1
2. Objectives	2-1
3. Scope of Work	3-1
3.1 General	3-1
3.2 Review of Historical Data	3-2
3.3 Site Reconnaissance	3-3
3.4 Air Monitoring	3-3
3.5 Soil Borings	3-4
3.5.1 Shallow Borings	3-5
3.5.2 Deep Borings	3-6
3.6 Monitoring Well Installation	3-7
3.6.1 Well Construction	3-7
3.6.2 Well Development	3-8
3.6.3 Permeability Testing	3-9
3.7 Sampling and Analysis	3-9
3.7.1 Soil Samples	3-9
3.7.2 Groundwater Samples	3-14
3.7.3 Surface Water Samples	3-17
3.7.4 Sediment Samples	3-18

TABLE OF CONTENTS

	<u>Page</u>
3.8 Quality Assurance Program	3-18
4. Site History	4-1
5. Site Assessment	5-1
5.1 Surface Features and Topography	5-1
5.2 Environmental Setting	5-2
5.3 Geology	5-2
5.3.1 Geology of the Area	5-2
5.3.2 Site Geology	5-3
5.4 Hydrogeology	5-4
5.5 Analytical Results	5-5
5.5.1 Air Analytical Data	5-5
5.5.2 Soil Analytical Data	5-6
5.5.3 Groundwater Analytical Data	5-9
5.5.4 Surface Water Analytical Data	5-14
5.5.5 Sediment Analytical Data	5-14
5.5.6 Miscellaneous Analytical Data	5-17
5.6 Assessment of Site Conditions	5-18
6. Hazard Ranking System	6-1
7. Future Activities	7-1

LIST OF FIGURES

	<u>Following Page</u>
Figure 1 - Site Vicinity Map	iii
Figure 2 - Site Plan	iii
Figure 3 - Monitoring Well Construction Detail	3-8
Figure 4 - Subsurface Fence Diagram	5-4
Figure 5 - Groundwater Contour Map	5-5

LIST OF TABLES

	<u>Page</u>
Table 1 - Analytical Parameters - Hazardous Substances List	3-10
Table 2 - Analytical Parameters - Inorganic Constituents	3-15
Table 3 - Analytical Parameters - Indicator Constituents	3-16
Table 4 - Summary of Soil Analytical Results	5-7
Table 5 - Summary of Soil Geotechnical Test Results	5-10
Table 6 - Summary of Groundwater Analytical Results	5-11
Table 7 - Summary of Surface Water Analytical Results	5-15
Table 8 - Summary of Sediment Analytical Results	5-16

APPENDICES

Appendix 1 - Phase II Investigation Work Plan

Appendix 2 - Soil Boring Logs

Appendix 3 - Analytical Test Reports

Appendix 4 - Letter to NYSDEC

Appendix 5 - Miscellaneous Test Results

Appendix 6 - References

EXECUTIVE SUMMARY

The Buffalo Terminal Disposal Site is located in the City of Buffalo, Erie County, New York (Figure 1). General site features are shown in Figure 2. The site is located on the banks of the Buffalo River, which empties into Lake Erie approximately 3 miles downstream. Site topography results in surface runoff to the Buffalo River. Areas surrounding the site are largely industrial and commercial. A more detailed discussion of site characteristics appears in Section 5.

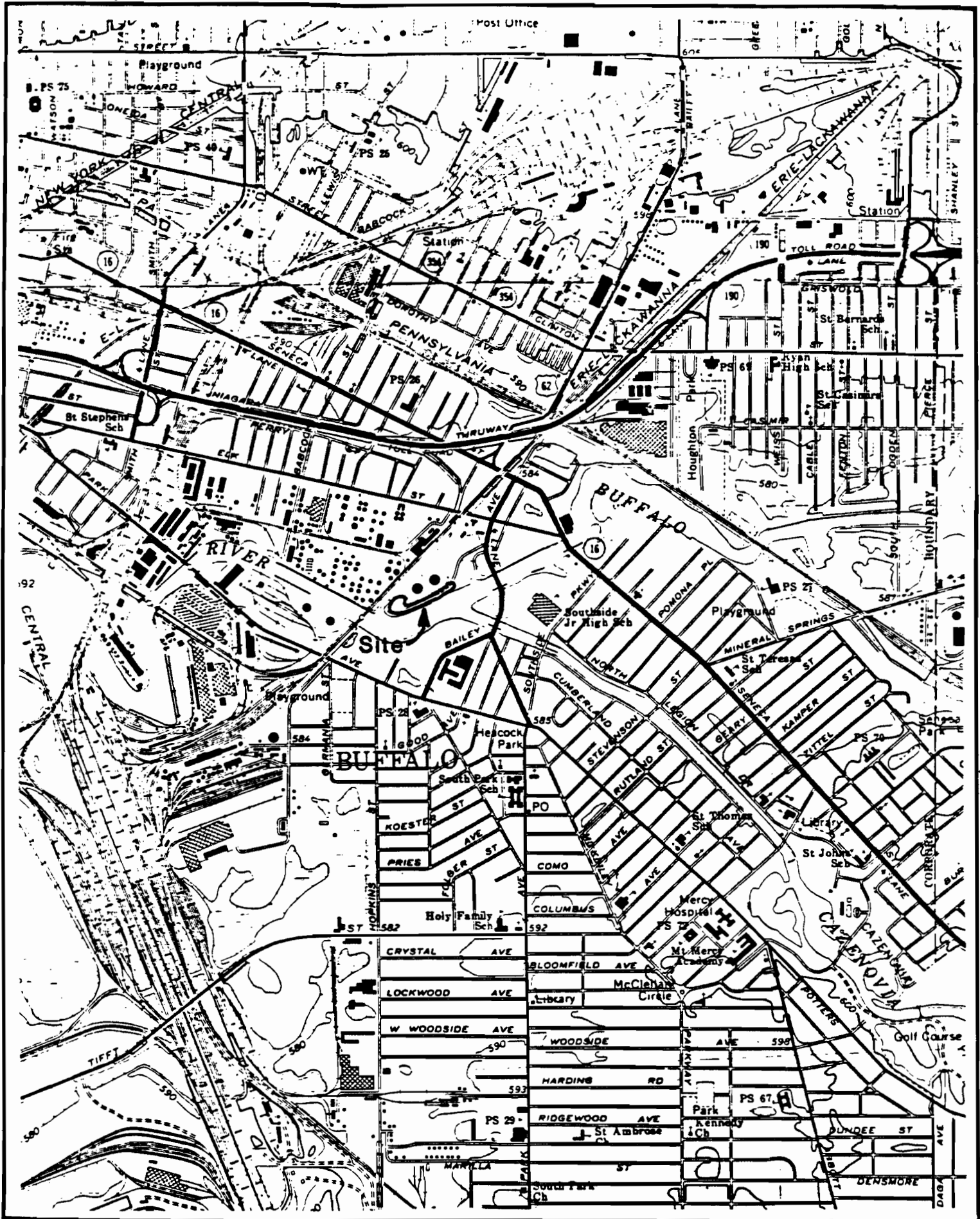
The site is currently owned by Mobil Oil Corporation, which operated a refinery and still operates a terminal facility adjacent to the site. Mobil purchased the Buffalo Terminal Disposal site in 1951 from the City of Buffalo and integrated it with the refinery facility. The City of Buffalo had used the site for disposal of municipal waste from 1920 to 1951. During the years from 1951 to 1976, Mobil also disposed of some of its waste at the site. In 1982, the United States Geological Survey made four soil borings at the site and analyzed one soil sample from each boring as part of the investigative efforts of the Interagency Task Force on Hazardous Waste. These investigations, and analyses of four additional soil samples by USGS in 1983, indicated the presence of contaminants, which led to inclusion of the site on the New York State Registry of Hazardous Waste Sites (2a classification). A subsequent Phase I Investigation recommended further study. In 1985, Mobil Oil signed a Consent Order with the New York State Department of

Environmental Conservation (NYSDEC) to conduct a Phase II Investigation at the site. A more detailed site history is presented in Section 4.

The Phase II Investigation was undertaken by URS Company, Inc., a contractor to Mobil Oil. A Phase II investigation Work Plan was developed and approved by NYSDEC in September 1985. A copy of the Work Plan is included as Appendix 1. This work plan outlined the objectives of the Phase II Investigation as follows:

- o Definition of the geologic, hydrogeologic, and topographic characteristics of the site
- o Determination of the characteristics and general limits of the waste present at the site
- o Assessment of air, groundwater, surface water and sediment contamination and its relationship with the environment
- o Identification of future course of action, if any, as requested by the NYSDEC
- o Preparation of a final HRS score
- o Preparation of a final site investigation report to document the data and results of the investigative activities

The Phase II Investigation has now been completed, and the results have indicated the presence of a limited number of chemicals (in low concentrations) listed on the Hazardous Substances List, as well as several inorganic constituent contaminants in site soils, groundwater, surface water and sediment (in the adjacent Buffalo River). Details of investigative methods are presented in Sections 3 and 5. HRS scoring is presented in Section 6. Need for future activities is discussed in Section 7.



USGS TOPOGRAPHIC MAP
 BUFFALO SE, NE, N.Y. 1965

VICINITY MAP
 MOBIL OIL CORPORATION

FIGURE 1

FIGURE 2

Too large
to scan

1. INTRODUCTION

This report presents the activities and results of a Phase II Investigation Program completed at the Buffalo Terminal Disposal site (NYS ID #915040) located in the City of Buffalo, Erie County, New York (Figure 1). The investigations were carried out in accordance with the Phase II investigation Work Plan dated September 19, 1985, which was approved by the New York State Department of Environmental Conservation (NYSDEC). A copy of this Work Plan is included as Appendix 1 to this report.

These investigations were completed by Mobil Oil Corporation, current owner of the site, in accordance with a consent order dated October 1985 (NYSDEC File No. 85-76) between the NYSDEC and Mobil Oil. The company used its own investigative resources as provided in CERCLA, and retained the services of URS Company, Inc., which performed these investigations. NYSDEC, through its contractor, Recra Research, Inc., had previously completed a Phase I Investigation which documented the presence of such contaminants as lead, iron, cyclohexane, and aliphatic hydrocarbons at the site. The current investigations were carried out to further define the site's environmental conditions.

All field activities were carried out in accordance with the URS Corporate Health and Safety Plan and Mobil's safety procedures, included in the Work Plan.

2. OBJECTIVES

The objectives of the Phase II investigation, as defined by the Work Plan, were to obtain additional data in order to make preliminary hydrogeologic and contamination assessments of the site and to prepare a final, documented, and defensible Hazard Ranking System (HRS) score. Specific goals of the investigative program included:

- o Definition of the geologic, hydrogeologic, and topographic characteristics of the site
- o Determination of the characteristics and general limits of the wastes present at the site
- o Assessment of air, groundwater, surface water and sediment contamination and its relationship with the environment
- o Identification of future course of action, if any, as requested by the NYSDEC
- o Preparation of a final HRS score
- o Preparation of a final site investigation report to document the data and results of the investigative activities

3. SCOPE OF WORK

3.1 General

The scope of activities to be undertaken during this investigation was discussed in the Work Plan. Specific field and laboratory activities completed included:

- o Review of available historical data
- o Site reconnaissance
- o Air monitoring
- o Drilling and sampling of soil borings
- o Construction and sampling of groundwater monitoring wells
- o Sampling of surface water and sediment
- o Laboratory analysis of soil, groundwater, surface water, and sediment
- o Field survey to locate sampling points

A discussion of each of these activities follows.

3.2 Review of Historical Data

A variety of sources was utilized in investigating past activities at Mobil's Buffalo Terminal Disposal Site, including Mobil Oil Corporation, NYSDEC, the City of Buffalo, and the Erie County Departments of Health and Environment and Planning (ECDEP). Information collected included:

- o 1931 plans and boring logs related to improvements of the Buffalo River channel near the site
- o 1983 NYS Superfund Phase I Report for the site
- o 1984 Niagara River Toxics Committee Report (which included analytical results)
- o 1970 City of Buffalo Planning Report on Buffalo Waterways
- o 1985 ECDEP draft report concerning environmental constraints on waterfront development
- o 1981 US Army Corps of Engineers Buffalo Harbor feasibility study

- o URS Company files from past projects completed for Mobil Oil Corporation (including boring logs and a groundwater contour map of the site area)
- o Aerial photographs from 1951, 1958, and 1960
- o USGS records of borings installed and sampled during 1982 (including analytical results)
- o Various memoranda, letters, and miscellaneous information related to the site

3.3 Site Reconnaissance

A site reconnaissance was made to collect background information prior to the initiation of field activities. Specific objectives of this reconnaissance were to establish preliminary locations for soil borings, monitoring wells, and sampling stations, and to collect information (readily available through visual observation) required to complete the HRS work sheets and other documentation.

3.4 Air Monitoring

An air quality survey was carried out on October 14, 1985. Its purpose was to determine the level of protection required during drilling operations. A Century Systems Model OVA-128 organic vapor

analyzer was used to conduct this survey. The Model 128 uses a flame ionization detector (FID), and is factory-calibrated to a methane standard. It was used in the general survey mode.

On the day of the survey, the sky was overcast, temperature was in the mid-sixties, and a 5-mph wind was blowing from the northwest. It had rained earlier in the day. Prior to walking the site, the OVA was adjusted to a background reading outside the fence, at the site's western end.

The site perimeter was traversed from the gate at the western end of the site, along the southern edge, up the eastern edge, and back along the northern edge to the gate. Readings were also taken near some onsite tanks. No readings above background were recorded except a short spike of 3 or 4 ppm, accompanied by an oil-like hydrocarbon odor, along the southern edge of the site. The odor was suspected to come from tanks located northwest of the site, across the railroad tracks.

From these results it was decided that the work would be performed using Level D protection and that respiratory protection would be made available for use as necessary.

3.5 Soil Borings

Eleven (11) shallow and six (6) deep soil borings were drilled and sampled at the site to define subsurface conditions and to collect soil samples for physical and chemical analysis (Figure 2). The drilling

activities began on October 16, 1985 and were completed on October 28, 1985. The drilling and sampling was performed by Empire Soils Investigations, Inc., of Orchard Park, New York. The field work was carried out under Level D protection, and the OVA-128 was used to screen soils during the drilling operation.

A NYSDEC representative was frequently present at the site during the investigations, and also participated in locating soil borings and observing field activities. The drilling and sampling was performed using a hollow-stem auger and ASTM-D-1586 method.

3.5.1 Shallow Borings - Eleven (11) shallow borings were drilled at the site, with five (5) of these being drilled on the site's southwest side, the area of suspected maximum concentration of residue from disposal activities. These locations were selected in consultation with the NYSDEC site representative. Each boring was advanced to a depth of approximately ten (10) feet with 4-inch continuous-flight, hollow-stem augers. Borings were continuously sampled using a split-spoon sampler for the entire depth (ASTM-D-1586). Each soil sample was screened with the OVA-128 immediately upon opening the sampler, and visually classified and logged by a geologist. A lithologic log was prepared for each boring to include standard penetration test values, sample recovery, and soil description. Samples showing high OVA readings or suspected to be contaminated based on visual observation, were properly preserved and containerized in pre-cleaned glass jars fitted with teflon-lined screw caps. The remaining samples were placed in clean

glass jars for physical soil testing and storage. Samples from borings BH5 - BH7 (considered most contaminated) were then shipped to Mobil's analytical laboratory in Princeton, New Jersey, for chemical analysis. The logs of these borings are included in Appendix 2.

The sampling was performed in accordance with QA protocols included in the Work Plan. To prevent cross-contamination between the borings, the entire back of the drill rig and all drilling tools were decontaminated with high pressure steam prior to each boring. The split-spoon samplers were cleaned with soap and water and alternately rinsed with distilled water and acetone after each sampling. Drill cuttings suspected of contamination were placed in NYSDOT-approved 55-gallon drums and were stored on site as directed by Mobil. Upon completion of sampling, each boring was filled with cement grout for its entire depth. The borings were surveyed for location and for determination of ground surface elevation adjacent to the boring.

3.5.2 Deep Borings - Six (6) deep borings were drilled and sampled. Five (5) of these borings were drilled along the site perimeter and were converted to monitoring wells (MW1 - MW5, Figure 2). The sixth boring (BH12) was drilled in the area exhibiting the highest OVA readings during the sample screening for other borings. This was done to determine the depth of fill and to characterize the underlying soils. Boring MW1 was installed in the northern portion of the site and MW5 west of the liquid propane gas (LPG) storage area. These locations were selected to define upgradient conditions. The three remaining borings

(MW2 - MW4) were sited on the anticipated downgradient side, near the Buffalo River. The selection of these locations was based upon available site data, and was intended to ensure well placement in downgradient locations. These five borings were drilled to the top of and one foot into a natural clay deposit underlying the site.

These deep borings were drilled and sampled using methods similar to those employed in the shallow borings. Split-spoon samples were obtained continuously to the water table, and at 5-foot intervals thereafter. The samples were screened with an OVA, visually classified, and placed in sample jars. A lithologic log was prepared for each boring. Three samples, obtained from within the screened interval of each of five borings (MW1-MW5), were selected for physical analysis (including Atterberg limits and grain size). Upon completion, borings MW1 - MW5 were converted to monitoring wells and boring B12 was filled with cement grout.

3.6 Monitoring Well Installation

3.6.1 Well Construction - Five (5) groundwater monitoring wells were constructed and developed for sampling of groundwater and measurement of groundwater level elevations at the locations shown in Figure 2. Two of these wells (MW1 and MW5) were located upgradient of the site and the remaining three wells (MW2, MW3 and MW4) on the anticipated downgradient side, along the Buffalo River bank. The downgradient wells were located as close to the river bank as physically possible. The location

and depth of these wells was selected on the basis of the anticipated groundwater flow direction, and of the soil profile developed from investigations previously performed at the Buffalo Terminal Facilities. All monitoring well holes were augered one foot into a brown clay layer. This low permeability clay layer is expected to act as an aquitard for vertical flow of groundwater. Borings for monitoring wells MW1, MW2, MW3, MW4 and MW5 were terminated at depths of 24 ft, 36 ft, 36 ft, 36 ft, and 32 ft, respectively.

Each well was constructed of 2-inch flush-joint, Schedule 40 PVC casing with 10-foot PVC screens (Figure 3). The well assemblies were set on sand pack with the top of the screens extending 1 foot above the water table encountered in the borings. Sand was then backfilled around and to a depth of 2 feet above the screens. A two-foot (minimum) bentonite seal was then placed above the sand, and the remainder of the hole was grouted to grade with a bentonite-cement mixture. A 5-foot protective steel casing with locking cap was installed in concrete around the PVC casing such that 2½ feet extended above grade. All wells were surveyed to determine their location as well as elevations of the tops of protective casing, PVC well casing, and the ground surface adjacent to the boring.

3.6.2 Well Development - Each well was developed using compressed air until the casing was clear of water and sediment. The well was allowed to recharge and evacuated a second time using the same method. The upgradient well (MW1) was developed first in both events.

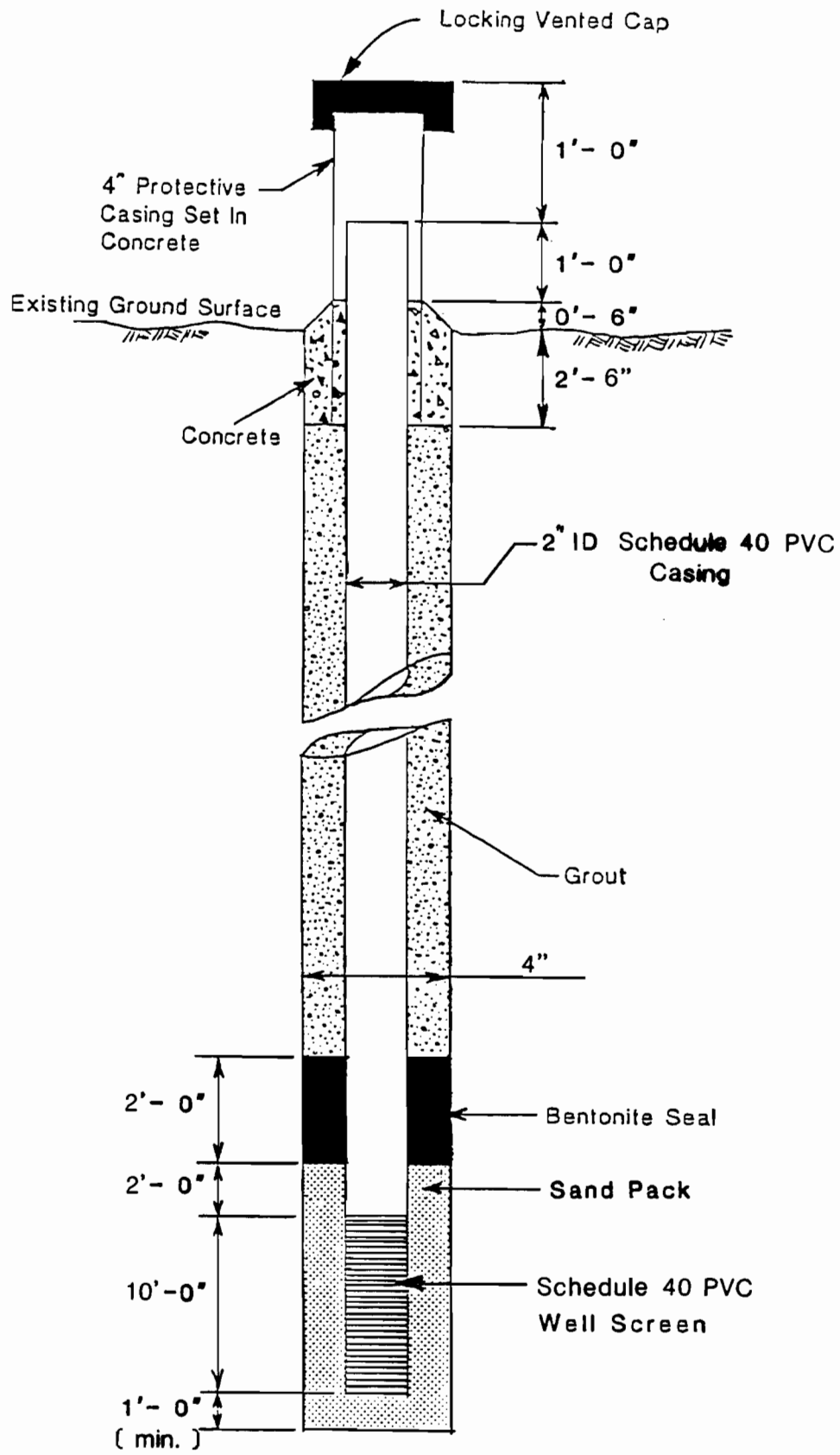


FIGURE 3

MONITORING WELL CONSTRUCTION DETAIL

URS URS Company, Inc.
 CONSULTING ENGINEERS
 NEW YORK NEW JERSEY

3.6.3 Permeability Testing - Permeability testing was performed in each monitoring well on January 30 and 31, 1986, to determine the permeability of the screened interval. The test was performed using a constant head method. The water was pumped into the casing and the rate of inflow adjusted through a valved meter to create a constant head condition. Once this condition was achieved, the rate of inflow was recorded for a minimum of 20 minutes and the permeability calculated. The permeability value for each monitoring well is reported in the monitoring well logs. The permeability values ranged from 4.6×10^{-3} cm/sec (MW 5) to 8.4×10^{-4} cm/sec (MW4).

3.7 Sampling and Analysis

Sampling and analysis were carried out in accordance with the procedures submitted with the work plan. The following is a brief description of these activities. Chemical analysis was performed by Mobil Oil Corporation in its Princeton, New Jersey, laboratory.

3.7.1 Soil Samples - Soil samples were collected using the standard split spoon sampling method as discussed in Section 3.4. Samples for chemical testing were selected on the basis of OVA readings and visual observation. Since the OVA readings were higher for soil borings BH-5, BH-6, and BH-7, these samples were designated for chemical analysis. Split-spoon samples from each boring were combined in the laboratory to prepare one composite sample for each boring. This composite sample was analyzed for the parameters included in Tables 1,

TABLE 1
ANALYTICAL PARAMETER
HAZARDOUS SUBSTANCE LIST

<u>Volatiles</u>	<u>CAS Number</u>
1. Chloromethane	74-87-3
2. Bromomethane	74-83-9
3. Vinyl Chloride	75-01-4
4. Chloroethane	75-00-3
5. Methylene Chloride	75-09-2
6. Acetone	67-64-1
7. Carbon Disulfide	75-15-0
8. 1,1-Dichloroethene	75-35-4
9. 1,1-Dichloroethane	75-35-3
10. trans-1,2-Dichloroethene	156-60-5
11. Chloroform	67-66-3
12. 1,2-Dichloroethane	107-06-2
13. 2-Butanone	78-93-3
14. 1,1,1-Trichloroethane	71-55-6
15. Carbon Tetrachloride	56-23-5
16. Vinyl Acetate	108-05-4
17. Bromodichloromethane	75-27-4
18. 1,1,2,2-Tetrachloroethane	79-34-5
19. 1,2-Dichloropropane	78-87-5
20. trans-1,3-Dichloropropene	10061-02-6
21. Trichloroethene	79-01-6
22. Dibromochloromethane	124-48-1
23. 1,1,2-Trichloroethane	79-00-5
24. Benzene	71-43-2
25. cis-1,3-Dichloropropene	10061-01-5
26. 2-Chloroethyl Vinyl Ether	110-75-8
27. Bromoform	75-25-2
28. 2-Hexanone	591-78-6
29. 4-Methyl-2-pentanone	108-10-1
30. Tetrachloroethene	127-18-4
31. Toluene	108-88-3
32. Chlorobenzene	108-90-7
33. Ethyl Benzene	100-41-4
34. Styrene	100-42-5
35. Total Xylenes	

TABLE 1 (Contd.)

ANALYTICAL PARAMETER
HAZARDOUS SUBSTANCE LIST

	<u>Semi Volatiles</u>	<u>CAS Number</u>
36.	N-Nitrosodimethylamine	62-75-9
37.	Phenol	108-95-2
38.	Aniline	62-53-3
39.	bis(2-Chloroethyle) ether	111-44-4
40.	2-Chlorophenol	95-57-8
41.	1,3-Dichlorobenzene	541-73-1
42.	1,4-Dichlorobenzene	106-46-7
43.	Benzyl Alcohol	100-51-6
44.	1,2-Dichlorobezene	95-50-1
45.	2-Methylphenol	95-48-7
46.	Bis(2-Chloroisopropyl) ether	39638-32-9
47.	4-Methylphenol	106-44-5
48.	N-Nitroso-Dipropylamine	621-64-7
49.	Hexachloroethane	67-72-1
50.	Nitrobenzene	98-95-3
51.	Isophorone	78-59-1
52.	2-Nitrophenol	88-75-5
53.	2,4-Dimethylphenol	105-67-9
54.	Benzoic Acid	65-85-0
55.	bis(2-Chloroethoxy) methane	111-91-1
56.	2,4-Dichlorophenol	120-83-2
57.	1,2,4-Trichlorobenzene	120-82-1
58.	Naphthalene	91-20-3
59.	4-Chloroaniline	106-47-8
60.	Hexachlorobutadiene	87-68-3
61.	4-Chloro-3-methylphenol (para-chloro-meta-cresol)	59-50-7
62.	2-Methylnaphthalene	91-57-6
63.	Hexachlorocyclopentadiene	77-47-4
64.	2,4,6-Trichlorophenol	88-06-2
65.	2,4,5-Trichlorophenol	95-95-4
66.	2-Chloronaphthalene	91-58-7
67.	2-Nitroaniline	88-74-4
68.	Dimethyl Phthalate	131-11-3
69.	Acenaphthylene	208-96-8
70.	3-Nitroaniline	99-09-2
71.	Acenaphthene	83-32-9
72.	2,4-Dinitrophenol	51-28-5
73.	4-Nitrophenol	100-02-7
74.	Dibenzofuran	132-64-9
75.	2,4-Dinitrotoluene	121-14-2

TABLE 1 (Contd.)

ANALYTICAL PARAMETER
HAZARDOUS SUBSTANCE LIST

	<u>Semi Volatiles (continued)</u>	<u>CAS Number</u>
76.	2,6-Dinitrotoluene	606-20-2
77.	Diethylphthalate	84-66-2
78.	4-Chlorophenyl Phenyl ether	1005-72-3
79.	Fluorene	86-73-7
80.	4-Nitroaniline	100-01-6
81.	4,6-Dinitro-2-methylphenol	534-52-1
82.	N-nitrosodiphenylamine	86-30-6
83.	4-Bromophenyl Phenyl ether	101-55-3
84.	Hexachlorobenzene	118-74-1
85.	Pentachlorophenol	87-86-5
86.	Phenathrene	85-01-8
87.	Anthracene	120-12-7
88.	Di-n-butylphthalate	84-74-2
89.	Fluoranthene	206-44-0
90.	Benzidine	92-87-5
91.	Pyrene	129-00-0
92.	Butyl Benzyl Phthalate	85-68-7
93.	3,3'-Dichlorobenzidine	91-94-1
94.	Benzo(a)anthracene	56-55-3
95.	bis(2-ethylhexyl)phthalate	117-81-7
96.	Chrysene	218-01-9
97.	Di-n-octyl Phthalate	117-84-0
98.	Benzo(b)fluoranthene	205-99-2
99.	Benzo(k)fluoranthene	207-08-9
100.	Benzo(a)pyrene	50-32-8
101.	Indeno(1,2,3-cd)pyrene	193-39-5
102.	Dibenz(a,h)anthracene	53-70-3
103.	Benzo(g,h,i)perylene	191-24-2

TABLE 1 (Contd.)
 ANALYTICAL PARAMETER
 HAZARDOUS SUBSTANCE LIST

	<u>Pesticides</u>	<u>CAS Number</u>
104.	alpha-BHC	319-84-6
105.	beta-BHC	319-85-7
106.	delta-BHC	319-86-8
107.	gamma-BHC (Lindane)	58-89-9
108.	Heptachlor	76-44-8
109.	Aldrin	309-00-2
110.	Heptachlor Epoxide	1024-57-3
111.	Endosulfan I	959-98-9
112.	Dieldrin	60-57-1
113.	4,4'-DDE	72-55-9
114.	Endrin	72-20-8
115.	Endosulfan II	33213-65-9
116.	4,4'-DDD	72-54-8
117.	Endrin Aldehyde	7421-93-4
118.	Endosulfan Sulfate	1031-07-8
119.	4,4'-DDT	50-29-3
120.	Endrin Ketone	53494-70-5
121.	Methoxychlor	72-43-5
122.	Chlordane	57-74-9
123.	Toxaphene	8001-35-2
124.	AROCLOR-1016	12674-28-2
125.	AROCLOR-1221	11104-28-2
126.	AROCLOR-1232	11141-16-5
127.	AROCLOR-1242	53469-21-9
128.	AROCLOR-1248	12672-29-6
129.	AROCLOR-1254	11097-69-1
130.	AROCLOR-1260	11096-82-5

2, and 3. Also, a GC/MS scan was performed to identify and quantify all peaks of non-priority pollutants greater than 10 percent of the nearest calibrating standard. A summary of contaminants detected in these samples is presented in Table 4 (p. 5-6). The analytical test reports are included in Appendix 3.

Three soil samples from within the screened interval of each monitoring well were combined and analyzed for grain size and Atterberg limits. The results of these tests are presented in Table 5 (p. 5-10).

3.7.2 Groundwater Samples - Groundwater samples were collected on October 29, 1985, and samples from MW1 and MW4 were split with the NYSDEC. These samples were found to contain appreciable amounts of sediment, and were immediately discarded. The wells were further developed. The NYSDEC was informed of this action (Appendix 4). On November 4, 1985, each well was blown dry with compressed air, allowed to recharge, and blown dry again. This process removed all sediment from the wells twice. Since the NYSDEC wished to split only the MW 1 sample this time, and since NYSDEC personnel could not be available until November 14, 1985, sampling of this well was put off, and wells MW 2-MW 4 were sampled instead. On November 5, 1985, these four wells were evacuated with an ISCO peristaltic pump and dedicated PVC tubing. The wells were purged by removing a volume of water equal to five times the volume of the casings. Prior to evacuation, the depth of the water surface inside the casing was measured in each well with an electronic

TABLE 2

ANALYTICAL PARAMETERS
INORGANIC CONSTITUENTS ²

Arsenic (206.2)¹
Barium (208.1)
Cadmium (213.2)
Chromium, *total* (218.1)
Chromium, hexavalent (7185)
Lead (239.2)
Mercury (245.1)
Nickel (249.2)
Selenium (270.2)
Silver (272.2)
Sodium (273.1)
Calcium (215.1)
Magnesium (242.1)
Sulfate (375.4)
Chloride (325.3)
Ammonia Nitrogen (350.3)

¹Method number refer to EPA-600/4-79-020; Method for Chemical Analysis of Water and Wastes *except hexavalent chromium which refers to SW-846*

²All Metals analysis will be performed as soluble constituents unless, as is the case with certain methods, the method dictates otherwise.

TABLE 3

**ANALYTICAL PARAMETERS
INDICATOR CONSTITUENTS**

Total Organic Carbon (415.1)¹
Total Inorganic Carbon (415.1)
Total Recoverable Phenolics (420.1)
Specific Gravity (D-1429)

¹Method number refer to EPA-600/4-79-020; Methods for Chemical Analysis of Water and Wastes except for specific gravity which is a method from American Society for Testing and Materials (ASTM)

sensor. The sampling was carried out on November 6, 1985, after the wells had recovered from purging for approximately 24 hours. Samples were collected from wells MW2, MW3, MW4, and MW5 with a bottom-fill, stainless steel bailer fitted with a teflon "Close-valve". Dedicated nylon cords were used to lower the bailer into each well, and the bailer was decontaminated between each well. The upgradient well was sampled before the downgradient wells, and for each sample, pH, temperature, and conductivity measurements were made in the field. Samples were then sealed in pre-cleaned containers, labelled, chilled, and immediately shipped to Mobil's analytical laboratory for preservation and analysis. Monitoring Well MW1 was purged and sampled on November 14, 1985 to allow NYSDEC personnel to be present to split the sample. The purging and sampling methods described above were also utilized at MW1.

All groundwater samples were analyzed for the contaminant parameters listed in Tables 1, 2, and 3, plus TOX. A GC/MS scan was also performed, to identify and quantify all peaks greater than ten (10) percent of the nearest calibrating standards. A summary of detected contaminants is presented in Table 6 (p. 5-11). Analytical test reports are included in Appendix 3.

3.7.3 Surface Water Samples - Surface water samples were obtained at two locations in the Buffalo River on October 29, 1985, one sample taken upstream of the site and the second immediately downstream (Figure 2). The samples were taken with a pond sampler, which was decontaminated prior to sampling and between samples. Measurements of pH,

conductivity, and temperature were recorded immediately after the samples were obtained. The samples were sealed in pre-cleaned bottles, labelled, chilled, and immediately shipped to Mobil's analytical laboratory for preservation and analysis. These samples were analyzed for the same parameters as the groundwater samples. A summary of test results is presented in Table 7 (p. 5-14). Test reports are included in Appendix 3.

3.7.4 Sediment Samples - One sediment sample was collected at each surface water sampling location in the Buffalo River on October 29, 1985. The nearshore samples were obtained using a trowel, which was decontaminated immediately before and after the sampling. The samples were placed in glass bottles fitted with teflon-lined screw caps, labelled, chilled, and immediately shipped to Mobil's analytical laboratory. The samples were analyzed for the same parameters as the soil samples. A summary of the analytical results is presented in Table 8 (p. 5-16), and the test reports are included in Appendix 3.

3.8 Quality Assurance Program

A well defined quality assurance program is fundamental to the production of high quality data. A site-specific QA program was developed and is included in Appendix A of the Work Plan. All activities were performed in accordance with this program. All drilling, soil sampling, and monitoring well construction was continuously supervised by a qualified geologist. Drilling and sampling were conducted using

standard ASTM procedures, and all pertinent information was recorded on boring logs and sample containers. All sampling and drilling equipment was decontaminated prior to and during the performance of work activities, and before leaving the site. The wells were carefully developed, sealed, and protected. All samples were collected using appropriate QA protocols and shipped under strict chain-of-custody procedures.

4. SITE HISTORY

In order to reconstruct the history of activities at this site, numerous agencies were contacted and pertinent reports, documents and memorandum reviewed. The agencies contacted included the City of Buffalo, Division of Planning; County of Erie; NYS Geological Survey; NYSDEC Region 9; and U.S. Army, Corps of Engineers, Buffalo District. The documents reviewed are listed under "References", immediately following Section 7, Mobil files and records were also reviewed.

Throughout the nineteenth century, and into the twentieth, a complex of commercial and industrial facilities developed along the Buffalo River channel. Types of industries represented included iron and steel making, chemical manufacturing, and oil refining. As lake freighters grew larger and navigation of the Buffalo River's sharp bends grew more difficult, the river was gradually developed into a man-made channel through dredging and the construction of retaining walls. Between 1917 and 1927, the upper river from South Park Avenue to Seneca Street was straightened, widened, and deepened. As a result of this improvement, the old Buffalo River channel was filled in and became part of what is now Buffalo Terminal Disposal site. A depressed area was created in the central portion of the site.

From 1920 through 1951, the City of Buffalo utilized the depression for the disposal of municipal wastes. Although no records were found describing the exact nature of the waste, information obtained from the

City Engineer indicated that unclassified fill was deposited there, and may have included coal soot and cinders, as well as tree trimmings and other wood. Aerial photographs from 1927 show that the site area was even then disturbed by filling and grading activities. The site was purchased from the City of Buffalo by Mobil Oil Corporation in 1951.

Mobil used the area for disposal of wastes from 1951 through 1976. These wastes reportedly included demolition debris, tank sediments, and asphalt-contaminated soils. Aerial photographs taken in 1951 indicate an active fill area where the two large storage tanks are presently located. By 1958, the two large tanks and appurtenant structures had been constructed. In the 1958 photographs, and also in a set taken in 1960, a discoloration was evident on the river adjacent to the site. (This discoloration, however, extended from the Bailey Avenue bridge upstream of the site to the railroad bridge downstream). In 1972, evidence of filling activities was visible in aerial photographs, but the ground surface appeared considerably higher in the western portion of the site than in 1960. A 1985 report entitled "Evaluation of Air Quality and Other Potential Environmental Constraints on Waterfront Development", by ECDEP, reported disposal of various other wastes at the site, not confirmed by Mobil Oil records. The discoloration originally reported on the Buffalo River adjacent to the site was not visible by 1981.

As part of the Interagency Task Force on Hazardous Waste Investigation, the United States Geological Survey (USGS) drilled four soil

borings at the site. Soil samples collected were analyzed for inorganic compounds, with the results indicating the presence of lead. Additional soil samples analyzed during May 1983 yielded evidence of a variety of organic constituents, including phenanthrene and benzo (k) fluoranthene. As a result of the USGS investigation, the Buffalo Terminal Disposal Site was placed on the New York State Registry of Hazardous Waste Sites with a 2a classification. In 1983, a New York State Superfund Phase I Investigation was completed for the site. This investigation recommended further study to adequately rank the site and assess its potential environmental impact. In 1985, Mobil Oil Corporation, under a Consent Order from NYSDEC, agreed to conduct a NYS Superfund Phase II Investigation.

5. SITE ASSESSMENT

5.1 Surface Features and Topography

The Buffalo Terminal Disposal Site is located adjacent to and north of the Buffalo River in an industrial area. A residential part of the City of Buffalo exists north and east of the site. A railroad embankment separates the site from the rest of the Mobil Oil refinery and storage terminal to the west. Onsite facilities include two above-ground petroleum storage tanks (situated within a diked area), liquid propane gas (LPG) tanks, related equipment (located within a diked area adjacent to and southwest of the central dike), and piping and appurtenances (Figure 2). Both dikes are constructed primarily of cullet. One of the above-grade tanks has been used for storage of unleaded fuel, and the other for storage of No. 2 fuel. At present, both tanks are clean and out of service. An asphalt roadway enters the site from the east and runs to the western side of the site near the river. An 8-foot high chain-link fence surrounds the entire facility.

The topography of the site is relatively level, although the dikes surrounding the tanks are approximately 10 feet higher than ground level. The plateau of the site lies roughly 20 feet above the mean river stage, and has a minimal slope (except for the west side, which slopes gently down into a swale along the railroad embankment). The swale discharges to the Buffalo River. The river bank has a grade of approximately 80%, and supports a growth of trees, shrubs, and grass

along the top. The lower portion of the bank is covered with concrete and stone rip-rap.

5.2 Environmental Setting

The site is located within a heavily developed industrial area. There are no wetlands or endangered species habitats within one mile of the site (Refs. 10, 11). The Buffalo River, which is a class "D" water resource (Ref. 9), forms the southern and eastern limits of the site. The site is not located within a 100-year flood plain (Ref. 10).

5.3 Geology

5.3.1 Geology of the Area - The site is located within the Erie-Ontario Lowland physiographic region of the Interior Plains Division (Ref. 16). This region is underlain by sedimentary rock, consisting of interbedded shales, siltstones, sandstones, limestones, and dolomites of Silurian and Devonian age. These rock formations dip generally southward at an average of 40 feet per mile. The Buffalo River and the site are located within the Erie Plain. The overburden in this region is of primarily glacial origin, deposited during the Wisconsin stage glacial period of the Pleistocene epoch. The site is located in an area overlain by glacial till and lacustrine clays which in turn overlies the Onondaga limestone.

During the Buffalo River Improvement project of the 1920s, extensive subsurface investigations were carried out along the proposed river channel. Subsequently, numerous investigations have been performed at the adjacent terminal facilities for the purpose of facilities upgrading and construction of new facilities. These investigations have indicated that the natural soil profile consists of 30 to 50 feet of overburden overlying the Onondaga limestone bedrock. The overburden consists of 8 to 15 feet of sandy-clayey soil above an 8-to 10-foot thick layer of gravelly sand-sandy gravel. This in turn is underlain by a soft, brown clay varying in thickness from a few feet to as much as 25 feet. A layer of hard glacial till of varying thickness separates the soft, brown clay from the bedrock. A perched water table condition is created within the sandy-gravelly layer by the lower brown clay layer. This local, shallow aquifer discharges into the Buffalo River.

5.3.2 Site Geology

The near-surface geology of the Buffalo Terminal Disposal Site is somewhat different from the general area geology. A part of this site was reclaimed by filling in the old channel of the Buffalo River at the completion of the Buffalo River Channel Improvement project. This filling has been confirmed by the borings completed during the Phase II investigation.

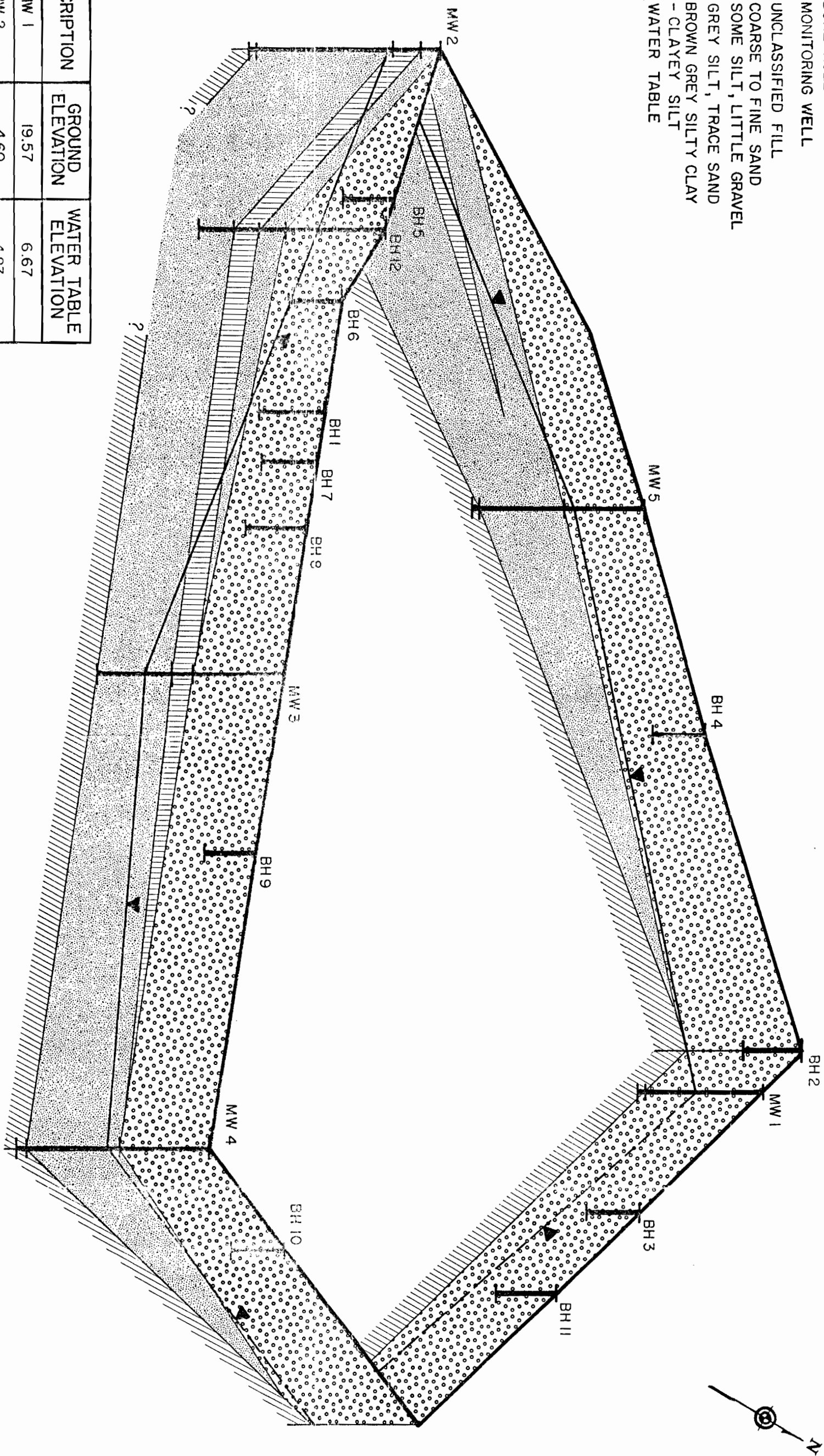
A total of 17 borings was drilled during this investigation, 11 shallow and 6 deep. All the deep borings penetrated the entire thickness of the unclassified fill, and five of the borings, which were subsequently converted to monitoring wells, also penetrated the total thickness of the underlying overburden aquifer. A subsurface fence diagram of the site, derived from these borings, is presented in Figure 4. The depth of the manmade fill varies from zero feet in MW2 to as much as 23 feet in MW1, where the fill lies directly over a brown silty clay layer. In the southern portion of the site, the manmade fill and the brown clay layer (which acts as an aquitard for vertical groundwater flow) are separated by a layer of silty gravelly sand approaching 26 feet in thickness. A thin, discontinuous layer of gray, sandy-clayey silt was encountered in several borings (MW2, MW3, BH12) within the sand layer. The brown clay layer was encountered in all the monitoring wells. The soils below this clay layer are expected to be natural deposits, consisting of lacustrine clays and glacial till overlying the Onondaga limestone bedrock. For the purposes of this study, the geology above and including the brown clay layer is of the utmost importance, as discussed in Section 5.4.

5.4 Hydrogeology

The hydrogeologic framework of the site, within the shallow depths, is controlled by the brown clay layer and the current Buffalo River channel. It is conceivable, though, that the old (filled) river channel which is part of the site, may influence the groundwater flow regime.

LEGEND

- BH - BORE HOLE
- MW - MONITORING WELL
- UNCLASSIFIED FILL
- COARSE TO FINE SAND
- SOME SILT, LITTLE GRAVEL
- GREY SILT, TRACE SAND
- BROWN GREY SILTY CLAY
- CLAYEY SILT
- WATER TABLE



DESCRIPTION	GROUND ELEVATION	WATER TABLE ELEVATION
MW 1	19.57	6.67
MW 2	4.60	-4.83
MW 3	21.50	-4.73
MW 4	17.79	-1.35
MW 5	18.78	5.50

FIGURE 5

Too large
to scan

This, however, is pure conjecture at present, and data are insufficient to formulate a definite conclusion.

Figure 5 presents a groundwater contour map of the site developed from the five monitoring wells. The data show that the groundwater flow is generally to the south and discharges into the river. The groundwater elevations in MW2 and MW3 are only slightly higher than the normal Buffalo River water elevation. The groundwater gradient across the site varies from 0.017 on the southeast side to 0.028 on the southwest side. The maximum head difference across the site, from N to S is approximately 11.4 ft. (between MW1 and MW3) and from NE to SW 11.5 ft. (between MW1 and MW2). The permeability of this shallow aquifer, as discussed in Section 3.6.3, varies from 4.6×10^{-3} cm/sec to 8.4×10^{-4} cm/sec.

5.5 Analytical Results

5.5.1 Air Analytical Data

During the site reconnaissance, continuous air monitoring indicated the presence of no contaminants originating onsite. A single positive reading (4 ppm) was momentarily observed downwind of the adjacent Mobil refinery, but it dissipated quickly and was not observed again for the duration of the investigation.

5.5.2 Soil Analytical Data

A summary of chemical compounds detected in the soil samples is presented in Table 4. With the exception of Methylene chloride (concentration 5.1 ppm in BH5 and 4.9 ppm in BH6), no Hazardous Substances List (HSL) volatile compounds were detected. It is instructive to note that this compound is a common laboratory solvent, and therefore its actual presence in the soil may be questioned. No HSL acid extractable semi-volatile compounds were detected, and only trace amounts of eight polynuclear aromatic hydrocarbons were detected in the semi-volatile base/neutral fraction analysis. These substances included Benz(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Chrysene, Fluoranthene, Phenanthrene, and Pyrene; maximum concentrations were 2.2 ppm, 3.6 ppm, 4.6 ppm, 3.3 ppm, 3.9 ppm, 3.2 ppm, 0.9 ppm and 4.1 ppm respectively. All these compounds were found in BH7 except for Phenanthrene, which was observed in BH5. Many of these substances, while detected in one boring, were not detected in other borings or were detected in very low concentrations.

With the exception of ammonia nitrogen, hexavalent chromium, and selenium, inorganic constituents listed in Table 2 were detected in all three borings in varying concentrations. The constituents with high concentrations included calcium (4,900 - 24,800 ppm), magnesium (710 to 3,500 ppm), lead (1,300 to 3,160 ppm), and sodium (1,320 ppm to 1,740 ppm). The significance of these constituents

TABLE 4
SUMMARY OF SOIL ANALYTICAL RESULTS

Parameter	Concentration (ppm)		
	BH5	BH6	BH7
<u>HAZARDOUS SUBSTANCES</u>			
<u>VOLATILES</u>			
Methylene chloride	5.1	4.9	---
<u>BASE/NEUTRALS</u>			
Benz(a)anthracene	---	0.7	2.2
Benzo(a)pyrene	---	1.2	3.6
Benzo(b)fluoranthene	---	---	4.6
Benzo(k)fluoranthene	---	---	3.3
Chrysene	---	---	3.9
Fluoranthene	0.5	0.5	3.2
Phenanthrene	0.9	0.7	0.7
Pyrene	0.8	1.3	4.1
<u>INORGANIC CONSTITUENTS</u>			
Arsenic	7.5	11.9	6.8
Barium	6.7	3.1	7.7
Cadmium	2.0	3.4	3.3
Calcium	4,900	24,800	23,400
Chromium (T)	9.9	21.4	14.7
Magnesium	710	3,500	1,640
Lead	3,160	1,300	1,350
Mercury	3.2	1.5	0.9
Nickel	42.4	47.0	62.2
Silver	0.3	2.4	1.4
Sodium	1,740	1,320	1,360
Chloride	2	2	2
Sulfate	98	146	122
<u>INDICATOR CONSTITUENTS</u>			
Total organic carbon	33	33	41
Total inorganic carbon	1,110	1,710	1,360
Specific gravity (no units)	2.108	1.976	1.681
<u>NON-PRIORITY POLLUTANTS</u>			
<u>VOLATILES</u>			
Cyclohexane	43	21	26
2-Chloro-1,1-difluoroethene	---	---	77
Dimethyl hexane	14	---	26
Dimethyl pentane	7.5	---	---
Hexane	60	30	29
Methyl cyclopentane	14	---	---

TABLE 4 (cont.)

Parameter	Concentration (ppm)		
	BH5	BH6	BH7
Methyl propyl nonane	---	4.9	---
Nonane	73	---	43
Octane	44	---	26
2-Piperidine carboxamide, N-(2,6-dimethylphenyl)-1-methyl, monohydrochloride	42	---	---
Propyl cyclopropane	---	4.1	---
2-Propyn-1-ol, acetate	---	18	---
Tetramethyl butane	---	29	---
Trimethyl hexane	---	33	---
Trimethyl heptane	---	4.1	---
Trimethyl octane	29	17	15

is unclear as no information is available on soil matrix background levels, and NYSDEC has no published acceptable limits for them.

Only low levels of TOC were detected. Concentrations of total inorganic carbon constituents were significant, varying from 1,110 ppm (BH5) to 1,710 (BH6).

During the GC/MS forward search for non-priority pollutants, numerous volatile compounds were identified in varying concentrations. The overwhelming majority of these compounds fall into the paraffinic/cycloparaffinic hydrocarbon classes common to finished petroleum fractions.

A summary of soil geotechnical test results is presented in Table 5.

5.5.3 Groundwater Analytical Data

A summary of contaminants detected in groundwater is presented in Table 6. All samples were free of volatile HSL organic compounds except for a trace of Benzene (0.055 ppm) in MW2. No HSL acid extractable, semi-volatile compounds were detected, and only a trace of Di-n-butyl phthalate (0.014 ppm) was detected among the semi-volatile base/neutral compounds. The only exception was at MW3, where traces of Acenaphthene (0.04 ppm), Di-n-butyl phthalate (0.14 ppm), Fluorene (0.05 ppm), and Phenanthrene (0.16 ppm) were detected. Di-n-butyl phthalate

TABLE 5
SUMMARY OF SOIL
GEOTECHNICAL TEST RESULTS

<u>Grain Size Analysis</u>	MW-1	MW-2	MW-3	MW-4	MW-5
<u>Sieve Size</u>	<u>% Finer</u>				
1½"	---	100.0	---	---	---
1"	100.0	98.1	---	100.0	100.0
½"	99.6	90.8	100.0	80.7	87.9
#4	91.3	79.4	99.9	67.1	66.8
#10	85.3	71.3	99.5	59.4	51.4
#20	74.5	57.3	97.9	53.2	40.1
#40	59.7	37.8	85.7	42.0	27.8
#100	30.0	18.3	35.0	14.0	13.8
#200	18.8	11.8	20.4	10.4	10.1
<u>Atterberg Limits</u>					
LL	---	---	---	---	---
PL	NP	NP	NP	NP	NP

TABLE 6
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS

Parameter	Concentration (ppm)					
	MW1	MW2	MW3	MW4	MW5	MW5DUP
<u>HAZARDOUS SUBSTANCES</u>						
<u>VOLATILES</u>						
Benzene	---	0.055	---	---	---	---
<u>BASE/NEUTRALS</u>						
Acenaphthene	---	---	0.04	---	---	---
Di-n-butyl phthalate	0.014	---	0.14	0.014	0.014	0.014
Fluorene	---	---	0.05	---	---	---
Phenanthrene	---	---	0.16	---	---	---
<u>INORGANIC CONSTITUENTS</u>						
Arsenic	0.001	0.003	0.002	0.002	0.001	0.001
Calcium	70	27	94	93	72	73
Lead	---	0.005	0.005	---	---	0.008
Magnesium	24	4.6	27	18	11	11
Mercury	0.002	---	---	---	---	---
Nickel	---	0.005	0.002	---	0.003	0.002
Selenium	0.001	---	0.001	---	0.001	0.001
Sodium	18.6	13	12	14.4	8.8	18.8
Chloride	20	36	149	31	20	21
Sulfate	68	12	269	285	190	188
Ammonia Nitrogen	7.8	0.7	7	1.9	1	1.1
<u>INDICATOR CONSTITUENTS</u>						
pH	6.5	7.07	7.06	6.93	7.07	---
Conductivity (umhos/cm)	1540	665	2350	1355	1175	---
Temperature (°C)	11	11	10	10	10	---
Total organic carbon	205	14	8	28	16	9
Total inorganic carbon	274	86	346	306	225	228
Total organic halogen	0.01	0.01	0.03	---	0.01	0.01
Specific gravity (no units)	1.004	1.003	1.004	1.004	1.003	1.003
<u>NON-PRIORITY POLLUTANTS</u>						
<u>POLLUTANTS IDENTIFIED IN VOLATILES GC/MS SEARCH</u>						
Bicyclo[3.2.0]hepta-2,6-diene	---	---	---	0.005	---	---
Cyclobutanone	---	0.226	---	---	---	---
Cyclohexane	---	1.241	---	---	---	---
Dimethyl butane	---	---	0.012	---	---	0.011
Dimethyl cyclohexane	---	0.77	---	---	---	---
1,1-Dimethyl cyclopentane	0.002	---	---	---	---	---
1,2-Dimethyl cyclopentane	---	0.193	---	---	---	---
Dimethyl cyclopentene	---	0.112	---	---	---	---
3,3-Dimethyl hexanal	0.002	---	---	---	---	---
Dimethyl hexane	---	0.386	0.005	---	---	0.043

TABLE 6 (Cont.)
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS

Parameter	Concentration (ppm)					Well 5DUP
	MW1	MW2	MW3	MW4	MW5	
<u>NON-PRIORITY POLLUTANTS (Cont.)</u>						
Dimethyl pentane	---	---	0.007	0.007	---	0.027
Ethyl cyclobutane	---	0.049	---	---	---	---
2,4(3H,5H)-Furandione	---	0.292	---	0.035	0.021	---
Hexane	---	0.287	---	---	---	0.035
Methyl cyclohexane	---	1.015	---	---	---	---
Methyl cyclopentane	---	---	---	0.012	0.007	0.009
4-Methyl cyclopentane	---	1.221	---	---	---	---
4-Methyl cyclopentene	---	0.256	---	---	---	---
Methylethyl benzene	---	0.7	---	---	---	---
1-Methyl, 2-methylene cyclopentane	---	0.103	---	---	---	---
Methyl, Methylethyl, dioxatricyclo octane	0.01	---	---	---	---	---
Pentamethyl heptane	0.038	---	---	---	0.028	---
2-Piperidine carboxamide, N-(2,6-dimethyl phenyl)-1- Methyl-monohydrochloride	---	---	---	---	---	0.038
2-Propenylidene cyclobutene	---	---	0.005	---	---	---
Tetramethyl butane	---	---	0.046	---	---	---
<u>POLLUTANTS IDENTIFIED IN BASE/NEUTRALS GC/MS SEARCH</u>						
Decahydro-2-methyl-naphthalene	---	0.5	0.11	---	---	---
2,3-Dihydro-1,2-dimethyl-1H-indene	---	0.1	0.12	---	---	---
Dimethyl Chclohexane	---	0.2	---	---	---	---
Dimethyl nonane	---	1.2	0.28	---	---	---
Dimethyl naphthalene	---	1.7	1.3	---	---	---
Dimethyl octane	---	2.8	---	---	---	---
Ethyl dimethyl azulene	---	---	0.2	---	---	---
Ethyl dimethyl benzene	---	0.2	0.02	---	---	---
Ethyl methyl cyclopentane	---	0.2	0.02	---	---	---
Ethyl methyl benzene	---	0.6	0.09	---	---	---
Ethyl methyl heptane	---	---	0.04	---	---	---
Ethyl naphthalene	---	0.2	0.03	---	---	---
1-Ethylidene-1H-indene	---	0.7	0.43	---	---	---
Hexyl cyclohexane	---	---	0.01	---	---	---
Methyldibenzo thiophene	---	---	0.04	---	---	---
Methyl dodecane	---	0.6	0.43	---	---	---
9-Methylene-9H-fluorene	---	---	0.04	---	---	---
Methyl methylethyl benzene	---	---	0.19	---	---	---
4-Methyl phenanthrene	---	---	0.01	---	---	---
Methyl undecane	---	---	0.02	---	---	---
Pentyl cyclohexane	---	0.3	---	---	---	---
Pentyl cyclopentane	---	0.4	---	---	---	---
Tetramethyl benzene	---	0.9	0.04	---	---	---
Trimethyl benzene	---	2.6	0.01	---	---	---
Trimethyl dodecane	---	---	0.51	---	---	---
Trimethyl octane	---	---	0.06	---	---	---
Trimethyl naphthalene	---	0.2	1.6	---	---	---

was also detected in the field blank. It is a common laboratory contaminant resulting from plastic tubing, GC septa, bottle caps, etc. Its presence, therefore, is doubtful unless detected in higher concentrations. No HSL pesticides or PCBs were detected in any well.

With the exceptions of barium, cadmium, total chromium, hexavalent chromium, silver, inorganic constituents listed in Table 2 were detected in most samples. The detected contaminants and their maximum concentrations included arsenic (0.003 ppm, MW2), calcium (94 ppm, MW3), lead (0.008 MW5 DUP), magnesium (27 ppm, MW3), mercury (0.002 ppm, MW1 only) nickel (0.005 ppm, MW2), selenium (0.001 ppm), sodium (18.6 ppm, MW1, and 18.8 ppm, MW5 DUP), chloride (149 ppm, MW3), sulfate (285 ppm, MW4), and ammonia nitrogen (7.8 ppm, MW1).

All samples were essentially free of TOX. TOC and total inorganic carbon were detected in all samples. The highest concentration of TOC, 205 ppm, was detected in MW1, which was originally designated as one of the upgradient wells.

A GC/MS forward search of non-priority pollutant compounds identified numerous volatile and base/neutral compounds in small concentrations. Most of these compounds belong to the paraffinic/cycloparaffinic hydrocarbon classes, which are common to finished petroleum hydrocarbons.

5.5.4 Surface Water Analytical Data

Surface water analytical results are presented in Table 7. No HSL volatile organic or acid extractable compounds were detected in either sample. Of base/neutrals, Di-n-butylphthalate (0.015 ppm), was detected in the upstream sample; none was detected in the downstream sample. As stated in Section 5.5.3, it is a common laboratory contaminant and its presence is doubtful unless detected in higher concentrations. No HSL pesticides or PCBs were detected in either sample. Inorganic constituents of the upstream sample included arsenic (0.001 ppm), calcium (22 ppm), magnesium (4 ppm), nickel (.002 ppm) selenium (0.001 ppm), sodium (7.8 ppm), chloride (33 ppm), and sulfate (39 ppm). Substances detected in the downstream sample included arsenic (.001 ppm), calcium (21 ppm), magnesium (5.1 ppm), selenium (0.001 ppm), sodium (7.4 ppm), chloride (31 ppm), and sulfate (43ppm). Indicator parameters are also shown in Table 7. The concentrations of substances detected are almost identical in both samples. Also, several non-priority pollutant organic compounds in trace quantities were detected in the downstream sample during GC/MS scan.

5.5.5 Sediment Analytical Data

Sediment analytical results are presented in Table 8. In the upstream sample, no HSL organic compounds, pesticides or PCBs were detected, and the only base/neutrals detected included Diethyl phthalate (0.8 ppm), Fluoranthene (0.5 ppm), and Pyrene (0.3 ppm). No HSL

TABLE 7
SUMMARY OF SURFACE WATER ANALYTICAL RESULTS

Parameter	Concentration (ppm)	
	Upstream	Downstream
<u>HAZARDOUS SUBSTANCES</u>		
<u>BASE/NEUTRALS</u>		
Di-n-butylphthalate	0.015	---
<u>INORGANIC CONSTITUENTS</u>		
Arsenic	0.001	0.001
Calcium	22	21
Magnesium	4	5.1
Nickel	0.002	---
Selenium	0.001	0.001
Sodium	7.8	7.4
Chloride	33	31
Sulfate	39	43
<u>INDICATOR CONSTITUENTS</u>		
pH	7.19	7.44
Conductivity (umhos/cm)	425	380
Temperature (°C)	11	12
Total Organic Carbon	7	7
Total Inorganic Carbon	71	73
Total Organic Halogen	0.03	0.03
Specific gravity (no units)	1.003	1.003
<u>NON-PRIORITY POLLUTANTS</u>		
<u>VOLATILES</u>		
Dimethyl hexane	---	0.013
Dimethyl pentane	---	0.028
2,4(3H,5H)-Furandione	---	0.02
Hexane	---	0.021
Methylcyclopentane	0.01	0.006
<u>BASE/NEUTRALS</u>		
Dimethyl naphthalene	---	0.3
Trimethyl naphthalene	---	0.2

TABLE 8
SUMMARY OF SEDIMENT ANALYTICAL RESULTS

Parameter	Concentration (ppm)	
	Upstream	Downstream
<u>HAZARDOUS SUBSTANCES</u>		
<u>BASE/NEUTRALS</u>		
Diethyl phthalate	0.8	---
Fluoranthene	0.5	---
Pyrene	0.3	---
<u>INORGANIC CONSTITUENTS</u>		
Arsenic	2.5	3.3
Barium	2.1	3.8
Cadmium	0.8	0.5
Calcium	17,100	53,100
Chromium (T)	4.9	6.0
Lead	44.8	670
Magnesium	3,600	2,590
Mercury	0.08	0.39
Nickel	33.6	52.6
Silver	0.16	0.09
Sodium	1,480	780
Chloride	2	5
Sulfate	29	6
<u>INDICATOR CONSTITUENTS</u>		
Total organic carbon	18	22
Total inorganic carbon	416	180
Specific Gravity (no units)	1.817	2.13
<u>NON-PRIORITY POLLUTANTS</u>		
<u>VOLATILES</u>		
Cyclohexane	17	38
Decane	---	30
Dimethyl hexane	---	19
Dimethyl pentane	---	22
2,4 (3H,5H) - Furandione	---	30
Hexane	24	---
Methyl cyclopentane	5.2	---
1-Methyl-2,4-Imidazolidinedione	8.4	---
Nonane	37	69
Octane	---	40
Propanoic acid, anhydride	23	---
Propyl cyclopropane	---	14
Trimethyl hexane	19	---
Trimethyl octane	18	---

compounds were detected in the downstream sample. The actual presence of Diethyl phthalate in sediment is doubtful, considering its low concentration. Both samples showed the presence of inorganic constituents except chromium (hexavalent), selenium, and ammonia nitrogen. Calcium, lead, magnesium, nickel, sodium, and sulfate were detected in significant concentrations. The samples showed low overall TIC, with the upstream sample (416 ppm) being higher than the downstream (180 ppm). Several non-priority pollutants (aliphatic hydrocarbons, paraffins derived from the lighter fractions of petroleum) were detected during the library search (comparison to GC/MS internal standard).

5.5.6 Miscellaneous Analytical Data

During the sampling of MW2, free hydrocarbon was encountered in the well. Although not called for in the Work Plan, this product was analyzed separately. It was characterized as an environmentally degraded mixture of approximately 40 percent unleaded gasoline and 60 percent distillate fuel from within the diesel fuel boiling range.

Soil cuttings from drilling operations were also collected and placed in three DOT - approved drums. A composite sample of these soil cuttings was prepared and analyzed for RCRA Hazardous Waste Characteristics, including EP Toxicity, Ignitability, Corrosivity and Reactivity. The sample exhibited none of the four characteristics. The laboratory reports from these tests are included as Appendix 5.

5.6 Assessment of Site Conditions

The area surrounding the Buffalo Terminal Disposal site has been extensively utilized for over a century by various manufacturing industries including iron and steel making, chemical manufacturing, and oil refining. Many of these industries operated at a time when concerns for the environment, and understanding of risks associated with chemical wastes, were much less understood. Also, the Buffalo River channel has been used extensively for transportation of goods to and from these industries, necessitating regular dredging of the channel and disposal of the dredged materials. The realignment of the river channel in the 1920s resulted in the filling of the old channel and excavation of a new one. (The filled-in portion is now a part of the site). These activities have created a situation that makes the evaluation of site environmental conditions a matter of great complexity. It is particularly difficult to determine the source of contaminants when such contaminants are detected near the site, in the groundwater, and in the surface water with no clear pattern.

The Phase II Investigation has revealed the presence of several organic and inorganic priority pollutants in soil, groundwater, surface water, and sediments. Most of these chemicals were detected in low concentrations and both the presence and concentration varied randomly across the site. Furthermore, there is no reliable bench mark data base regarding the chemical characteristics of the onsite soil or

groundwater. Subject to these conditions, the following conclusions are presented:

- o Only a limited number of HSL compounds were detected in the site soils, groundwater, surface water, or sediments. The concentrations of these substances were very low.
- o Most of the non-priority organic compounds identified by GC/MS scanning (library search) in soil, groundwater, surface water, and sediment are aliphatic, alicyclic, and polynuclear aromatic substances, derivatives of petroleum. The reported concentrations were based on a direct comparison to internal standards. Several unusual compounds were detected by the forward search technique and their presence is solely based on empirical matching done within the structure of the computer software.
- o Inorganic constituents were detected in the soil; some were detected in significant concentrations. The significance of these constituents, however, is unclear, as the information is not available on soil matrix background and no acceptable limits have been published by NYSDEC.
- o The concentration of metals in the groundwater was significantly lower than in soil. For example, lead concentrations in soil ranged from 1,300 to 3,160 ppm, but in

groundwater, they ranged from 0.005 to 0.008 ppm. Similarly, concentrations of indicator constituents in groundwater were lower than in soil. The concentration of metals in groundwater was well within the Primary Drinking Water Standards, and Maximum Concentration of Constituents for Groundwater Protection, specified in 6NYCRR 373.2. The concentration of chloride and sulfate are within the EPA's Secondary Drinking Water Standards.

- o Concentrations of chemicals detected in surface water samples were almost the same for both upstream and downstream samples. These concentrations were very low in comparison to the groundwater sample results.

- o Both the upstream and downstream sediment samples showed similar concentrations of inorganic constituents except that several base/neutral compounds present in the upstream sample were not detected in the downstream sample. The sediment samples showed higher levels of calcium and magnesium than did the soils.

One may conclude from these results that certain contaminants are present at the site. However, the concentrations of these contaminants are low. Since contaminants were not detected in the air, it appears that they are not leaving the site via air. The groundwater data suggest that waste substances detected in the soil matrix are not

leaching into the groundwater and therefore not migrating offsite with it. Although certain substances detected in the soil matrix were also detected in sediment samples, their presence cannot be solely attributed to this site, as numerous other industries are located along the Buffalo River. Dredging of the river channel is a further factor in sediment transport and movement. Finally, the impact of the site on human health and the environment does not appear to be significant according to HRS composite scores.

6. HAZARD RANKING SYSTEM

The completed forms, including the "HRS Work Sheets", the "Documentation Records for Hazard Ranking System", and the "USEPA Form 2070-13" are included immediately following this page.

Facility name: Mobil Oil Buffalo Terminal Disposal Site
 Location: 635 Elk Street, Buffalo, New York 14240
 EPA Region: II
 Person(s) in charge of the facility: Mobil Oil Corporation
635 Elk Street
Buffalo, New York 14240

Name of Reviewer: URS Company, Inc. Date: February 24, 1986
 General description of the facility:
 (For example: landfill, surface impoundment, pile, container; types of hazardous substances; location of the facility; contamination route of major concern; types of information needed for rating; agency action, etc.)

The site was used for the disposal of municipal wastes, demolition
wastes, tetraethyl lead sludges and other materials, The site was
developed into a petroleum and liquid propane gas storage facility.
Contaminants have been detected at the site. The Buffalo River is
located adjacent to site but is only used for recreational and
commercial purposes. Overburden aquifer is separated from the
bedrock by a continuous clay layer. No sensitive environments are
located near the site.

Scores: $S_M = 5.0$ ($S_{gw} = 4.5$ $S_{sw} = 7.4$ $S_a = 0$ (minimum)
 $S_{FE} = 6.9$ 6.1 10.2 0 (maximum)
 $S_{FE} = 18.8$ (minimum) 45.0 (maximum)
 $S_{DC} = 0$

FIGURE 1
HRS COVER SHEET

Ground Water Route Work Sheet													
Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Max. Score	Ref. (Section)								
1 Observed Release	0 45	1	45	45	3.1	Max. Scores							
If observed release is given a score of 45, proceed to line 4 . If observed release is given a score of 0, proceed to line 2 .													
2 Route Characteristics					3.2								
Depth to Aquifer of Concern	0 1 2 3	2	6	6									
Net Precipitation	0 1 2 3	1	2	3									
Permeability of the Unsaturated Zone	0 1 2 3	1	2	3									
Physical State	0 1 2 3	1	3	3									
Total Route Characteristics Score			13	15									
3 Containment	0 1 2 3	1	3	3	3.3								
4 Waste Characteristics					3.4								
Toxicity/Persistence	0 3 6 9 12 15 18	1	18	18		8							
Hazardous Waste Quantity	0 1 2 3 4 5 6 7 8	1	1	8									
Total Waste Characteristics Score			19	26		26							
5 Targets					3.5								
Ground Water Use	0 1 2 3	3	3	9									
Distance to Nearest Well/Population Served	<table border="0"> <tr> <td rowspan="3" style="font-size: 2em; vertical-align: middle;">}</td> <td>0 4 6 8 10</td> <td rowspan="3" style="vertical-align: middle;">1</td> <td rowspan="3" style="vertical-align: middle;">0</td> <td rowspan="3" style="vertical-align: middle;">40</td> </tr> <tr> <td>12 16 18 20</td> </tr> <tr> <td>24 30 32 35 40</td> </tr> </table>	}	0 4 6 8 10	1	0	40	12 16 18 20	24 30 32 35 40					
}	0 4 6 8 10		1				0	40					
	12 16 18 20												
	24 30 32 35 40												
Total Targets Score			3	49									
6 If line 1 is 45, multiply 1 x 4 x 5 If line 1 is 0, multiply 2 x 3 x 4 x 5			2,565	57,330		3,510							
7 Divide line 6 by 57,330 and multiply by 100			S _{gw} = 4.5			6.1							

FIGURE 2
GROUND WATER ROUTE WORK SHEET

Surface Water Route Work Sheet						
Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Max. Score	Ref. (Section)	
1 Observed Release	0 45	1	0	45	4.1	
If observed release is given a value of 45, proceed to line 4 . If observed release is given a value of 0, proceed to line 2 .						
2 Route Characteristics					4.2	
Facility Slope and Intervening Terrain	0 1 2 ③	1	3	3		
1-yr. 24-hr. Rainfall	0 1 ② 3	1	2	3		
Distance to Nearest Surface Water	0 1 2 ③	2	6	6		
Physical State	0 1 2 ③	1	3	3		
Total Route Characteristics Score			14	15		
3 Containment	0 1 2 ③	1	3	3	4.3	
4 Waste Characteristics					4.4	
Toxicity/Persistence	0 3 6 9 12 15 ⑬	1	18	18		
Hazardous Waste Quantity	0 ① 2 3 4 5 6 7 ⑧	1	1	8		
Total Waste Characteristics Score			19	26		
5 Targets					4.5	
Surface Water Use	0 1 ② 3	3	6	9		
Distance to a Sensitive Environment	① 1 2 3	2	0	6		
Population Served/Distance to Water Intake Downstream	① 4 6 8 10 12 16 18 20 24 30 32 35 40	1	0	40		
Total Targets Score			6	55		
6 If line 1 is 45, multiply 1 x 4 x 5 If line 1 is 0, multiply 2 x 3 x 4 x 5			4788	64,350		
7 Divide line 6 by 64,350 and multiply by 100			$S_{sw} = 7.4$			

Max. Scores

8

26

6552

10.2

FIGURE 7
SURFACE WATER ROUTE WORK SHEET

Air Route Work Sheet						
Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Max. Score	Ref. (Section)	
1 Observed Release	① 45	1	0	45	5.1	
Date and Location: October 14, 1985 onsite						
Sampling Protocol: Organic Vapor Analyzer						
If line 1 is 0, the $S_a = 0$. Enter on line 5 . If line 1 is 45, then proceed to line 2 .						
2 Waste Characteristics					5.2	
Reactivity and Incompatibility	0 ① 2 3	1	1	3		
Toxicity	0 1 2 ③	3	9	9		
Hazardous Waste Quantity	0 ① 2 3 4 5 6 7 ⑧	1	1	8		
Total Waste Characteristics Score			11	20		
3 Targets					5.3	
Population Within 4-Mile Radius	} 0 9 12 15 18 ② 24 27 30	1	21	30		
Distance to Sensitive Environment	① 1 2 3	2	0	6		
Land Use	0 1 2 ③	1	3	3		
Total Targets Score			24	39		
4 Multiply 1 x 2 x 3			0	35,100		
5 Divide line 4 by 35,100 and multiply by 100 $S_a = 0$						

Max. Scores

8

18

0

**FIGURE 9
AIR ROUTE WORK SHEET**

	Min. s Max.		s^2 (Min.)	s^2 (Max.)
Groundwater Route Score (S_{gw})	4.5	6.1	20.25	37.21
Surface Water Route Score (S_{sw})	7.4	10.2	54.76	104.04
Air Route Score (S_a)	0	0	0	
$S_{gw}^2 + S_{sw}^2 + S_a^2$			75.01	141.25
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2}$			8.7	11.9
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2} / 1.73 = S_M =$			5.0	6.9

Minimum

FIGURE 10 A
WORKSHEET FOR COMPUTING S_M

Fire and Explosion Work Sheet												
Rating Factor	Assigned Value (Circle One)		Multi-plier	Score	Max. Score	Ref. (Section)						
1 Containment	1	3	1	3	3	7.1						
2 Waste Characteristics						7.2						
Direct Evidence	0	3	1	0	3							
Ignitability	0	1	2	3	3							
Reactivity	0	1	2	3	3							
Incompatibility	0	1	2	3	3							
Hazardous Waste Quantity	0	1	2	3	4	5	6	7	8	1	1	8
Total Waste Characteristics Score				5	20							
3 Targets						7.3						
Distance to Nearest Population	0	1	2	3	4	5	1	3	5			
Distance to Nearest Building	0	1	2	3			1	2	3			
Distance to Sensitive Environment	0	1	2	3			1	0	3			
Land Use	0	1	2	3			1	3	3			
Population Within 2-Mile Radius	0	1	2	3	4	5	1	5	5			
Buildings Within 2-Mile Radius	0	1	2	3	4	5	1	5	5			
Total Targets Score				18	24							
4 Multiply 1 x 2 x 3				270	1,440							
5 Divide line 4 by 1,440 and multiply by 100				SFE = 18.8								

Max. Score

8

12

648

45.0

FIGURE 11
FIRE AND EXPLOSION WORK SHEET

Direct Contact Work Sheet						
Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Max. Score	Ref. (Section)	
1 Observed Incident	0 45	1	0	45	8.1	
If line 1 is 45, proceed to line 4 If line 1 is 0, proceed to line 2						
2 Accessibility	0 1 2 3	1	0	3	8.2	
3 Containment	0 15	1	0	15	8.3	
4 Waste Characteristics Toxicity	0 1 2 3	5	15	15	8.4	
5 Targets					8.5	
Population Within a 1-Mile Radius	0 1 2 3 4 5	4	20	20		
Distance to a Critical Habitat	0 1 2 3	4	0	12		
Total Targets Score			20	32		
6 If line 1 is 45, multiply 1 x 4 x 5 If line 1 is 0, multiply 2 x 3 x 4 x 5			0	21,600		
7 Divide line 6 by 21,600 and multiply by 100			SDC = 0			

**FIGURE 12
DIRECT CONTACT WORK SHEET**

DOCUMENTATION RECORDS
FOR
HAZARD RANKING SYSTEM

INSTRUCTIONS: The purpose of these records is to provide a convenient way to prepare an auditable record of the data and documentation used to apply the Hazard Ranking System to a given facility. As briefly as possible summarize the information you used to assign the score for each factor (e.g., "Waste quantity = 4,230 drums plus 800 cubic yards of sludges"). The source of information should be provided for each entry and should be a bibliographic-type reference that will make the document used for a given data point easier to find. Include the location of the document and consider appending a copy of the relevant page(s) for ease in review.

FACILITY NAME: Mobil Oil Corporation Buffalo Terminal Disposal Site

LOCATION: 635 Elk Street, Buffalo, NY 14240

GROUNDWATER ROUTE

1 OBSERVED RELEASE

o CONTAMINANTS DETECTED (5 MAXIMUM):

Acenaphthene
Benzene
Di-n-butyl phthalate
Fluorene
Phenanthrene
Score = 45

o RATIONALE FOR ATTRIBUTING THE CONTAMINANTS TO THE FACILITY:

Detected in onsite monitoring wells

2 ROUTE CHARACTERISTICS

DEPTH TO AQUIFER OF CONCERN

o NAME/DESCRIPTION OF AQUIFER(S) OF CONCERN:

Groundwater occurs in both the overburden and limestone bedrock deposits underlying the site. The overburden is not used in the area of the site for water supplies, but the limestone unit has served as the source for high yield industrial wells within the City of Buffalo. However, a substantial clay layer exists above the limestone which acts as an aquiclude. Consider the overburden as the aquifer of concern (Ref. 13)

o DEPTH(S) FROM THE GROUND SURFACE TO THE HIGHEST SEASONAL LEVEL OF THE SATURATED ZONE [WATER TABLE(S)] OF THE AQUIFER OF CONCERN:

Water table at 9 foot depth from ground surface in MW2 (See Appendix 2 for boring logs).

o DEPTH FROM THE GROUND SURFACE TO THE LOWEST POINT OF WASTE DISPOSAL/STORAGE:

Waste materials (cinders, asphalt, etc.) identified to a depth of 23 feet.
Score = 3

NET PRECIPITATION

- o MEAN ANNUAL OR SEASONAL PRECIPITATION (LIST MONTHS FOR SEASONAL):
37.5 inches per year (Ref. 14)

- o MEAN ANNUAL OR SEASONAL EVAPORATION (LIST MONTHS FOR SEASONAL):
28.0 inches per year (Ref. 15)

- o NET PRECIPITATION (SUBTRACT THE ABOVE FIGURES):
9.5 inches per year
Score = 2

PERMEABILITY OF UNSATURATED ZONE

- o SOIL TYPE IN UNSATURATED ZONE:
Miscellaneous fill materials (brick, cinders, glass, asphalt)
Upper most natural soil layer - fine sand
(See Appendix 2 for boring logs)

- o PERMEABILITY ASSOCIATED WITH SOIL TYPE:
Estimated d_3 at 10' cm/sec_4 for fill material
 4.6×10^{-3} to 8.4×10^{-4} cm/sec for sand (determined from
permeability tests)
Score = 2

PHYSICAL STATE

- o PHYSICAL STATE OF SUBSTANCES AT TIME OF DISPOSAL (OR AT PRESENT
TIME FOR GENERATED GASES):
Sludges (Refs. 2,6)
Solids
Score = 3

3 CONTAINMENT

CONTAINMENT

o METHOD(S) OF WASTE OR LEACHATE CONTAINMENT EVALUATED:

No liner; site does not have impermeable cap

o METHOD WITH HIGHEST SCORE:

Fill; no liner, no impermeable cap.
Score = 3

4 WASTE CHARACTERISTICS

TOXICITY AND PERSISTENCE

o COMPOUND(S) EVALUATED:

Acenaphthene
Benzene
Di-n-butylphthalate
Fluorene
Phenanthrene

NOTE: Di-n-butyl phthalate was also detected in the field blank. It is a common laboratory contaminant resulting from plastic tubing, GC septa, bottle caps, etc. Its presence, therefore, is doubtful unless detected in higher concentrations.

o COMPOUND WITH HIGHEST SCORE:

Di-n-butyl phthalate
Score = 18

HAZARDOUS WASTE QUANTITY

o TOTAL QUANTITY OF HAZARDOUS SUBSTANCES AT THE FACILITY, EXCLUDING THOSE WITH A CONTAINMENT SCORE OF 0 (GIVE A REASONABLE ESTIMATE EVEN IF QUANTITY IS ABOVE MAXIMUM):

Unknown quantities of various wastes disposed of at the site. Assume both the lowest non-zero quantity and the highest quantity for purposes of developing a scoring range.
Scores = 1 (minimum) and 8 (maximum)

o BASIS OF ESTIMATING AND/OR COMPUTING WASTE QUANTITY:

N/A

5 TARGETS

GROUNDWATER USE

- o USE(S) OF AQUIFER(S) OF CONCERN WITHIN A 3-MILE RADIUS OF THE FACILITY:

No known use of aquifer of concern.
Score = 1

DISTANCE TO NEAREST WELL

- o LOCATION OF NEAREST WELL DRAWING FROM AQUIFER OF CONCERN OR OCCUPIED BUILDING NOT SERVED BY A PUBLIC WATER SUPPLY:

No known wells in the aquifer of concern.

- o DISTANCE TO ABOVE WELL OR BUILDING:

N/A

POPULATION SERVED BY GROUNDWATER WELLS WITHIN A 3-MILE RADIUS

- o IDENTIFIED WATER-SUPPLY WELL(S) DRAWING FROM AQUIFER(S) OF CONCERN WITHIN A 3-MILE RADIUS AND POPULATIONS SERVED BY EACH:

None identified within a 3-mile radius.

- o COMPUTATION OF LAND AREA IRRIGATED BY SUPPLY WELL(S) DRAWING FROM AQUIFER(S) OF CONCERN WITHIN A 3-MILE RADIUS, AND CONVERSION TO POPULATION (1.5 PEOPLE PER ACRE):

None within 3 miles of site. (Ref. 18)
Population served = Zero

- o TOTAL POPULATION SERVED BY GROUNDWATER WITHIN A 3-MILE RADIUS:

Total population served - Zero
Score = 0

SURFACE WATER ROUTE

1 OBSERVED RELEASE

- o CONTAMINANTS DETECTED IN SURFACE WATER AT THE FACILITY OR DOWNHILL FROM IT (5 MAXIMUM):

Arsenic
Selenium

- o RATIONALE FOR ATTRIBUTING THE CONTAMINANTS TO THE FACILITY:

Metals were not detected at higher levels downstream than upstream of site.
Score = 0

2 ROUTE CHARACTERISTICS

FACILITY SLOPE AND INTERVENING TERRAIN

- o AVERAGE SLOPE OF FACILITY IN PERCENT:

Approximately 0% for majority of site
Slope to swale on western side of site approximately 8%-10%

- o NAME/DESCRIPTION OF NEAREST DOWNSLOPE SURFACE WATER:

Buffalo River; Class D freshwater resource (Ref. 9)

- o AVERAGE SLOPE OF TERRAIN BETWEEN FACILITY AND ABOVE-CITED SURFACE WATER BODY IN PERCENT:

A steep bank is located between the site plateau and the river.
Slope is estimated at approximately 80%.

- o IS THE FACILITY LOCATED EITHER TOTALLY OR PARTIALLY IN SURFACE WATER?

No areas of the site are located within the Buffalo River
Score = 3

- o IS THE FACILITY COMPLETELY SURROUNDED BY AREAS OF HIGHER ELEVATION?

No, the Buffalo River borders the site to the south.

1-YEAR 24-HOUR RAINFALL IN INCHES

2.1 Inches (Ref. 20)
Score = 2

DISTANCE TO NEAREST DOWNSLOPE SURFACE WATER

Estimated at 25 feet from the top of the river bank to the water
(Figure 2)
Score = 3

PHYSICAL STATE OF WASTE

Sludges (Refs. 2,6)
Solids
Score = 3

3 CONTAINMENT

CONTAINMENT

- o METHOD(S) OF WASTE OR LEACHATE CONTAINMENT EVALUATED:

No liner; site surface does not have impermeable cap

- o METHOD WITH HIGHEST SCORE:

Fill; no liner, no impermeable cap
Score = 3

4 WASTE CHARACTERISTICS

TOXICITY AND PERSISTENCE

o COMPOUND(S) EVALUATED

Di-n-butyl phthalate

o COMPOUND WITH HIGHEST SCORE:

Di-n-butyl phthalate

Score = 18

HAZARDOUS WASTE QUANTITY

o TOTAL QUANTITY OF HAZARDOUS SUBSTANCES AT THE FACILITY EXCLUDING THOSE WITH A CONTAINMENT SCORE OF 0 (GIVE A REASONABLE ESTIMATE EVEN IF QUANTITY IS ABOVE MAXIMUM):

Unknown quantities of various wastes of unknown character were disposed of at the site. Assume both the lowest non-zero quantity and the highest quantity for purposes of developing a scoring range.

Scores = 1 (minimum) and 8 (maximum)

o BASIS OF ESTIMATING AND/OR COMPUTING WASTE QUANTITY:

N/A

5 TARGETS

SURFACE WATER USE

o USE(S) OF SURFACE WATER WITHIN 3 MILES DOWNSTREAM OF THE HAZARDOUS SUBSTANCE:

Buffalo River is a Class D freshwater resource suitable only for secondary contact recreation.

Current uses include commercial shipping.

Score = 2

- o IS THERE TIDAL INFLUENCE?

No

DISTANCE TO A SENSITIVE ENVIRONMENT

- o DISTANCE TO 5-ACRE (MINIMUM) COASTAL WETLAND, IF 2 MILES OR LESS:

None within 2 miles of site.

- o DISTANCE TO 5-ACRE (MINIMUM) FRESH-WATER WETLAND, IF 1 MILE OR LESS:

No NYSDEC-designated wetlands within 1-mile downstream of site (Ref. 10)

- o DISTANCE TO CRITICAL HABITAT OF AN ENDANGERED SPECIES OR NATIONAL WILDLIFE REFUGE, IF 1 MILE OR LESS:

None within 1 mile of site.
Score = 0

POPULATION SERVED BY SURFACE WATER

- o LOCATION(S) OF WATER-SUPPLY INTAKE(S) WITHIN 3 MILES (FREE-FLOWING BODIES) OR 1 MILE (STATIC WATER BODIES) DOWNSTREAM OF THE HAZARDOUS SUBSTANCE AND POPULATION SERVED BY EACH INTAKE:

Nearest water supply intake located more than 3 miles downstream of site in Lake Erie.

- o COMPUTATION OF LAND AREA IRRIGATED BY ABOVE-CITED INTAKE(S) AND CONVERSION TO POPULATION (1.5 PEOPLE PER ACRE):

No irrigation downstream of site.

Population served = zero

- o TOTAL POPULATION SERVED:

Total population served = zero

Score = 0

- o NAME/DESCRIPTION OF NEAREST OF ABOVE WATER BODIES:

N/A

- o DISTANCE TO ABOVE-CITED INTAKES, MEASURED IN STREAM MILES.

N/A

AIR ROUTE

1 OBSERVED RELEASE

o CONTAMINANTS DETECTED:

No significant readings obtained during onsite air monitoring program.

o DATE AND LOCATION OF DETECTION OF CONTAMINANTS

October 14, 1985

o METHODS USED TO DETECT THE CONTAMINANTS:

Organic vapor analyzer (Century M/N 128)

o RATIONALE FOR ATTRIBUTING THE CONTAMINANTS TO THE SITE:

N/A

2 WASTE CHARACTERISTICS

REACTIVITY AND INCOMPATIBILITY

o MOST REACTIVE COMPOUND:

Any of the volatile compounds detected onsite may become unstable under elevated temperatures

Score = 1

o MOST INCOMPATIBLE PAIR OF COMPOUNDS:

N/A

TOXICITY

- o MOST TOXIC COMPOUND:

Di-n-butyl phthalate
Score = 3

HAZARDOUS WASTE QUANTITY

- o TOTAL QUANTITY OF HAZARDOUS WASTE:

Unknown quantities of various wastes of unknown character disposed of at the site. Assume both the lowest non-zero quantity and the highest quantity for purposes of developing a scoring range.

Scores = 1 (minimum) and 8 (maximum)

- o BASIS OF ESTIMATING AND/OR COMPUTING WASTE QUANTITY:

N/A

3 TARGETS

POPULATION WITHIN 4-MILE RADIUS

- o RADIUS USED, GIVE POPULATION, AND INDICATE HOW DETERMINED:

0 to 4 mi 0 to 1 mi 0 to 1/2 mi 0 to 1/4 mi

Estimated 100 houses within 1/4 mile of site from quad map; this equals 380 people. Also workers at adjacent junk yard and refinery. Assume between 100 and 1000 people within 1/4 mile of site.

Score = 21

DISTANCE TO A SENSITIVE ENVIRONMENT

- o DISTANCE TO 5-ACRE (MINIMUM) COASTAL WETLAND, IF 2 MILES OR LESS:

None within 2 miles of site.

- o DISTANCE TO 5-ACRE (MINIMUM) FRESH-WATER WETLAND, IF 1 MILE OR LESS:

No NYSDEC-designated wetlands within 1 mile downstream of site (Ref. 10).

- o DISTANCE TO CRITICAL HABITAT OF AN ENDANGERED SPECIES, IF 1 MILE OR LESS:

None within 1 mile of site
Score = 0

LAND USE

- o DISTANCE TO COMMERCIAL/INDUSTRIAL AREA, IF 1 MILE OR LESS:

Site is located within an industrial area.

- o DISTANCE TO NATIONAL OR STATE PARK, FOREST, OR WILDLIFE RESERVE, IF 2 MILES OR LESS:

None within 2 miles of site.

- o DISTANCE TO RESIDENTIAL AREA, IF 2 MILES OR LESS:

Residences located within 1/4 mile of site
Score = 3

- o DISTANCE TO AGRICULTURAL LAND IN PRODUCTION WITHIN PAST 5 YEARS, IF 1 MILE OR LESS:

None within 1 mile of site.

- o DISTANCE TO PRIME AGRICULTURAL LAND IN PRODUCTION WITHIN PAST 5 YEARS, IF 2 MILES OR LESS:

None within 2 miles of site.

- o IS A HISTORIC OR LANDMARK SITE (NATIONAL REGISTER OR HISTORIC PLACES AND NATIONAL NATURAL LANDMARKS) WITHIN THE VIEW OF THE SITE?

Cazenovia Park (part of Buffalo's Olmsted Park System) is located 1¼ miles southeast of site.



**POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 1 - SITE LOCATION AND INSPECTION INFORMATION**

I. IDENTIFICATION	
01 STATE NY	02 SITE NUMBER 915040

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site) Buffalo Terminal Disposal Site		02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER 635 Elk Street			
03 CITY Buffalo		04 STATE NY	05 ZIP CODE 14240	06 COUNTY Erie	07 COUNTY CODE
09 COORDINATES LATITUDE 47 51 20.0		LONGITUDE 078 49 30.0		10 TYPE OF OWNERSHIP (Check one) <input type="checkbox"/> A. PRIVATE <input type="checkbox"/> B. FEDERAL <input type="checkbox"/> C. STATE <input type="checkbox"/> D. COUNTY <input type="checkbox"/> E. MUNICIPAL <input type="checkbox"/> F. OTHER <input type="checkbox"/> G. UNKNOWN	

III. INSPECTION INFORMATION

01 DATE OF INSPECTION 10 / 14 / 85 MONTH DAY YEAR	02 SITE STATUS <input type="checkbox"/> ACTIVE <input checked="" type="checkbox"/> INACTIVE	03 YEARS OF OPERATION 1951 1976 BEGINNING YEAR ENDING YEAR	UNKNOWN
04 AGENCY PERFORMING INSPECTION (Check all that apply)			
<input type="checkbox"/> A. EPA <input type="checkbox"/> B. EPA CONTRACTOR _____ (Name of firm) <input type="checkbox"/> C. MUNICIPAL <input type="checkbox"/> D. MUNICIPAL CONTRACTOR _____ (Name of firm) <input type="checkbox"/> E. STATE <input type="checkbox"/> F. STATE CONTRACTOR _____ (Name of firm) <input checked="" type="checkbox"/> G. OTHER <u>Private Contractor</u> (Specify)			

05 CHIEF INSPECTOR George C. Moretti	06 TITLE Project Scientist	07 ORGANIZATION URS Co., Inc.	08 TELEPHONE NO. (716) 883-5525
---	-------------------------------	----------------------------------	------------------------------------

09 OTHER INSPECTORS Vern Singh	10 TITLE Project Manager	11 ORGANIZATION URS Co., Inc.	12 TELEPHONE NO. (716) 883-5525
-----------------------------------	-----------------------------	----------------------------------	------------------------------------

			()
			()
			()
			()

13 SITE REPRESENTATIVES INTERVIEWED	14 TITLE	15 ADDRESS	16 TELEPHONE NO. ()
-------------------------------------	----------	------------	-------------------------

			()
			()
			()
			()
			()

17 ACCESS GAINED BY (Check one) <input checked="" type="checkbox"/> PERMISSION <input type="checkbox"/> WARRANT	18 TIME OF INSPECTION AM	19 WEATHER CONDITIONS Cool, Cloudy
---	-----------------------------	---------------------------------------

IV. INFORMATION AVAILABLE FROM

01 CONTACT Vern Singh	02 OF (Agency/Organization) URS Co., Inc.	03 TELEPHONE NO. (716) 885-5525
--------------------------	--	------------------------------------

04 PERSON RESPONSIBLE FOR SITE INSPECTION FORM George C. Mbretti	05 AGENCY	06 ORGANIZATION URS	07 TELEPHONE NO. 883-5525	08 DATE 2 / 26 / 86 MONTH DAY YEAR
---	-----------	------------------------	------------------------------	--



**POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 2 - WASTE INFORMATION**

I. IDENTIFICATION

01 STATE: NY 02 SITE NUMBER: 915040

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 PHYSICAL STATES <i>(Check all that apply)</i> <input type="checkbox"/> A. SOLID <input type="checkbox"/> E. SLURRY <input type="checkbox"/> B. POWDER, FINES <input type="checkbox"/> F. LIQUID <input checked="" type="checkbox"/> C. SLUDGE <input type="checkbox"/> G. GAS <input type="checkbox"/> D. OTHER _____ <i>(Specify)</i>	02 WASTE QUANTITY AT SITE <i>(Measures of waste quantities must be independent)</i> TONS <u>unknown</u> CUBIC YARDS _____ NO. OF DRUMS _____	03 WASTE CHARACTERISTICS <i>(Check all that apply)</i> <input checked="" type="checkbox"/> A. TOXIC <input type="checkbox"/> E. SOLUBLE <input type="checkbox"/> I. HIGHLY VOLATILE <input type="checkbox"/> B. CORROSIVE <input type="checkbox"/> F. INFECTIOUS <input type="checkbox"/> J. EXPLOSIVE <input type="checkbox"/> C. RADIOACTIVE <input type="checkbox"/> G. FLAMMABLE <input type="checkbox"/> K. REACTIVE <input checked="" type="checkbox"/> D. PERSISTENT <input type="checkbox"/> H. IGNITABLE <input type="checkbox"/> L. INCOMPATIBLE <input type="checkbox"/> M. NOT APPLICABLE
---	---	---

III. WASTE TYPE

CATEGORY	SUBSTANCE NAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS
SLU	SLUDGE			
OLW	OILY WASTE			
SOL	SOLVENTS			
PSD	PESTICIDES			
OCC	OTHER ORGANIC CHEMICALS			
IOC	INORGANIC CHEMICALS			
ACD	ACIDS			
BAS	BASES			
MES	HEAVY METALS			

IV. HAZARDOUS SUBSTANCES *(See Appendix for most frequently cited CAS Numbers)*

01 CATEGORY	02 SUBSTANCE NAME	03 CAS NUMBER	04 STORAGE/DISPOSAL METHOD	05 CONCENTRATION	06 MEASURE OF CONCENTRATION
	tetraethyl lead		landfill		

V. FEEDSTOCKS *(See Appendix for CAS Numbers)*

CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER	CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER
FDS			FDS		
FDS			FDS		
FDS			FDS		
FDS			FDS		

VI. SOURCES OF INFORMATION *(Cite specific references, e.g., state files, sample analysis, reports)*



POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
NY	915040

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 <input checked="" type="checkbox"/> A. GROUNDWATER CONTAMINATION 03 POPULATION POTENTIALLY AFFECTED: <u>0</u>	02 <input checked="" type="checkbox"/> OBSERVED (DATE: <u>11/1985</u>) 04 NARRATIVE DESCRIPTION	<input type="checkbox"/> POTENTIAL	<input type="checkbox"/> ALLEGED
Contaminants detected in onsite wells			
01 <input checked="" type="checkbox"/> B. SURFACE WATER CONTAMINATION 03 POPULATION POTENTIALLY AFFECTED: <u>minimal</u>	02 <input checked="" type="checkbox"/> OBSERVED (DATE: <u>11/1985</u>) 04 NARRATIVE DESCRIPTION	<input type="checkbox"/> POTENTIAL	<input type="checkbox"/> ALLEGED
Contaminants detected in Buffalo River adjacent to site			
01 <input type="checkbox"/> C. CONTAMINATION OF AIR 03 POPULATION POTENTIALLY AFFECTED: _____	02 <input type="checkbox"/> OBSERVED (DATE: _____) 04 NARRATIVE DESCRIPTION	<input type="checkbox"/> POTENTIAL	<input type="checkbox"/> ALLEGED
01 <input type="checkbox"/> D. FIRE/EXPLOSIVE CONDITIONS 03 POPULATION POTENTIALLY AFFECTED: _____	02 <input type="checkbox"/> OBSERVED (DATE: _____) 04 NARRATIVE DESCRIPTION	<input type="checkbox"/> POTENTIAL	<input type="checkbox"/> ALLEGED
01 <input type="checkbox"/> E. DIRECT CONTACT 03 POPULATION POTENTIALLY AFFECTED: _____	02 <input type="checkbox"/> OBSERVED (DATE: _____) 04 NARRATIVE DESCRIPTION	<input type="checkbox"/> POTENTIAL	<input type="checkbox"/> ALLEGED
01 <input checked="" type="checkbox"/> F. CONTAMINATION OF SOIL 03 AREA POTENTIALLY AFFECTED: <u>3</u> <small>(Acres)</small>	02 <input checked="" type="checkbox"/> OBSERVED (DATE: <u>11/1985</u>) 04 NARRATIVE DESCRIPTION	<input type="checkbox"/> POTENTIAL	<input type="checkbox"/> ALLEGED
Contaminants detected in soil samples from onsite borings			
01 <input type="checkbox"/> G. DRINKING WATER CONTAMINATION 03 POPULATION POTENTIALLY AFFECTED: _____	02 <input type="checkbox"/> OBSERVED (DATE: _____) 04 NARRATIVE DESCRIPTION	<input type="checkbox"/> POTENTIAL	<input type="checkbox"/> ALLEGED
01 <input type="checkbox"/> H. WORKER EXPOSURE/INJURY 03 WORKERS POTENTIALLY AFFECTED: _____	02 <input type="checkbox"/> OBSERVED (DATE: _____) 04 NARRATIVE DESCRIPTION	<input type="checkbox"/> POTENTIAL	<input type="checkbox"/> ALLEGED
01 <input type="checkbox"/> I. POPULATION EXPOSURE/INJURY 03 POPULATION POTENTIALLY AFFECTED: _____	02 <input type="checkbox"/> OBSERVED (DATE: _____) 04 NARRATIVE DESCRIPTION	<input type="checkbox"/> POTENTIAL	<input type="checkbox"/> ALLEGED



POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
NY	915040

II. HAZARDOUS CONDITIONS AND INCIDENTS (Continued)

01 <input type="checkbox"/> J. DAMAGE TO FLORA 04 NARRATIVE DESCRIPTION	02 <input type="checkbox"/> OBSERVED (DATE: _____)	<input type="checkbox"/> POTENTIAL	<input type="checkbox"/> ALLEGED
--	--	------------------------------------	----------------------------------

01 <input type="checkbox"/> K. DAMAGE TO FAUNA 04 NARRATIVE DESCRIPTION (include name(s) of species)	02 <input type="checkbox"/> OBSERVED (DATE: _____)	<input type="checkbox"/> POTENTIAL	<input type="checkbox"/> ALLEGED
---	--	------------------------------------	----------------------------------

01 <input type="checkbox"/> L. CONTAMINATION OF FOOD CHAIN 04 NARRATIVE DESCRIPTION	02 <input type="checkbox"/> OBSERVED (DATE: _____)	<input type="checkbox"/> POTENTIAL	<input type="checkbox"/> ALLEGED
--	--	------------------------------------	----------------------------------

01 <input type="checkbox"/> M. UNSTABLE CONTAINMENT OF WASTES (Spills/Runoff/Standing liquids, Leaking drums) 03 POPULATION POTENTIALLY AFFECTED: _____	02 <input type="checkbox"/> OBSERVED (DATE: _____)	<input type="checkbox"/> POTENTIAL	<input type="checkbox"/> ALLEGED	04 NARRATIVE DESCRIPTION
---	--	------------------------------------	----------------------------------	--------------------------

01 <input type="checkbox"/> N. DAMAGE TO OFFSITE PROPERTY 04 NARRATIVE DESCRIPTION	02 <input type="checkbox"/> OBSERVED (DATE: _____)	<input type="checkbox"/> POTENTIAL	<input type="checkbox"/> ALLEGED
---	--	------------------------------------	----------------------------------

01 <input type="checkbox"/> O. CONTAMINATION OF SEWERS, STORM DRAINS, WWTPs 04 NARRATIVE DESCRIPTION	02 <input type="checkbox"/> OBSERVED (DATE: _____)	<input type="checkbox"/> POTENTIAL	<input type="checkbox"/> ALLEGED
---	--	------------------------------------	----------------------------------

01 <input type="checkbox"/> P. ILLEGAL/UNAUTHORIZED DUMPING 04 NARRATIVE DESCRIPTION	02 <input type="checkbox"/> OBSERVED (DATE: _____)	<input type="checkbox"/> POTENTIAL	<input type="checkbox"/> ALLEGED
---	--	------------------------------------	----------------------------------

05 DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL, OR ALLEGED HAZARDS
--

III TOTAL POPULATION POTENTIALLY AFFECTED: <u>Minimal</u>

IV. COMMENTS

V. SOURCES OF INFORMATION (Cite specific references, e. g., state files, sample analysis, reports)
--



**POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION
PART 4 - PERMIT AND DESCRIPTIVE INFORMATION**

I. IDENTIFICATION	
01 STATE NY	02 SITE NUMBER 915040

II. PERMIT INFORMATION

01 TYPE OF PERMIT ISSUED	02 PERMIT NUMBER	03 DATE ISSUED	04 EXPIRATION DATE	05 COMMENTS
<input type="checkbox"/> A NPDES				
<input type="checkbox"/> B UIC				
<input type="checkbox"/> C AIR				
<input type="checkbox"/> D RCRA				
<input type="checkbox"/> E RCRA INTERIM STATUS				
<input type="checkbox"/> F SPCC PLAN				
<input type="checkbox"/> G STATE				
<input type="checkbox"/> H LOCAL				
<input type="checkbox"/> I OTHER				
<input type="checkbox"/> J NONE				

III. SITE DESCRIPTION

01 STORAGE/ DISPOSAL	02 AMOUNT	03 UNIT OF MEASURE	04 TREATMENT	05 OTHER
<input type="checkbox"/> A SURFACE IMPOUNDMENT <input type="checkbox"/> B PILES <input type="checkbox"/> C DRUMS, ABOVE GROUND <input type="checkbox"/> D TANK, ABOVE GROUND <input type="checkbox"/> E TANK, BELOW GROUND <input checked="" type="checkbox"/> F LANDFILL <input type="checkbox"/> G LANDFARM <input type="checkbox"/> H OPEN DUMP <input type="checkbox"/> I OTHER	_____	_____	<input type="checkbox"/> A INCINERATION <input type="checkbox"/> B UNDERGROUND INJECTION <input type="checkbox"/> C CHEMICAL/PHYSICAL <input type="checkbox"/> D BIOLOGICAL <input type="checkbox"/> E WASTE OIL PROCESSING <input type="checkbox"/> F SOLVENT RECOVERY <input type="checkbox"/> G OTHER RECYCLING RECOVERY <input type="checkbox"/> H OTHER	<input type="checkbox"/> A BUILDINGS ON SITE <input type="checkbox"/> B AREA OF SITE

07 COMMENTS

IV. CONTAINMENT

01 CONTAINMENT OF WASTES

A ADEQUATE SECURE B MODERATE C INADEQUATE POOR D INSECURE UNSOUND DANGEROUS

02 DESCRIPTION OF DRUMS, DIXIE LINERS, BARRIERS, ETC.

Landfill not constructed with impermeable liner or cap.
Substantial clay layer underlies site.

V. ACCESSIBILITY

01 WASTE EASILY ACCESSIBLE YES NO

02 COMMENTS

VI. SOURCES OF INFORMATION



**POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA**

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
NY	915040

II. DRINKING WATER SUPPLY

01 TYPE OF DRINKING SUPPLY <small>Check as applicable</small>			02 STATUS			03 DISTANCE TO SITE	
	SURFACE	WELL	ENDANGERED	AFFECTED	MONITORED	A	(mi)
COMMUNITY	A <input type="checkbox"/>	B <input type="checkbox"/>	A <input type="checkbox"/>	B <input type="checkbox"/>	C <input type="checkbox"/>	B	(mi)
NON-COMMUNITY	C <input type="checkbox"/>	D <input type="checkbox"/>	D <input type="checkbox"/>	E <input type="checkbox"/>	F <input type="checkbox"/>		

III. GROUNDWATER

01 GROUNDWATER USE IN VICINITY Check one

A ONLY SOURCE FOR DRINKING B DRINKING Other sources available
COMMERCIAL/INDUSTRIAL IRRIGATION Other water sources available

C COMMERCIAL/INDUSTRIAL IRRIGATION Limited other sources available D NOT USED / UNSEABLE

02 POPULATION SERVED BY GROUND WATER <u>0</u>		03 DISTANCE TO NEAREST DRINKING WATER WELL <u>3+</u> (mi)	
04 DEPTH TO GROUNDWATER <u>9</u> (ft)	05 DIRECTION OF GROUNDWATER FLOW <u>toward River</u>	06 DEPTH TO AQUIFER OF CONCERN <u>15</u> (ft)	07 POTENTIAL YIELD OF AQUIFER ____ (gpd)
08 SOLE SOURCE AQUIFER <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO			

09 DESCRIPTION OF WELLS including useage, depth, and location relative to population and buildings

10 RECHARGE AREA <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO COMMENTS	11 DISCHARGE AREA <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO COMMENTS
---	--

IV. SURFACE WATER

01 SURFACE WATER USE Check one

A RESERVOIR, RECREATION DRINKING WATER SOURCE B IRRIGATION ECONOMICALLY IMPORTANT RESOURCES C COMMERCIAL/INDUSTRIAL D NOT CURRENTLY USED

02 AFFECTED/POTENTIALLY AFFECTED BODIES OF WATER

NAME	AFFECTED	DISTANCE TO SITE
<u>Buffalo River</u>	<u>x</u>	<u>adjacent</u> (mi)
_____	_____	_____ (mi)
_____	_____	_____ (mi)

V. DEMOGRAPHIC AND PROPERTY INFORMATION

01 TOTAL POPULATION WITHIN			02 DISTANCE TO NEAREST POPULATION
ONE (1) MILE OF SITE A <u>10,000+</u> <small>NO. OF PERSONS</small>	TWO (2) MILES OF SITE B _____ <small>NO. OF PERSONS</small>	THREE (3) MILES OF SITE C _____ <small>NO. OF PERSONS</small>	<u>1/4</u> (mi)
03 NUMBER OF BUILDINGS WITHIN TWO (2) MILES OF SITE <u>2000+</u>		04 DISTANCE TO NEAREST OFF-SITE BUILDING <u>1/8</u> (mi)	

05 POPULATION WITHIN VICINITY OF SITE Provide narrative description of nature of structure within 1/4 mile of site, including population density, etc.



**POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA**

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
NY	915040

VI. ENVIRONMENTAL INFORMATION

01 PERMEABILITY OF UNSATURATED ZONE *(Check one)*

A. $10^{-6} - 10^{-8}$ cm/sec B. $10^{-4} - 10^{-6}$ cm/sec C. $10^{-4} - 10^{-3}$ cm/sec D. GREATER THAN 10^{-3} cm/sec

natural *fill*

02 PERMEABILITY OF BEDROCK *(Check one)*

A. IMPERMEABLE
(Less than 10^{-6} cm/sec) B. RELATIVELY IMPERMEABLE
($10^{-4} - 10^{-6}$ cm/sec) C. RELATIVELY PERMEABLE
($10^{-2} - 10^{-4}$ cm/sec) D. VERY PERMEABLE
(Greater than 10^{-2} cm/sec)

03 DEPTH TO BEDROCK

_____ (ft)

04 DEPTH OF CONTAMINATED SOIL ZONE

20 _____ (ft)

05 SOIL pH

06 NET PRECIPITATION

9.5 _____ (in)

07 ONE YEAR 24 HOUR RAINFALL

2.1 _____ (in)

08 SLOPE
SITE SLOPE
0-10 _____ %

DIRECTION OF SITE SLOPE

SW

TERRAIN AVERAGE SLOPE

_____ %

09 FLOOD POTENTIAL

SITE IS IN _____ YEAR FLOODPLAIN

10

SITE IS ON BARRIER ISLAND, COASTAL HIGH HAZARD AREA, RIVERINE FLOODWAY

11 DISTANCE TO WETLANDS *(5 acre minimum)*

ESTUARINE

OTHER

A. _____ (mi)

B. _____ (mi)

12 DISTANCE TO CRITICAL HABITAT *(of endangered species)*

_____ (mi)

ENDANGERED SPECIES: _____

13 LAND USE IN VICINITY

DISTANCE TO:

COMMERCIAL/INDUSTRIAL

RESIDENTIAL AREAS; NATIONAL/STATE PARKS,
FORESTS, OR WILDLIFE RESERVES

AGRICULTURAL LANDS
PRIME AG LAND AG LAND

A. adjacent _____ (mi)

B. $\frac{1}{4}$ _____ (mi)

C. _____ (mi)

D. _____ (mi)

14 DESCRIPTION OF SITE IN RELATION TO SURROUNDING TOPOGRAPHY

Topography of area is generally flat. Site is located within developed industrial area.

VII. SOURCES OF INFORMATION *(Cite specific references, e.g., state files, sample analysis, reports)*



POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 6 - SAMPLE AND FIELD INFORMATION

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
NY	915040

II. SAMPLES TAKEN

SAMPLE TYPE	01 NUMBER OF SAMPLES TAKEN	02 SAMPLES SENT TO	03 ESTIMATED DATE RESULTS AVAILABLE
GROUNDWATER	6	Mobil Oil Corp.	present
SURFACE WATER	2	Mobil Oil Corp.	present
WASTE			
AIR			
RUNOFF			
SPILL			
SOIL	3	Mobil Oil Corp.	present
VEGETATION			
OTHER Sediment	2	Mobil Oil Corp.	present

III. FIELD MEASUREMENTS TAKEN

01 TYPE	02 COMMENTS
Air	No organic vapors attributable to site

IV. PHOTOGRAPHS AND MAPS

01 TYPE <input type="checkbox"/> GROUND <input checked="" type="checkbox"/> AERIAL	02 IN CUSTODY OF <u>Erie County</u> <small>(Name of organization or individual)</small>
03 MAPS <input type="checkbox"/> YES <input type="checkbox"/> NO	04 LOCATION OF MAPS _____

V. OTHER FIELD DATA COLLECTED (Provide narrative description)

Blank area for narrative description of other field data collected.

VI. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Blank area for sources of information.



**POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 7 - OWNER INFORMATION**

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
NY	915040

II. CURRENT OWNER(S)				PARENT COMPANY (if applicable)			
01 NAME		02 D+B NUMBER		08 NAME		09 D+B NUMBER	
Mobil Oil Corp.							
03 STREET ADDRESS (P.O. Box, RFD #, etc.)			04 SIC CODE	10 STREET ADDRESS (P.O. Box, RFD #, etc.)			11 SIC CODE
635 Elk Street							
05 CITY	06 STATE	07 ZIP CODE		12 CITY		13 STATE	14 ZIP CODE
Buffalo	NY	14240					
01 NAME		02 D+B NUMBER		08 NAME		09 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)			04 SIC CODE	10 STREET ADDRESS (P.O. Box, RFD #, etc.)			11 SIC CODE
05 CITY	06 STATE	07 ZIP CODE		12 CITY		13 STATE	14 ZIP CODE
01 NAME		02 D+B NUMBER		08 NAME		09 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)			04 SIC CODE	10 STREET ADDRESS (P.O. Box, RFD #, etc.)			11 SIC CODE
05 CITY	06 STATE	07 ZIP CODE		12 CITY		13 STATE	14 ZIP CODE
01 NAME		02 D+B NUMBER		08 NAME		09 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)			04 SIC CODE	10 STREET ADDRESS (P.O. Box, RFD #, etc.)			11 SIC CODE
05 CITY	06 STATE	07 ZIP CODE		12 CITY		13 STATE	14 ZIP CODE
III. PREVIOUS OWNER(S) (List most recent first)				IV. REALTY OWNER(S) (if applicable; list most recent first)			
01 NAME		02 D+B NUMBER		01 NAME		02 D+B NUMBER	
City of Buffalo							
03 STREET ADDRESS (P.O. Box, RFD #, etc.)			04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)			04 SIC CODE
05 CITY	06 STATE	07 ZIP CODE		05 CITY		06 STATE	07 ZIP CODE
Buffalo	NY						
01 NAME		02 D+B NUMBER		01 NAME		02 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)			04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)			04 SIC CODE
05 CITY	06 STATE	07 ZIP CODE		05 CITY		06 STATE	07 ZIP CODE
01 NAME		02 D+B NUMBER		01 NAME		02 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)			04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)			04 SIC CODE
05 CITY	06 STATE	07 ZIP CODE		05 CITY		06 STATE	07 ZIP CODE

V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)



**POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 8 - OPERATOR INFORMATION**

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
NY	915040

II. CURRENT OPERATOR <small>(Provide if different from owner)</small>				OPERATOR'S PARENT COMPANY <small>(If applicable)</small>			
01 NAME Mobil Oil Corp.		02 D+B NUMBER		10 NAME		11 D+B NUMBER	
03 STREET ADDRESS <small>(P.O. Box, RFD #, etc.)</small> 635 Elk Street			04 SIC CODE	12 STREET ADDRESS <small>(P.O. Box, RFD #, etc.)</small>			13 SIC CODE
05 CITY Buffalo		06 STATE NY	07 ZIP CODE 14240	14 CITY		15 STATE	16 ZIP CODE
08 YEARS OF OPERATION		09 NAME OF OWNER					
III. PREVIOUS OPERATOR(S) <small>(List most recent first; provide only if different from owner)</small>				PREVIOUS OPERATORS' PARENT COMPANIES <small>(If applicable)</small>			
01 NAME City of Buffalo		02 D+B NUMBER		10 NAME		11 D+B NUMBER	
03 STREET ADDRESS <small>(P.O. Box, RFD #, etc.)</small>			04 SIC CODE	12 STREET ADDRESS <small>(P.O. Box, RFD #, etc.)</small>			13 SIC CODE
05 CITY Buffalo		06 STATE NY	07 ZIP CODE	14 CITY		15 STATE	16 ZIP CODE
08 YEARS OF OPERATION 25		09 NAME OF OWNER DURING THIS PERIOD					
01 NAME		02 D+B NUMBER		10 NAME		11 D+B NUMBER	
03 STREET ADDRESS <small>(P.O. Box, RFD #, etc.)</small>			04 SIC CODE	12 STREET ADDRESS <small>(P.O. Box, RFD #, etc.)</small>			13 SIC CODE
05 CITY		06 STATE	07 ZIP CODE	14 CITY		15 STATE	16 ZIP CODE
08 YEARS OF OPERATION		09 NAME OF OWNER DURING THIS PERIOD					
01 NAME		02 D+B NUMBER		10 NAME		11 D+B NUMBER	
03 STREET ADDRESS <small>(P.O. Box, RFD #, etc.)</small>			04 SIC CODE	12 STREET ADDRESS <small>(P.O. Box, RFD #, etc.)</small>			13 SIC CODE
05 CITY		06 STATE	07 ZIP CODE	14 CITY		15 STATE	16 ZIP CODE
08 YEARS OF OPERATION		09 NAME OF OWNER DURING THIS PERIOD					

IV. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)



POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 9 - GENERATOR/TRANSPORTER INFORMATION

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
NY	915040

II. ON-SITE GENERATOR

01 NAME Mobil Oil Corp.		02 D+B NUMBER	
03 STREET ADDRESS P.O. Box, RFD, etc. 635 Elk Street		04 SIC CODE	
05 CITY Buffalo	06 STATE NY	07 ZIP CODE 14240	

III. OFF-SITE GENERATOR(S)

01 NAME		02 D+B NUMBER		01 NAME		02 D+B NUMBER	
03 STREET ADDRESS P.O. Box, RFD, etc.		04 SIC CODE		03 STREET ADDRESS P.O. Box, RFD, etc.		04 SIC CODE	
05 CITY	06 STATE	07 ZIP CODE		05 CITY	06 STATE	07 ZIP CODE	
01 NAME		02 D+B NUMBER		01 NAME		02 D+B NUMBER	
03 STREET ADDRESS P.O. Box, RFD, etc.		04 SIC CODE		03 STREET ADDRESS P.O. Box, RFD, etc.		04 SIC CODE	
05 CITY	06 STATE	07 ZIP CODE		05 CITY	06 STATE	07 ZIP CODE	

IV. TRANSPORTER(S)

01 NAME		02 D+B NUMBER		01 NAME		02 D+B NUMBER	
03 STREET ADDRESS P.O. Box, RFD, etc.		04 SIC CODE		03 STREET ADDRESS P.O. Box, RFD, etc.		04 SIC CODE	
05 CITY	06 STATE	07 ZIP CODE		05 CITY	06 STATE	07 ZIP CODE	
01 NAME		02 D+B NUMBER		01 NAME		02 D+B NUMBER	
03 STREET ADDRESS P.O. Box, RFD, etc.		04 SIC CODE		03 STREET ADDRESS P.O. Box, RFD, etc.		04 SIC CODE	
05 CITY	06 STATE	07 ZIP CODE		05 CITY	06 STATE	07 ZIP CODE	

V. SOURCES OF INFORMATION Cite specific references, e.g. state files, sample analysis reports

Blank area for sources of information.



POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 10 - PAST RESPONSE ACTIVITIES

I. IDENTIFICATION
01 STATE 02 SITE NUMBER
NY 915040

II. PAST RESPONSE ACTIVITIES

01 <input type="checkbox"/> A. WATER SUPPLY CLOSED 04 DESCRIPTION	02 DATE _____	03 AGENCY _____
01 <input type="checkbox"/> B. TEMPORARY WATER SUPPLY PROVIDED 04 DESCRIPTION	02 DATE _____	03 AGENCY _____
01 <input type="checkbox"/> C. PERMANENT WATER SUPPLY PROVIDED 04 DESCRIPTION	02 DATE _____	03 AGENCY _____
01 <input type="checkbox"/> D. SPILLED MATERIAL REMOVED 04 DESCRIPTION	02 DATE _____	03 AGENCY _____
01 <input type="checkbox"/> E. CONTAMINATED SOIL REMOVED 04 DESCRIPTION	02 DATE _____	03 AGENCY _____
01 <input type="checkbox"/> F. WASTE REPACKAGED 04 DESCRIPTION	02 DATE _____	03 AGENCY _____
01 <input type="checkbox"/> G. WASTE DISPOSED ELSEWHERE 04 DESCRIPTION	02 DATE _____	03 AGENCY _____
01 <input type="checkbox"/> H. ON SITE BURIAL 04 DESCRIPTION	02 DATE _____	03 AGENCY _____
01 <input type="checkbox"/> I. IN SITU CHEMICAL TREATMENT 04 DESCRIPTION	02 DATE _____	03 AGENCY _____
01 <input type="checkbox"/> J. IN SITU BIOLOGICAL TREATMENT 04 DESCRIPTION	02 DATE _____	03 AGENCY _____
01 <input type="checkbox"/> K. IN SITU PHYSICAL TREATMENT 04 DESCRIPTION	02 DATE _____	03 AGENCY _____
01 <input type="checkbox"/> L. ENCAPSULATION 04 DESCRIPTION	02 DATE _____	03 AGENCY _____
01 <input type="checkbox"/> M. EMERGENCY WASTE TREATMENT 04 DESCRIPTION	02 DATE _____	03 AGENCY _____
01 <input type="checkbox"/> N. CUTOFF WALLS 04 DESCRIPTION	02 DATE _____	03 AGENCY _____
01 <input type="checkbox"/> O. EMERGENCY DIKING/SURFACE WATER DIVERSION 04 DESCRIPTION	02 DATE _____	03 AGENCY _____
01 <input type="checkbox"/> P. CUTOFF TRENCHES/SUMP 04 DESCRIPTION	02 DATE _____	03 AGENCY _____
01 <input type="checkbox"/> Q. SUBSURFACE CUTOFF WALL 04 DESCRIPTION	02 DATE _____	03 AGENCY _____



POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 10 - PAST RESPONSE ACTIVITIES

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
NY	915040

II PAST RESPONSE ACTIVITIES (Continued)

01 R. BARRIER WALLS CONSTRUCTED
04 DESCRIPTION

02 DATE _____

03 AGENCY _____

01 S. CAPPING/COVERING
04 DESCRIPTION

02 DATE _____

03 AGENCY _____

01 T. BULK TANKAGE REPAIRED
04 DESCRIPTION

02 DATE _____

03 AGENCY _____

01 U. GROUT CURTAIN CONSTRUCTED
04 DESCRIPTION

02 DATE _____

03 AGENCY _____

01 V. BOTTOM SEALED
04 DESCRIPTION

02 DATE _____

03 AGENCY _____

01 W. GAS CONTROL
04 DESCRIPTION

02 DATE _____

03 AGENCY _____

01 X. FIRE CONTROL
04 DESCRIPTION

02 DATE _____

03 AGENCY _____

01 Y. LEACHATE TREATMENT
04 DESCRIPTION

02 DATE _____

03 AGENCY _____

01 Z. AREA EVACUATED
04 DESCRIPTION

02 DATE _____

03 AGENCY _____

01 1. ACCESS TO SITE RESTRICTED
04 DESCRIPTION

02 DATE _____

03 AGENCY _____

01 2. POPULATION RELOCATED
04 DESCRIPTION

02 DATE _____

03 AGENCY _____

01 3. OTHER REMEDIAL ACTIVITIES
04 DESCRIPTION

02 DATE _____

03 AGENCY _____

III. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis reports)



POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 11 - ENFORCEMENT INFORMATION

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
NY	915040

II. ENFORCEMENT INFORMATION

01 PAST REGULATORY ENFORCEMENT ACTION YES NO

02 DESCRIPTION OF FEDERAL, STATE, LOCAL REGULATORY/ENFORCEMENT ACTION

NYSDEC Consent order filed which required State Superfund Investigation of potential onsite contamination

III. SOURCES OF INFORMATION *(Cite specific references, e.g. state files, sample analysis, reports)*

7. FUTURE ACTIVITIES

The investigation completed at the site has detected a limited number of HSL compounds (in low concentrations) and certain inorganic constituents in the soil matrix. Although actual quantities and areal extent of soils contaminated with these substances cannot be determined from the available information, neither groundwater nor surface water quality appears to be significantly impaired by it. Air monitoring results were also negative. Free hydrocarbons were detected in one groundwater well but their presence cannot be attributed to general site conditions, as all other wells were essentially free of them.

Future activities should be planned based upon the potential adverse impact of the site on human health and environment. At present, no published criteria by the NYSDEC exist for acceptable concentrations of chemical contaminants in the soil matrix or of free hydrocarbons in groundwater. In the absence of such criteria, it is impractical to plan the scope of any future activities. Mobil seeks guidance from NYSDEC in establishing these criteria and proposes that the conclusions as to the future site activities be deferred until such time as they have been established.

REFERENCES

1. P.D. Barrick, Buffalo Waterways: A History of the Port of Buffalo and Related Matters. Prepared for the City of Buffalo Planning Board, August, 1970.
2. New York State Department of Environmental Conservation, Report of the Niagara River Toxics Committee, October, 1984.
3. Mobil Oil Corporation, Memorandum from the Offices of General Counsel to D.H. McNerney, June 18, 1985.
4. Erie County Dept. Environment and Planning, Aerial Photographs.
5. NYSDEC, Draft Consent Order to Mobil Oil Corporation, 1985.
6. ECDEP, Memorandum from R.D. Koczaja to File, December 14, 1978.
7. ECDEP, Memorandum from D. Campbell to L.G. Clare, June 10, 1981.
8. USGS field Reconnaissance Data for Mobil Oil Corporation (Site 141), from NYSDEC Region 9 files, pages 114-117.
9. Recra Research, Inc., Mobil Oil Corporation - NYS Superfund Phase I Summary Report, September 6, 1983.

10. NYSDEC Region 9, Wetlands map for USGS Buffalo SE Quadrangle.
11. Telephone conversation between M. Hanna, URS Co., and T. Sechrist, US Fish and Wildlife Service, May 17, 1983.
12. Federal Emergency Management Agency, Flood Insurance Rate Map, City of Buffalo, New York (Erie County), Panel 10, November 18, 1981.
13. A. LaSala, Jr., Groundwater Resources of the Erie-Niagara Basin, NYSDEC Water Resources Commission, Report ENB-3, 1968.
14. T. Nizioł, U.S. Weather Service at Greater Buffalo International Airport, Telephone Interview, May 20, 1983.
15. U.S. Dept. Commerce, National Climatic Center, Climatic Atlas of the United States, 1979.
16. U.S. Army Corps of Engineers, Buffalo District, Reconnaissance Report, Buffalo Harbor, New York, Feasibility Study - Final Report, January 1981.

APPENDICES

APPENDIX 1
PHASE II INVESTIGATION WORK PLAN

PHASE II INVESTIGATION

WORK PLAN

(REVISED)

MOBIL OIL CORPORATION

BUFFALO TERMINAL DISPOSAL SITE

NYS ID # 915040

PREPARED FOR MOBIL OIL CORPORATION

PREPARED BY

URS COMPANY, INC.

625 DELAWARE AVENUE

BUFFALO, NEW YORK 14202

TABLE OF CONTENTS

	<u>Page No.</u>	
1.0 INTRODUCTION	1	
1.1 Site	1	
1.2 Previously Completed Investigations	2	
2.0 PHASE II INVESTIGATION OBJECTIVES	4	
3.0 PHASE II FIELD INVESTIGATION PROGRAM	5	
3.1 Site Reconnaissance and Data Review	5	
3.2 Geophysical Survey	6	
3.3 Construction of Monitoring Wells	7	
3.4 Monitoring Wells Sampling	11	
3.5 Surface Water Sampling/Sediment Sampling	12	R
3.6 On-Site Soil Sampling	13	
3.7 Laboratory Analyses	14	
3.8 Surveying and Mapping	21	
3.9 QA/QC Protocols	21	
3.10 Health and Safety Procedures	23	
4.0 PREPARATION OF PHASE II INVESTIGATION REPORT	26	
Appendix A	QA/QC Procedures	
Appendix B	Health and Safety Procedures	

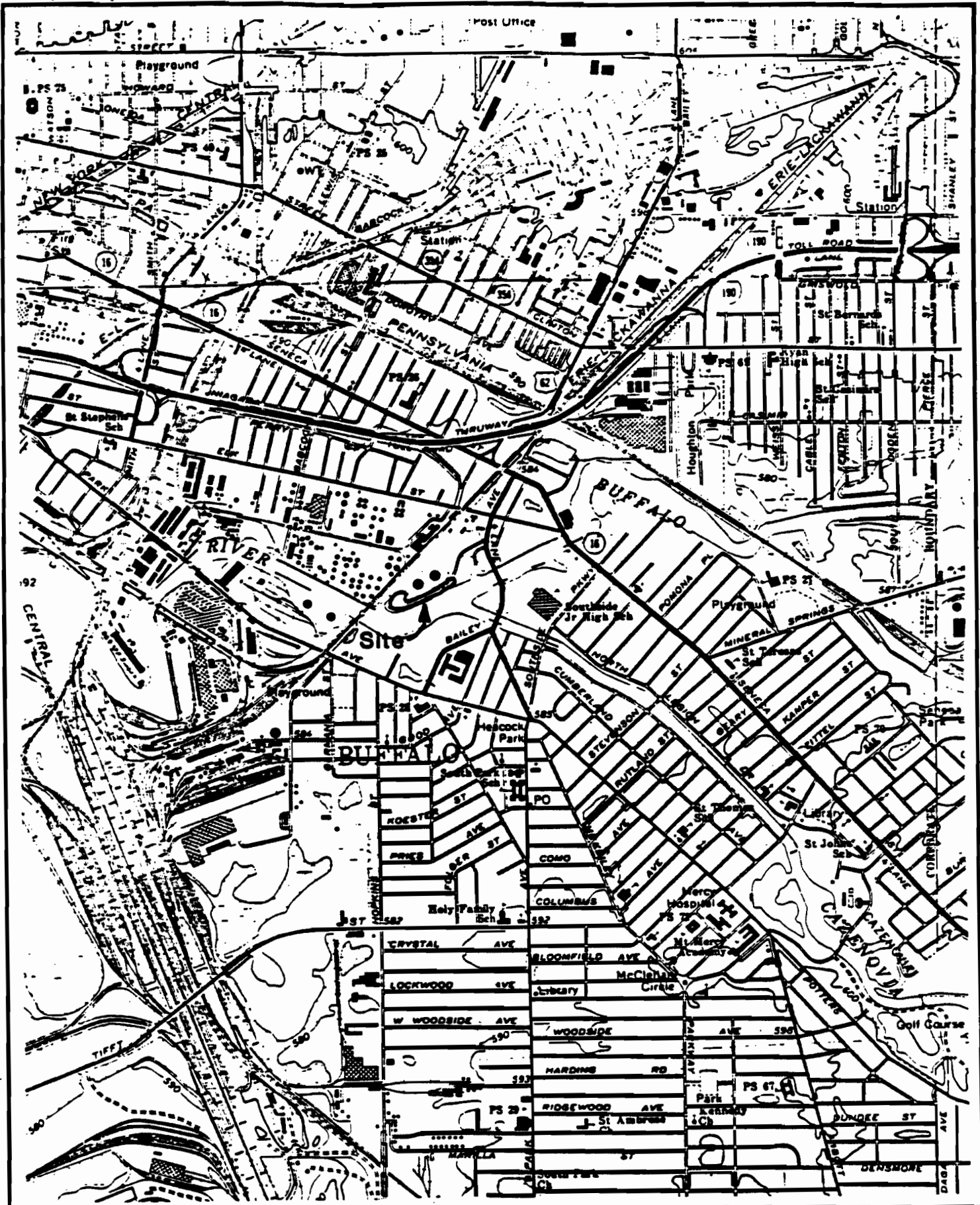
1.0 INTRODUCTION

This document presents a Phase II Investigation work plan for the Mobil's Buffalo Terminal Disposal Site (NYS ID # 915040). The investigation and engineering studies will be performed by URS Company, Inc. a consulting engineering firm located in Buffalo, New York. The laboratory analyses will be performed by Mobil's own laboratory located in Princeton, New Jersey. The work plan has been revised in accordance with the NYSDEC review comments dated August 27, 1985 and discussed during the September 3, 1985 meeting with the NYSDEC. Revisions are identified by the letter "R" typed in the right margin next to the revised paragraph. It is Mobil's intention to initiate the field investigations by August 19, 1985 and complete the investigations and engineering studies before February 1, 1986. Mobil will inform NYSDEC at least five days before the field investigations are started.

R

1.1 Site

The Buffalo Terminal Disposal Site is approximately three (3) acres in size and is located adjacent to the Buffalo River in a heavily industrialized section of the City of Buffalo, New York. (Fig. 1). The site is a part of Mobil's seventy-seven (77) acre Buffalo Terminal Refinery facilities located on Elk Street, Buffalo, New York and occupies the area on the east side of the plant site between the railroad tracks and the Buffalo River (Figure 2).



USGS TOPOGRAPHIC MAP
 BUFFALO SE, NE, N.Y. 1965

VICINITY MAP
 MOBIL OIL CORPORATION

FIGURE 1

The site was previously owned by the City of Buffalo and used for disposal of municipal refuse between 1920 and 1951. Mobil purchased the site from the city in 1951 and subsequently has disposed of waste material at the site including construction debris, tank sediments, cracking and reforming catalysts, sewer sediments, caustic sludge and asphalt contaminated soil. In general, the location, character and extent of these wastes are not known.

At present, the site is occupied by two above ground tanks, four buried propane tanks and associated cullet dikes, piping and appurtenances. The site is bounded on north by an automobile junkyard, on the west by a railroad line and on the south and southeast by the Buffalo River. The topography is generally flat.

1.2 Previously Completed Investigations

In 1983, a Phase I Investigation study was performed for this site by Recra Research, Inc. This study utilized, among other data, the sampling and analytical data produced by the U.S. Geological Survey in May, 1983. The study report documented that the analytical results revealed the presence of such contaminants as lead, iron, cyclohexane and aliphatic hydrocarbons. The report stated that the available data were inadequate to complete the HRS sheets and recommended additional investigations.

The site is currently listed in the NYS Registry of Inactive Hazardous Waste Disposal sites and is designated as 2(a). Mobil is undertaking this investigation to collect additional data necessary for the assessment of the site.

2.0 PHASE II INVESTIGATION OBJECTIVES

The overall objective of this investigation is to obtain additional data to permit the preparation of a final, documented and defensible Hazard Ranking System for the site and to make a preliminary hydrogeologic and contamination assessment. The work plan is prepared to achieve the following specific objectives.

- o define the geologic, hydrogeologic and topographic characteristics of the site.
- o determine the characteristics and general limits of hazardous waste present at the site.
- o assess the air, groundwater and surface water contamination and its relationship with the environment.
- o prepare a final HRS score and
- o prepare a final site investigation report to document the data and results of the investigation activities.

3.0 PHASE II FIELD INVESTIGATION PROGRAM

The proposed Phase II Field Investigation Program has been prepared to achieve the objectives stated in Section 2 and consists of several sequential activities which are discussed herein.

3.1 Site Reconnaissance and Data Review - The objective of this activity is: to collect and review readily available data; to perform air monitoring surveys; to establish preliminary location of soil borings, monitoring wells and measurement stations; and to collect information readily available from visual observation and simple measurements.

Site reconnaissance will be the first task to be performed at the site. A two-man team, headed by a senior hydrogeologist and equipped with an HNu photoionizer and safety equipment (up to full Level C protection) will enter the site. The team will perform air monitoring with an HNu photoionizer and determine the level of protection required for the safety of workmen. HNu readings will be taken along the perimeter of the site for screening purposes and at predetermined locations across the site. Predominant wind direction and speed will be noted to establish the upwind and downwind directions. Should high positive readings be recorded, additional and more detailed air monitoring will be performed.

R

The team will establish preliminary location of sampling points and use these locations as a point of reference for air monitoring and subsurface investigations. All information will be noted on a previously-prepared map of the site and in field notebooks with a preprinted checklist of information required for USEPA Forms 2070-12 and 2070-13.

Data available at the site, including the historical records and the previous geologic and hydrogeologic studies, will be thoroughly reviewed to develop an understanding of the site and waste disposal practices. The primary sources of information include Mobil, for its period of ownership, NYSDEC, the City of Buffalo and the Erie County Health Department. The geologic and hydrogeologic information will include soil boring logs, monitoring wells and construction records for the underground utilities at the Buffalo Terminal facilities immediately to the north and the west of the site and the information available with the New York State Geological Survey.

The results of this activity will be utilized to establish the site protection level and to finalize the location of monitoring wells and sampling points.

3.2 Geophysical Surveys - The Geophysical Surveys are generally carried out to determine the limits of buried metallic objects, soil stratigraphy and depth to bedrock and preliminary location of potential contaminant plumes. Ideally, this approach provides maximum areal

coverage of a site at a small cost and facilitates selection of location and depth of the soil borings and monitoring wells.

For the Buffalo Terminal Disposal Site, the geophysical survey program is limited to the use of a metal detector or a magnetometer, as appropriate to minimize the possibility of encountering metallic objects during drilling. It is our opinion that the usefulness of normal geophysical surveys will be doubtful due to the interference caused by the construction debris and uncertain nature of fill deposited at the site.

3.3 Construction of Monitoring Wells - Five (5) groundwater monitoring wells will be constructed and developed for sampling of the groundwater and measurement of the groundwater level elevations. The drilling and well installation will be performed by Empire Soils Investigation, Inc. of Orchard Park, New York. R

The monitoring wells will be installed at the tentative locations shown on Figure 2. Two of these wells (MW1 and MW5) are located upgradient of the waste disposal site and the remaining three wells (MW2, MW3 and MW4) are located on the anticipated downgradient side along the Buffalo River banks. The actual location of these wells will be finalized on the basis of the equipment access and the results of geophysical surveys. The downgradient wells will be located as close to the river bank as physically possible. The location and depth of these wells is based upon the groundwater flow direction depicted on R

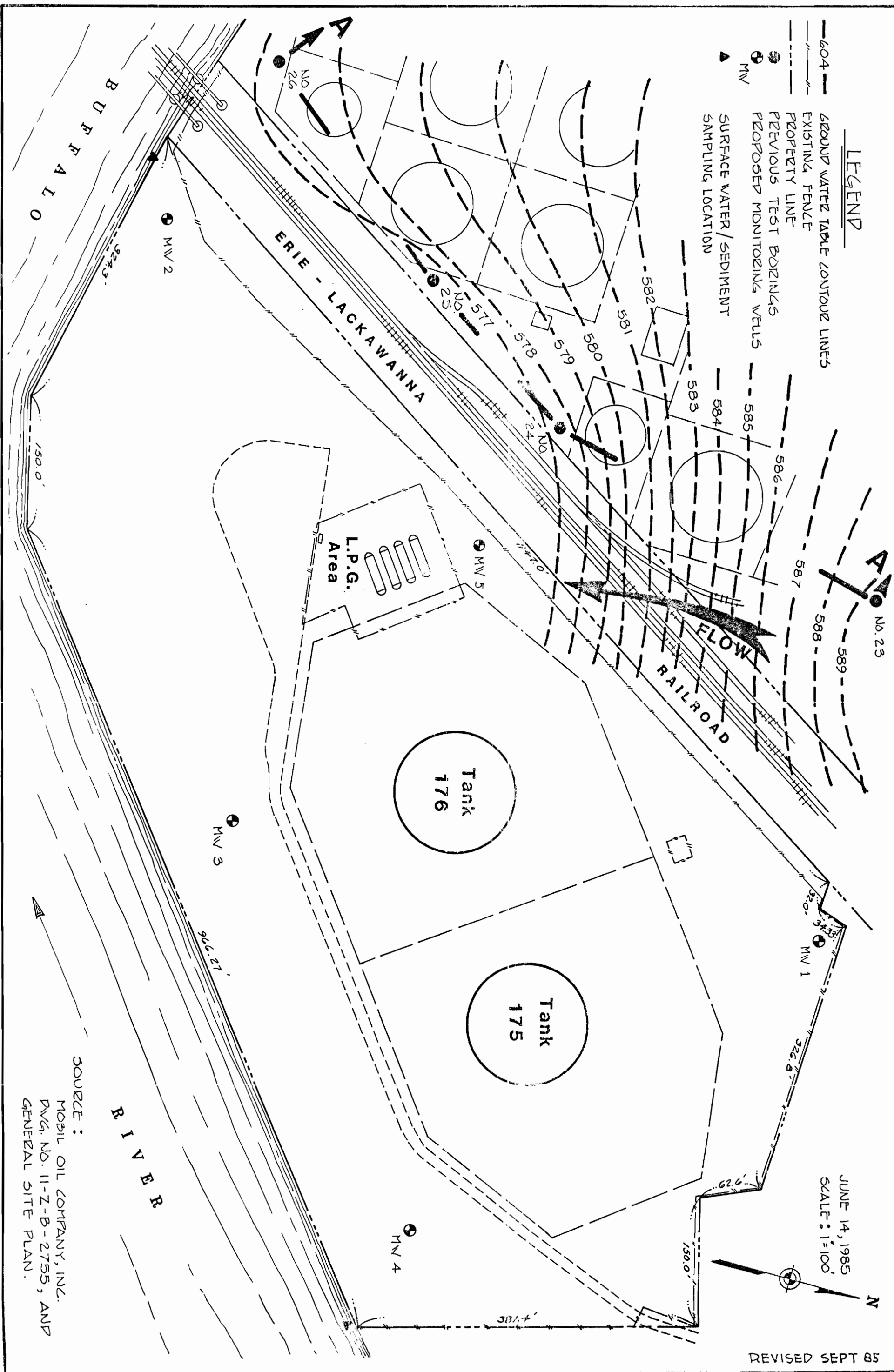


Figure 2 and the soil profile shown on Fig. 3 which was developed from the investigations performed at the Buffalo Terminal Facilities. This information appears to be reasonable at this time. All the monitoring well holes will be augered to the brown clay layer and the wells will be terminated immediately above it. This clay layer is expected to act as an aquitard. Well MW1 will be 20 ft. deep, MW2 and MW3 each 35 ft. deep and MW4 and MW5 each 30 ft. deep. It is conceivable that the review of additional data may change this conclusion and therefore the location and depth of the monitoring wells.

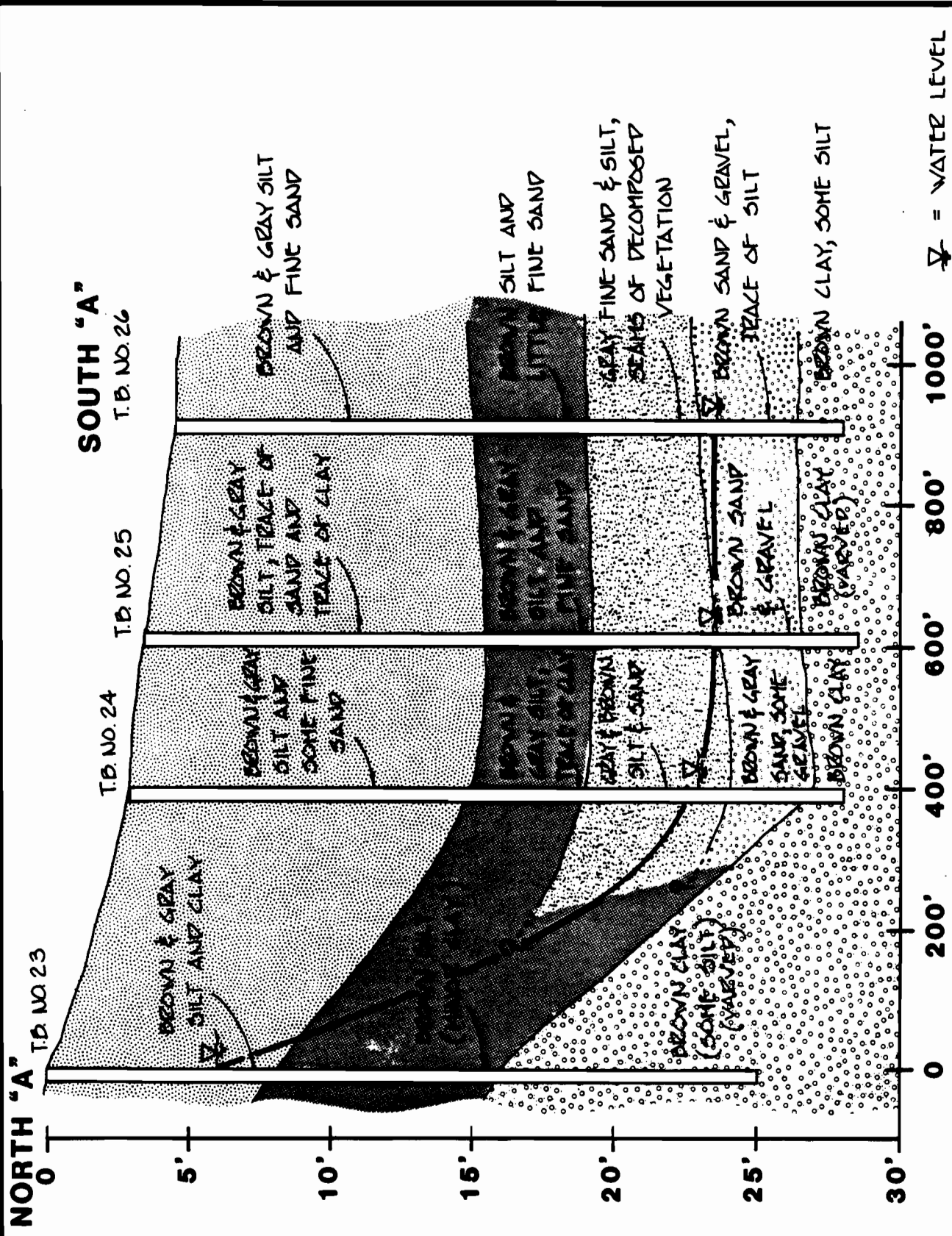
R

The wells will be constructed of a 2-inch, threaded, flush-joint schedule 40 PVC pipe with a minimum of ten (10) foot screen length. The well screens will extend at least one foot above the water table in the shallow aquifer and will rest on one foot of sand pack at the bottom. The borings for the wells will be advanced using a 4-inch ID hollow stem auger. The location of each boring will be cleared using a metal detector or a magnetometer as appropriate, to minimize the possibility of encountering metallic objects. The boring will be continuously sampled using a standard split spoon sampler and all the samples will be screened with an HNu photoionizer for volatiles. If a confining layer of sufficient thickness is encountered, it will be sampled using a Shelby tube. The samples will be visually inspected and classified by a senior hydrogeologist in the field using an approved procedure (ASTMD-2488) and properly placed in wide-mouth, teflon top glass jars for testing and/or storage for future reference. Any sample suspected to be contaminated will be placed in air tight, precleaned

R

jar, properly identified, chilled, and transported to the laboratory for preservation and future testing. Information will be noted on boring logs including date, boring number, sample number and depth, soil description, blow counts and depth to groundwater. For each well, three soil samples in the proposed screened interval will be analyzed for grain size distribution, Atterberg limits and moisture content. The split spoon sampler will be properly decontaminated after each sample by washing with a detergent, rinsed with water, given an acetone wash and finally cleaning with a hexane wash to avoid cross contamination of the soil. Lithologic logs of each boring will be prepared in the field. The drilling equipment will be decontaminated between monitoring wells using steam cleaning methods.

Each hole will penetrate a minimum of ten (10) feet into the aquifer of concern below the watertable encountered in the field. Subsequently, a 2-inch PVC pipe assembly, with a minimum of ten (10) foot slotted pipe screen at the bottom, will be carefully lowered inside the auger casing and the annular space around and within two (2) feet above the screen will be backfilled with suitable sand pack. A two (2) foot bentonite seal will be placed above the sand pack and the remaining length of the hole will be sealed with bentonite-cement grout. The PVC pipe will extend two (2) feet above the ground. A five (5) foot protective steel casing with a vented cap and lock will be installed to a height of thirty (30) inches above the ground surface and properly grouted in a concrete collar extending three (3) feet below the surface. Slug tests will be performed in screened intervals to determine the



permeability of the aquifer. All monitoring wells will be single wells as we do not anticipate the need for a multiple well cluster at this site.

Upon completion of the well installation, each well will be developed (pumped) until sediment free. Once the well has been completed, elevation and location of the well will be surveyed to include the top of the protective casing (with cap removed), the top of the inside PVC pipe, and the ground surface next to the well. All survey data will be tied to a bench mark inside the Terminal facility.

The well construction work will be performed using Level D protection with Level C backup. During the performance of the work, the site conditions and soil samples will be continuously monitored with an HNu photoionizer. Should the site conditions require the use of Level C protection, the work will be stopped immediately and all personnel not equipped with level C protection will be removed from the site. A complete evaluation of the safety level upgrading needs will be made and the work will not be resumed until all workmen are provided with the necessary protective equipment.

All excess contaminated soil cutting and waste (if any encountered) will be safely packed in 55 gallon NYSDOT approved drums and stored at the site.

3.4 Monitoring Well Sampling - Each monitoring well will be sampled on a minimum of one occasion. The wells will be purged by removing a volume of water equal to three times the volume of the casing or until pumped dry and allowed to recover for a period of 24 hours. An ISCO model 2600 (bladder-type) pump will be used to purge the wells. The tubing used in the pumping process will be discarded after each well purging in order to eliminate cross contamination between wells. Prior to purging, initial groundwater level elevations will be obtained using an electronic liquid level sensor. The sensor probe will be rinsed with distilled water and allowed to air dry between wells.

After the wells have recovered for a minimum of 24 hours, groundwater water levels in each well will be measured. Subsequently, a bottom fill stainless steel bailer with a teflon "Close-Valve" will be used to collect water samples. The nylon cord used to lower the bailer into the well will be discarded after completion of sampling at each well and the bailer will be thoroughly cleaned between each well using the following protocol:

- o Rinse with fresh water
- o Scrub with Liqui-Nox detergent
- o Rinse with water
- o Rinse with 50-50 acetone hexane solution
- o Final rinse with distilled water
- o Allow to air dry.

The upgradient wells will be sampled first followed by the downgradient wells. For each sample, field pH, temperature and conductivity measurements will be made and sample will be placed in appropriate, pre-cleaned bottles or septa vials, labelled, chilled and immediately shipped to the analytical laboratory for preservation and analysis.

R

3.5 Surface Water Sampling/Sediment Sampling - The surface water in the Buffalo River will be sampled at two locations one upstream of the site and one immediately downstream. The samples will be collected near the shores to minimize the impact of other industries in the area on the analyses results. The samples will be obtained using a pond sampler with separate bottles designated for each sampling location. For each sample, field pH, temperature and conductivity measurements will be recorded and the samples will be properly labelled, chilled and transported to the analytical laboratory.

R

The sediment in the Buffalo River will be sampled at two locations. These locations will be the same as the surface water sample locations. The samples will be collected near the shores using a Ponar dredge limnological sampling device which obtains grab-type samples. This is a clam shell-type device which is lowered in the open position and automatically closes when retrieved. The samples will be properly labeled, chilled, and transported to the analytical laboratory.

R

3.6 On-Site Soil Sampling - The location and nature of the waste disposed of at the site is essentially unknown. Therefore, shallow soil sampling will be performed at selected locations to investigate the presence and extent of hazardous waste substances at the site. Eleven (11) shallow (10 foot deep) and one (1) deep (approximately 35 feet deep) auger holes will be drilled across the site. The location of these holes will be selected in the field on the basis of visual observations, results of geophysical survey, and equipment access. These holes will be drilled using a hollow stem auger and continuously sampled to a depth of ten (10) feet using a standard split spoon sampler. The deep auger hole, below the 10 foot depth, will be sampled every five feet or at strata change and will penetrate the entire depth of the fill. Each sample will be screened with an HNu photoionizer and visually classified by the Hydrogeologist in the field. If a sample is determined to be contaminated with waste, it will be so noted on the boring log and properly preserved and sealed for shipment to the laboratory for analyses as required. In addition, all the soil samples from at least three (3) shallow holes suspected of contamination will be properly preserved and sealed for shipment to the laboratory for analyses. All other samples will be placed in wide-mouth, teflon top glass jars for future reference and use. A descriptive lithologic log will be prepared of each hole. The hole will be grouted with a cement grout upon completion. Sampling spoon and drilling equipment will be decontaminated as discussed under Construction of Monitoring Wells.

R

All excess contaminated soil cuttings and waste (if any encountered) will be placed in NYSDOT-approved 55 gallon drums and stored on site. A field survey will be conducted to determine the location and elevation of the soil borings.

3.7 Laboratory Analyses - Laboratory analyses will be performed on all groundwater, surface water, and sediment samples collected at the site. In addition, three shallow soil borings suspected to be most contaminated will be selected for soil analyses. A composite soil sample, representing the entire depth of the boring, will be prepared and analyzed. Further, it is recognized that the NYSDEC may collect split samples for the groundwater, surface water, and/or sediment samples and all the soil samples from a designated shallow soil boring.

All groundwater and surface water samples will be analyzed for the hazardous substances listed in Table 1, inorganic constituents listed in Table 2, and indicator constituents listed in Table 3 plus TOX. The sediment samples and soil samples will be analyzed for the same parameters except for TOX. In addition, a GC/MS scan will be performed to identify and quantify all peaks greater than ten (10) percent of the nearest calibrating standard.

The analytical program included in this work plan was suggested by the NYSDEC. This program is much more extensive than the program proposed by Mobil in the original work plan selected to cover the range of chemical constituents normally associated with wastes

TABLE 1
ANALYTICAL PARAMETER
HAZARDOUS SUBSTANCE LIST

<u>Volatiles</u>	<u>CAS Number</u>
1. Chloromethane	74-87-3
2. Bromomethane	74-83-9
3. Vinyl Chloride	75-01-4
4. Chloroethane	75-00-3
5. Methylene Chloride	75-09-2
6. Acetone	67-64-1
7. Carbon Disulfide	75-15-0
8. 1,1-Dichloroethene	75-35-4
9. 1,1-Dichloroethane	75-35-3
10. trans-1,2-Dichloroethene	156-60-5
11. Chloroform	67-66-3
12. 1,2-Dichloroethane	107-06-2
13. 2-Butanone	78-93-3
14. 1,1,1-Trichloroethane	71-55-6
15. Carbon Tetrachloride	56-23-5
16. Vinyl Acetate	108-05-4
17. Bromodichloromethane	75-27-4
18. 1,1,2,2-Tetrachloroethane	79-34-5
19. 1,2-Dichloropropane	78-87-5
20. trans-1,3-Dichloropropene	10061-02-6
21. Trichloroethene	79-01-6
22. Dibromochloromethane	124-48-1
23. 1,1,2-Trichloroethane	79-00-5
24. Benzene	71-43-2
25. cis-1,3-Dichloropropene	10061-01-5
26. 2-Chloroethyl Vinyl Ether	110-75-8
27. Bromoform	75-25-2
28. 2-Hexanone	591-78-6
29. 4-Methyl-2-pentanone	108-10-1
30. Tetrachloroethene	127-18-4
31. Toluene	108-88-3
32. Chlorobenzene	108-90-7
33. Ethyl Benzene	100-41-4
34. Styrene	100-42-5
35. Total Xylenes	

R

TABLE 1 (Contd.)

ANALYTICAL PARAMETER
HAZARDOUS SUBSTANCE LIST

	<u>Semi Volatiles</u>	<u>CAS Number</u>	R
36.	N-Nitrosodimethylamine	62-75-9	
37.	Phenol	108-95-2	
38.	Aniline	62-53-3	
39.	bis(2-Chloroethyle) ether	111-44-4	
40.	2-Chlorophenol	95-57-8	
41.	1,3-Dichlorobenzene	541-73-1	
42.	1,4-Dichlorobenzene	106-46-7	
43.	Benzyl Alcohol	100-51-6	
44.	1,2-Dichlorobezene	95-50-1	
45.	2-Methylphenol	95-48-7	
46.	Bis(2-Chloroisopropyl) ether	39638-32-9	
47.	4-Methylphenol	106-44-5	
48.	N-Nitroso-Dipropylamine	621-64-7	
49.	Hexachloroethane	67-72-1	
50.	Nitrobenzene	98-95-3	
51.	Isophorone	78-59-1	
52.	2-Nitrophenol	88-75-5	
53.	2,4-Dimethylphenol	105-67-9	
54.	Benzoic Acid	65-85-0	
55.	bis(2-Chloroethoxy) methane	111-91-1	
56.	2,4-Dichlorophenol	120-83-2	
57.	1,2,4-Trichlorobenzene	120-82-1	
58.	Naphthalene	91-20-3	
59.	4-Chloroaniline	106-47-8	
60.	Hexachlorobutadiene	87-68-3	
61.	4-Chloro-3-methylphenol (para-chloro-meta-cresol)	59-50-7	
62.	2-Methylnaphthalene	91-57-6	
63.	Hexachlorocyclopentadiene	77-47-4	
64.	2,4,6-Trichlorophenol	88-06-2	
65.	2,4,5-Trichlorophenol	95-95-4	
66.	2-Chloronaphthalene	91-58-7	
67.	2-Nitroaniline	88-74-4	
68.	Dimethyl Phthalate	131-11-3	
69.	Acenaphthylene	208-96-8	
70.	3-Nitroaniline	99-09-2	
71.	Acenaphthene	83-32-9	
72.	2,4-Dinitrophenol	51-28-5	
73.	4-Nitrophenol	100-02-7	
74.	Dibenzofuran	132-64-9	
75.	2,4-Dinitrotoluene	121-14-2	

TABLE 1 (Contd.)

ANALYTICAL PARAMETER
HAZARDOUS SUBSTANCE LIST

<u>Semi Volatiles (continued)</u>	<u>CAS Number</u>	R
76. 2,6-Dinitrotoluene	606-20-2	
77. Diethylphthalate	84-66-2	
78. 4-Chlorophenyl Phenyl ether	1005-72-3	
79. Fluorene	86-73-7	
80. 4-Nitroaniline	100-01-6	
81. 4,6-Dinitro-2-methylphenol	534-52-1	
82. N-nitrosodiphenylamine	86-30-6	
83. 4-Bromophenyl Phenyl ether	101-55-3	
84. Hexachlorobenzene	118-74-1	
85. Pentachlorophenol	87-86-5	
86. Phenathrene	85-01-8	
87. Anthracene	120-12-7	
88. Di-n-butylphthalate	84-74-2	
89. Fluoranthene	206-44-0	
90. Benzidine	92-87-5	
91. Pyrene	129-00-0	
92. Butyl Benzyl Phthalate	85-68-7	
93. 3,3'-Dichlorobenzidine	91-94-1	
94. Benzo(a)anthracene	56-55-3	
95. bis(2-ethylhexyl)phthalate	117-81-7	
96. Chrysene	218-01-9	
97. Di-n-octyl Phthalate	117-84-0	
98. Benzo(b)fluoranthene	205-99-2	
99. Benzo(k)fluoranthene	207-08-9	
100. Benzo(a)pyrene	50-32-8	
101. Indeno(1,2,3-cd)pyrene	193-39-5	
102. Dibenz(a,h)anthracene	53-70-3	
103. Benzo(g,h,i)perylene	191-24-2	

TABLE 1 (Contd.)
 ANALYTICAL PARAMETER
 HAZARDOUS SUBSTANCE LIST

	<u>Pesticides</u>	<u>CAS Number</u>
104.	alpha-BHC	319-84-6
105.	beta-BHC	319-85-7
106.	delta-BHC	319-86-8
107.	gamma-BHC (Lindane)	58-89-9
108.	Heptachlor	76-44-8
109.	Aldrin	309-00-2
110.	Heptachlor Epoxide	1024-57-3
111.	Endosulfan I	959-98-9
112.	Dieldrin	60-57-1
113.	4,4'-DDE	72-55-9
114.	Endrin	72-20-8
115.	Endosulfan II	33213-65-9
116.	4,4'-DDD	72-54-8
117.	Endrin Aldehyde	7421-93-4
118.	Endosulfan Sulfate	1031-07-8
119.	4,4'-DDT	50-29-3
120.	Endrin Ketone	53494-70-5
121.	Methoxychlor	72-43-5
122.	Chlordane	57-74-9
123.	Toxaphene	8001-35-2
124.	AROCLOR-1016	12674-28-2
125.	AROCLOR-1221	11104-28-2
126.	AROCLOR-1232	11141-16-5
127.	AROCLOR-1242	53469-21-9
128.	AROCLOR-1248	12672-29-6
129.	AROCLOR-1254	11097-69-1
130.	AROCLOR-1260	11096-82-5

TABLE 2

ANALYTICAL PARAMETERS
INORGANIC CONSTITUENTS ²

Arsenic (206.2)¹
Barium (208.1)
Cadmium (213.2)
Chromium, *total* (218.1)
Chromium, hexavalent (7185)
Lead (239.2)
Mercury (245.1)
Nickel (249.2)
Selenium (270.2)
Silver (272.2)
Sodium (273.1)
Calcium (215.1)
Magnesium (242.1)
Sulfate (375.4)
Chloride (325.3)
Ammonia Nitrogen (350.3)

R

¹Method number refer to EPA-600/4-79-020; Method for Chemical Analysis of Water and Wastes *except hexavalent chromium which refers to SW-846*

²All Metals analysis will be performed as soluble constituents unless, as is the case with certain methods, the method dictates otherwise.

TABLE 3

ANALYTICAL PARAMETERS
INDICATOR CONSTITUENTS

R

Total Organic Carbon (415.1)¹

Total Inorganic Carbon (415.1)

Total Recoverable Phenolics (420.1)

Specific Gravity (D-1429)

¹Method number refer to EPA-600/4-79-020; Methods for Chemical Analysis of Water and Wastes except for specific gravity which is a method from American Society for Testing and Materials (ASTM)

generated by oil refineries. Mobil will carry out this analytical program using its own laboratory located in Princeton, New Jersey. The laboratory is certified by the State of New Jersey (certificate number 11401) for water pollution, microbiology, limited chemistry, atomic absorption and gas chromatography analyses. The analyses will be performed using appropriate QA/QC protocols and chain-of-custody procedures presented in Appendix A.

3.8 Surveying and Mapping - Upon completion of the field investigation activities, a survey crew under the direction of a licensed land surveyor will obtain the elevations and locations of all sampling stations on and adjacent to the site. This information will be included on a site map, which will also indicate the locations of major planimetric features and the estimated limits of waste materials onsite.

3.9 QA/QC PROCEDURES

The work will be performed using approved standard procedures to assure that high quality data are obtained. The following procedures/methods will be used:

- (a) Field Control Surveys will be performed to establish locations and elevation of sampling points using a Hewlett-Packard Electronic Distance Meter and a Lietz Automatic Level.

- (b) Geophysical Survey will be performed using Geot Metrics G 856 Proton Magnetometer.
- (c) Site screening will be performed using an HNu photoionizer in accordance with the Operating manual for this instrument.
- (d) All drilling, soil sampling and monitoring well construction will be continuously supervised by a Senior Hydrogeologist. Drilling and sampling will be conducted using standard ASTM procedures and all information will be recorded on boring logs and sample containers. All soil samples will be screened with an HNu for contamination. The procedures for drilling and monitoring well construction are discussed in Section 3.
- (e) All sampling tools and drilling equipment will be decontaminated during the performance of the work and before leaving the site as described in Section 3.
- (f) All wells will be carefully developed, sealed and protected.
- (g) Samples for chemical analyses will be collected, preserved and transported using procedures included in Appendix A.
- (h) Laboratory analyses will be performed by Mobil using approved methods and protocols in accordance with Mobil's QA/QC procedures included in Appendix A.

3.10 HEALTH AND SAFETY PROCEDURES

Based on existing information relative to the site, the presence of volatile substances at hazardous levels in the air is not expected. For this reason, it is anticipated that all onsite personnel will perform the field work using level D protection; although, as a precautionary measure, level C will be used during the initial site air monitoring.

The site personnel will observe and follow the safety regulations and policies contained in the URS Corporate Health and Safety Plan and the following documents and enclosed in Appendix B of this work plan:

- o Contractor's safety check list
- o Mobil Oil's "facial hair policy"
- o Alcohol and drug abuse policy.

The following steps will be implemented to assure that the health and safety of workmen is fully protected:

- (a) All personnel performing the field investigation will be required to participate in medical surveillance program (as described in the URS Corporate Health and Safety Plan) to assure that each individual is healthy and capable of fully participating in the program including the ability to use respiratory protection.

- (b) Prior to beginning the field work, a training session will be held for all personnel to advise them of site conditions, applicable personnel safety requirements, contingency procedures in the event of emergencies, communications and procedures for obtaining assistance in the event of an injury, etc., and decontamination procedures.
- (c) An initial screening of the site with an HNu photoionizer will be performed to detect the presence of volatile substances. Subsequently, continuous monitoring will be performed during all site activities to detect any unexpected releases of volatile substances.
- (d) As indicated above it is anticipated that level D protection will be adequate during the investigations at the Mobil site. However, should the results of air monitoring indicate the need for a higher level of protection, the workmen will be equipped with the appropriate level of protection before entering the site.
- (e) Senior hydrogeologist supervising the investigations will be designated the Person-In-Charge. No personnel will be allowed on site without his acknowledgement and consent. A "buddy system" will be observed and on-site workers will act as safety back up to each other.

- (e) A two way radio communication will be maintained with the Mobil's Terminal office which is fully equipped with telephone and telephone numbers for police, medical facility, ambulance and fire department.
- (f) Fire extinguishers will be maintained near the drill rig.
- (g) All personnel protective equipment, drilling and sampling equipment will be decontaminated as discussed under Section 3 of the work plan.
- (h) Should the site condition reveal a need for upgrading the level of protection during the progress of the work, all personnel will be immediately removed from the site and the work will be shut down until a determination of safe protection level is made and workmen are provided with appropriate protection equipment.

4.0 PREPARATION OF PHASE II INVESTIGATION REPORT

The results of Phase II investigation activities will be documented in a report which will include all data, data interpretation and methods and procedures used in the work. The report will be prepared in accordance with NYS DEC guidelines and as a minimum will include the following:

- o Table of Contents
- o Executive Summary
- o Goals of the Phase II investigation
- o Scope of Work
- o An assessment of the site hydrogeology and topography
- o An assessment of the site contamination
- o An assessment of the site environmental impacts
- o Final HRS score sheets
- o All other pertinent data, information and references
- o Documentation of QA/QC procedures used during the investigation
- o A plan drawing showing the location and elevation of soil borings and monitoring wells and location of surface water samples
- o Geologic cross Section(s) to depict the subsurface condition
- o All raw data

R

It will also outline the future course of action such as need for R
additional studies and/or remediation action.

APPENDIX A

QA/QC PROCEDURES

SAMPLING PROCEDURES
FOR
GROUNDWATER AND SURFACE WATER

1. Sample Container Preparation and Cleaning

Prior to the use of sample containers in the field, they will be precleaned in the laboratory. The cleaning method will depend upon the type of analysis the sample is to be subjected to. In this regard, three (3) basic cleaning procedures are utilized depending on whether the sample is to be analyzed for organic priority pollutants, metals or conventional parameters.

The cleaning protocol for sampling containers for samples to be analyzed for organics is as follows.

- Rinse with tap water.
- Scrub with liquinox detergent solution.
- Rinse with tap water.
- Rinse with Methylene chloride.
- Triple rinse with distilled water.
- Oven bake at 110°C for 1 hour.

The cleaning protocol for sampling containers for samples to be analyzed for metals and cyanide is as follows.

- Rinse with tap water.
- Scrub with liquinox detergent solution.
- Rinse with tap water.
- Wash with warm 10% HCl solution (analytical grade HCl).
- Triple rinse with distilled water.
- Air dry.

The cleaning protocol for sampling containers for samples to be analyzed for conventional parameters is as follows.

Rinse with tap water.

Rinse with distilled water.

2. Surface Water Sampling

At both surface water sampling stations, the "skinner list" volatile organic samples are collected by grab sampling. These samples are placed in precleaned glass sample containers and sealed with a Teflon^(R) lined cap in a manner to ensure that no air bubbles are present within the sample container. Samples for cyanide analysis are also collected by grab sampling. All other sample fractions will collected by auto-compositing methods over a 24-hour period at discrete time intervals.

3. Groundwater Sampling

Groundwater samples are collected from monitoring wells. Each time the samples are collected, each well is fully purged of all stagnant water and allowed to recover prior to actual sampling. Purging is considered sufficient when either three (3) well volumes have been evacuated or the well runs dry. The well purging procedure is as follows.

Measurement of initial liquid level using liquid sensor. Clean probe by rinsing with distilled water between readings.

Using an ISCO 2600 well sampler - purge three (3) well volumes or until well runs dry.

Collect all liquid extracted from well and dispose of in an acceptable manner.

Clean well sampler and tubing between each well purging as follows:

- Rinse well pump and tubing thoroughly with water.

- Scrub inside and outside of pump and outside of tubing with detergent and brush,.
- Rinse thoroughly with water.
- Pump through pump and tubing with distilled water, a 50:50 mixture of acetone/hexane solution, and then distilled water.

The well sampling procedure is as follows.

Prewash stainless steel bailers as follows:

- Scrub with detergent inside and out.
- Rinse with water.
- Rinse with distilled water
- Rinse with 50:50 mixture of acetone/hexane solution.
- Rinse with distilled water.

Take an initial liquid level reading using the liquid level sensor. Clean with distilled water.

When collecting samples, dump first bailer into storage bottle, then begin sampling using a stainless steel, bottom-filled bailer fitted with a Teflon^(R) valve.

Use nylon rope attached to the bailer, and change ropes between wells.

Perform conductivity readings after each well sample is collected.

Clean bailer after each well sample using protocol described above.

4. Sample Handling and Preservation

Sample containers, preservation methods and maximum sample holding times will be in accordance with approved procedures as described in the Federal Register, December 18, 1979, Vol. 44, No. 244.

5. Field Recording Procedures

A field notebook is maintained during all sampling. Data and information recorded at the time of sampling includes sampling date, sample description and identification code, sample preservation and observations relative to the sampling conditions (e.g. weather, etc.). Also, results of field measurements (conductivity, pH, etc.) are recorded in this notebook.

6. Sample Custody Procedures

6.1 Sample Identification

Each sample is identified with a label of the type shown in Figure 1. Each sample is assigned a field identification number which will be listed on the tag with all other pertinent information.

6.2 Chain-of-Custody Tracking

All samples are maintained under strict chain-of-custody protocols. In the field, each sample is sealed and checked for proper labeling. The samples is then packed into lockable metal coolers with blue-ice freeze packs. A chain-of-custody form (Figure 2) is completed for each shipment. The form is signed in turn by the person who collected the samples, the person relinquishing the samples to the transporter, the transporter, and the laboratory person receiving the samples.

FIGURE 1
SAMPLE COLLECTION LABEL

Sample Code	CONTRACT NO:				DATE	TIME	N 1000
	DESIGNATE		TEMPERATURE	pH	PRESERVATIVE		
	COMP	GRAB					
Seq. No.	SOURCE				SAMPLER (Signature):		
Control No.							ANALYSES
							Volatiles Organics
							Extractable Org.
							Pesticides/PCBs
							Trace Elements
							Cyanide
							Phenols
							Oil and Grease
							Solids
							BOD
						Bacteria	
						Radioactivity	
						COD, TOC	
						NH ₃ Org. N	
						Nitrate, Nitrite	
						Sulfate, Sulfonate	
						Sulfide	
						B ⁻ , F ⁻ , Chlor	
						Phosphate	

CHAIN OF CUSTODY RECORD

URS Company, Inc.

SAMPLER *(Signature)*

SAMPLE DESCRIPTION	DATE	TIME	SAMPLE IDENT. NO.	SAMPLE TYPE		PRESERVATION USED	ANALYSIS REQUIRED
				COMP	GRAB		

THIS SECTION TO BE COMPLETED BY URS COMPANY INC.

<i>Relinquished by: (Signature)</i>	<i>Received by: (Signature)</i>	<i>Date/Time</i>
<i>Relinquished by: (Signature)</i>	<i>Received by: (Signature)</i>	<i>Date/Time</i>

DISPATCHED BY: (Signature)

METHOD OF SHIPMENT:

THIS SECTION TO BE COMPLETED BY THE SUBCONTRACTOR

<i>Relinquished by: (Signature)</i>	<i>Received by: (Signature)</i>	<i>Date/Time</i>
<i>Relinquished by: (Signature)</i>	<i>Received by: (Signature)</i>	<i>Date/Time</i>

Name and Location of Laboratory

Return Completed Chain Of Custody Record To

URS Company Inc.
625 Delaware Ave.
Buffalo, New York 14202

7. Transportation of Samples to Laboratory

Prior to shipment, all sample coolers are marked in accordance with U.S.D.O.T. regulations (49CFR Part 172). Each cooler is locked and sealed with custody tape. All coolers are shipped from the field to the laboratory by overnight express courier.

APPENDIX A

QA/QC PROCEDURES

MOBIL OIL CORPORATION
TECHNICAL SERVICE LABORATORIES
QUALITY CONTROL ANALYSIS MANUAL
FOR
STATE OF NEW JERSEY LABORATORY
CERTIFICATION PROGRAM

Section I
Quality Control Analyses
for
"Limited Chemistry" Parameters

In all cases where possible, quality control analyses will be conducted in the following manner for parameters in the "Limited Chemistry" category (Table 1) in order to verify the precision of the analytical methods.

- (1) A minimum of one known control sample will be included with every 10-15 analyses with the data presented on \bar{x} control charts. Control samples will be prepared at the concentration levels normally encountered. After 20 such determinations have been conducted, the standard deviation will be obtained and documented on control charts.
- (2) A minimum of one duplicate of a "natural sample" will be included with every 10-15 analyses with the data presented on average range (R) Shewhart control charts.
- (3) A minimum of one spike of a "natural" sample will be included with every 10-15 analyses with the data kept in tabular form as well as presented on appropriate control charts. The amount of spike will vary among the various parameters, not to exceed a value twice that normally encountered.

Table 1
Limited Chemistry Parameters

<u>Parameter</u>	<u>Analytical Method</u>
1. Acidity	EPA 305.1
2. Alkalinity	EPA 310.1
3. Ammonia Nitrogen	EPA 350.2
4. Chemical Oxygen Demand	EPA 410.1
5. Chloride	STM 407
6. Chlorine, Residual	EPA 330.4
7. Color	EPA 110.2
8. Cyanide, Total	EPA 335.2
9. Cyanide, Amenable to Chlorination	EPA 335.1
10. Dissolved Oxygen (electrode)	EPA 360.1
11. Fluoride	EPA 340.2
12. Hardness	EPA 130.2
13. Hydrogen Ion (pH)	EPA 150.1
14. Total Kjeldahl Nitrogen	EPA 351.3
15. Total Solids	EPA 160.3
16. Total Dissolved Solids	EPA 160.1
17. Suspended Solids	EPA 160.2
18. Settleable Solids (volumetric)	EPA 160.5
19. Settleable Solids (gravimetric)	STM 209
20. Specific Conductance	EPA 120.1
21. Sulfate	EPA 375.4
22. Sulfide	EPA 376.2
23. Sulfite	EPA 377.1

Table 1 continued

<u>Parameter</u>	<u>Analytical Method</u>
24. Surfactants	EPA 425.1
25. Temperature	EPA 170.1
26. Turbidity	EPA 180.1
27. Phenols	EPA 420.1
28. Phosphorus, Total (as PO ₄)	STM 424
29. Phosphorus, Total (as P)	STM 424
30. Orthophosphate (as PO ₄)	STM 424
31. Orthophosphate (as P)	STM 424
32. Nitrate	EPA 352.1
33. Nitrite	EPA 354.1
34. Oil and Grease	EPA 413.1
35. Organic Carbon, Total	EPA 415.1
36. Organic Nitrogen	STM 420
37. Chromium VI	STM 312
38. Chromium VI, Dissolved	EPA 218.4

Section II

Quality Control Analyses
for Metals by
Atomic Absorption Spectroscopy

Quality control analyses will be conducted for metals analysis by Atomic Absorption Spectroscopy (Table 2) to verify the precision of all analytical methods and techniques in the following manner:

- (1) A minimum of one known control sample will be included with every 10-15 analyses with the data presented on \bar{x} control charts. Control samples will be prepared at the concentration levels normally encountered. After 20 such determinations have been conducted, the standard deviation will be obtained and documented on control charts.
- (2) A minimum of one duplicate of a "natural" sample will be included with every 10-15 analyses with the data presented on average range (\bar{R}) Shewhart control charts.
- (3) A minimum of one spike of a "natural" sample will be included with every 10-15 analyses with the data kept in tabular form, as well as presented on appropriate control charts. The amount of spike will vary among various metals not to exceed a value twice that normally encountered.

Table 2
Metals by Atomic Absorption

<u>Metal</u>	<u>Analytical Method</u>
1. Aluminum	EPA 202.1
2. Antimony	EPA 204.1
3. Arsenic	EPA 206.2
4. Barium	EPA 208.1
5. Beryllium	EPA 210.1
6. Cadmium	EPA 213.1
7. Calcium	EPA 215.1
8. Chromium	EPA 218.1
9. Cobalt	EPA 219.1
10. Copper	EPA 220.1
11. Iron	EPA 236.1
12. Lead	EPA 239.1
13. Magnesium	EPA 242.1
14. Manganese	EPA 243.1
15. Mercury	EPA 245.1
16. Molybdenum	EPA 246.1
17. Nickel	EPA 249.1
18. Platinum	EPA 255.1
19. Potassium	EPA 258.1
20. Selenium	EPA 270.2
21. Silver	EPA 272.1
22. Sodium	EPA 273.1
23. Thallium	EPA 279.1

Table 2 continued

<u>Metal</u>	<u>Analytical Method</u>
24. Tin	EPA 282.1
25. Titanium	EPA 283.1
26. Vanadium	EPA 286.1
27. Zinc	EPA 289.1

SECTION III
QUALITY CONTROL PROCEDURES
FOR SKINNER LIST ANALYSES
BY GC/MS

Quality control procedures will be conducted for "Skinner List" analyses by GC/MS to verify the precision of all analytical methods and techniques in the following manner:

- (1) Analytical standards, containing the compounds of interest, will be analyzed daily to confirm detection limits and response factors.
- (2) Tuning compounds will be added to every sample, standard and blank to ensure that the published tuning criteria are met for each analysis.
- (3) Multiple internal standards will be added to every sample to assure proper quantitation.
- (4) Surrogate standards will be added to each sample for the purpose of monitoring methods and instrument performance.
- (5) A minimum of one spike of a natural sample will be analyzed, using the compounds of interest, for the purpose of monitoring the recoveries associated with the respective matrix.

APPENDIX B

HEALTH AND SAFETY PROCEDURES

MOBIL OIL CORPORATION
BUFFALO TERMINAL

CONTRACTOR'S SAFETY CHECKLIST

1. HARD HATS - Required at all times.
2. SAFETY GLASSES - Required at all times.
3. JOB PERMITS - Must be obtained daily from the unit operator.
4. HOT WORK PERMITS- Must be obtained daily from the Safety Department prior to burning, welding, or operating any spark producing equipment.
5. SAFE WORK PERMIT- A Safe Work Permit is required prior to starting work on any equipment which has been in acid, caustic or H₂S contaminated service.
6. ENTRY PERMIT - No person shall, under any circumstances, enter any tank, vessel, sump or confined enclosure without an "ENTRY" Permit signed by authorized Safety and Operating Personnel.
7. DIGGING PERMIT - Must be obtained from the Safety Department prior to all digging operations.
8. UTILITIES - Express permission from the project engineer and unit operator must be obtained before making use of any utility (water, steam, air, electricity). The Safety Department will give clearance for use of hydrant water.
9. SMOKING - Permitted only in areas designated by the Safety Dept.
10. PARKING - Only in lot just inside Gate #7.
11. GATE PASSES - All contract personnel are required to register at Product Control Office when entering or leaving Terminal.
12. VEHICLES - Only those authorized by the Safety Department.
13. LAVATORIES - Only those supplied by the contractor, unless project engineer approves use of company facilities.
14. FIRST AID - Contractor's responsibility.
15. FIRE - In the event of fire, all contractors are to leave Terminal through the same gate they entered and remain outside



The shaded portions are your respirator seal areas. Facial hair is Not Permitted on these portions of the face.

Unacceptable



Full Beard



Goatee & Narrow Mustache



Goatee & Wide Mustache



Extended Side Burns



Fu Manchu Mustache

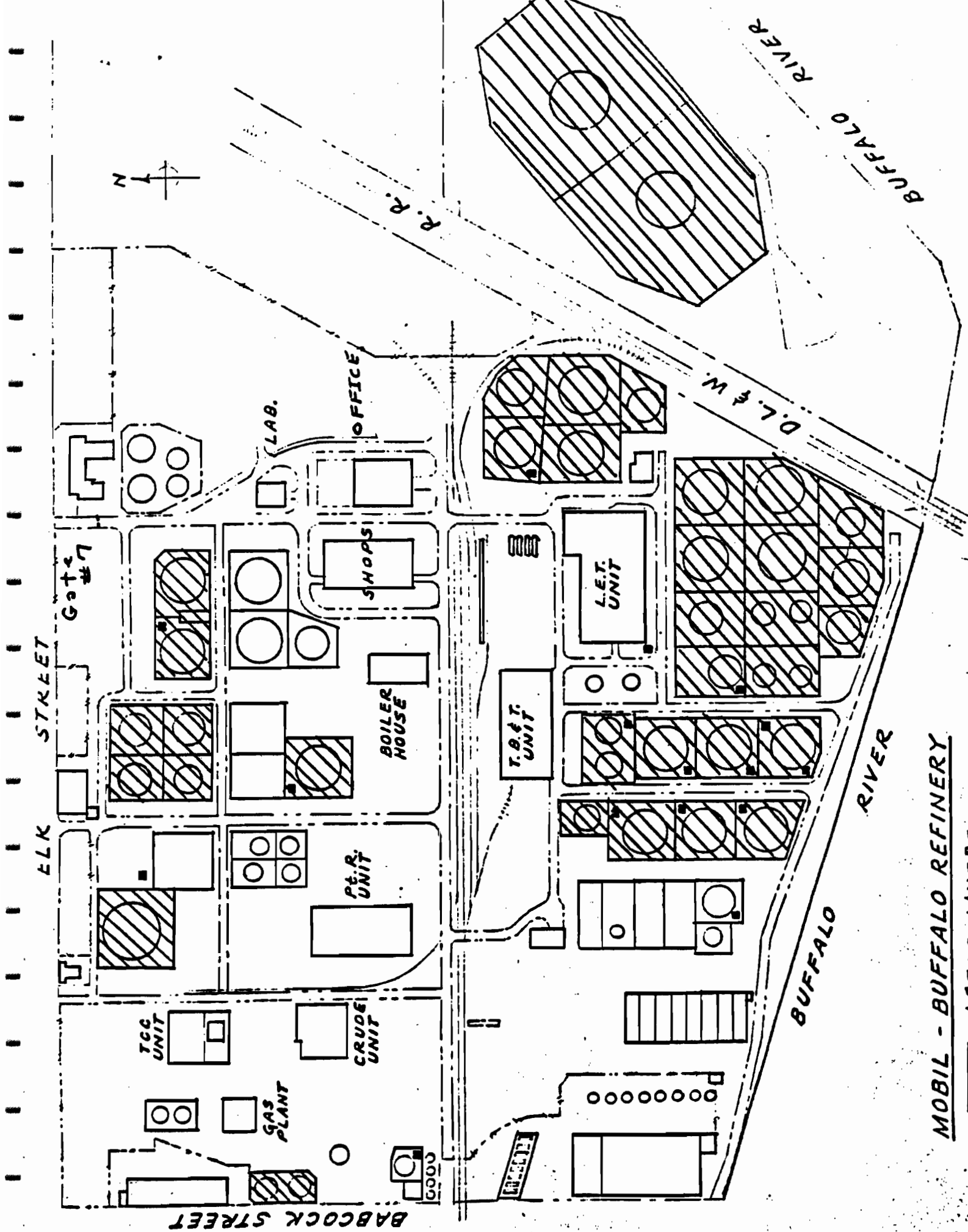


Wide Mustache

Acceptable



Narrow Mustache



MOBIL - BUFFALO REFINERY

777 AREAS WHERE

Mobil Oil Corporation

P.O. BOX 367
BUFFALO, NEW YORK 14240
BUFFALO PRODUCT TERMINAL

BUFFALO TERMINAL FACIAL HAIR POLICY-EFFECTIVE JUNE 1, 1983

Gentlemen:

During the manufacture, handling and storage of petroleum products, there is the possibility of exposure to potentially toxic and hazardous substances. These substances range from simple nuisance dusts and odors, to materials, such as lead vapors, which in sufficient amounts are dangerous to life and health. There also is the potential for oxygen deficiency in confined spaces. For these reasons, protection from respiratory hazards in our facilities may be necessary.

In an effort to better protect those who work in our facilities, we have determined it essential that Mobil Oil Corporation's Buffalo Product Terminal adopt a facial hair policy. This policy is being implemented because of our continuing concern for personal health and safety and not because of any desire or intent to regulate the appearance of anyone.

To protect against respiratory hazards, it may be necessary to utilize air purifying or air supplying respirators for certain working conditions or in emergencies. A necessary element to an effective respiratory protection program is a facial hair policy, since beards, long mustaches, etc., may interfere with the use of these respirators. Mustaches and sideburns are acceptable as long as no facial hair extends into the respirator seal area. (Please refer to the attached drawing which illustrates the facial hair limits in accordance with this policy.)

The Terminal has established areas (see attached map) where this policy applies. Any individual performing any work inside these areas must meet the facial hair limits.

Since these rules affect those in your company who may work in our facility, we must emphasize that workers will be required to be in compliance with this program.

BUFFALO TERMINAL
FACIAL HAIR POLICY-EFFECTIVE JUNE 1, 1983

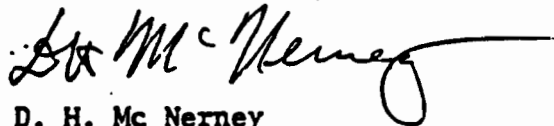
In addition, you should be aware of some of the other safety rules that apply to all persons who work in our facilities, such as:

1. Smoking is prohibited except in designated areas.
2. Industrial safety glasses and hard hats must be worn where required.
3. Permit procedures for safe work, hot work and entry shall apply.

Please ensure that your personnel are familiar with these requirements and are provided with the necessary protective equipment.

We realize that this may cause occasional inconveniences, however, we feel this will result in better protection of your employees, with minimal inconvenience. Thank you for your continued cooperation.

Very truly yours,



D. H. Mc Nerney
Terminal Superintendent

bd

APPENDIX 2
SOIL BORING LOGS

URS CO. INC.

TEST BORING DATA

Contractor: Empire Soil Investigation, Inc.

Test Hole Number MW-1

Client: Mobil Oil Corp.

Local Name: Buffalo Terminal Disposal Site

Location:

Ground El: 19.57 Ft

Driller: Robert Kephart

Date Started: 10/23/85

Initial Ground Water El: 4.57 Ft

Helper: Dan Pawlowski

Date Completed: 10/24/85

24 Hour Ground Water EL: -

Inspector: Jeff Goldenberg

Type of Core Drill: -

Core Diameter: -

Inside Dia. of Auger: 4"

Weight of Hammer on Casing: -

Drop of Hammer on Casing: -

Inside Dia. of Spoon: 1-3/8"

Weight of Hammer on Spoon: 140#

Drop of Hammer on Spoon: 30"

Depth		Sample No. Depth		Blows on Spoons					Rec.	Sample Identification and Profile Change	Well
				0-6	6-12	12-18	18-24	24			
5	H	S-1	0'	2'	17	14	26	12	9"	Red brown CF GRAVEL, some mf Sand, little Silt (Brick, Cinders)	
	O										
	L	S-2	2'	4'	4	9	6	5	12"	Red tan CF SAND, little Silt, little fine Gravel (Cinders, Asphalt)	
	L										
10	O	S-3	4'	6'	1	3	2	2	14"	Same	
	W									Grey MF SAND, little Silt	
		S-4	6'	8'	1	2	5	6	17"	Red brown MF SAND, and Silt	
	S									Black MF GRAVEL, some MF Sand, Trace Silt (Cinders)	
15	T	S-5	8'	10'	3	5	3	4	16"	SAME (with porcelain pieces)	
	E										
	M	S-6	10'	12'	2	2	3	3	3"	SAME (Damp)	
	A	S-7	12'	14'	3	2	2	4	3"	SAME (Damp)	
20	U										
	G	S-8	14'	16'	1	2	2	2	5"	Black MF SAND some MF Gravel, trace Silt (Damp)	
	E									(Cinders, some asphalt & tar)	
	R	S-9	16'	18'	2	3	4	5	2"	SAME (Damp)	
25											
		S-10	18'	20'	3	4	5	4	3"	Black MF SAND, little Silt (slight petroleum smell)	
		S-11	20'	22'	2	2	2	2	8"	SAME (Slight petroleum smell)	
30											
		S-12	22'	24'	2	3	2	6	21"	SAME	
35											
40											

Screen 21'6" to 11'4"

Sand 24' to 9'6"

Sealed 9'6" to 7'6"

Bottom of Hole @ 24.0'

URS CO. INC.

TEST BORING DATA

Contractor: Empire Soil Investigation, Inc. Test Hole Number MW-2

Client: Mobil Oil Corp. Local Name: Buffalo Terminal Disposal Site

Location: Ground El: 4.60 ft

Driller: Robert Kephart Date Started: 10/16/85 Initial Ground Water EL: -4.40ft

Helper: Dan Pawlowski Date Completed: 10/17/85 24 Hour Ground Water EL: -

Inspector: Jeff Goldenberg Type of Core Drill: - Core Diameter: -

Inside Dia. of Auger: 4" Weight of Hammer on Casings: - Drop of Hammer on Casing: -

Inside Dia. of Spoon: 1-3/8" Weight of Hammer on Spoon: 140# Drop of Hammer on Spoon: 30"

Depth	Casing Blows	Sample No. Depth		Blows on Spoons					Rec.	Sample Identification and Profile Change	Well
				0-6	6-12	12-18	18-24	24			
5	H	S-1	0'	2'	10	6	4	5	13"	Grey fine SAND, some Silt (petroleum smell)	GROUT
	O										
	L	S-2	2'	4'	3	3	4	5	14"	SAME (petroleum smell)	BENTONITE
	L										
10	O	S-3	4'	6'	1	2	3	3	18"	Grey Clayey SILT, little fine Sand (petroleum smell)	
	W										
	S	S-4	6'	8'	WOH	WOH	WOH	2	16"	Grey Clayey SILT, some fine Sand, 1/16" to 1/32" laminations in Silt (OILY SMELL)	
	T	S-5	8'	10'	WOH	1	1	3	19"	SAME	
15	E										
	M	S-6	10'	12'	1	1	1	3	16"	Grey fine SAND, little Clayey Silt, laminated, (petroleum smell) trace roots	
	A										
	U										
20	G										
	E	S-7	15'	17'	8	12	8	16	21"	Grey tan fine GRAVEL, and CF Sand (petroleum smell)	SCREEN
25	R										
		S-8	20'	22'	1	2	2	5	0"	2 ATTEMPTS	SAND
30											
		S-9	25'	27'	3	3	4	5	11"	Grey MF SAND (petroleum smell)	
35											
		S-10	30'	32'	1	2	2	2	14"	SAME (Petroleum smell)	
40											
		S-11	34'	36'	11	1	1	1	16"	Tan red SILT, trace fine Sand	

Bottom of Hole @ 36.0'

WOH = Weight of Hammer

Screen 16' to 5'10"
 Sand 36' to 3'10"
 Sealed 3'10" to 1'10"

URS CO. INC.

TEST BORING DATA

Contractor: Empire Soil Investigation, Inc. Test Hole Number MW-3

Client: Mobil Oil Corp. Local Name: Buffalo Terminal Disposal Site

Location: Ground El: 21.50 Ft

Driller: Robert Kephart Date Started: 10/21/85 Initial Ground Water EL: 0.5 ft

Helper: Dan Pawlowski Date Completed: 10/22/85 24 Hour Ground Water EL: -

Inspector: Jeff Goldenberg Type of Core Drill: - Core Diameter: -

Inside Dia. of Auger: 4" Weight of Hammer on Casing: - Drop of Hammer on Casing: -

Inside Dia. of Spoon: 1-3/8" Weight of Hammer on Spoon: 140# Drop of Hammer on Spoon: 30"

Depth	Casing Blows	Sample No. Depth		Blows on Spoons							Rec.	Sample Identification and Profile Change	Well
				0	6	12	12	18	18	24			
5	H	S-1	0'	2'	6	7	3	3	12"	Black MF SAND and Silt, little mf Gravel (Cinders, Asphalt, petroleum smell)			
	O								22"	SAME (OILY SMELL)			
	L	S-2	2'	4'	4	4	5	5	14"	Brown MF SAND, little Silt			
	L								7"	Brown black MF SAND, little Silt, some MF Gravel (Cinders, Glass)			
10	O	S-3	4'	6'	4	3	3	3	9"	Red brown MF GRAVEL, some MF Sand, trace Silt (SLAG)			
	W								9"	SAME, with trace Cinders			
		S-4	6'	8'	2	2	3	4	11"	SAME, with piece of carboard			
	S								17"	SAME, with glass, roots, coal, cinders			
15	T	S-5	8'	10'	2	2	3	2	3"	Red brown MF SAND, some Silt, little fine Gravel (piece cinder)			
	E								18"	Grey MF Sand, little Silt, little Gravel (Coal)			
	M	S-6	10'	12'	1	1	2	3	17"	Grey SILT			
	A	S-7	12'	14'	2	3	4	3	17"	SAME (Slight petroleum smell)			
20	U								21"	SAME			
	G								24"	Grey fine SAND, trace Silt (Slight petroleum smell)			
	E	S-8	15'	17'	9	12	11	12	24"	Grey fine SAND, little Silt (petroleum saturated)			
	R								24"	SAME (petroleum saturated)			
25		S-9	17'	19'	3	3	3	6	24"	Grey MF SAND, little Silt, little Gravel (Coal)			
		S-10	19'	21'	1	2	3	5	24"	SAME (petroleum saturated)			
		S-11	21'	23'	5	5	6	5	24"	Grey MF SAND little Silt, little MF Gravel (petroleum saturated 34-35.5')			
		S-12	25'	27'	WOH	1	5	4	24"	SAME (petroleum saturated)			
30									24"	Grey MF SAND little Silt, little MF Gravel (petroleum saturated 34-35.5')			
36		S-13	30'	32'	WOH	WOH	3	5	24"	Grey MF SAND little Silt, little MF Gravel (petroleum saturated 34-35.5')			
40		S-14	34'	36'	14	7	8	5	24"	Grey MF SAND little Silt, little MF Gravel (petroleum saturated 34-35.5')			

Screen 32'1" to 21'11"
 Sand 36' to 19'9"
 Sealed 19'9" to 16'

Bottom of Hole @ 36.0'

WOH = Weight of Hammer

URS CO. INC.

TEST BORING DATA

Contractor: Empire Soil Investigation, Inc. Test Hole Number MW-4

Client: Mobil Oil Corp. Local Name: Buffalo Terminal Disposal Site

Location: Ground El: 17.79 Ft.

Driller: Robert Kephart Date Started: 10/17/85 Initial Ground Water El: -2.54 Ft.

Helper: Dan Pawlowski Date Completed: 10/21/85 24 Hour Ground Water El: -

Inspector: Jeff Goldenberg Type of Core Drill: - Core Diameter: -

Inside Dia. of Auger: 4" Weight of Hammer on Casing: - Drop of Hammer on Casing: -

Inside Dia. of Spoon: 1-3/8" Weight of Hammer on Spoon: 140# Drop of Hammer on Spoon: 30"

Depth	Casing Blows	Sample No. Depth		Blows on Spoons					Rec.	Sample Identification and Profile Change	Well
				0-6	6-12	12-18	18-24	24			
5	H	S-1	0'	2'	5	5	6	3	9"	Tan brown SILT, trace fine Sand, trace fine Gravel (Cinders)	
	O										
	L	S-2	2'	4'	5	7	23	54	8"	Tan grey SILT, trace fine Sand, little fine Gravel (Cinders, Asphalt: petroleum smell)	
	L										
10	O		4'	5'						CONCRETE 4' to 5'	
	W	S-3	5'	7'	15	8	7	7	6"	Grey MF GRAVEL, some MF Sand, little Silt (Concrete Pieces)	
	S	S-4	7'	9'	8	3	3	5	11"	Brown SILT, little MF Sand, some medium Gravel	
	T										
15	E	S-5	9'	11'	3	5	7	5	16"	Brown SILT, and fine Sand	GROUT
	M										
	A	S-6	11'	13'	4	5	4	5	19"	Brown SILT, trace fine Sand, trace fine Gravel (Brick)	
	U	S-7	13'	15'	3	1	2	3	23"	Brown SILT	
20	G										BENTONITE
	E	S-8	15'	17'	1	3	5	5	23"	Brown SILT, trace fine Sand, trace fine Gravel (Brick)	
	R										
		S-9	17'	19'	3	3	4	5	23"	Brown fine SAND, and Silt	
25		S-10	19'	21'	1	2	3	3	24"	Brown fine SAND, trace Silt	SCREEN
		S-11	21'	23'	1	1	1	3	24"	Brown MF SAND, trace Silt	
30											SAND
		S-12	25'	27'	5	4	7	9	21"	Brown MF GRAVEL, some CF Sand, little Silt	
35											
		S-13	30'	32'	2	3	4	5	24"	Brown CF SAND, some Silt, little MF Gravel	
40											
		S-14	34'	36'	9	8	12	16	21"	SAME Brown Clayey SILT	
										Bottom of Hole @ 36.0'	
Screen 29'4" to 19'2"											
Sand 36' to 16'6"											
Sealed 16'6" to 13'											

URS CO. INC.

TEST BORING DATA

Contractor: Empire Soil Investigation, Inc. Test Hole Number MW-5

Client: Mobil Oil Corp. Local Name: Buffalo Terminal Disposal Site

Location: Ground El: 18.78 Ft.

Driller: Robert Kephart Date Started: 10/22/85 Initial Ground Water El: 3.78 Ft.

Helper: Dan Pawlowski Date Completed: 10/22/85 24 Hour Ground Water El: -

Inspector: Jeff Goldenberg Type of Core Drill: - Core Diameter: -

Inside Dia. of Auger: 4" Weight of Hammer on Casing: - Drop of Hammer on Casing: -

Inside Dia. of Spoon: 1-3/8" Weight of Hammer on Spoon: 140# Drop of Hammer on Spoon: 30"

Depth	Casing Blows	Sample No.	Depth	Blows on Spoons						Rec.	Sample Identification and Profile Change	Well
				0-6"	6-12"	12-18"	18-24"	24-30"	30-36"			
5	H	S-1	0'	2'	1	2	3	3	6"	Black brown mf SAND, some Silt, little MF Gravel (Cinders, Glass, Roots, Etc.)		
	O											
	L	S-2	2'	4'	2	5	5	12	9"			SAME
	L											
10	O	S-3	4'	6'	1	2	2	3	11"	SAME	GROUT	
	W											
	S	S-4	6'	8'	1	1	1	1	12"	SAME		
	T	S-5	8'	10'	1	1	1	1	12"	SAME		
15	E										BENTONITE	
	M	S-6	10'	12'	WOH	1	1	6	3"	Black tan CF SAND, and MF Gravel (CINDERS, COAL)		
	A	S-7	12'	14'	7	5	4	3	13"	SAME		
	U											
20	G	S-8	14'	16'	2	5	7	6	11"	Black brown CF SAND, little Silt, some CF Gravel (CINDERS COAL)	SAND	
	E									Brown MF SAND		
	R	S-9	16'	18'	5	5	5	5	14"	Brown CF SAND, little Silt, some MF Gravel		
25											SCREEN	
		S-10	20'	22'	1	2	3	2	7"	Grey CF SAND, and MF Gravel (petroleum smell)		
30											SCREEN	
		S-11	25'	27'	6	3	4	3	12"	SAME (petroleum smell)		
35											SCREEN	
		S-12	30'	32'	1	5	6	7	12"	Grey MF SAND, trace Silt, trace MF Gravel		
										Grey Clayey SILT		

Bottom of Hole @ 32.0'

WOH = Weight of Hammer

Screen 23' to 12'10"

Sand 32 to 10'6"

Sealed 10'6" to 8'6"

URS CO. INC.

TEST BORING DATA

Contractor: Empire Soil Investigation, Inc. Test Hole Number BH-1

Client: Mobil Oil Corp. Local Name: Buffalo Terminal Disposal Site

Location: Ground El: - 18.84 Ft.

Driller: Robert Kephart Date Started: 10/16/85 Initial Ground Water El: -Dry

Helper: Dan Pawlowski Date Completed: 10/16/85 24 Hour Ground Water El: -

Inspector: Jeff Goldenberg Type of Core Drill: - Core Diameter: -

Inside Dia. of Auger: 4" Weight of Hammer on Casing: - Drop of Hammer on Casing: -

Inside Dia. of Spoon: 1-3/8" Weight of Hammer on Spoon: 140# Drop of Hammer on Spoon: 30"

Depth	Casing Blows	Sample No. Depth		Blows on Spoons				Rec.	Sample Identification and Profile Change	Depth
				0-6	6-12	12-18	18-24			
	H									
	O	S-1	1'	3'	9	6	4	3	14"	1' Asphalt and crushed stone Grey black MF SAND, some Silt (Cinders)
	L									
5	L	S-2	3'	5'	3	2	2	2	6"	Grey black MF SAND, some Silt, little coarse Gravel (Cinders)
	O									
	W	S-3	5'	7'	2	1	1	1	8"	Grey black MF SAND, some Silt (Cinders)
	S	S-4	7'	9'	WOH	1	WOH	1	11"	SAME
	T									
10	E	S-5	9'	11'	WOH	1	WOH	2	19"	SAME
	M									11'
	A									
15	U									
	G									
	E									
	R									
20										
25										
30										
35										
40										

Bottom of hole @ 11.0'

WOH - Weight Of Hammer

URS CO. INC.

TEST BORING DATA

Contractor: Empire Soil Investigation, Inc. Test Hole Number BH-6

Client: Mobil Oil Corp. Local Name: Buffalo Terminal Disposal Site

Location: Ground El: 21.72 Ft

Driller: Robert Kephart Date Started: 10/24/85 Initial Ground Water El: Dry

Helper: Dan Pawlowski Date Completed: 10/24/85 24 Hour Ground Water El: -

Inspector: Jeff Goldenberg Type of Core Drill: - Core Diameter: -
 Inside Dia. of Auger: 4" Weight of Hammer on Casing: - Drop of Hammer on Casing: -
 Inside Dia. of Spoon: 1-3/8" Weight of Hammer on Spoon: 140# Drop of Hammer on Spoon: 30"

Depth	Casing Blows	Sample No. Depth		Blows on Spoons				Rec.	Sample Identification and Profile Change	Depth	
				0-6	6-12	12-18	18-24				
5	H	S-1	0'	2'	5	12	17	9	17"	Brown black SILT, and fine Sand, trace fine Gravel (Cinders) White brown MF SAND, some Silt (Cinders, ASPHALT, CATALYST, TAR SMELL) Black SILT, some MF SAND trace fine Gravel (Cinders, Asphalt, TAR) Brown SILT, and fine Sand (Glass, Cinders, TAR SMELL) Brown tan CF SAND, some Silt, little fine Gravel (Cinders, Glass, Slight TAR SMELL)	
	O										
	L	S-2	2'	4'	7	8	9	12	20"		
	L										
10	O	S-3	4'	6'	3	6	12	9	18"		
	W										
		S-4	6'	8'	1	2	2	3	9"		
	S										
	T	S-5	8'	10'	2	2	2	2	14"		
15	E									10'	
	M										
	A										
	U										
20	G										
	E										
	R										
25											
30											
35											
40											

Bottom of hole @ 10.0'

URS CO. INC.

TEST BORING DATA

Contractor: Empire Soil Investigation, Inc. Test Hole Number BH-7
 Client: Mobil Oil Corp. Local Name: Buffalo Terminal Disposal Site
 Location: Ground El: 20.57 Ft
 Driller: Robert Kephart Date Started: 10/25/85 Initial Ground Water El: rainwater
 Helper: Dan Pawlowski Date Completed: 10/25/85 24 Hour Ground Water El: -
 Inspector: Jeff Goldenberg Type of Core Drill: - Core Diameter: -
 Inside Dia. of Auger: 4" Weight of Hammer on Casing: - Drop of Hammer on Casing: -
 Inside Dia. of Spoon: 1-3/8" Weight of Hammer on Spoon: 140# Drop of Hammer on Spoon: 30"

Depth	Casing Blows	Sample No. Depth		Blows on Spoons								Rec.	Sample Identification and Profile Change	Depth
				0	6	6	12	12	18	18	24			
5	H	S-1	0'	2'	3	4	3	5	9"	Black CF SAND, some Silt, trace MF Gravel (TAR, OIL)				
	O													
	L	S-2	2'	4'	2	5	6	8	12"	SAME (TAR, OIL) WET				
	L													
10	O	S-3	4'	6'	17	8	5	3	6"	SAME (TAR, OIL) WET				
	W													
		S-4	6'	8'	5	4	5	3	14"	Tan mf SAND, and Silt (ASH FROM COAL) (SLIGHT OILY SMELL)				
	S													
	T	S-5	8'	10'	2	2	4	3	16"	Tan MF SAND, and Silt	10'			
15	E													
	M													
	A													
	U													
20	G													
	R													
25														
30														
35														
40														

Bottom of hole @ 10.0'

URS CO. INC.

TEST BORING DATA

Contractor: Empire Soil Investigation, Inc. Test Hole Number BH-8
 Client: Mobil Oil Corp. Local Name: Buffalo Terminal Disposal Site
 Location: Ground El: 18.98
 Driller: Robert Kephart Date Started: 10/25/85 Initial Ground Water El: Dry
 Helper: Dan Pawlowski Date Completed: 10/25/85 24 Hour Ground Water El: -
 Inspector: Jeff Goldenberg Type of Core Drill: - Core Diameter: -
 Inside Dia. of Auger: 4" Weight of Hammer on Casing: - Drop of Hammer on Casing: -
 Inside Dia. of Spoon: 1-3/8" Weight of Hammer on Spoon: 140# Drop of Hammer on Spoon: 30"

Depth	Casing Blows	Sample No. Depth		Blows on Spoons						Rec.	Sample Identification and Profile Change	Depth
				0-6	6-12	12-18	18-24	24-30	30-36			
5	H	S-1	0'	2'	10	15	15	9	14"	Brown red MF SAND, some Silt, little CF Gravel (Brick)		
	O											
	L	S-2	2'	4'	7	3	9	8	11"	Red brown CF SAND, some Silt (Cinders, Ash)		
	L											
	O	S-3	4'	6'	3	3	1	2	5"	Brown black MF GRAVEL, some MF Sand, some Silt (TAR)		
10	W								2"	SAME (Slight TAR ODOR)		
		S-4	6'	8'	1	1	2	1				
	S											
	T	S-5	8'	10'	1	1	WOH	1	4"	SAME (Slight TAR ODOR)		
	E										10'	
15	M											
	A											
	U											
	G											
20	E											
	R											
25												
30												
35												
40												

Bottom of hole @ 10.0'
 WOH- Weight of Hammer

URS CO. INC.

TEST BORING DATA

Contractor: Empire Soil Investigation, Inc.

Test Hole Number BH-11

Client: Mobil Oil Corp.

Local Name: Buffalo Terminal Disposal Site

Location:

Ground El: 19.66 Ft

Driller: Robert Kephart

Date Started: 10/25/85

Initial Ground Water El: Dry

Helper: Dan Pawlowski

Date Completed: 10/25/85

24 Hour Ground Water El: -

Inspector: Jeff Goldenberg

Type of Core Drill: -

Core Diameter: -

Inside Dia. of Auger: 4"

Weight of Hammer on Casing: -

Drop of Hammer on Casing: -

Inside Dia. of Spoon: 1-3/8"

Weight of Hammer on Spoon: 140#

Drop of Hammer on Spoon: 30"

Depth	Casing Blows	Sample No. Depth		Blows on Spoons						Rec.	Sample Identification and Profile Change	Depth
				0-6	6-12	12-18	18-24	24-30	30-36			
5	H	S-1	0'	2'	5	5	5	4	7"	Brown black CF SAND, some Silt, little MF Gravel (Cinders, Glass)		
	O											
	L	S-2	2'	4'	2	1	2	2	3"	SAME		
	L											
	O	S-3	4'	6'	1	2	4	5	0"	No Recovery		
10	W											
		S-4	6'	8'	4	4	4	4	1"	Brown MF SAND, and Silt		
	S											
	T	S-5	8'	10'	7	7	7	5	19"	SAME	9'	
	E									Red brown Clayey SILT, trace fine Gravel	9.5'	
15	M									Red brown CF SAND, little Silt, little MF Gravel	10'	
	A											
	U											
	G											
	E											
20	R											
25												
30												
35												
40												

Bottom of hole @ 10.0'

URS CO. INC.

TEST BORING DATA

Contractor: Empire Soil Investigation, Inc. Test Hole Number BH-12

Client: Mobile Oil Corp. Local Name: Buffalo Terminal Disposal Site

Location: Ground E1: 19.79 Ft.

Driller: Robert Kephart Date Started: 10/25/85 Initial Ground Water E1: 3.79

Helper: Dan Pawlowski Date Completed: 10/28/85 24 Hour Ground Water E1: -

Inspector: Jeff Goldenberg Type of Core Drill: - Core Diameter: -

Inside Dia. of Auger: 4" Weight of Hammer on Casing: - Drop of Hammer on Casing: -

Inside Dia. of Spoon: 1-3/8" Weight of Hammer on Spoon: 140# Drop of Hammer on Spoon: 30"

Depth	Casing Blows	Sample No. Depth		Blows on Spoons				Rec.	Sample Identification and Profile Change	Depth	
				0-6	6-12	12-18	18-24				
5	H	S-1	0'	2'	6	7	7	6	22"	Red brown MF SAND, some Silt, little fine Gravel (Slight TAR SMELL, Glass)	
	O										
	L	S-2	2'	4'	11	16	21	17	18"	SAME (TAR, Asphalt)	
	L										
10	O	S-3	4'	6'	7	11	13	8	20"	SAME (TAR, Brick)	
	W										
	S	S-4	6'	8'	5	4	3	2	17"	Red brown MF SAND, little fine Gravel (Slight TAR SMELL, Brick, Glass)	
	T	S-5	8'	10'	3	2	2	2	9"	Red brown CF SAND, trace Silt, little fine Gravel (Brick)	
15	E	S-6	10'	12'	3	2	2	1	12"	SAME (Slight TAR SMELL, Glass)	
	A										
	U										
	G										
20	E	S-7	15'	17'	6	5	4	4	13"	Brown black CF SAND, little Silt, trace fine Gravel (some Asphalt, TAR SMELL)	
	R										
25		S-8	20'	22'	5	3	2	2	9"	Brown red MF SAND, some Silt, little CF Gravel	
											24'
30		S-9	25'	27'	WOH	WOH	1	1	22"	Grey SILT, trace fine Sand	
35		S-10	30'	32'	11	14	13	14	13"	Grey brown fine GRAVEL, some CF Sand, trace Silt	
		S-11	34'	36'	7	9	8	12	16"	SAME (Fuel OIL SMELL)	36'
40											

Bottom of hole @ 36.0 Ft.
WOH -Weight of Hammer

APPENDIX 3
ANALYTICAL TEST REPORTS

MOBIL OIL CORPORATION
TECHNICAL SERVICE LABORATORIES
MOBIL TECHNICAL CENTER
PRINCETON, NEW JERSEY

ANALYTICAL REPORT

BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION (NYS ID# 915040)

Work by: R.W. Crisman, Chemist
B.P. DeMaine, Chemist
J.R. Eckert, Chemist
W.G. Klontz, Chemist
B.A. Stephens, Chemist
C.L. Tatsch, Chemist
A.M. Tomkovich, Chemist
E.K. Vogiatzis, Chemist

Report by: *R.W. Crisman*
R.W. Crisman, Chemist, Project Coordinator

Approvals: *R.E. Beyer*
R.E. Beyer, Supervisor Chemical Analysis Group

J.P. Magoulas
J.P. Magoulas, Manager, Analytical Section

Date: February 14, 1986

TABLE OF CONTENTS

	PAGE NUMBER
Introduction	3
Analytical Methodology	4

TABLES

Tables 1A-N	Volatile Organic Analysis	5-18
Tables 2A-N	Volatile Organic Analysis - GC/MS Computerized Forward Search	19-32
Tables 3A-N	Semi-Volatile Analysis - Acid Extractable Fraction	33-46
Tables 4A-N	Semi-Volatile Analysis - Base/Neutral Fraction	47-61
Tables 5A-D	Semi-Volatile Analysis - GC/MS Computerized Forward Search	62-65
Tables 6A-N	Pesticide/PCB Analyses	66-79
Tables 7A-N	Metals Analysis	80-93
Tables 8A-N	Groundwater Quality/Groundwater Contamination Indicator	94-107
Table 9A	Miscellaneous - Free Hydrocarbon Characterization - Well #2	108
Table 9B	Miscellaneous - RCRA Classification of Boring Waste	109

INTRODUCTION

This report contains only the analytical results that have been developed in support of the Phase II Investigative Work Plan for Mobil's Buffalo Terminal Disposal Site (NYS ID #915040) and no interpretative comments or discussion of data is contained herein. Samples analyzed are as follows:

- five groundwater monitoring well samples
- two Buffalo River water samples (up and downstream)
- two Buffalo River sediment samples (up and downstream)
- three soil boring composites

The overall objective of this investigation is to obtain additional data to permit the preparation of a final, documented and defensible Hazard Ranking System for the site and to make a preliminary hydrogeological and contamination assessment. The final assessment report will be prepared by Mobil's consultant URS Company, Inc.

All analytical work was performed by the Technical Service Laboratories GC/MS, Solid Waste and Water Quality Laboratories (NJ Cert. # 11401).

ANALYTICAL METHODOLOGY

The methods employed in these analyses are established EPA procedures described in "Test Methods for Evaluating Solid Waste" and "Methods for Chemical Analysis of Water and Wastes". Methods from the "American Society for Testing and Materials" (ASTM) and "Standard Methods for the Examination of Water and Wastewater" were also used where appropriate.

Combined gas chromatography and mass spectrometry (GC/MS) was used in the analysis of the organic compounds, atomic absorption for the analysis of metals, and chemical and spectrophotometric methods were used for inorganic analyses. Established quality assurance procedures, outlined in the methods, such as blanks, surrogate spikes, internal standards and duplicate runs were conducted throughout the analyses.

TABLE 1A

BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION

SAMPLE TYPE: WATER
 SAMPLE DESIGNATION: WELL #1
 TSL #: 623131

VOLATILE ANALYSIS by EPA Method 624

Compound	Amount, ug/l	MDL, ug/l
Chloromethane	ND	u
Bromomethane	ND	u
Vinyl Chloride	ND	u
Chloroethane	ND	u
Methylene Chloride	ND	2.8
Acetone	ND	*
Carbon Disulfide	ND	*
1,1-Dichloroethene	ND	2.8
1,1-Dichloroethane	ND	4.7
Trans-1,2-Dichloroethene	ND	1.6
Chloroform	ND	1.6
1,2-Dichloroethane	ND	2.8
2-Butanone	ND	*
1,1,1-Trichloroethane	ND	3.8
Carbon Tetrachloride	ND	2.8
Vinyl Acetate	ND	*
Bromodichloromethane	ND	2.2
1,2-Dichloropropane	ND	6.0
Trans-1,3-Dichloropropene	ND	u
Trichloroethene	ND	1.9
Dibromochloromethane	ND	3.1
1,1,2-Trichloroethane	ND	5.0
Benzene	ND	4.4
cis-1,3-Dichloropropene	ND	5.0
2-Chloroethylvinylether	ND	u
Bromoform	ND	4.7
4-Methyl-2-Pentanone	ND	*
2-Hexanone	ND	*
Tetrachloroethene	ND	4.1
1,1,2,2-Tetrachloroethane	ND	6.9
Toluene	ND	6.0
Chlorobenzene	ND	6.0
Ethylbenzene	ND	7.2
Styrene	ND	*
Total Xylenes	ND	6.0

MDL: Minimum Detectable Limit

ND: Not Detected

u: Detection limit for this compound not determined.

*: Qualitative search only. No detection limit determined.

TABLE 1B

BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION

SAMPLE TYPE: WATER
 SAMPLE DESIGNATION: WELL #2
 TSL #: 623132

VOLATILE ANALYSIS by EPA Method 624

Compound	Amount, ug/l	MDL, ug/l
Chloromethane	ND	u
Bromomethane	ND	u
Vinyl Chloride	ND	u
Chloroethane	ND	u
Methylene Chloride	ND	28.
Acetone	ND	*
Carbon Disulfide	ND	*
1,1-Dichloroethene	ND	28.
1,1-Dichloroethane	ND	47.
Trans-1,2-Dichloroethene	ND	16.
Chloroform	ND	16.
1,2-Dichloroethane	ND	28.
2-Butanone	ND	*
1,1,1-Trichloroethane	ND	38.
Carbon Tetrachloride	ND	28.
Vinyl Acetate	ND	*
Bromodichloromethane	ND	22.
1,2-Dichloropropane	ND	60.
Trans-1,3-Dichloropropene	ND	u
Trichloroethene	ND	19.
Dibromochloromethane	ND	31.
1,1,2-Trichloroethane	ND	50.
Benzene	55.3	44.
cis-1,3-Dichloropropene	ND	50.
2-Chloroethylvinylether	ND	u
Bromoform	ND	47.
4-Methyl-2-Pentanone	ND	*
2-Hexanone	ND	*
Tetrachloroethene	ND	41.
1,1,2,2-Tetrachloroethane	ND	69.
Toluene	ND	60.
Chlorobenzene	ND	60.
Ethylbenzene	ND	72.
Styrene	ND	*
Total Xylenes	ND	60.

MDL: Minimum Detectable Limit

ND: Not Detected

u: Detection limit for this compound not determined.

*: Qualitative search only. No detection limit determined.

TABLE 1C

BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION

SAMPLE TYPE: WATER
 SAMPLE DESIGNATION: WELL #3
 TSL #: 623133

VOLATILE ANALYSIS by EPA Method 624

Compound	Amount, ug/l	MDL, ug/l
Chloromethane	ND	u
Bromomethane	ND	u
Vinyl Chloride	ND	u
Chloroethane	ND	u
Methylene Chloride	ND	2.8
Acetone	ND	*
Carbon Disulfide	ND	*
1,1-Dichloroethene	ND	2.8
1,1-Dichloroethane	ND	4.7
Trans-1,2-Dichloroethene	ND	1.6
Chloroform	ND	1.6
1,2-Dichloroethane	ND	2.8
2-Butanone	ND	*
1,1,1-Trichloroethane	ND	3.8
Carbon Tetrachloride	ND	2.8
Vinyl Acetate	ND	*
Bromodichloromethane	ND	2.2
1,2-Dichloropropane	ND	6.0
Trans-1,3-Dichloropropene	ND	u
Trichloroethene	ND	1.9
Dibromochloromethane	ND	3.1
1,1,2-Trichloroethane	ND	5.0
Benzene	ND	4.4
cis-1,3-Dichloropropene	ND	5.0
2-Chloroethylvinylether	ND	u
Bromoform	ND	4.7
4-Methyl-2-Pentanone	ND	*
2-Hexanone	ND	*
Tetrachloroethene	ND	4.1
1,1,2,2-Tetrachloroethane	ND	6.9
Toluene	ND	6.0
Chlorobenzene	ND	6.0
Ethylbenzene	ND	7.2
Styrene	ND	*
Total Xylenes	ND	6.0

MDL: Minimum Detectable Limit

ND: Not Detected

u: Detection limit for this compound not determined.

*: Qualitative search only. No detection limit determined.

TABLE 1D
 BUFFALO TERMINAL
 DISPOSAL SITE INVESTIGATION

SAMPLE TYPE: WATER
 SAMPLE DESIGNATION: WELL #4
 TSL #: 623134

VOLATILE ANALYSIS by EPA Method 624

Compound	Amount, ug/l	MDL, ug/l
Chloromethane	ND	u
Bromomethane	ND	u
Vinyl Chloride	ND	u
Chloroethane	ND	u
Methylene Chloride	ND	2.8
Acetone	ND	*
Carbon Disulfide	ND	*
1,1-Dichloroethene	ND	2.8
1,1-Dichloroethane	ND	4.7
Trans-1,2-Dichloroethene	ND	1.6
Chloroform	ND	1.6
1,2-Dichloroethane	ND	2.8
2-Butanone	ND	*
1,1,1-Trichloroethane	ND	3.8
Carbon Tetrachloride	ND	2.8
Vinyl Acetate	ND	*
Bromodichloromethane	ND	2.2
1,2-Dichloropropane	ND	6.0
Trans-1,3-Dichloropropene	ND	u
Trichloroethene	ND	1.9
Dibromochloromethane	ND	3.1
1,1,2-Trichloroethane	ND	5.0
Benzene	ND	4.4
cis-1,3-Dichloropropene	ND	5.0
2-Chloroethylvinylether	ND	u
Bromoform	ND	4.7
4-Methyl-2-Pentanone	ND	*
2-Hexanone	ND	*
Tetrachloroethene	ND	4.1
1,1,2,2-Tetrachloroethane	ND	6.9
Toluene	ND	6.0
Chlorobenzene	ND	6.0
Ethylbenzene	ND	7.2
Styrene	ND	*
Total Xylenes	ND	6.0

MDL: Minimum Detectable Limit

ND: Not Detected

u: Detection limit for this compound not determined.

*: Qualitative search only. No detection limit determined.

TABLE 1E

BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION

SAMPLE TYPE: WATER
 SAMPLE DESIGNATION: WELL #5
 TSL #: 623135

VOLATILE ANALYSIS by EPA Method 624

Compound	Amount, ug/l	MDL, ug/l
Chloromethane	ND	u
Bromomethane	ND	u
Vinyl Chloride	ND	u
Chloroethane	ND	u
Methylene Chloride	ND	2.8
Acetone	ND	*
Carbon Disulfide	ND	*
1,1-Dichloroethene	ND	2.8
1,1-Dichloroethane	ND	4.7
Trans-1,2-Dichloroethene	ND	1.6
Chloroform	ND	1.6
1,2-Dichloroethane	ND	2.8
2-Butanone	ND	*
1,1,1-Trichloroethane	ND	3.8
Carbon Tetrachloride	ND	2.8
Vinyl Acetate	ND	*
Bromodichloromethane	ND	2.2
1,2-Dichloropropane	ND	6.0
Trans-1,3-Dichloropropene	ND	u
Trichloroethene	ND	1.9
Dibromochloromethane	ND	3.1
1,1,2-Trichloroethane	ND	5.0
Benzene	ND	4.4
cis-1,3-Dichloropropene	ND	5.0
2-Chloroethylvinylether	ND	u
Bromoform	ND	4.7
4-Methyl-2-Pentanone	ND	*
2-Hexanone	ND	*
Tetrachloroethene	ND	4.1
1,1,2,2-Tetrachloroethane	ND	6.9
Toluene	ND	6.0
Chlorobenzene	ND	6.0
Ethylbenzene	ND	7.2
Styrene	ND	*
Total Xylenes	ND	6.0

MDL: Minimum Detectable Limit

ND: Not Detected

u: Detection limit for this compound not determined.

*: Qualitative search only. No detection limit determined.

WGKlontz/CLTatsch
 Mobil Oil Corporation
 Technical Service Laboratories

TABLE 1F

BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION

SAMPLE TYPE: WATER
SAMPLE DESIGNATION: WELL #5 DUPLICATE
TSL #: 623136

VOLATILE ANALYSIS by EPA Method 624

Compound	Amount, ug/l	MDL, ug/l
Chloromethane	ND	u
Bromomethane	ND	u
Vinyl Chloride	ND	u
Chloroethane	ND	u
Methylene Chloride	ND	2.8
Acetone	ND	*
Carbon Disulfide	ND	*
1,1-Dichloroethene	ND	2.8
1,1-Dichloroethane	ND	4.7
Trans-1,2-Dichloroethene	ND	1.6
Chloroform	ND	1.6
1,2-Dichloroethane	ND	2.8
2-Butanone	ND	*
1,1,1-Trichloroethane	ND	3.8
Carbon Tetrachloride	ND	2.8
Vinyl Acetate	ND	*
Bromodichloromethane	ND	2.2
1,2-Dichloropropane	ND	6.0
Trans-1,3-Dichloropropene	ND	u
Trichloroethene	ND	1.9
Dibromochloromethane	ND	3.1
1,1,2-Trichloroethane	ND	5.0
Benzene	ND	4.4
cis-1,3-Dichloropropene	ND	5.0
2-Chloroethylvinylether	ND	u
Bromoform	ND	4.7
4-Methyl-2-Pentanone	ND	*
2-Hexanone	ND	*
Tetrachloroethene	ND	4.1
1,1,2,2-Tetrachloroethane	ND	6.9
Toluene	ND	6.0
Chlorobenzene	ND	6.0
Ethylbenzene	ND	7.2
Styrene	ND	*
Total Xylenes	ND	6.0

MDL: Minimum Detectable Limit

ND: Not Detected

u: Detection limit for this compound not determined.

*: Qualitative search only. No detection limit determined.

TABLE 1G

BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION

SAMPLE TYPE: WATER
SAMPLE DESIGNATION: BLANK
TSL #: 623137

VOLATILE ANALYSIS by EPA Method 624

Compound	Amount, ug/l	MDL, ug/l
Chloromethane	ND	u
Bromomethane	ND	u
Vinyl Chloride	ND	u
Chloroethane	ND	u
Methylene Chloride	ND	2.8
Acetone	ND	*
Carbon Disulfide	ND	*
1,1-Dichloroethene	ND	2.8
1,1-Dichloroethane	ND	4.7
Trans-1,2-Dichloroethene	ND	1.6
Chloroform	ND	1.6
1,2-Dichloroethane	ND	2.8
2-Butanone	ND	*
1,1,1-Trichloroethane	ND	3.8
Carbon Tetrachloride	ND	2.8
Vinyl Acetate	ND	*
Bromodichloromethane	ND	2.2
1,2-Dichloropropane	ND	6.0
Trans-1,3-Dichloropropene	ND	u
Trichloroethene	ND	1.9
Dibromochloromethane	ND	3.1
1,1,2-Trichloroethane	ND	5.0
Benzene	ND	4.4
cis-1,3-Dichloropropene	ND	5.0
2-Chloroethylvinylether	ND	u
Bromoform	ND	4.7
4-Methyl-2-Pentanone	ND	*
2-Hexanone	ND	*
Tetrachloroethene	ND	4.1
1,1,2,2-Tetrachloroethane	ND	6.9
Toluene	ND	6.0
Chlorobenzene	ND	6.0
Ethylbenzene	ND	7.2
Styrene	ND	*
Total Xylenes	ND	6.0

MDL: Minimum Detectable Limit

ND: Not Detected

u: Detection limit for this compound not determined.

*: Qualitative search only. No detection limit determined.

TABLE 1H

BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION

SAMPLE TYPE: WATER
SAMPLE DESIGNATION: RIVER UPSTREAM
TSL #: 623138

VOLATILE ANALYSIS by EPA Method 624

Compound	Amount, ug/l	MDL, ug/l
Chloromethane	ND	u
Bromomethane	ND	u
Vinyl Chloride	ND	u
Chloroethane	ND	u
Methylene Chloride	ND	2.8
Acetone	ND	*
Carbon Disulfide	ND	*
1,1-Dichloroethene	ND	2.8
1,1-Dichloroethane	ND	4.7
Trans-1,2-Dichloroethene	ND	1.6
Chloroform	ND	1.6
1,2-Dichloroethane	ND	2.8
2-Butanone	ND	*
1,1,1-Trichloroethane	ND	3.8
Carbon Tetrachloride	ND	2.8
Vinyl Acetate	ND	*
Bromodichloromethane	ND	2.2
1,2-Dichloropropane	ND	6.0
Trans-1,3-Dichloropropene	ND	u
Trichloroethene	ND	1.9
Dibromochloromethane	ND	3.1
1,1,2-Trichloroethane	ND	5.0
Benzene	ND	4.4
cis-1,3-Dichloropropene	ND	5.0
2-Chloroethylvinylether	ND	u
Bromoform	ND	4.7
4-Methyl-2-Pentanone	ND	*
2-Hexanone	ND	*
Tetrachloroethene	ND	4.1
1,1,2,2-Tetrachloroethane	ND	6.9
Toluene	ND	6.0
Chlorobenzene	ND	6.0
Ethylbenzene	ND	7.2
Styrene	ND	*
Total Xylenes	ND	6.0

MDL: Minimum Detectable Limit

ND: Not Detected

u: Detection limit for this compound not determined.

*: Qualitative search only. No detection limit determined.

TABLE 1I

BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION

SAMPLE TYPE: WATER
 SAMPLE DESIGNATION: RIVER DOWNSTREAM
 TSL #: 623139

VOLATILE ANALYSIS by EPA Method 624

Compound	Amount, ug/l	MDL, ug/l
Chloromethane	ND	u
Bromomethane	ND	u
Vinyl Chloride	ND	u
Chloroethane	ND	u
Methylene Chloride	ND	2.8
Acetone	ND	*
Carbon Disulfide	ND	*
1,1-Dichloroethene	ND	2.8
1,1-Dichloroethane	ND	4.7
Trans-1,2-Dichloroethene	ND	1.6
Chloroform	ND	1.6
1,2-Dichloroethane	ND	2.8
2-Butanone	ND	*
1,1,1-Trichloroethane	ND	3.8
Carbon Tetrachloride	ND	2.8
Vinyl Acetate	ND	*
Bromodichloromethane	ND	2.2
1,2-Dichloropropane	ND	6.0
Trans-1,3-Dichloropropene	ND	u
Trichloroethene	ND	1.9
Dibromochloromethane	ND	3.1
1,1,2-Trichloroethane	ND	5.0
Benzene	ND	4.4
cis-1,3-Dichloropropene	ND	5.0
2-Chloroethylvinylether	ND	u
Bromoform	ND	4.7
4-Methyl-2-Pentanone	ND	*
2-Hexanone	ND	*
Tetrachloroethene	ND	4.1
1,1,2,2-Tetrachloroethane	ND	6.9
Toluene	ND	6.0
Chlorobenzene	ND	6.0
Ethylbenzene	ND	7.2
Styrene	ND	*
Total Xylenes	ND	6.0

MDL: Minimum Detectable Limit

ND: Not Detected

u: Detection limit for this compound not determined.

*: Qualitative search only. No detection limit determined.

TABLE 1J

BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION

SAMPLE TYPE: SOIL
 SAMPLe DESIGNATION: RIVER UPSTREAM
 TSL #: 623140

VOLATILE ANALYSIS by EPA Method 8240

Compound	Amount, mg/kg	MDL, mg/kg
Chloromethane	ND	u
Bromomethane	ND	u
Vinyl Chloride	ND	u
Chloroethane	ND	u
Methylene Chloride	ND	2.8
Acetone	ND	*
Carbon Disulfide	ND	*
1,1-Dichloroethene	ND	2.8
1,1-Dichloroethane	ND	4.7
Trans-1,2-Dichloroethene	ND	1.6
Chloroform	ND	1.6
1,2-Dichloroethane	ND	2.8
2-Butanone	ND	*
1,1,1-Trichloroethane	ND	3.8
Carbon Tetrachloride	ND	2.8
Vinyl Acetate	ND	*
Bromodichloromethane	ND	2.2
1,2-Dichloropropane	ND	6.0
Trans-1,3-Dichloropropene	ND	u
Trichloroethene	ND	1.9
Dibromochloromethane	ND	3.1
1,1,2-Trichloroethane	ND	5.0
Benzene	ND	4.4
cis-1,3-Dichloropropene	ND	5.0
2-Chloroethylvinylether	ND	u
Bromoform	ND	4.7
4-Methyl-2-Pentanone	ND	*
2-Hexanone	ND	*
Tetrachloroethene	ND	4.1
1,1,2,2-Tetrachloroethane	ND	6.9
Toluene	ND	6.0
Chlorobenzene	ND	6.0
Ethylbenzene	ND	7.2
Styrene	ND	*
Total Xylenes	ND	6.0

MDL: Minimum Detectable Limit

ND: Not Detected

u: Detection limit for this compound not determined.

*: Qualitative search only. No detection limit determined.

TABLE 1K

BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION

SAMPLE TYPE: SOIL
SAMPLE DESIGNATION: RIVER DOWNSTREAM
TSL #: 623141

VOLATILE ANALYSIS by EPA Method 8240

Compound	Amount ,mg/kg	MDL ,mg/kg
Chloromethane	ND	u
Bromomethane	ND	u
Vinyl Chloride	ND	u
Chloroethane	ND	u
Methylene Chloride	ND	2.8
Acetone	ND	*
Carbon Disulfide	ND	*
1,1-Dichloroethene	ND	2.8
1,1-Dichloroethane	ND	4.7
Trans-1,2-Dichloroethene	ND	1.6
Chloroform	ND	1.6
1,2-Dichloroethane	ND	2.8
2-Butanone	ND	*
1,1,1-Trichloroethane	ND	3.8
Carbon Tetrachloride	ND	2.8
Vinyl Acetate	ND	*
Bromodichloromethane	ND	2.2
1,2-Dichloropropane	ND	6.0
Trans-1,3-Dichloropropene	ND	u
Trichloroethene	ND	1.9
Dibromochloromethane	ND	3.1
1,1,2-Trichloroethane	ND	5.0
Benzene	ND	4.4
cis-1,3-Dichloropropene	ND	5.0
2-Chloroethylvinylether	ND	u
Bromoform	ND	4.7
4-Methyl-2-Pentanone	ND	*
2-Hexanone	ND	*
Tetrachloroethene	ND	4.1
1,1,2,2-Tetrachloroethane	ND	6.9
Toluene	ND	6.0
Chlorobenzene	ND	6.0
Ethylbenzene	ND	7.2
Styrene	ND	*
Total Xylenes	ND	6.0

MDL: Minimum Detectable Limit

ND: Not Detected

u: Detection limit for this compound not determined.

*: Qualitative search only. No detection limit determined.

URS Company, Inc.

CHAIN OF CUSTODY RECEIVED

PROJECT NO.		SITE NAME		STATION LOCATION		NO. OF COPY TABLETS		DATE/TIME		RECEIVED BY (SIGNATURE)		DATE/TIME	
21103		MOBIL		Monitoring Well		10							
1		X											
2													
3													
4													
5													
Blank													
SA-A				Field Blank									
SA-B				Surface Water (River)									
SS-A				" "									
SS-B				Sediment (River)									
				" "									
Mobile Gas Line Water & Sediment Samples At monitoring #2 down stream													
RECEIVED BY (SIGNATURE)		DATE/TIME		RECEIVED BY (SIGNATURE)		DATE/TIME		RECEIVED BY (SIGNATURE)		DATE/TIME		RECEIVED BY (SIGNATURE)	
<i>[Signature]</i>		4/1/88		<i>[Signature]</i>		4/1/88		<i>[Signature]</i>		4/1/88		<i>[Signature]</i>	
RECEIVED BY (SIGNATURE)		DATE/TIME		RECEIVED BY (SIGNATURE)		DATE/TIME		RECEIVED BY (SIGNATURE)		DATE/TIME		RECEIVED BY (SIGNATURE)	
<i>[Signature]</i>				<i>[Signature]</i>				<i>[Signature]</i>				<i>[Signature]</i>	

URS Company, Inc.

CHAIN OF CUSTODY RECORD

PROJECT NO: 35103	SAMPLERS (SIGNATURE): Marc W. Smith	SITE NAME: Mobil Oil		STATION NO.	DATE TIME	COMP	GRAB	STATION LOCATION	NO. OF CON-TAINERS	REMARKS													
		VOA (3) Metals								AWM TOX A+B1				Toc-Dhend		TEST							
		Metals	(C-SQ)							AWM	TOX	A+B1	TEST	Toc-Dhend	TEST	TEST	TEST						
1		11/14/18		X				Monitoring Well	10	X	X	X	X	X	X								

RELINQUISHED BY (SIGNATURE)	DATE TIME	RECEIVED BY (SIGNATURE)	DATE TIME	RELINQUISHED BY (SIGNATURE)	DATE TIME	RECEIVED BY (SIGNATURE)	DATE TIME
Marc W. Smith		J. W. Deane	11/14/18 10:53				

The information provided is confidential. If you receive this information by mistake, please contact the sender.

URS Company, Inc.

CHAIN OF CUSTODY RECORD

PROJECT NO: 35103	SITE NAME: Mobil Oil		STATION NO	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CON. TAINERS	REMARKS							
	SAMPLERS (SIGNATURE): <i>Marc W. Smith</i>									NOA (3)	Metals	CC-504	Pest	TOX-phenol	A-Bal	ARM	TOX-Pest
2	11/16/85	1:30 pm	X				X	Monitoring Well	10	X	X	X	X	X	X	X	
3	11/16/85	12:30 pm	X				X	" "	10	X	X	X	X	X	X	X	
4	11/16/85	11:30 am	X				X	" "	10	X	X	X	X	X	X	X	
5	11/16/85	10:30 am	X				X	" "	10	X	X	X	X	X	X	X	
Blank		2:00 pm						Field Blank	10	X	X	X	X	X	X	X	
RELINQUISHED BY (SIGNATURE): <i>Marc W. Smith</i>										RECEIVED BY (SIGNATURE): <i>Paul Hobbs</i>		DATE / TIME: 11-16-85 3:30 PM		RECEIVED BY (SIGNATURE):			
RELINQUISHED BY (SIGNATURE):										RECEIVED BY (SIGNATURE):		DATE / TIME:		RECEIVED BY (SIGNATURE):			
RELINQUISHED BY (SIGNATURE):										RECEIVED BY (SIGNATURE):		DATE / TIME:		RECEIVED BY (SIGNATURE):			

TABLE 1L

BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION

SAMPLE TYPE: SOIL
 SAMPLE DESIGNATION: BORING #5 COMPOSITE
 TSL #: 623142

VOLATILE ANALYSIS by EPA Method 8240

Compound	Amount ,mg/kg	MDL ,mg/kg
Chloromethane	ND	u
Bromomethane	ND	u
Vinyl Chloride	ND	u
Chloroethane	ND	u
Methylene Chloride	5.1	2.8
Acetone	ND	*
Carbon Disulfide	ND	*
1,1-Dichloroethene	ND	2.8
1,1-Dichloroethane	ND	4.7
Trans-1,2-Dichloroethene	ND	1.6
Chloroform	ND	1.6
1,2-Dichloroethane	ND	2.8
2-Butanone	ND	*
1,1,1-Trichloroethane	ND	3.8
Carbon Tetrachloride	ND	2.8
Vinyl Acetate	ND	*
Bromodichloromethane	ND	2.2
1,2-Dichloropropane	ND	6.0
Trans-1,3-Dichloropropene	ND	u
Trichloroethene	ND	1.9
Dibromochloromethane	ND	3.1
1,1,2-Trichloroethane	ND	5.0
Benzene	ND	4.4
cis-1,3-Dichloropropene	ND	5.0
2-Chloroethylvinylether	ND	u
Bromoform	ND	4.7
4-Methyl-2-Pentanone	ND	*
2-Hexanone	ND	*
Tetrachloroethene	ND	4.1
1,1,2,2-Tetrachloroethane	ND	6.9
Toluene	ND	6.0
Chlorobenzene	ND	6.0
Ethylbenzene	ND	7.2
Styrene	ND	*
Total Xylenes	ND	6.0

MDL: Minimum Detectable Limit

ND: Not Detected

u: Detection limit for this compound not determined.

*: Qualitative search only. No detection limit determined.

TABLE 1M

BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION

SAMPLE TYPE: SOIL
 SAMPLE DESIGNATION: BORING #6 COMPOSITE
 TSL #: 623143

VOLATILE ANALYSIS by EPA Method 8240

Compound	Amount ,mg/kg	MDL ,mg/kg
Chloromethane	ND	u
Bromomethane	ND	u
Vinyl Chloride	ND	u
Chloroethane	ND	u
Methylene Chloride	4.9	2.8
Acetone	ND	*
Carbon Disulfide	ND	*
1,1-Dichloroethene	ND	2.8
1,1-Dichloroethane	ND	4.7
Trans-1,2-Dichloroethene	ND	1.6
Chloroform	ND	1.6
1,2-Dichloroethane	ND	2.8
2-Butanone	ND	*
1,1,1-Trichloroethane	ND	3.8
Carbon Tetrachloride	ND	2.8
Vinyl Acetate	ND	*
Bromodichloromethane	ND	2.2
1,2-Dichloropropane	ND	6.0
Trans-1,3-Dichloropropene	ND	u
Trichloroethene	ND	1.9
Dibromochloromethane	ND	3.1
1,1,2-Trichloroethane	ND	5.0
Benzene	ND	4.4
cis-1,3-Dichloropropene	ND	5.0
2-Chloroethylvinylether	ND	u
Bromoform	ND	4.7
4-Methyl-2-Pentanone	ND	*
2-Hexanone	ND	*
Tetrachloroethene	ND	4.1
1,1,2,2-Tetrachloroethane	ND	6.9
Toluene	ND	6.0
Chlorobenzene	ND	6.0
Ethylbenzene	ND	7.2
Styrene	ND	*
Total Xylenes	ND	6.0

MDL: Minimum Detectable Limit

ND: Not Detected

u: Detection limit for this compound not determined.

*: Qualitative search only. No detection limit determined.

TABLE 1N

BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION

SAMPLE TYPE: SOIL
SAMPLE DESIGNATION: BORING #7 COMPOSITE
TSL #: 623144

VOLATILE ANALYSIS by EPA Method 8240

Compound	Amount ,mg/kg	MDL ,mg/kg
Chloromethane	ND	u
Bromomethane	ND	u
Vinyl Chloride	ND	u
Chloroethane	ND	u
Methylene Chloride	ND	2.8
Acetone	ND	*
Carbon Disulfide	ND	*
1,1-Dichloroethene	ND	2.8
1,1-Dichloroethane	ND	4.7
Trans-1,2-Dichloroethene	ND	1.6
Chloroform	ND	1.6
1,2-Dichloroethane	ND	2.8
2-Butanone	ND	*
1,1,1-Trichloroethane	ND	3.8
Carbon Tetrachloride	ND	2.8
Vinyl Acetate	ND	*
Bromodichloromethane	ND	2.2
1,2-Dichloropropane	ND	6.0
Trans-1,3-Dichloropropene	ND	u
Trichloroethene	ND	1.9
Dibromochloromethane	ND	3.1
1,1,2-Trichloroethane	ND	5.0
Benzene	ND	4.4
cis-1,3-Dichloropropene	ND	5.0
2-Chloroethylvinylether	ND	u
Bromoform	ND	4.7
4-Methyl-2-Pentanone	ND	*
2-Hexanone	ND	*
Tetrachloroethene	ND	4.1
1,1,2,2-Tetrachloroethane	ND	6.9
Toluene	ND	6.0
Chlorobenzene	ND	6.0
Ethylbenzene	ND	7.2
Styrene	ND	*
Total Xylenes	ND	6.0

MDL: Minimum Detectable Limit

ND: Not Detected

u: Detection limit for this compound not determined.

*: Qualitative search only. No detection limit determined.

TABLE 2A

BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION

SAMPLE TYPE: WATER
SAMPLE DESIGNATION: WELL #1
TSL #: 623131

VOLATILE ANALYSIS by EPA Method 624

TENTATIVELY IDENTIFIED COMPOUNDS (1)

Compound	Estimated Concentration,ug/l
Methyl,methylethyl,dioxatricyclo octane	9.9
2,2,4,6,6-Pentamethyl heptane	37.6
1,1-Dimethyl cyclopentane	2.1
3,3-Dimethyl hexanal	1.8

(1) These compounds identified by forward search.
Concentrations are based on direct comparison to internal
standard.

WGKlontz/CLTatsch
Mobil Oil Corporation
Technical Service Laboratories

TABLE 2B

BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION

SAMPLE TYPE: WATER
SAMPLE DESIGNATION: WELL #2
TSL #: 623132

VOLATILE ANALYSIS by EPA Method 624

TENTATIVELY IDENTIFIED COMPOUNDS (1)

Compound	Estimated Concentration, ug/l
Cyclobutanone	226.
Hexane	287.
4-Methyl cyclopentane	1221.
4-Methyl cyclopentene	256.
Cyclohexane	1241.
Ethyl cyclobutane	49.
1,2-Dimethyl cyclopentane	193.
Dimethyl hexane	386.
Methyl cyclohexane	1015.
2,4(3H,5H)-Furandione	292.
Dimethyl cyclopentene	112.
1-Methyl,2-methylene cyclopentane	103.
Dimethyl cyclohexane	77.
Methylethyl benzene	139.

(1) These compounds identified by forward search.
Concentrations are based on direct comparison to internal standard.

WG Klontz/CL Tatsch
Mobil Oil Corporation
Technical Service Laboratories

TABLE 2C

BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION

SAMPLE TYPE: WATER
SAMPLE DESIGNATION: WELL #3
TSL #: 623133

VOLATILE ANALYSIS by EPA Method 624

TENTATIVELY IDENTIFIED COMPOUNDS (1)

Compound	Estimated Concentration, ug/l
Dimethyl butane	12.4
Dimethyl pentane	6.7
Tetramethyl butane	46.
Demethyl hexane	4.8
2-Propenylidene cyclobutene	4.8

(1) These compounds identified by forward search.
Concentrations are based on direct comparison to internal
standard.

WG Klontz/CL Tatsch
Mobil Oil Corporation
Technical Service Laboratories

TABLE 2D

BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION

SAMPLE TYPE: WATER
SAMPLE DESIGNATION: WELL #4
TSL #: 623134

VOLATILE ANALYSIS by EPA Method 624

TENTATIVELY IDENTIFIED COMPOUNDS (1)

Compound	Estimated Concentration, ug/l
Methyl cyclopentane	11.9
Dimethyl pentane	7.3
2,4(3H,5H)-Furandione	35.
Bicyclo[3.2.0]hepta-2,6-diene	5.2

(1) These compounds identified by forward search.
Concentrations are based on direct comparison to internal
standard.

WG Klontz/CL Tatsch
Mobil Oil Corporation
Technical Service Laboratories

TABLE 2E

BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION

SAMPLE TYPE: WATER
SAMPLE DESIGNATION: WELL #5
TSL #: 623135

VOLATILE ANALYSIS by EPA Method 624

TENTATIVELY IDENTIFIED COMPOUNDS (1)

Compound	Estimated Concentration, ug/l
Methyl cyclopentane	6.6
Pentamethyl heptane	28.
2,4(3H,5H)-Furandione	21.

(1) These compounds identified by forward search.
Concentrations are based on direct comparison to internal
standard.

WG Klontz/CL Tatsch
Mobil Oil Corporation
Technical Service Laboratories

TABLE 2F

BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION

SAMPLE TYPE: WATER
SAMPLE DESIGNATION: WELL #5 DUPLICATE
TSL #: 623136

VOLATILE ANALYSIS by EPA Method 624

TENTATIVELY IDENTIFIED COMPOUNDS (1)

Compound	Estimated Concentration,ug/l
Dimethyl butane	11.
Hexane	35.
Methyl cyclopentane	8.9
Dimethyl pentane	27.
Dimethyl hexane	43.
2-Piperidinecarboxamide,N-(2,6-dimethylphenyl)-1-methyl-, monohydrochloride	38.

(1) These compounds identified by forward search.
Concentrations are based on direct comparison to internal standard.

WGKlontz/CLTatsch
Mobil Oil Corporation
Technical Service Laboratories

TABLE 2G

BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION

SAMPLE TYPE: WATER
SAMPLE DESIGNATION: BLANK
TSL #: 623137

VOLATILE ANALYSIS by EPA Method 624

TENTATIVELY IDENTIFIED COMPOUNDS (1)

Compound	Estimated Concentration, ug/l
Propanoic acid, anhydride	25.
2,4(3H,5H)-Furandione	37.

(1) These compounds identified by forward search.
Concentrations are based on direct comparison to internal
standard.

WG Klontz/CL Tatsch
Mobil Oil Corporation
Technical Service Laboratories

TABLE 2H

BUFFALO TERMINAL
DISPOSAL-SITE INVESTIGATION

SAMPLE TYPE: WATER
SAMPLE DESIGNATION: RIVER UPSTREAM
TSL #: 623138

VOLATILE ANALYSIS by EPA Method 624

TENTATIVELY IDENTIFIED COMPOUNDS (1)

Compound	Estimated Concentration,ug/l
Methyl cyclopentane	9.6

(1) These compounds identified by forward search.
Concentrations are based on direct comparison to internal
standard.

WGKlontz/CLTatsch
Mobil Oil Corporation
Technical Service Laboratories

TABLE 2I

BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION

SAMPLE TYPE: WATER
SAMPLE DESIGNATION: RIVER DOWNSTREAM
TSL #: 623139

VOLATILE ANALYSIS by EPA Method 624

TENTATIVELY IDENTIFIED COMPOUNDS (1)

Compound	Estimated Concentration, ug/l
Hexane	21.
Methyl cyclopentane	5.7
Dimethyl pentane	13.
Dimethyl hexane	28.
2,4(3H,5H)-Furandione	20.

(1) These compounds identified by forward search.
Concentrations are based on direct comparison to internal standard.

WG Klontz/CL Tatsch
Mobil Oil Corporation
Technical Service Laboratories

TABLE 2J

BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION

SAMPLE TYPE: SOIL
SAMPLE DESIGNATION: RIVER UPSTREAM
TSL #: 623140

VOLATILE ANALYSIS by EPA Method 8240

TENTATIVELY IDENTIFIED COMPOUNDS (1)

Compound	Estimated Concentration, mg/kg
Hexane	24.
Methyl cyclopentane	5.2
Cyclohexane	17.
1-Methyl-2,4-Imidazolidinedione	8.4
Propanoic acid, anhydride	23.
Trimethyl hexane	19.
Nonane	37.
Trimethyl octane	18.

(1) These compounds identified by forward search.
Concentrations are based on direct comparison to internal standard.

WG Klontz/CL Tatsch
Mobil Oil Corporation
Technical Service Laboratories

TABLE 2K

BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION

SAMPLE TYPE: SOIL
SAMPLE DESIGNATION: RIVER DOWNSTREAM
TSL #: 623141

VOLATILE ANALYSIS by EPA Method 8240

TENTATIVELY IDENTIFIED COMPOUNDS (1)

Compound	Estimated Concentration, mg/kg
Propyl cyclopropane	14.
Cyclohexane	38.
Dimethyl pentane	22.
Dimethyl hexane	19.
2,4(3H,5H)-Furandione	30.
Octane	40.
Nonane	69.
Decane	30.

(1) These compounds identified by forward search.
Concentrations are based on direct comparison to internal standard.

WG Klontz/CL Tatsch
Mobil Oil Corporation
Technical Service Laboratories

TABLE 2L

BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION

SAMPLE TYPE: SOIL
SAMPLE DESIGNATION: BORING #5 COMPOSITE
TSL #: 623142

VOLATILE ANALYSIS by EPA Method 8240

TENTATIVELY IDENTIFIED COMPOUNDS (1)

Compound	Estimated Concentration, mg/kg
Hexane	60.
Methyl cyclopentane	14.
Dimethyl pentane	7.5
Cyclohexane	43.
Dimethyl hexane	14.
2-Piperidinecarboxamide, N-(2,6-dimethylphenyl)-1-methyl-, monohydrochloride	42.
Octane	44.
Trimethyl octane	29.
Nonane	73.

(1) These compounds identified by forward search.
Concentrations are based on direct comparison to internal
standard.

WG Klontz/CL Tatsch
Mobil Oil Corporation
Technical Service Laboratories

TABLE 2M

BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION

SAMPLE TYPE: SOIL
SAMPLE DESIGNATION: BORING #6 COMPOSITE
TSL #: 623143

VOLATILE ANALYSIS by EPA Method 8240

TENTATIVELY IDENTIFIED COMPOUNDS (1)

Compound	Estimated Concentration, mg/kg
Hexane	30.
Propyl cyclopropane	4.1
Cyclohexane	21.
Trimethyl hexane	33.
Trimethyl heptane	4.1
2-Propyn-1-ol, acetate	18.
Tetramethyl butane	29.
Trimethyl octane	17.
Methyl-propyl nonane	4.9

(1) These compounds identified by forward search.
Concentrations are based on direct comparison to internal
standard.

WG Klontz/CL Tatsch
Mobil Oil Corporation
Technical Service Laboratories

TABLE 2N

BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION

SAMPLE TYPE: SOIL
SAMPLE DESIGNATION: BORING #7 COMPOSITE
TSL #: 623144

VOLATILE ANALYSIS by EPA Method 8240

TENTATIVELY IDENTIFIED COMPOUNDS (1)

Compound	Estimated Concentration, mg/kg
Hexane	29.
Cyclohexane	26.
Dimethyl hexane	26.
2-Chloro-1,1-difluoro-ethene	77.
Octane	26.
Nonane	43.
Trimethyl octane	15.

(1) These compounds identified by forward search.
Concentrations are based on direct comparison to internal standard.

WG Klontz/CL Tatsch
Mobil Oil Corporation
Technical Service Laboratories

TABLE 3A

BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION

SAMPLE TYPE: WATER
SAMPLE DESIGNATION: WELL #1
TSL #: 623131

SEMIVOLATILE ANALYSIS by EPA Method 625
Acid Extractables

Compound	Amount, mg/l	MDL, mg/l
Phenol	ND	0.002
2-Chlorophenol	ND	0.003
2-Methylphenol	ND	0.003
4-Methylphenol	ND	0.003
2-Nitrophenol	ND	0.004
2,4-Dimethylphenol	ND	0.003
2,4-Dichlorophenol	ND	0.003
4-Chloro-3-methylphenol	ND	0.003
2,4,6-Trichlorophenol	ND	0.003
2,4,5-Trichlorophenol	ND	0.003
2,4-Dinitrophenol	ND	0.042
4-Nitrophenol	ND	0.003
4,6-Dinitro-2-methylphenol	ND	0.024
Pentachlorophenol	ND	0.004

MDL: Minimum Detectable Limit
ND: Not Detected

WGKlontz/CLTatsch
Mobil Oil Corporation
Technical Service Laboratories

TABLE 3B

BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION

SAMPLE TYPE: WATER
SAMPLE DESIGNATION: WELL #2
TSL #: 623132

SEMIVOLATILE ANALYSIS by EPA Method 625
Acid Extractables

Compound	Amount, mg/l	MDL, mg/l (1)
Phenol	ND	0.02
2-Chlorophenol	ND	0.03
2-Methylphenol	ND	0.03
4-Methylphenol	ND	0.03
2-Nitrophenol	ND	0.04
2,4-Dimethylphenol	ND	0.03
2,4-Dichlorophenol	ND	0.03
4-Chloro-3-methylphenol	ND	0.03
2,4,6-Trichlorophenol	ND	0.03
2,4,5-Trichlorophenol	ND	0.03
2,4-Dinitrophenol	ND	0.42
4-Nitrophenol	ND	0.03
4,6-Dinitro-2-methylphenol	ND	0.24
Pentachlorophenol	ND	0.04

(1): High detection limits indicate sample required dilution.
MDL: Minimum Detectable Limit
ND: Not Detected

WGKlontz/CLTatsch
Mobil Oil Corporation
Technical Service Laboratories

TABLE 3C

BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION

SAMPLE TYPE: WATER
SAMPLE DESIGNATION: WELL #3
TSL #: 623133

SEMIVOLATILE ANALYSIS by EPA Method 625
Acid Extractables

Compound	Amount, mg/l	MDL, mg/l
Phenol	ND	0.002
2-Chlorophenol	ND	0.003
2-Methylphenol	ND	0.003
4-Methylphenol	ND	0.003
2-Nitrophenol	ND	0.004
2,4-Dimethylphenol	ND	0.003
2,4-Dichlorophenol	ND	0.003
4-Chloro-3-methylphenol	ND	0.003
2,4,6-Trichlorophenol	ND	0.003
2,4,5-Trichlorophenol	ND	0.003
2,4-Dinitrophenol	ND	0.042
4-Nitrophenol	ND	0.003
4,6-Dinitro-2-methylphenol	ND	0.024
Pentachlorophenol	ND	0.004

MDL: Minimum Detectable Limit
ND: Not Detected

WGKlontz/CLTatsch
Mobil Oil Corporation
Technical Service Laboratories

TABLE 3D

BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION

SAMPLE TYPE: WATER
SAMPLE DESIGNATION: WELL #4
TSL #: 623134

SEMIVOLATILE ANALYSIS by EPA Method 625
Acid Extractables

Compound	Amount, mg/l	MDL, mg/l
Phenol	ND	0.002
2-Chlorophenol	ND	0.003
2-Methylphenol	ND	0.003
4-Methylphenol	ND	0.003
2-Nitrophenol	ND	0.004
2,4-Dimethylphenol	ND	0.003
2,4-Dichlorophenol	ND	0.003
4-Chloro-3-methylphenol	ND	0.003
2,4,6-Trichlorophenol	ND	0.003
2,4,5-Trichlorophenol	ND	0.003
2,4-Dinitrophenol	ND	0.042
4-Nitrophenol	ND	0.003
4,6-Dinitro-2-methylphenol	ND	0.024
Pentachlorophenol	ND	0.004

MDL: Minimum Detectable Limit
ND: Not Detected

WG Klontz/CL Tatsch
Mobil Oil Corporation
Technical Service Laboratories

TABLE 3E

BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION

SAMPLE TYPE: WATER
SAMPLE DESIGNATION: WELL #5
TSL #: 623135

SEMIVOLATILE ANALYSIS by EPA Method 625
Acid Extractables

Compound	Amount, mg/l	MDL, mg/l
Phenol	ND	0.002
2-Chlorophenol	ND	0.003
2-Methylphenol	ND	0.003
4-Methylphenol	ND	0.003
2-Nitrophenol	ND	0.004
2,4-Dimethylphenol	ND	0.003
2,4-Dichlorophenol	ND	0.003
4-Chloro-3-methylphenol	ND	0.003
2,4,6-Trichlorophenol	ND	0.003
2,4,5-Trichlorophenol	ND	0.003
2,4-Dinitrophenol	ND	0.042
4-Nitrophenol	ND	0.003
4,6-Dinitro-2-methylphenol	ND	0.024
Pentachlorophenol	ND	0.004

MDL: Minimum Detectable Limit
ND: Not Detected

WG Klontz/CL Tatsch
Mobil Oil Corporation
Technical Service Laboratories

TABLE 3F

BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION

SAMPLE TYPE: WATER
SAMPLE DESIGNATION: WELL #5 DUPLICATE
TSL #: 623136

SEMIVOLATILE ANALYSIS by EPA Method 625
Acid Extractables

Compound	Amount, mg/l	MDL, mg/l
Phenol	ND	0.002
2-Chlorophenol	ND	0.003
2-Methylphenol	ND	0.003
4-Methylphenol	ND	0.003
2-Nitrophenol	ND	0.004
2,4-Dimethylphenol	ND	0.003
2,4-Dichlorophenol	ND	0.003
4-Chloro-3-methylphenol	ND	0.003
2,4,6-Trichlorophenol	ND	0.003
2,4,5-Trichlorophenol	ND	0.003
2,4-Dinitrophenol	ND	0.042
4-Nitrophenol	ND	0.003
4,6-Dinitro-2-methylphenol	ND	0.024
Pentachlorophenol	ND	0.004

MDL: Minimum Detectable Limit
ND: Not Detected

WG Klontz/CL Tatsch
Mobil Oil Corporation
Technical Service Laboratories

TABLE 3G

BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION

SAMPLE TYPE: WATER
SAMPLE DESIGNATION: BLANK WATER
TSL #: 623137

SEMIVOLATILE ANALYSIS by EPA Method 625
Acid Extractables

Compound	Amount, mg/l	MDL, mg/l
Phenol	ND	0.002
2-Chlorophenol	ND	0.003
2-Methylphenol	ND	0.003
4-Methylphenol	ND	0.003
2-Nitrophenol	ND	0.004
2,4-Dimethylphenol	ND	0.003
2,4-Dichlorophenol	ND	0.003
4-Chloro-3-methylphenol	ND	0.003
2,4,6-Trichlorophenol	ND	0.003
2,4,5-Trichlorophenol	ND	0.003
2,4-Dinitrophenol	ND	0.042
4-Nitrophenol	ND	0.003
4,6-Dinitro-2-methylphenol	ND	0.024
Pentachlorophenol	ND	0.004

MDL: Minimum Detectable Limit
ND: Not Detected

WGKlontz/CLTatsch
Mobil Oil Corporation
Technical Service Laboratories

TABLE 3H

BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION

SAMPLE TYPE: WATER
SAMPLE DESIGNATION: RIVER UPSTREAM
TSL #: 623138

SEMIVOLATILE ANALYSIS by EPA Method 625
Acid Extractables

Compound	Amount, mg/l	MDL, mg/l
Phenol	ND	0.002
2-Chlorophenol	ND	0.003
2-Methylphenol	ND	0.003
4-Methylphenol	ND	0.003
2-Nitrophenol	ND	0.004
2,4-Dimethylphenol	ND	0.003
2,4-Dichlorophenol	ND	0.003
4-Chloro-3-methylphenol	ND	0.003
2,4,6-Trichlorophenol	ND	0.003
2,4,5-Trichlorophenol	ND	0.003
2,4-Dinitrophenol	ND	0.042
4-Nitrophenol	ND	0.003
4,6-Dinitro-2-methylphenol	ND	0.024
Pentachlorophenol	ND	0.004

MDL: Minimum Detectable Limit
ND: Not Detected

WGKlontz/CLTatsch
Mobil Oil Corporation
Technical Service Laboratories

TABLE 3I

BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION

SAMPLE TYPE: WATER
SAMPLE DESIGNATION: RIVER DOWNSTREAM
TSL #: 623139

SEMIVOLATILE ANALYSIS by EPA Method 625
Acid Extractables

Compound	Amount ,mg/l	MDL ,mg/l
Phenol	ND	0.002
2-Chlorophenol	ND	0.003
2-Methylphenol	ND	0.003
4-Methylphenol	ND	0.003
2-Nitrophenol	ND	0.004
2,4-Dimethylphenol	ND	0.003
2,4-Dichlorophenol	ND	0.003
4-Chloro-3-methylphenol	ND	0.003
2,4,6-Trichlorophenol	ND	0.003
2,4,5-Trichlorophenol	ND	0.003
2,4-Dinitrophenol	ND	0.042
4-Nitrophenol	ND	0.003
4,6-Dinitro-2-methylphenol	ND	0.024
Pentachlorophenol	ND	0.004

MDL: Minimum Detectable Limit
ND: Not Detected

WGKlontz/CLTatsch
Mobil Oil Corporation
Technical Service Laboratories

TABLE 3J

BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION

SAMPLE TYPE: SOIL
SAMPLE DESIGNATION: RIVER UPSTREAM
TSL #: 623140

SEMIVOLATILE ANALYSIS by EPA Method 8270
Acid Extractables

Compound	Amount, mg/kg	MDL, mg/kg
Phenol	ND	0.2
2-Chlorophenol	ND	0.3
2-Methylphenol	ND	0.3
4-Methylphenol	ND	0.3
2-Nitrophenol	ND	0.4
2,4-Dimethylphenol	ND	0.3
2,4-Dichlorophenol	ND	0.3
4-Chloro-3-methylphenol	ND	0.3
2,4,6-Trichlorophenol	ND	0.3
2,4,5-Trichlorophenol	ND	0.3
2,4-Dinitrophenol	ND	4.2
4-Nitrophenol	ND	0.3
4,6-Dinitro-2-methylphenol	ND	2.4
Pentachlorophenol	ND	0.4

MDL: Minimum Detectable Limit
ND: Not Detected

WGKlontz/CLTatsch
Mobil Oil Corporation
Technical Service Laboratories

TABLE 3K

BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION

SAMPLE TYPE: SOIL
SAMPLE DESIGNATION: RIVER DOWNSTREAM
TSL #: 623141

SEMIVOLATILE ANALYSIS by EPA Method 8270
Acid Extractables

Compound	Amount, mg/kg	MDL, mg/kg
Phenol	ND	0.2
2-Chlorophenol	ND	0.3
2-Methylphenol	ND	0.4
4-Methylphenol	ND	0.4
2-Nitrophenol	ND	0.5
2,4-Dimethylphenol	ND	0.4
2,4-Dichlorophenol	ND	0.4
4-Chloro-3-methylphenol	ND	0.4
2,4,6-Trichlorophenol	ND	0.4
2,4,5-Trichlorophenol	ND	0.4
2,4-Dinitrophenol	ND	5.0
4-Nitrophenol	ND	0.4
4,6-Dinitro-2-methylphenol	ND	2.9
Pentachlorophenol	ND	0.5

MDL: Minimum Detectable Limit
ND: Not Detected

WG Klontz/CL Tatsch
Mobil Oil Corporation
Technical Service Laboratories

TABLE 3L

BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION

SAMPLE TYPE: SOIL
 SAMPLE DESIGNATION: BORING #5 COMPOSITE
 TSL #: 623142

SEMIVOLATILE ANALYSIS by EPA Method 8270
 Acid Extractables

Compound	Amount, mg/kg	MDL, mg/kg
Phenol	ND	0.2
2-Chlorophenol	ND	0.3
2-Methylphenol	ND	0.3
4-Methylphenol	ND	0.3
2-Nitrophenol	ND	0.4
2,4-Dimethylphenol	ND	0.3
2,4-Dichlorophenol	ND	0.3
4-Chloro-3-methylphenol	ND	0.3
2,4,6-Trichlorophenol	ND	0.3
2,4,5-Trichlorophenol	ND	0.3
2,4-Dinitrophenol	ND	4.2
4-Nitrophenol	ND	0.3
4,6-Dinitro-2-methylphenol	ND	2.4
Pentachlorophenol	ND	0.4

MDL: Minimum Detectable Limit
 ND: Not Detected

WG Klontz/CL Tatsch
 Mobil Oil Corporation
 Technical Service Laboratories

TABLE 3M

BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION

SAMPLE TYPE: SOIL
SAMPLE DESIGNATION: BORING #6 COMPOSITE
TSL #: 623143

SEMIVOLATILE ANALYSIS by EPA Method 8270
Acid Extractables

Compound	Amount, mg/kg	MDL, mg/kg
Phenol	ND	0.2
2-Chlorophenol	ND	0.4
2-Methylphenol	ND	0.4
4-Methylphenol	ND	0.4
2-Nitrophenol	ND	0.5
2,4-Dimethylphenol	ND	0.4
2,4-Dichlorophenol	ND	0.4
4-Chloro-3-methylphenol	ND	0.4
2,4,6-Trichlorophenol	ND	0.4
2,4,5-Trichlorophenol	ND	0.4
2,4-Dinitrophenol	ND	5.0
4-Nitrophenol	ND	0.4
4,6-Dinitro-2-methylphenol	ND	2.9
Pentachlorophenol	ND	0.5

MDL: Minimum Detectable Limit
ND: Not Detected

WG Klontz/CL Tatsch
Mobil Oil Corporation
Technical Service Laboratories

TABLE 3N

BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION

SAMPLE TYPE: SOIL
SAMPLE DESIGNATION: BORING #7 COMPOSITE
TSL #: 623144

SEMIVOLATILE ANALYSIS by EPA Method 8270
Acid Extractables

Compound	Amount, mg/kg	MDL, mg/kg
Phenol	ND	0.2
2-Chlorophenol	ND	0.4
2-Methylphenol	ND	0.4
4-Methylphenol	ND	0.4
2-Nitrophenol	ND	0.5
2,4-Dimethylphenol	ND	0.4
2,4-Dichlorophenol	ND	0.4
4-Chloro-3-methylphenol	ND	0.4
2,4,6-Trichlorophenol	ND	0.4
2,4,5-Trichlorophenol	ND	0.4
2,4-Dinitrophenol	ND	5.0
4-Nitrophenol	ND	0.4
4,6-Dinitro-2-methylphenol	ND	2.9
Pentachlorophenol	ND	0.5

MDL: Minimum Detectable Limit
ND: Not Detected

WG Klontz/CL Tatsch
Mobil Oil Corporation
Technical Service Laboratories

TABLE 4A

BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION

SAMPLE TYPE: WATER
SAMPLE DESIGNATION: WELL #1
TSL #: 623131

SEMIVOLATILE ANALYSIS by EPA Method 625
Base/Neutrals

Compound	Amount, mg/l	MDL, mg/l	Compound	Amount, mg/l	MDL, mg/l
n-Nitrosodimethylamine	ND	0.025	Hexachlorobenzene	ND	0.002
Aniline	ND	0.01	Phenanthrene	ND	0.005
Bis(2-chloroethyl)ether	ND	0.006	Anthracene	ND	0.002
m-Dichlorobenzene	ND	0.002	Di-n-butyl phthalate	0.014	0.002
p-Dichlorobenzene	ND	0.004	Fluoranthene	ND	0.002
o-Dichlorobenzene	ND	0.002	Benzidine	ND	0.044
Bis(2-chloroisopropyl)ether	ND	0.006	Pyrene	ND	0.002
1,2-dichloroethane	ND	0.002	Benzylbutyl phthalate	ND	0.002
n-Nitrosodi-n-propylamine	ND	0.05	Benz(a)anthracene	ND	0.008
Nitrobenzene	ND	0.002	Chrysene	ND	0.003
Isophorone	ND	0.002	3,3'-Dichlorobenzidine	ND	0.016
Bis(2-chloroethoxy)methane	ND	0.005	Bis(2-ethylhexyl)phthalate	ND	0.031
1,2,4-Trichlorobenzene	ND	0.002	Benzo(a)pyrene	ND	0.002
Naphthalene	ND	0.002	Di-n-octyl phthalate	ND	0.002
Hexachlorobutadiene	ND	0.001	Benzo(b)fluoranthene	ND	0.005
Dimethyl phthalate	ND	0.002	Benzo(k)fluoranthene	ND	0.002
2,6-Dinitrotoluene	ND	0.002	Indeno(1,2,3,cd)pyrene	ND	0.004
Hexachlorocyclopentadiene	ND	0.01	Dibenz(a,h)anthracene	ND	0.002
2-Chloronaphthalene	ND	0.002	Benzo(ghi)perylene	ND	0.004
Acenaphthylene	ND	0.004	Benzyl alcohol	ND	*
Acenaphthene	ND	0.002	Benzoic acid	ND	*
2,4-Dinitrotoluene	ND	0.006	4-Chloroaniline	ND	*
Fluorene	ND	0.002	2-Methyl naphthalene	ND	*
4-Chlorophenylphenylether	ND	0.004	Dibenzofuran	ND	*
Diethyl phthalate	ND	0.002	2-Nitroaniline	ND	*
n-Nitrosodiphenylamine	ND	0.002	3-Nitroaniline	ND	*
4-Bromophenylphenylether	ND	0.002	4-Nitroaniline	ND	*

MDL: Minimum Detectable Limit

ND: Not Detected

* Qualitative search only, no detection limit determined.

TABLE 4B

BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION

SAMPLE TYPE: WATER
SAMPLE DESIGNATION: WELL #2
TSL #: 623132

SEMIVOLATILE ANALYSIS by EPA Method 625
Base/Neutrals

Compound	Amount, mg/l	MDL, mg/l	Compound	Amount, mg/l	MDL, mg/l
n-Nitrosodimethylamine	ND	2.5	Hexachlorobenzene	ND	0.2
Aniline	ND	1.	Phenanthrene	ND	0.5
Bis(2-chloroethyl)ether	ND	0.6	Anthracene	ND	0.2
m-Dichlorobenzene	ND	0.2	Di-n-butyl phthalate	ND	0.2
p-Dichlorobenzene	ND	0.4	Fluoranthene	ND	0.2
o-Dichlorobenzene	ND	0.2	Benzidine	ND	4.4
Bis(2-chloroisopropyl)ether	ND	0.6	Pyrene	ND	0.2
1,2-Dichloroethane	ND	0.2	Benzylbutyl phthalate	ND	0.2
n-Nitrosodi-n-propylamine	ND	5.	Benz(a)anthracene	ND	0.8
Nitrobenzene	ND	0.2	Chrysene	ND	0.3
Isophorone	ND	0.2	3,3'-Dichlorobenzidine	ND	1.6
Bis(2-chloroethoxy)methane	ND	0.5	Bis(2-ethylhexyl)phthalate	ND	3.1
1,2,4-Trichlorobenzene	ND	0.2	Benzo(a)pyrene	ND	0.2
Naphthalene	ND	0.2	Di-n-octyl phthalate	ND	0.2
Hexachlorobutadiene	ND	0.1	Benzo(b)fluoranthene	ND	0.5
Dimethyl phthalate	ND	0.2	Benzo(k)fluoranthene	ND	0.2
2,6-Dinitrotoluene	ND	0.2	Indeno(1,2,3,cd)pyrene	ND	0.4
Hexachlorocyclopentadiene	ND	1.	Dibenz(a,h)anthracene	ND	0.2
2-Chloronaphthalene	ND	0.2	Benzo(ghi)perylene	ND	0.4
Acenaphthylene	ND	0.4	Benzyl alcohol	ND	*
Acenaphthene	ND	0.2	Benzoic acid	ND	*
2,4-Dinitrotoluene	ND	0.6	4-Chloroaniline	ND	*
Fluorene	ND	0.2	2-Methyl naphthalene	ND	*
4-Chlorophenylphenylether	ND	0.4	Dibenzofuran	ND	*
Diethyl phthalate	ND	0.2	2-Nitroaniline	ND	*
n-Nitrosodiphenylamine	ND	0.2	3-Nitroaniline	ND	*
4-Bromophenylphenylether	ND	0.2	4-Nitroaniline	ND	*

MDL: Minimum Detectable Limit

ND: Not Detected

*: Qualitative search only, no detection limit determined.

TABLE 4C

BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION

SAMPLE TYPE:WATER
SAMPLE DESIGNATION:WELL #3
TSL #:623133

SEMIVOLATILE ANALYSIS by EPA Method 625
Base/Neutrals

Compound	Amount,mg/l	MDL,mg/l	Compound	Amount,mg/l	MDL,mg/l
n-Nitrosodimethylamine	ND	0.25	Hexachlorobenzene	ND	0.02
Aniline	ND	0.1	Phenanthrene	0.16	0.05
Bis(2-chloroethyl)ether	ND	0.06	Anthracene	ND	0.02
m-Dichlorobenzene	ND	0.02	Di-n-butyl phthalate	0.14	0.02
p-Dichlorobenzene	ND	0.04	Fluoranthene	ND	0.02
o-Dichlorobenzene	ND	0.02	Benizidine	ND	0.44
Bis(2-chloroisopropyl)ether	ND	0.06	Pyrene	ND	0.02
4-vachloroethane	ND	0.02	Benzylbutyl phthalate	ND	0.02
nitrosodi-n-propylamine	ND	0.5	Benz(a)anthracene	ND	0.08
Nitrobenzene	ND	0.02	Chrysene	ND	0.03
Isophorone	ND	0.02	3,3'-Dichlorobenzidine	ND	0.16
Bis(2-chloroethoxy)methane	ND	0.05	Bis(2-ethylhexyl)phthalate	ND	0.31
1,2,4-Trichlorobenzene	ND	0.02	Benzo(a)pyrene	ND	0.02
Naphthalene	ND	0.02	Di-n-octyl phthalate	ND	0.02
Hexachlorobutadiene	ND	0.01	Benzo(b)fluoranthene	ND	0.05
Dimethyl phthalate	ND	0.02	Benzo(k)fluoranthene	ND	0.02
2,6-Dinitrotoluene	ND	0.02	Indeno(1,2,3,cd)pyrene	ND	0.04
Hexachlorocyclopentadiene	ND	0.1	Dibenz(a,h)anthracene	ND	0.02
2-Chloronaphthalene	ND	0.02	Benzo(ghi)perylene	ND	0.04
Acenaphthylene	ND	0.04	Benzyl alcohol	ND	*
Acenaphthene	0.04	0.02	Benzoic acid	ND	*
2,4-Dinitrotoluene	ND	0.06	4-Chloroaniline	ND	*
Fluorene	0.05	0.02	2-Methyl naphthalene	ND	*
4-Chlorophenylphenylether	ND	0.04	Dibenzofuran	ND	*
Diethyl phthalate	ND	0.02	2-Nitroaniline	ND	*
n-Nitrosodiphenylamine	ND	0.02	3-Nitroaniline	ND	*
4-Bromophenylphenylether	ND	0.02	4-Nitroaniline	ND	*

MDL: Minimum Detectable Limit

ND: Not Detected

*: Qualitative search only, no detection limit determined.

TABLE 4D

BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION

SAMPLE TYPE: WATER
SAMPLE DESIGNATION: WELL #4
TSL #: 623134

SEMIVOLATILE ANALYSIS by EPA Method 625
Base/Neutrals

Compound	Amount, mg/l	MDL, mg/l	Compound	Amount, mg/l	MDL, mg/l
n-Nitrosodimethylamine	ND	0.025	Hexachlorobenzene	ND	0.002
Aniline	ND	0.01	Phenanthrene	ND	0.005
Bis(2-chloroethyl) ether	ND	0.006	Anthracene	ND	0.002
m-Dichlorobenzene	ND	0.002	Di-n-butyl phthalate	0.014	0.002
p-Dichlorobenzene	ND	0.004	Fluoranthene	ND	0.002
o-Dichlorobenzene	ND	0.002	Benzdine	ND	0.044
Bis(2-chloroisopropyl) ether	ND	0.006	Pyrene	ND	0.002
1,2-Dichloroethane	ND	0.002	Benzylbutyl phthalate	ND	0.002
n-Nitrosodi-n-propylamine	ND	0.05	Benz(a)anthracene	ND	0.008
Nitrobenzene	ND	0.002	Chrysene	ND	0.003
Isophorone	ND	0.002	3,3'-Dichlorobenzidine	ND	0.016
Bis(2-chloroethoxy)methane	ND	0.005	Bis(2-ethylhexyl)phthalate	ND	0.031
1,2,4-Trichlorobenzene	ND	0.002	Benzo(a)pyrene	ND	0.002
Naphthalene	ND	0.002	Di-n-octyl phthalate	ND	0.002
Hexachlorobutadiene	ND	0.001	Benzo(b)fluoranthene	ND	0.005
Dimethyl phthalate	ND	0.002	Benzo(k)fluoranthene	ND	0.002
2,6-Dinitrotoluene	ND	0.002	Indeno(1,2,3,cd)pyrene	ND	0.004
Hexachlorocyclopentadiene	ND	0.01	Dibenz(a,h)anthracene	ND	0.002
2-Chloronaphthalene	ND	0.002	Benzo(ghi)perylene	ND	0.004
Acenaphthylene	ND	0.004	Benzyl alcohol	ND	*
Acenaphthene	ND	0.002	Benzoic acid	ND	*
2,4-Dinitrotoluene	ND	0.006	4-Chloroaniline	ND	*
Fluorene	ND	0.002	2-Methyl naphthalene	ND	*
4-Chlorophenylphenylether	ND	0.004	Dibenzofuran	ND	*
Diethyl phthalate	ND	0.002	2-Nitroaniline	ND	*
n-Nitrosodiphenylamine	ND	0.002	3-Nitroaniline	ND	*
4-Bromophenylphenylether	ND	0.002	4-Nitroaniline	ND	*

MDL: Minimum Detectable Limit

ND: Not Detected

*: Qualitative search only, no detection limit determined.

TABLE 4E

BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION

SAMPLE TYPE: WATER
SAMPLE DESIGNATION: WELL #5
TSL #: 623135

SEMIVOLATILE ANALYSIS by EPA Method 625
Base/Neutrals

Compound	Amount, mg/l	MCL, mg/l	Compound	Amount, mg/l	MCL, mg/l
n-Nitrosodimethylamine	ND	0.025	Hexachlorobenzene	ND	0.002
Aniline	ND	0.01	Phenanthrene	ND	0.005
Bis(2-chloroethyl)ether	ND	0.006	Anthracene	ND	0.002
m-Dichlorobenzene	ND	0.002	Di-n-butyl phthalate	0.014	0.002
p-Dichlorobenzene	ND	0.004	Fluoranthene	ND	0.002
o-Dichlorobenzene	ND	0.002	Benzidine	ND	0.044
Bis(2-chloroisopropyl)ether	ND	0.006	Pyrene	ND	0.002
Hexachloroethane	ND	0.002	Benzylbutyl phthalate	ND	0.002
n-Nitrosodi-n-propylamine	ND	0.05	Benz(a)anthracene	ND	0.008
Nitrobenzene	ND	0.002	Chrysene	ND	0.003
Isophorone	ND	0.002	3,3'-Dichlorobenzidine	ND	0.016
Bis(2-chloroethoxy)methane	ND	0.005	Bis(2-ethylhexyl)phthalate	ND	0.031
1,2,4-Trichlorobenzene	ND	0.002	Benzo(a)pyrene	ND	0.002
Naphthalene	ND	0.002	Di-n-octyl phthalate	ND	0.002
Hexachlorobutadiene	ND	0.001	Benzo(b)fluoranthene	ND	0.005
Dimethyl phthalate	ND	0.002	Benzo(k)fluoranthene	ND	0.002
2,6-Dinitrotoluene	ND	0.002	Indeno(1,2,3,cd)pyrene	ND	0.004
Hexachlorocyclopentadiene	ND	0.01	Dibenz(a,h)anthracene	ND	0.002
2-Chloronaphthalene	ND	0.002	Benzo(ghi)perylene	ND	0.004
Acenaphthylene	ND	0.004	Benzyl alcohol	ND	*
Acenaphthene	ND	0.002	Benzoic acid	ND	*
2,4-Dinitrotoluene	ND	0.006	4-Chloroaniline	ND	*
Fluorene	ND	0.002	2-Methyl naphthalene	ND	*
4-Chlorophenylphenylether	ND	0.004	Dibenzofuran	ND	*
Diethyl phthalate	ND	0.002	2-Nitroaniline	ND	*
n-Nitrosodiphenylamine	ND	0.002	3-Nitroaniline	ND	*
4-Bromophenylphenylether	ND	0.002	4-Nitroaniline	ND	*

Minimum Detectable Limit

Not Detected

*: Qualitative search only, no detection limit determined.

TABLE 4F

BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION

SAMPLE TYPE: WATER
SAMPLE DESIGNATION: WELL #5 DUPLICATE
TSL #: 623136

SEMIVOLATILE ANALYSIS by EPA Method 625
Base/Neutrals

Compound	Amount, mg/l	MDL, mg/l	Compound	Amount, mg/l	MDL, mg/l
n-Nitrosodimethylamine	ND	0.025	Hexachlorobenzene	ND	0.002
Aniline	ND	0.01	Phenanthrene	ND	0.005
Bis(2-chloroethyl)ether	ND	0.006	Anthracene	ND	0.002
m-Dichlorobenzene	ND	0.002	Di-n-butyl phthalate	0.014	0.002
p-Dichlorobenzene	ND	0.004	Fluoranthene	ND	0.002
o-Dichlorobenzene	ND	0.002	Benidine	ND	0.044
Bis(2-chloroisopropyl)ether	ND	0.006	Pyrene	ND	0.002
1,1-dichloroethane	ND	0.002	Benzylbutyl phthalate	ND	0.002
n-Nitrosodi-n-propylamine	ND	0.05	Benz(a)anthracene	ND	0.008
Nitrobenzene	ND	0.002	Chrysene	ND	0.003
Isophorone	ND	0.002	3,3'-Dichlorobenzidine	ND	0.016
Bis(2-chloroethoxy)methane	ND	0.005	Bis(2-ethylhexyl)phthalate	ND	0.031
1,2,4-Trichlorobenzene	ND	0.002	Benzo(a)pyrene	ND	0.002
Naphthalene	ND	0.002	Di-n-octyl phthalate	ND	0.002
Hexachlorobutadiene	ND	0.001	Benzo(b)fluoranthene	ND	0.005
Dimethyl phthalate	ND	0.002	Benzo(k)fluoranthene	ND	0.002
2,6-Dinitrotoluene	ND	0.002	Indeno(1,2,3,cd)pyrene	ND	0.004
Hexachlorocyclopentadiene	ND	0.01	Dibenz(a,h)anthracene	ND	0.002
2-Chloronaphthalene	ND	0.002	Benzo(ghi)perylene	ND	0.004
Acenaphthylene	ND	0.004	Benzyl alcohol	ND	*
Acenaphthene	ND	0.002	Benzoic acid	ND	*
2,4-Dinitrotoluene	ND	0.006	4-Chloroaniline	ND	*
Fluorene	ND	0.002	2-Methyl naphthalene	ND	*
4-Chlorophenylphenylether	ND	0.004	Dibenzofuran	ND	*
Diethyl phthalate	ND	0.002	2-Nitroaniline	ND	*
n-Nitrosodiphenylamine	ND	0.002	3-Nitroaniline	ND	*
4-Bromophenylphenylether	ND	0.002	4-Nitroaniline	ND	*

MDL: Minimum Detectable Limit

ND: Not Detected

* Qualitative search only, no detection limit determined.

TABLE 4G

BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION

SAMPLE TYPE: WATER
SAMPLE DESIGNATION: BLANK WATER
TSL #: 623137

SEMIVOLATILE ANALYSIS by EPA Method 625
Base/Neutrals

Compound	Amount, mg/l	MDL, mg/l	Compound	Amount, mg/l	MDL, mg/l
n-Nitrosodimethylamine	ND	0.025	Hexachlorobenzene	ND	0.002
Aniline	ND	0.01	Phenanthrene	ND	0.005
Bis(2-chloroethyl)ether	ND	0.006	Anthracene	ND	0.002
m-Dichlorobenzene	ND	0.002	Di-n-butyl phthalate	0.014	0.002
p-Dichlorobenzene	ND	0.004	Fluoranthene	ND	0.002
o-Dichlorobenzene	ND	0.002	Benidine	ND	0.044
Bis(2-chloroisopropyl)ether	ND	0.006	Pyrene	ND	0.002
1,1-Dichloroethane	ND	0.002	Benzylbutyl phthalate	ND	0.002
n-Nitrosodi-n-propylamine	ND	0.05	Benzo(a)anthracene	ND	0.008
Nitrobenzene	ND	0.002	Chrysene	ND	0.003
Isophorone	ND	0.002	3,3'-Dichlorobenzidine	ND	0.016
Bis(2-chloroethoxy)methane	ND	0.005	Bis(2-ethylhexyl)phthalate	ND	0.031
1,2,4-Trichlorobenzene	ND	0.002	Benzo(a)pyrene	ND	0.002
Naphthalene	ND	0.002	Di-n-octyl phthalate	ND	0.002
Hexachlorobutadiene	ND	0.001	Benzo(b)fluoranthene	ND	0.005
Dimethyl phthalate	ND	0.002	Benzo(k)fluoranthene	ND	0.002
2,6-Dinitrotoluene	ND	0.002	Indeno(1,2,3,cd)pyrene	ND	0.004
Hexachlorocyclopentadiene	ND	0.01	Dibenz(a,h)anthracene	ND	0.002
2-Chloronaphthalene	ND	0.002	Benzo(ghi)perylene	ND	0.004
Acenaphthylene	ND	0.004	Benzyl alcohol	ND	*
Acenaphthene	ND	0.002	Benzoic acid	ND	*
2,4-Dinitrotoluene	ND	0.006	4-Chloroaniline	ND	*
Fluorene	ND	0.002	2-Methyl naphthalene	ND	*
4-Chlorophenylphenylether	ND	0.004	Dibenzofuran	ND	*
Diethyl phthalate	ND	0.002	2-Nitroaniline	ND	*
n-Nitrosodiphenylamine	ND	0.002	3-Nitroaniline	ND	*
4-Bromophenylphenylether	ND	0.002	4-Nitroaniline	ND	*

MDL: Minimum Detectable Limit

ND: Not Detected

* Qualitative search only, no detection limit determined.

TABLE 4H

BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION

SAMPLE TYPE: WATER
SAMPLE DESIGNATION: RIVER UPSTREAM
TSL #: 623138

SEMIVOLATILE ANALYSIS by EPA Method 625
Base/Neutrals

Compound	Amount, mg/l	MDL, mg/l	Compound	Amount, mg/l	MDL, mg/l
n-Nitrosodimethylamine	ND	0.025	Hexachlorobenzene	ND	0.002
Aniline	ND	0.01	Phenanthrene	ND	0.005
Bis(2-chloroethyl)ether	ND	0.006	Anthracene	ND	0.002
m-Dichlorobenzene	ND	0.002	Di-n-butyl phthalate	0.015	0.002
p-Dichlorobenzene	ND	0.004	Fluoranthene	ND	0.002
o-Dichlorobenzene	ND	0.002	Benzidine	ND	0.044
Di-(2-chloroisopropyl)ether	ND	0.006	Pyrene	ND	0.002
chloroethane	ND	0.002	Benzylbutyl phthalate	ND	0.002
n-Nitrosodi-n-propylamine	ND	0.05	Benz(a)anthracene	ND	0.008
Nitrobenzene	ND	0.002	Chrysene	ND	0.003
Isophorone	ND	0.002	3,3'-Dichlorobenzidine	ND	0.016
Bis(2-chloroethoxy)methane	ND	0.005	Bis(2-ethylhexyl)phthalate	ND	0.031
1,2,4-Trichlorobenzene	ND	0.002	Benzo(a)pyrene	ND	0.002
Naphthalene	ND	0.002	Di-n-octyl phthalate	ND	0.002
Hexachlorobutadiene	ND	0.001	Benzo(b)fluoranthene	ND	0.005
Dimethyl phthalate	ND	0.002	Benzo(k)fluoranthene	ND	0.002
2,6-Dinitrotoluene	ND	0.002	Indeno(1,2,3,cd)pyrene	ND	0.004
Hexachlorocyclopentadiene	ND	0.01	Dibenz(a,h)anthracene	ND	0.002
2-Chloronaphthalene	ND	0.002	Benzo(ghi)perylene	ND	0.004
Acenaphthylene	ND	0.004	Benzyl alcohol	ND	*
Acenaphthene	ND	0.002	Benzoic acid	ND	*
2,4-Dinitrotoluene	ND	0.006	4-Chloroaniline	ND	*
Fluorene	ND	0.002	2-Methyl naphthalene	ND	*
4-Chlorophenylphenylether	ND	0.004	Dibenzofuran	ND	*
Diethyl phthalate	ND	0.002	2-Nitroaniline	ND	*
n-Nitrosodiphenylamine	ND	0.002	3-Nitroaniline	ND	*
4-Bromophenylphenylether	ND	0.002	4-Nitroaniline	ND	*

MDL: Minimum Detectable Limit

ND: Not Detected

* Qualitative search only, no detection limit determined.

TABLE 4 I

BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION

SAMPLE TYPE:WATER
SAMPLE DESIGNATION:RIVER DOWNSTREAM
TSL #:623139

SEMIVOLATILE ANALYSIS by EPA Method 625
Base/Neutrals

Compound	Amount,mg/l	MDL,mg/l	Compound	Amount,mg/l	MDL,mg/l
n-Nitrosodimethylamine	ND	0.25	Hexachlorobenzene	ND	0.02
Aniline	ND	0.1	Phenanthrene	ND	0.05
Bis(2-chloroethyl)ether	ND	0.06	Anthracene	ND	0.02
m-Dichlorobenzene	ND	0.02	Di-n-butyl phthalate	ND	0.02
p-Dichlorobenzene	ND	0.04	Fluoranthene	ND	0.02
o-Dichlorobenzene	ND	0.02	Benzidine	ND	0.44
Bis(2-chloroisopropyl)ether	ND	0.06	Pyrene	ND	0.02
chloroethane	ND	0.02	Benzylbutyl phthalate	ND	0.02
n-Nitrosodi-n-propylamine	ND	0.5	Benzo(a)anthracene	ND	0.08
Nitrobenzene	ND	0.02	Chrysene	ND	0.03
Isophorone	ND	0.02	3,3'-Dichlorobenzidine	ND	0.16
Bis(2-chloroethoxy)methane	ND	0.05	Bis(2-ethylhexyl)phthalate	ND	0.31
1,2,4-Trichlorobenzene	ND	0.02	Benzo(a)pyrene	ND	0.02
Naphthalene	ND	0.02	Di-n-octyl phthalate	ND	0.02
Hexachlorobutadiene	ND	0.01	Benzo(b)fluoranthene	ND	0.05
Dimethyl phthalate	ND	0.02	Benzo(k)fluoranthene	ND	0.02
2,6-Dinitrotoluene	ND	0.02	Indeno(1,2,3,cd)pyrene	ND	0.04
Hexachlorocyclopentadiene	ND	0.1	Dibenz(a,h)anthracene	ND	0.02
2-Chloronaphthalene	ND	0.02	Benzo(ghi)perylene	ND	0.04
Acenaphthylene	ND	0.04	Benzyl alcohol	ND	*
Acenaphthene	ND	0.02	Benzoic acid	ND	*
2,4-Dinitrotoluene	ND	0.06	4-Chloroaniline	ND	*
Fluorene	ND	0.02	2-Methyl naphthalene	ND	*
4-Chlorophenylphenylether	ND	0.04	Dibenzofuran	ND	*
Diethyl phthalate	ND	0.02	2-Nitroaniline	ND	*
n-Nitrosodiphenylamine	ND	0.02	3-Nitroaniline	ND	*
4-Bromophenylphenylether	ND	0.02	4-Nitroaniline	ND	*

MDL: Minimum Detectable Limit

ND: Not Detected

* Qualitative search only, no detection limit determined.

TABLE 4J

BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION

SAMPLE TYPE:SOIL
SAMPLE DESIGNATION:RIVER UPSTREAM
TSL #:623140

SEMIVOLATILE ANALYSIS by EPA Method 8270
Base/Neutrals

Compound	Amount,mg/kg	MDL,mg/kg	Compound	Amount,mg/kg	MDL,mg/kg
n-Nitrosodimethylamine	ND	2.5	Hexachlorobenzene	ND	0.2
Aniline	ND	1.	Phenanthrene	ND	0.5
Bis(2-chloroethyl)ether	ND	0.6	Anthracene	ND	0.2
m-Dichlorobenzene	ND	0.2	Di-n-butyl phthalate	ND	0.2
p-Dichlorobenzene	ND	0.4	Fluoranthene	0.5	0.2
o-Dichlorobenzene	ND	0.2	Benzidine	ND	4.4
Bis(2-chloroisopropyl)ether	ND	0.6	Pyrene	0.3	0.2
1,2-dichloroethane	ND	0.2	Benzylbutyl phthalate	ND	0.2
n-Nitrosodi-n-propylamine	ND	5.	Benz(a)anthracene	ND	0.8
Nitrobenzene	ND	0.2	Chrysene	ND	0.3
Isophorone	ND	0.2	3,3'-Dichlorobenzidine	ND	1.6
Bis(2-chloroethoxy)methane	ND	0.5	Bis(2-ethylhexyl)phthalate	ND	3.1
1,2,4-Trichlorobenzene	ND	0.2	Benzo(a)pyrene	ND	0.2
Naphthalene	ND	0.2	Di-n-octyl phthalate	ND	0.2
Hexachlorobutadiene	ND	0.1	Benzo(b)fluoranthene	ND	0.5
Dimethyl phthalate	ND	0.2	Benzo(k)fluoranthene	ND	0.2
2,6-Dinitrotoluene	ND	0.2	Indeno(1,2,3,cd)pyrene	ND	0.4
Hexachlorocyclopentadiene	ND	1.	Dibenz(a,h)anthracene	ND	0.2
2-Chloronaphthalene	ND	0.2	Benzo(ghi)perylene	ND	0.4
Acenaphthylene	ND	0.4	Benzyl alcohol	ND	*
Acenaphthene	ND	0.2	Benzoic acid	ND	*
2,4-Dinitrotoluene	ND	0.6	4-Chloroaniline	ND	*
Fluorene	ND	0.2	2-Methyl naphthalene	ND	*
4-Chlorophenylphenylether	ND	0.4	Dibenzofuran	ND	*
Diethyl phthalate	0.8	0.2	2-Nitroaniline	ND	*
n-Nitrosodiphenylamine	ND	0.2	3-Nitroaniline	ND	*
4-Bromophenylphenylether	ND	0.2	4-Nitroaniline	ND	*

MDL: Minimum Detectable Limit

ND: Not Detected

* Qualitative search only, no detection limit determined.

TABLE 4K

BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION

SAMPLE TYPE:SOIL
SAMPLE DESIGNATION:RIVER DOWNSTREAM
TSL #:623141

SEMIVOLATILE ANALYSIS by EPA Method 8270 (1)
Base/Neutrals

Compound	Amount,mg/kg	MDL,mg/kg	Compound	Amount,mg/kg	MDL,mg/kg
n-Nitrosodimethylamine	ND	2.5	Hexachlorobenzene	ND	0.2
Aniline	ND	1.	Phenanthrene	ND	0.5
Bis(2-chloroethyl)ether	ND	0.6	Anthracene	ND	0.2
m-Dichlorobenzene	ND	0.2	Di-n-butyl phthalate	ND	0.2
p-Dichlorobenzene	ND	0.4	Fluoranthene	ND	0.2
o-Dichlorobenzene	ND	0.2	Benzidine	ND	4.4
Bis(2-chloroisopropyl)ether	ND	0.6	Pyrene	ND	0.2
chloroethane	ND	0.2	Benzylbutyl phthalate	ND	0.2
n-nitrosodi-n-propylamine	ND	5.	Benz(a)anthracene	ND	0.8
Nitrobenzene	ND	0.2	Chrysene	ND	0.3
Isophorone	ND	0.2	3,3'-Dichlorobenzidine	ND	1.6
Bis(2-chloroethoxy)methane	ND	0.5	Bis(2-ethylhexyl)phthalate	ND	3.1
1,2,4-Trichlorobenzene	ND	0.2	Benzo(a)pyrene	ND	0.2
Naphthalene	ND	0.2	Di-n-octyl phthalate	ND	0.2
Hexachlorobutadiene	ND	0.1	Benzo(b)fluoranthene	ND	0.5
Dimethyl phthalate	ND	0.2	Benzo(k)fluoranthene	ND	0.2
2,6-Dinitrotoluene	ND	0.2	Indeno(1,2,3,cd)pyrene	ND	0.4
Hexachlorocyclopentadiene	ND	1.	Dibenz(a,h)anthracene	ND	0.2
2-Chloronaphthalene	ND	0.2	Benzo(ghi)perylene	ND	0.4
Acenaphthylene	ND	0.4	Benzyl alcohol	ND	*
Acenaphthene	ND	0.2	Benzoic acid	ND	*
2,4-Dinitrotoluene	ND	0.6	4-Chloroaniline	ND	*
Fluorene	ND	0.2	2-Methyl naphthalene	ND	*
4-Chlorophenylphenylether	ND	0.4	Dibenzofuran	ND	*
Diethyl phthalate	ND	0.2	2-Nitroaniline	ND	*
n-Nitrosodiphenylamine	ND	0.2	3-Nitroaniline	ND	*
4-Bromophenylphenylether	ND	0.2	4-Nitroaniline	ND	*

MDL: Minimum Detectable Limit

ND: Not Detected

* Qualitative search only, no detection limit determined.

This sample required EPA cleanup methods 3530 and 3570.

WGLontz/CLTatsch
Mobil Oil Corporation
Technical Service Laboratories

TABLE 4L

BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION

SAMPLE TYPE:SOIL
SAMPLE DESIGNATION:BORING #5 COMPOSITE
TSL #:623142

SEMIVOLATILE ANALYSIS by EPA Method 8270 (1)
Base/Neutrals

Compound	Amount,mg/kg	MDL,mg/kg	Compound	Amount,mg/kg	MDL,mg/kg
n-Nitrosodimethylamine	ND	2.5	Hexachlorobenzene	ND	0.2
Aniline	ND	1.	Phenanthrene	0.9	0.5
Bis(2-chloroethyl)ether	ND	0.6	Anthracene	ND	0.2
m-Dichlorobenzene	ND	0.2	Di-n-butyl phthalate	ND	0.2
p-Dichlorobenzene	ND	0.4	Fluoranthene	0.5	0.2
o-Dichlorobenzene	ND	0.2	Benidine	ND	4.4
Bis(2-chloroisopropyl)ether	ND	0.6	Pyrene	0.8	0.2
1,2-dichloroethane	ND	0.2	Benzylbutyl phthalate	ND	0.2
n-Nitrosodi-n-propylamine	ND	5.	Benz(a)anthracene	ND	0.8
Nitrobenzene	ND	0.2	Chrysene	ND	0.3
Isophorone	ND	0.2	3,3'-Dichlorobenzidine	ND	1.6
Bis(2-chloroethoxy)methane	ND	0.5	Bis(2-ethylhexyl)phthalate	ND	3.1
1,2,4-Trichlorobenzene	ND	0.2	Benzo(a)pyrene	ND	0.2
Naphthalene	ND	0.2	Di-n-octyl phthalate	ND	0.2
Hexachlorobutadiene	ND	0.1	Benzo(b)fluoranthene	ND	0.5
Dimethyl phthalate	ND	0.2	Benzo(k)fluoranthene	ND	0.2
2,6-Dinitrotoluene	ND	0.2	Indeno(1,2,3,cd)pyrene	ND	0.4
Hexachlorocyclopentadiene	ND	1.	Dibenz(a,h)anthracene	ND	0.2
2-Chloronaphthalene	ND	0.2	Benzo(ghi)perylene	ND	0.4
Acenaphthylene	ND	0.4	Benzyl alcohol	ND	*
Acenaphthene	ND	0.2	Benzoic acid	ND	*
2,4-Dinitrotoluene	ND	0.6	4-Chloroaniline	ND	*
Fluorene	ND	0.2	2-Methyl naphthalene	ND	*
4-Chlorophenylphenylether	ND	0.4	Dibenzofuran	ND	*
Diethyl phthalate	ND	0.2	2-Nitroaniline	ND	*
n-Nitrosodiphenylamine	ND	0.2	3-Nitroaniline	ND	*
4-Bromophenylphenylether	ND	0.2	4-Nitroaniline	ND	*

MDL: Minimum Detectable Limit

ND: Not Detected

*: Qualitative search only, no detection limit determined.
is sample required EPA cleanup methods 3530 and 3570.

WGKlontz/CLTatsch
Mobil Oil Corporation
Technical Service Laboratories

TABLE 4M

BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION

SAMPLE TYPE:SOIL
SAMPLE DESIGNATION:BORING #6 COMPOSITE
TSL #:623143

SEMIVOLATILE ANALYSIS by EPA Method 8270 (1)
Base/Neutrals

Compound	Amount,mg/kg	MDL,mg/kg	Compound	Amount,mg/kg	MDL,mg/kg
n-Nitrosodimethylamine	ND	2.5	Hexachlorobenzene	ND	0.2
Aniline	ND	1.	Phenanthrene	0.7	0.5
Bis(2-chloroethyl)ether	ND	0.6	Anthracene	ND	0.2
m-Dichlorobenzene	ND	0.2	Di-n-butyl phthalate	ND	0.2
p-Dichlorobenzene	ND	0.4	Fluoranthene	0.5	0.2
o-Dichlorobenzene	ND	0.2	Benzidine	ND	4.4
Bis(2-chloroisopropyl)ether	ND	0.6	Pyrene	1.3	0.2
chloroethane	ND	0.2	Benzylbutyl phthalate	ND	0.2
n-Nitrosodi-n-propylamine	ND	5.	Benz(a)anthracene	0.7	0.8
Nitrobenzene	ND	0.2	Chrysene	ND	0.3
Isophorone	ND	0.2	3,3'-Dichlorobenzidine	ND	1.6
Bis(2-chloroethoxy)methane	ND	0.5	Bis(2-ethylhexyl)phthalate	ND	3.1
1,2,4-Trichlorobenzene	ND	0.2	Benzo(a)pyrene	1.2	0.2
Naphthalene	ND	0.2	Di-n-octyl phthalate	ND	0.2
Hexachlorobutadiene	ND	0.1	Benzo(b)fluoranthene	ND	0.5
Dimethyl phthalate	ND	0.2	Benzo(k)fluoranthene	ND	0.2
2,6-Dinitrotoluene	ND	0.2	Indeno(1,2,3,cd)pyrene	ND	0.4
Hexachlorocyclopentadiene	ND	1.	Dibenz(a,h)anthracene	ND	0.2
2-Chloronaphthalene	ND	0.2	Benzo(ghi)perylene	ND	0.4
Acenaphthylene	ND	0.4	Benzyl alcohol	ND	*
Acenaphthene	ND	0.2	Benzoic acid	ND	*
2,4-Dinitrotoluene	ND	0.6	4-Chloroaniline	ND	*
Fluorene	ND	0.2	2-Methyl naphthalene	ND	*
4-Chlorophenylphenylether	ND	0.4	Dibenzofuran	ND	*
Diethyl phthalate	ND	0.2	2-Nitroaniline	ND	*
n-Nitrosodiphenylamine	ND	0.2	3-Nitroaniline	ND	*
4-Bromophenylphenylether	ND	0.2	4-Nitroaniline	ND	*

MDL: Minimum Detectable Limit

ND: Not Detected

* Qualitative search only, no detection limit determined.

 This sample required EPA cleanup methods 3530 and 3570.

WGKlontz/CLTatsch

Mobil Oil Corporation

Technical Service Laboratories

TABLE 4N

BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION

SAMPLE TYPE:SOIL
SAMPLE DESIGNATION:BORING #7 COMPOSITE
TSL #:623144

SEMIVOLATILE ANALYSIS by EPA Method 8270 (1)
Base/Neutrals

Compound	Amount,mg/kg	MDL,mg/kg	Compound	Amount,mg/kg	MDL,mg/kg
n-Nitrosodimethylamine	ND	2.5	Hexachlorobenzene	ND	0.2
Aniline	ND	1.	Phenanthrene	0.7	0.5
Bis(2-chloroethyl)ether	ND	0.6	Anthracene	ND	0.2
m-Dichlorobenzene	ND	0.2	Di-n-butyl phthalate	ND	0.2
p-Dichlorobenzene	ND	0.4	Fluoranthene	3.2	0.2
o-Dichlorobenzene	ND	0.2	Benzidine	ND	4.4
Bis(2-chloroisopropyl)ether	ND	0.6	Pyrene	4.1	0.2
1,1-dichloroethane	ND	0.2	Benzylbutyl phthalate	ND	0.2
n-Nitrosodi-n-propylamine	ND	5.	Benz(a)anthracene	2.2	0.8
Nitrobenzene	ND	0.2	Chrysene	3.9	0.3
Isophorone	ND	0.2	3,3'-Dichlorobenzidine	ND	1.6
Bis(2-chloroethoxy)methane	ND	0.5	Bis(2-ethylhexyl)phthalate	ND	3.1
1,2,4-Trichlorobenzene	ND	0.2	Benzo(a)pyrene	3.6	0.2
Naphthalene	ND	0.2	Di-n-octyl phthalate	ND	0.2
Hexachlorobutadiene	ND	0.1	Benzo(b)fluoranthene	4.6	0.5
Dimethyl phthalate	ND	0.2	Benzo(k)fluoranthene	3.3	0.2
2,6-Dinitrotoluene	ND	0.2	Indeno(1,2,3,cd)pyrene	ND	0.4
Hexachlorocyclopentadiene	ND	1.	Dibenz(a,h)anthracene	ND	0.2
2-Chloronaphthalene	ND	0.2	Benzo(ghi)perylene	ND	0.4
Acenaphthylene	ND	0.4	Benzyl alcohol	ND	*
Acenaphthene	ND	0.2	Benzoic acid	ND	*
2,4-Dinitrotoluene	ND	0.6	4-Chloroaniline	ND	*
Fluorene	ND	0.2	2-Methyl naphthalene	ND	*
4-Chlorophenylphenylether	ND	0.4	Dibenzofuran	ND	*
Diethyl phthalate	ND	0.2	2-Nitroaniline	ND	*
n-Nitrosodiphenylamine	ND	0.2	3-Nitroaniline	ND	*
4-Bromophenylphenylether	ND	0.2	4-Nitroaniline	ND	*

MDL: Minimum Detectable Limit

ND: Not Detected

* Qualitative search only, no detection limit determined.

This sample required EPA cleanup methods 3530 and 3570.

TABLE 5A

BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION

SAMPLE TYPE: WATER
SAMPLE DESIGNATION: WELL #2
TSL #: 623132

SEMIVOLATILE ANALYSIS by EPA Method 625

TENTATIVELY IDENTIFIED COMPOUNDS (1)

Compound	Estimated Concentration, mg/l
Dimethyl cyclohexane	0.2
Ethyl, methyl cyclopentane	0.2
Dimethyl octane	2.8
1-Methylethyl benzene	0.7
Trimethyl benzene	2.6
Dimethyl nonane	1.2
Ethyl, dimethyl benzene	0.2
Tetramethyl benzene	0.9
Methyl dodecane	0.6
Pentyl cyclopentane	0.4
1-Ethylidene-1H-indene	0.7
Dimethyl naphthalene	1.7
Ethyl, methyl benzene	0.6
Decahydro-2-methyl naphthalene	0.5
Pentyl cyclohexane	0.3
2,3-Dihydro-1,2-dimethyl-1H-indene	0.1
Ethyl naphthalene	0.2
Trimethyl naphthalene	0.2

(1) These compounds identified by forward search at a confidence level of 90. per cent or better. Concentrations are based on direct comparison to internal standards.

WG Klontz/CL Tatsch
Mobil Oil Corporation
Technical Service Laboratories

TABLE 5B

BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION

SAMPLE TYPE: WATER
SAMPLE DESIGNATION: WELL #3
TSL #: 623133

SEMIVOLATILE ANALYSIS by EPA Method 625

TENTATIVELY IDENTIFIED COMPOUNDS (1)

Compound	Estimated Concentration,mg/l
Trimethyl benzene	0.01
Dimethyl nonane	0.28
Decahydro-2-methyl naphthalene	0.11
Tetramethyl benzene	0.04
Methyl undecane	0.02
Hexyl cyclohexane	0.01
2,3-Dihydro-1,2-dimethyl-1H-indene	0.12
Trimethyl octane	0.06
1-Ethylidene-1H-indene	0.43
Trimethyl dodecane	0.51
Dimethyl naphthalene	1.3
Ethyl naphthalene	0.03
Trimethyl naphthalene	1.6
9-Methylene-9H-fluorene	0.04
Ethyl,methyl heptane	0.04
4-Methyl phenanthrene	0.01
Ethyl,methyl benzene	0.09
Ethyl,dimethyl benzene	0.20
Methyl,methylethyl benzene	0.19
Ethyl,dimethyl azulene	0.20
Methyl dodecane	0.43
Methyl,dibenzothiophene	0.04

(1) These compounds identified by forward search at a confidence level of 90. per cent or better. Concentrations are based on direct comparison to internal standards.

WGKlontz/CLTatsch
Mobil Oil Corporation
Technical Service Laboratories

TABLE 5C

BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION

SAMPLE TYPE: WATER
SAMPLE DESIGNATION: RIVER DOWNSTREAM
TSL #: 623139

SEMIVOLATILE ANALYSIS by EPA Method 625

TENTATIVELY IDENTIFIED COMPOUNDS (1)

Compound	Estimated Concentration, mg/l
Dimethyl naphthalene	0.3
Trimethyl naphthalene	0.2

(1) These compounds identified by forward search at a confidence level of 90. per cent or better. Concentrations are based on direct comparison to internal standards.

WG Klontz/CL Tatsch
Mobil Oil Corporation
Technical Service Laboratories

TABLE 5D

BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION

SAMPLE TYPE: SOIL
SAMPLE DESIGNATION: BORING #7 COMPOSITE
TSL #: 623144

SEMIVOLATILE ANALYSIS by EPA Method 8270

TENTATIVELY IDENTIFIED COMPOUNDS (1)

Compound	Estimated Concentration, mg/kg
Dimethyl benzene	0.48
Trimethyl benzene	0.66
Methyl, propyl cyclohexane	0.61
Tetradecane	0.81
Nonadecane	5.4

(1) These compounds identified by forward search at a confidence level of 90. per cent or better. Concentrations are based on direct comparison to internal standards.

WG Klontz/CL Tatsch
Mobil Oil Corporation
Technical Service Laboratories

BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION
PESTICIDE ANALYSIS (EPA 606)

GENERAL INFORMATION

sample description Well #1
TSL# 623131
date of sample 11/14/85

ANALYTICAL DATA

PESTICIDES (ppm)	RESULT	DETECTION LIMIT
alpha-BHC	ND	0.001
beta-BHC	ND	0.001
delta-BHC	ND	0.001
gamma-BHC (Lindane)	ND	0.001
Heptachlor	ND	0.001
Aldrin	ND	0.001
Heptachlor Epoxide	ND	0.001
Endosulfan I	ND	0.001
Dieldrin	ND	0.001
4,4'-DDE	ND	0.001
Er in	ND	0.001
E sulfan II	ND	0.001
4,4'-DDD	ND	0.001
Endrin Aldehyde	ND	0.001
Endosulfan Sulfate	ND	0.001
4,4'-DDT	ND	0.001
Endrin Ketone	ND	0.001
Methoxychlor	ND	0.001
Chlordane	ND	0.001
Toxaphene	ND	0.005
AROCLOR-1016	ND	0.01
AROCLOR-1221	ND	0.01
AROCLOR-1232	ND	0.01
AROCLOR-1242	ND	0.01
AROCLOR-1248	ND	0.005
AROCLOR-1254	ND	0.005
AROCLOR-1260	ND	0.005

Technical Service Laboratories
Mobil Technical Center
P ceton, New Jersey
B .Maine/BAS Stephens
February 7, 1986

TABLE 6B

BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION
PESTICIDE ANALYSIS (EPA 606)

SAMPLE INFORMATION

sample description	Well #2
TSL#	623132
date of sample	10/30/85

ANALYTICAL DATA

PESTICIDES (ppm)	RESULT	DETECTION LIMIT
alpha-BHC	ND	0.001
beta-BHC	ND	0.001
delta-BHC	ND	0.001
gamma-BHC (Lindane)	ND	0.001
Heptachlor	ND	0.001
Aldrin	ND	0.001
Heptachlor Epoxide	ND	0.001
Endosulfan I	ND	0.001
Dieldrin	ND	0.001
4,4'-DDE	ND	0.001
Endosulfan II	ND	0.001
4,4'-DDD	ND	0.001
Endrin Aldehyde	ND	0.001
Endosulfan Sulfate	ND	0.001
4,4'-DDT	ND	0.001
Endrin Ketone	ND	0.001
Methoxychlor	ND	0.001
Chlordane	ND	0.001
Toxaphene	ND	0.005
AROCLOR-1016	ND	0.01
AROCLOR-1221	ND	0.01
AROCLOR-1232	ND	0.01
AROCLOR-1242	ND	0.01
AROCLOR-1248	ND	0.005
AROCLOR-1254	ND	0.005
AROCLOR-1260	ND	0.005

Technical Service Laboratories
 Mobil Technical Center
 Princeton, New Jersey
 BlueMaine/BAStephens
 February 7, 1986

BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION
PESTICIDE ANALYSIS (EPA 606)

TABLE INFORMATION

sample description Well #3
TSL# 623133
date of sample 11/7/85

ANALYTICAL DATA

PESTICIDES (ppm)	RESULT	DETECTION LIMIT
alpha-BHC	ND	0.001
beta-BHC	ND	0.001
delta-BHC	ND	0.001
gamma-BHC (Lindane)	ND	0.001
Heptachlor	ND	0.001
Aldrin	ND	0.001
Heptachlor Epoxide	ND	0.001
Endosulfan I	ND	0.001
Dieldrin	ND	0.001
4,4'-DDE	ND	0.001
Endrin	ND	0.001
Endosulfan II	ND	0.001
4,4'-DDD	ND	0.001
Endrin Aldehyde	ND	0.001
Endosulfan Sulfate	ND	0.001
4,4'-DDT	ND	0.001
Endrin Ketone	ND	0.001
Methoxychlor	ND	0.001
Chlordane	ND	0.001
Toxaphene	ND	0.005
AROCLOR-1016	ND	0.01
AROCLOR-1221	ND	0.01
AROCLOR-1232	ND	0.01
AROCLOR-1242	ND	0.01
AROCLOR-1248	ND	0.005
AROCLOR-1254	ND	0.005
AROCLOR-1260	ND	0.005

Technical Service Laboratories
Mobil Technical Center
Parsippany, New Jersey
Burlington, Maine/BAS Stephans
February 7, 1986

TABLE 6D

BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION
PESTICIDE ANALYSIS (EPA 606)

SAMPLE INFORMATION

sample description Well #4
TSL# 623134
date of sample 11/7/85

ANALYTICAL DATA

PESTICIDES (ppm)	RESULT	DETECTION LIMIT
alpha-BHC	ND	0.001
beta-BHC	ND	0.001
delta-BHC	ND	0.001
gamma-BHC (Lindane)	ND	0.001
Heptachlor	ND	0.001
Aldrin	ND	0.001
Heptachlor Epoxide	ND	0.001
Endosulfan I	ND	0.001
Dieldrin	ND	0.001
4,4'-DDE	ND	0.001
Endrin	ND	0.001
Endosulfan II	ND	0.001
4,4'-DDD	ND	0.001
Endrin Aldehyde	ND	0.001
Endosulfan Sulfate	ND	0.001
4,4'-DDT	ND	0.001
Endrin Ketone	ND	0.001
Methoxychlor	ND	0.001
Chlordane	ND	0.001
Toxaphene	ND	0.005
AROCLOR-1016	ND	0.01
AROCLOR-1221	ND	0.01
AROCLOR-1232	ND	0.01
AROCLOR-1242	ND	0.01
AROCLOR-1248	ND	0.005
AROCLOR-1254	ND	0.005
AROCLOR-1260	ND	0.005

Technical Service Laboratories
Mobil Technical Center
Princeton, New Jersey
G. DeMaine/BASStephens
February 7, 1986

TABLE 6E

BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION
PESTICIDE ANALYSIS (EPA 606)

SAMPLE INFORMATION

sample description Well #5
TSL# 623135
date of sample 11/7/85

ANALYTICAL DATA

PESTICIDES (ppm)	RESULT	DETECTION LIMIT
alpha-BHC	ND	0.001
beta-BHC	ND	0.001
delta-BHC	ND	0.001
gamma-BHC (Lindane)	ND	0.001
Heptachlor	ND	0.001
Aldrin	ND	0.001
Heptachlor Epoxide	ND	0.001
Endosulfan I	ND	0.001
Dieldrin	ND	0.001
4,4'-DDE	ND	0.001
Endrin	ND	0.001
Endosulfan II	ND	0.001
4,4'-DDD	ND	0.001
Endrin Aldehyde	ND	0.001
Endosulfan Sulfate	ND	0.001
4,4'-DDT	ND	0.001
Endrin Ketone	ND	0.001
Methoxychlor	ND	0.001
Chlordane	ND	0.001
Toxaphene	ND	0.005
AROCLOR-1016	ND	0.01
AROCLOR-1221	ND	0.01
AROCLOR-1232	ND	0.01
AROCLOR-1242	ND	0.01
AROCLOR-1248	ND	0.005
AROCLOR-1254	ND	0.005
AROCLOR-1260	ND	0.005

Technical Service Laboratories
Mobil Technical Center
Princeton, New Jersey
B. LeMaine/BAS Stephans
February 7, 1986

BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION
PESTICIDE ANALYSIS (EPA 606)

SAMPLE INFORMATION

sample description Well #5 Duplicate
TSL# 623136
date of sample 11/7/85

ANALYTICAL DATA

PESTICIDES (ppm)	RESULT	DETECTION LIMIT
alpha-BHC	ND	0.001
beta-BHC	ND	0.001
delta-BHC	ND	0.001
gamma-BHC (Lindane)	ND	0.001
Heptachlor	ND	0.001
Aldrin	ND	0.001
Heptachlor Epoxide	ND	0.001
Endosulfan I	ND	0.001
Dieldrin	ND	0.001
4,4'-DDE	ND	0.001
Endrin	ND	0.001
Endosulfan II	ND	0.001
4,4'-DDD	ND	0.001
Endrin Aldehyde	ND	0.001
Endosulfan Sulfate	ND	0.001
4,4'-DDT	ND	0.001
Endrin Ketone	ND	0.001
Methoxychlor	ND	0.001
Chlordane	ND	0.001
Toxaphene	ND	0.005
AROCLOR-1016	ND	0.01
AROCLOR-1221	ND	0.01
AROCLOR-1232	ND	0.01
AROCLOR-1242	ND	0.01
AROCLOR-1248	ND	0.005
AROCLOR-1254	ND	0.005
AROCLOR-1260	ND	0.005

Technical Service Laboratories
Mobil Technical Center
Princeton, New Jersey
B. DeMaine/BASStephens
February 7, 1986

BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION
PESTICIDE ANALYSIS (EPA 606)

SAMPLE INFORMATION

sample description Field Blank
TSL# 623137
date of sample 11/7/85

ANALYTICAL DATA

PESTICIDES (ppm)	RESULT	DETECTION LIMIT
alpha-BHC	ND	0.001
beta-BHC	ND	0.001
delta-BHC	ND	0.001
gamma-BHC (Lindane)	ND	0.001
Heptachlor	ND	0.001
Aldrin	ND	0.001
Heptachlor Epoxide	ND	0.001
Endosulfan I	ND	0.001
Dieldrin	ND	0.001
4,4'-DDE	ND	0.001
Endrin	ND	0.001
Endosulfan II	ND	0.001
4,4'-DDD	ND	0.001
Endrin Aldehyde	ND	0.001
Endosulfan Sulfate	ND	0.001
4,4'-DDT	ND	0.001
Endrin Ketone	ND	0.001
Methoxychlor	ND	0.001
Chlordane	ND	0.001
Toxaphene	ND	0.005
AROCLOR-1016	ND	0.01
AROCLOR-1221	ND	0.01
AROCLOR-1232	ND	0.01
AROCLOR-1242	ND	0.01
AROCLOR-1248	ND	0.005
AROCLOR-1254	ND	0.005
AROCLOR-1260	ND	0.005

Technical Service Laboratories
Mobil Technical Center
Princeton, New Jersey
Blaine/BAStephens
February 7, 1986

TABLE 6H
BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION
PESTICIDE ANALYSIS (EPA 606)

SAMPLE INFORMATION

sample description Buffalo River Upstream Water
TSL# 623138
date of sample 10/30/85

ANALYTICAL DATA

PESTICIDES (ppm)	RESULT	DETECTION LIMIT
alpha-BHC	ND	0.001
beta-BHC	ND	0.001
delta-BHC	ND	0.001
gamma-BHC (Lindane)	ND	0.001
Heptachlor	ND	0.001
Aldrin	ND	0.001
Heptachlor Epoxide	ND	0.001
Endosulfan I	ND	0.001
Dieldrin	ND	0.001
4,4'-DDE	ND	0.001
Endrin	ND	0.001
Endosulfan II	ND	0.001
4,4'-DDD	ND	0.001
Endrin Aldehyde	ND	0.001
Endosulfan Sulfate	ND	0.001
4,4'-DDT	ND	0.001
Endrin Ketone	ND	0.001
Methoxychlor	ND	0.001
Chlordane	ND	0.001
Toxaphene	ND	0.005
AROCLOR-1016	ND	0.01
AROCLOR-1221	ND	0.01
AROCLOR-1232	ND	0.01
AROCLOR-1242	ND	0.01
AROCLOR-1248	ND	0.005
AROCLOR-1254	ND	0.005
AROCLOR-1260	ND	0.005

Technical Service Laboratories
Mobil Technical Center
Princeton, New Jersey
Bridgeway/BAStephens
February 7, 1986

BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION
PESTICIDE ANALYSIS (EPA 606)

SAMPLE INFORMATION

sample description Buffalo River Downstream Water
TSL# 623139
date of sample 10/30/85

ANALYTICAL DATA

PESTICIDES (ppm)	RESULT	DETECTION LIMIT
alpha-BHC	ND	0.001
beta-BHC	ND	0.001
delta-BHC	ND	0.001
gamma-BHC (Lindane)	ND	0.001
Heptachlor	ND	0.001
Aldrin	ND	0.001
Heptachlor Epoxide	ND	0.001
Endosulfan I	ND	0.001
Dieldrin	ND	0.001
4,4'-DDE	ND	0.001
Endrin	ND	0.001
Endosulfan II	ND	0.001
4,4'-DDD	ND	0.001
Endrin Aldehyde	ND	0.001
Endosulfan Sulfate	ND	0.001
4,4'-DDT	ND	0.001
Endrin Ketone	ND	0.001
Methoxychlor	ND	0.001
Chlordane	ND	0.001
Toxaphene	ND	0.005
AROCLOR-1016	ND	0.01
AROCLOR-1221	ND	0.01
AROCLOR-1232	ND	0.01
AROCLOR-1242	ND	0.01
AROCLOR-1248	ND	0.005
AROCLOR-1254	ND	0.005
AROCLOR-1260	ND	0.005

Technical Service Laboratories
Mobil Technical Center
Princeton, New Jersey
B. LeMaine/BASStephens
February 7, 1986

TABLE 6J
BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION
PESTICIDE ANALYSIS (EPA 606)

SAMPLE INFORMATION

sample description Buffalo River Upstream Sediment
TSL# 623140
date of sample 10/29/86

ANALYTICAL DATA

PESTICIDES (ppm)	RESULT	DETECTION LIMIT
alpha-BHC	ND	0.1
beta-BHC	ND	0.1
delta-BHC	ND	0.1
gamma-BHC (Lindane)	ND	0.1
Heptachlor	ND	0.1
Aldrin	ND	0.1
Heptachlor Epoxide	ND	0.1
Endosulfan I	ND	0.1
Dieldrin	ND	0.1
4,4'-DDE	ND	0.1
Endrin	ND	0.1
Endosulfan II	ND	0.1
4,4'-DDD	ND	0.1
Endrin Aldehyde	ND	0.1
Endosulfan Sulfate	ND	0.1
4,4'-DDT	ND	0.1
Endrin Ketone	ND	0.1
Methoxychlor	ND	0.1
Chlordane	ND	50.
Toxaphene	ND	500.
AROCLOR-1016	ND	1.
AROCLOR-1221	ND	1.
AROCLOR-1232	ND	1.
AROCLOR-1242	ND	1.
AROCLOR-1248	ND	0.5
AROCLOR-1254	ND	0.5
AROCLOR-1260	ND	0.5

Technical Service Laboratories
Mobil Technical Center
Princeton, New Jersey
B. DeMaine/BAS Stephans
February 7, 1986

BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION
PESTICIDE ANALYSIS (EPA 606)

SAMPLE INFORMATION

sample description Buffalo River Downstream Sediment
TSL# 623141
date of sample 10/29/86

ANALYTICAL DATA

PESTICIDES (ppm)	RESULT	DETECTION LIMIT
alpha-BHC	ND	0.1
beta-BHC	ND	0.1
delta-BHC	ND	0.1
gamma-BHC (Lindane)	ND	0.1
Heptachlor	ND	0.1
Aldrin	ND	0.1
Heptachlor Epoxide	ND	0.1
Endosulfan I	ND	0.1
Dieldrin	ND	0.1
4,4'-DDE	ND	0.1
Endrin	ND	0.1
Endosulfan II	ND	0.1
4,4'-DDD	ND	0.1
Endrin Aldehyde	ND	0.1
Endosulfan Sulfate	ND	0.1
4,4'-DDT	ND	0.1
Endrin Ketone	ND	0.1
Methoxychlor	ND	0.1
Chlordane	ND	50.
Toxaphene	ND	500.
AROCLOR-1016	ND	1.
AROCLOR-1221	ND	1.
AROCLOR-1232	ND	1.
AROCLOR-1242	ND	1.
AROCLOR-1248	ND	0.5
AROCLOR-1254	ND	0.5
AROCLOR-1260	ND	0.5

Technical Service Laboratories
Mobil Technical Center
Princeton, New Jersey
Bridgeton/BAStephens
February 7, 1986

TABLE 6L
BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION
PESTICIDE ANALYSIS (EPA 606)

SAMPLE INFORMATION

sample description Boring #5 (composite)
TSL# 623142
date of sample 10/24/86

ANALYTICAL DATA

PESTICIDES (ppm)	RESULT	DETECTION LIMIT
alpha-BHC	ND	0.1
beta-BHC	ND	0.1
delta-BHC	ND	0.1
gamma-BHC (Lindane)	ND	0.1
Heptachlor	ND	0.1
Aldrin	ND	0.1
Heptachlor Epoxide	ND	0.1
Endosulfan I	ND	0.1
Dieldrin	ND	0.1
4,4'-DDE	ND	0.1
Endrin	ND	0.1
Endosulfan II	ND	0.1
4,4'-DDD	ND	0.1
Endrin Aldehyde	ND	0.1
Endosulfan Sulfate	ND	0.1
4,4'-DDT	ND	0.1
Endrin Ketone	ND	0.1
Methoxychlor	ND	0.1
Chlordane	ND	50.
Toxaphene	ND	500.
AROCLOR-1016	ND	1.
AROCLOR-1221	ND	1.
AROCLOR-1232	ND	1.
AROCLOR-1242	ND	1.
AROCLOR-1248	ND	0.5
AROCLOR-1254	ND	0.5
AROCLOR-1260	ND	0.5

Technical Service Laboratories
Mobil Technical Center
Princeton, New Jersey
B. LeMaine/BAS Stephans
February 7, 1986

BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION
PESTICIDE ANALYSIS (EPA 606)

SAMPLE INFORMATION

sample description	Boring #6 (composite)
TSL#	623143
date of sample	10/24/86

ANALYTICAL DATA

PESTICIDES (ppm)	RESULT	DETECTION LIMIT
alpha-BHC	ND	0.1
beta-BHC	ND	0.1
delta-BHC	ND	0.1
gamma-BHC (Lindane)	ND	0.1
Heptachlor	ND	0.1
Aldrin	ND	0.1
Heptachlor Epoxide	ND	0.1
Endosulfan I	ND	0.1
Dieldrin	ND	0.1
4,4'-DDE	ND	0.1
Endrin	ND	0.1
Endosulfan II	ND	0.1
4,4'-DDD	ND	0.1
Endrin Aldehyde	ND	0.1
Endosulfan Sulfate	ND	0.1
4,4'-DDT	ND	0.1
Endrin Ketone	ND	0.1
Methoxychlor	ND	0.1
Chlordane	ND	50.
Toxaphene	ND	500.
AROCLOR-1016	ND	1.
AROCLOR-1221	ND	1.
AROCLOR-1232	ND	1.
AROCLOR-1242	ND	1.
AROCLOR-1248	ND	0.5
AROCLOR-1254	ND	0.5
AROCLOR-1260	ND	0.5

Technical Service Laboratories
Mobil Technical Center
Princeton, New Jersey
Blaine/BAStephens
February 7, 1986

BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION
PESTICIDE ANALYSIS (EPA 606)

SAMPLE INFORMATION

sample description Boring #7 (composite)
TSL# 623144
date of sample 10/24/86

ANALYTICAL DATA

PESTICIDES (ppm)	RESULT	DETECTION LIMIT
alpha-BHC	ND	0.1
beta-BHC	ND	0.1
delta-BHC	ND	0.1
gamma-BHC (Lindane)	ND	0.1
Heptachlor	ND	0.1
Aldrin	ND	0.1
Heptachlor Epoxide	ND	0.1
Endosulfan I	ND	0.1
Dieldrin	ND	0.1
4,4'-DDE	ND	0.1
Endrin	ND	0.1
Endosulfan II	ND	0.1
4,4'-DDD	ND	0.1
Endrin Aldehyde	ND	0.1
Endosulfan Sulfate	ND	0.1
4,4'-DDT	ND	0.1
Endrin Ketone	ND	0.1
Methoxychlor	ND	0.1
Chlordane	ND	50.
Toxaphene	ND	500.
AROCLOR-1016	ND	1.
AROCLOR-1221	ND	1.
AROCLOR-1232	ND	1.
AROCLOR-1242	ND	1.
AROCLOR-1248	ND	0.5
AROCLOR-1254	ND	0.5
AROCLOR-1260	ND	0.5

Technical Service Laboratories
Mobil Technical Center
Princeton, New Jersey
B. DeMaine/BAS Stephans
February 7, 1986

TABLE 7A
BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION
METALS ANALYSIS

SAMPLE INFORMATION

Sample Description Well #1
TSL# 623131
Date of Sample 11/14/85

ANALYTICAL DATA

METALS (ppm)	METHOD	RESULT	DETECTION LIMIT
Arsenic	EPA 206.2	0.001	0.001
Barium	EPA 208.1	ND	0.2
Cadmium	EPA 213.2	ND	0.001
Calcium	EPA 215.1	70.	0.01
Chromium (total)	EPA 218.1	ND	0.01
Chromium (+6)	SW-846 7196	ND	0.01
Magnesium	EPA 242.1	24.	0.01
Lead	EPA 239.2	ND	0.005
Mercury	EPA 245.1	0.002	0.001
Nickel	EPA 272.2	ND	0.002
Selenium	EPA 270.2	0.001	0.001
Silver	EPA 272.2	ND	0.001
Sodium	EPA 273.1	18.6	0.01

ND = Not Detected

Technical Service Laboratories
Mobil Technical Center
Princeton, New Jersey
BPDeMaine/BASStephens
February 7, 1986
0113G

TABLE 7B

BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION
METALS ANALYSIS

SAMPLE INFORMATION

Sample Description Well #2
TSL# 623132
Date of Sample 10/30/85

ANALYTICAL DATA

METALS (ppm)	METHOD	RESULT	DETECTION LIMIT
Arsenic	EPA 206.2	0.003	0.001
Barium	EPA 208.1	ND	0.2
Cadmium	EPA 213.2	ND	0.001
Calcium	EPA 215.1	27.	0.01
Chromium (total)	EPA 218.1	ND	0.01
Chromium (+6)	SW-846 7196	ND	0.01
Magnesium	EPA 242.1	4.6	0.01
Lead	EPA 239.2	0.005	0.005
Mercury	EPA 245.1	ND	0.001
Nickel	EPA 272.2	0.005	0.002
Selenium	EPA 270.2	ND	0.001
Silver	EPA 272.2	ND	0.001
Sodium	EPA 273.1	13.0	0.01

ND = Not Detected

Technical Service Laboratories
Mobil Technical Center
Princeton, New Jersey
BPDeMaine/BASStephens
February 7, 1986
0113G

TABLE 7C
BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION
METALS ANALYSIS

SAMPLE INFORMATION

Sample Description Well #3
TSL# 623133
Date of Sample 11/7/85

ANALYTICAL DATA

METALS (ppm)	METHOD	RESULT	DETECTION LIMIT
Arsenic	EPA 206.2	0.002	0.001
Barium	EPA 208.1	ND	0.2
Cadmium	EPA 213.2	ND	0.001
Calcium	EPA 215.1	94.	0.01
Chromium (total)	EPA 218.1	ND	0.01
Chromium (+6)	SW-846 7196	ND	0.01
Magnesium	EPA 242.1	27.	0.01
Lead	EPA 239.2	0.005	0.005
Mercury	EPA 245.1	ND	0.001
Nickel	EPA 272.2	0.002	0.002
Selenium	EPA 270.2	0.001	0.001
Silver	EPA 272.2	ND	0.001
Sodium	EPA 273.1	12.0	0.01

ND = Not Detected

Technical Service Laboratories
Mobil Technical Center
Princeton, New Jersey
BPDeMaine/BASStephens
February 7, 1986
0113G

TABLE 7D
BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION
METALS ANALYSIS

SAMPLE INFORMATION

Sample Description Well #4
TSL# 623134
Date of Sample 11/7/85

ANALYTICAL DATA

METALS (ppm)	METHOD	RESULT	DETECTION LIMIT
Arsenic	EPA 206.2	0.002	0.001
Barium	EPA 208.1	ND	0.2
Cadmium	EPA 213.2	ND	0.001
Calcium	EPA 215.1	93.	0.01
Chromium (total)	EPA 218.1	ND	0.01
Chromium (+6)	SW-846 7196	ND	0.01
Magnesium	EPA 242.1	18.	0.01
Lead	EPA 239.2	ND	0.005
Mercury	EPA 245.1	ND	0.001
Nickel	EPA 272.2	ND	0.002
Selenium	EPA 270.2	ND	0.001
Silver	EPA 272.2	ND	0.001
Sodium	EPA 273.1	14.4	0.01

ND = Not Detected

Technical Service Laboratories
Mobil Technical Center
Princeton, New Jersey
BPDeMaine/BASStephens
February 7, 1986
0113G

TABLE 7E

BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION
METALS ANALYSIS

SAMPLE INFORMATION

Sample Description Well #5
TSL# 623135
Date of Sample 11/7/85

ANALYTICAL DATA

METALS (ppm)	METHOD	RESULT	DETECTION LIMIT
Arsenic	EPA 206.2	0.001	0.001
Barium	EPA 208.1	ND	0.2
Cadmium	EPA 213.2	ND	0.001
Calcium	EPA 215.1	72.	0.01
Chromium (total)	EPA 218.1	ND	0.01
Chromium (+6)	SW-846 7196	ND	0.01
Magnesium	EPA 242.1	11.	0.01
Lead	EPA 239.2	ND	0.005
Mercury	EPA 245.1	ND	0.001
Nickel	EPA 272.2	0.003	0.002
Selenium	EPA 270.2	0.001	0.001
Silver	EPA 272.2	ND	0.001
Sodium	EPA 273.1	8.80	0.01

ND = Not Detected

Technical Service Laboratories
Mobil Technical Center
Princeton, New Jersey
BPDeMaine/BASStephens
February 7, 1986
0113G

TABLE 7F

BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION
METALS ANALYSIS

SAMPLE INFORMATION

Sample Description Well #5 Duplicate

TSL# 623136

Date of Sample 11/7/85

ANALYTICAL DATA

METALS (ppm)	METHOD	RESULT	DETECTION LIMIT
Arsenic	EPA 206.2	0.001	0.001
Barium	EPA 208.1	ND	0.2
Cadmium	EPA 213.2	ND	0.001
Calcium	EPA 215.1	73.	0.01
Chromium (total)	EPA 218.1	ND	0.01
Chromium (+6)	SW-846 7196	ND	0.01
Magnesium	EPA 242.1	11.	0.01
Lead	EPA 239.2	0.008	0.005
Mercury	EPA 245.1	ND	0.001
Nickel	EPA 272.2	0.002	0.002
Selenium	EPA 270.2	0.001	0.001
Silver	EPA 272.2	ND	0.001
Sodium	EPA 273.1	18.8	0.01

ND = Not Detected

Technical Service Laboratories
Mobil Technical Center
Princeton, New Jersey
BPDeMaine/BASStephens
February 7, 1986
0113G

TABLE 7G

BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION
METALS ANALYSIS

SAMPLE INFORMATION

Sample Description Field Bank
TSL# 623137
Date of Sample 11/7/85

ANALYTICAL DATA

METALS (ppm)	METHOD	RESULT	DETECTION LIMIT
Arsenic	EPA 206.2	0.001	0.001
Barium	EPA 208.1	ND	0.2
Cadmium	EPA 213.2	ND	0.001
Calcium	EPA 215.1	0.10	0.01
Chromium (total)	EPA 218.1	ND	0.01
Chromium (+6)	SW-846 7196	ND	0.01
Magnesium	EPA 242.1	1.7	0.01
Lead	EPA 239.2	ND	0.005
Mercury	EPA 245.1	0.002	0.001
Nickel	EPA 272.2	0.002	0.002
Selenium	EPA 270.2	0.001	0.001
Silver	EPA 272.2	ND	0.001
Sodium	EPA 273.1	1.26	0.01

ND = Not Detected

Technical Service Laboratories
Mobil Technical Center
Princeton, New Jersey
BPDeMaine/BASStephens
February 7, 1986
0113G

TABLE 7H

BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION
METALS ANALYSIS

SAMPLE INFORMATION

Sample Description Buffalo River Upstream Water
TSL# 623138
Date of Sample 10/30/85

ANALYTICAL DATA

METALS (ppm)	METHOD	RESULT	DETECTION LIMIT
Arsenic	EPA 206.2	0.001	0.001
Barium	EPA 208.1	ND	0.2
Cadmium	EPA 213.2	ND	0.001
Calcium	EPA 215.1	22.	0.01
Chromium (total)	EPA 218.1	ND	0.01
Chromium (+6)	SW-846 7196	ND	0.01
Magnesium	EPA 242.1	4.0	0.01
Lead	EPA 239.2	ND	0.005
Mercury	EPA 245.1	ND	0.001
Nickel	EPA 272.2	0.002	0.002
Selenium	EPA 270.2	0.001	0.001
Silver	EPA 272.2	ND	0.001
Sodium	EPA 273.1	7.80	0.01

ND = Not Detected

Technical Service Laboratories
Mobil Technical Center
Princeton, New Jersey
BPDeMaine/BASStephens
February 7, 1986
0113G

TABLE 7I

BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION
METALS ANALYSIS

SAMPLE INFORMATION

Sample Description Buffalo River Downstream Water
TSL# 623139
Date of Sample 10/30/85

ANALYTICAL DATA

METALS (ppm)	METHOD	RESULT	DETECTION LIMIT
Arsenic	EPA 206.2	0.001	0.001
Barium	EPA 208.1	ND	0.2
Cadmium	EPA 213.2	ND	0.001
Calcium	EPA 215.1	21.	0.01
Chromium (total)	EPA 218.1	ND	0.01
Chromium (+6)	SW-846 7196	ND	0.01
Magnesium	EPA 242.1	5.1	0.01
Lead	EPA 239.2	ND	0.005
Mercury	EPA 245.1	ND	0.001
Nickel	EPA 272.2	ND	0.002
Selenium	EPA 270.2	0.001	0.001
Silver	EPA 272.2	ND	0.001
Sodium	EPA 273.1	7.40	0.01

ND = Not Detected

Technical Service Laboratories
Mobil Technical Center
Princeton, New Jersey
BPDeMaine/BASStephens
February 7, 1986
0113G

TABLE 7J

BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION
METALS ANALYSIS

SAMPLE INFORMATION

Sample Description Buffalo River Upstream Sediment
TSL# 623140
Date of Sample 10/29/85

ANALYTICAL DATA

METALS (ppm)	METHOD	RESULT	DETECTION LIMIT
Arsenic	EPA 206.2	2.5	0.01
Barium	EPA 208.1	2.1	1.0
Cadmium	EPA 213.2	0.8	0.01
Calcium	EPA 215.1	17100.	0.1
Chromium (total)	EPA 218.1	4.9	0.5
Chromium (+6)	SW-846 7196	ND	0.01
Magnesium	EPA 242.1	3600.	0.1
Lead	EPA 239.2	44.8	1.0
Mercury	EPA 245.1	0.08	0.01
Nickel	EPA 272.2	33.6	0.01
Selenium	EPA 270.2	ND	0.05
Silver	EPA 272.2	0.16	0.01
Sodium	EPA 273.1	1480	0.1

ND = Not Detected

Technical Service Laboratories
Mobil Technical Center
Princeton, New Jersey
BPDeMaine/BASStephens
February 7, 1986
0113G

TABLE 7K

BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION
METALS ANALYSIS

SAMPLE INFORMATION

Sample Description Buffalo River Downstream Sediment
TSL# 623141
Date of Sample 10/29/85

ANALYTICAL DATA

METALS (ppm)	METHOD	RESULT	DETECTION LIMIT
Arsenic	EPA 206.2	3.3	0.01
Barium	EPA 208.1	3.8	1.0
Cadmium	EPA 213.2	0.5	0.01
Calcium	EPA 215.1	53100.	0.1
Chromium (total)	EPA 218.1	6.0	0.5
Chromium (+6)	SW-846 7196	ND	0.01
Magnesium	EPA 242.1	2590.	0.1
Lead	EPA 239.2	670.	1.0
Mercury	EPA 245.1	0.39	0.01
Nickel	EPA 272.2	52.6	0.01
Selenium	EPA 270.2	ND	0.05
Silver	EPA 272.2	0.09	0.01
Sodium	EPA 273.1	780.	0.1

ND = Not Detected

Technical Service Laboratories
Mobil Technical Center
Princeton, New Jersey
BPDeMaine/BASstephens
February 7, 1986
0113G

TABLE 7L
BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION
METALS ANALYSIS

SAMPLE INFORMATION

Sample Description Boring #5 (composite)
TSL# 623142
Date of Sample 10/24/85

ANALYTICAL DATA

METALS (ppm)	METHOD	RESULT	DETECTION LIMIT
Arsenic	EPA 206.2	7.5	0.01
Barium	EPA 208.1	6.7	1.0
Cadmium	EPA 213.2	2.0	0.01
Calcium	EPA 215.1	4900.	0.1
Chromium (total)	EPA 218.1	9.9	0.5
Chromium (+6)	SW-846 7196	ND	0.01
Magnesium	EPA 242.1	710.	0.1
Lead	EPA 239.2	3160.	1.0
Mercury	EPA 245.1	3.2	0.01
Nickel	EPA 272.2	42.4	0.01
Selenium	EPA 270.2	ND	0.05
Silver	EPA 272.2	0.3	0.01
Sodium	EPA 273.1	1740.	0.1

ND = Not Detected

Technical Service Laboratories
Mobil Technical Center
Princeton, New Jersey
BPDeMaine/BASStephens
February 7, 1986
0113G

TABLE 7M
BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION
METALS ANALYSIS

SAMPLE INFORMATION

Sample Description Boring #6 (composite)
TSL# 623143
Date of Sample 10/24/85

ANALYTICAL DATA

METALS (ppm)	METHOD	RESULT	DETECTION LIMIT
Arsenic	EPA 206.2	11.9	0.01
Barium	EPA 208.1	3.1	1.0
Cadmium	EPA 213.2	3.4	0.01
Calcium	EPA 215.1	24800.	0.1
Chromium (total)	EPA 218.1	21.4	0.5
Chromium (+6)	SW-846 7196	ND	0.01
Magnesium	EPA 242.1	3500.	0.1
Lead	EPA 239.2	1300.	1.0
Mercury	EPA 245.1	1.5	0.01
Nickel	EPA 272.2	47.0	0.01
Selenium	EPA 270.2	ND	0.05
Silver	EPA 272.2	2.4	0.01
Sodium	EPA 273.1	1320.	0.1

ND = Not Detected

Technical Service Laboratories
Mobil Technical Center
Princeton, New Jersey
BPDeMaine/BASStephens
February 7, 1986
0113G

TABLE 7N

BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION
METALS ANALYSIS

SAMPLE INFORMATION

Sample Description Boring #7 (composite)
TSL# 623144
Date of Sample 10/25/85

ANALYTICAL DATA

METALS (ppm)	METHOD	RESULT	DETECTION LIMIT
Arsenic	EPA 206.2	6.8	0.01
Barium	EPA 208.1	7.7	1.0
Cadmium	EPA 213.2	3.3	0.01
Calcium	EPA 215.1	23400.	0.1
Chromium (total)	EPA 218.1	14.7	0.5
Chromium (+6)	SW-846 7196	ND	0.01
Magnesium	EPA 242.1	1640.	0.1
Lead	EPA 239.2	1350.	1.0
Mercury	EPA 245.1	0.9	0.01
Nickel	EPA 272.2	62.2	0.01
Selenium	EPA 270.2	ND	0.05
Silver	EPA 272.2	1.4	0.01
Sodium	EPA 273.1	1360	0.1

ND = Not Detected

Technical Service Laboratories
Mobil Technical Center
Princeton, New Jersey
BPDeMaine/BASStephens
February 7, 1986
0113G

TABLE 8A

BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION
GROUNDWATER QUALITY / GROUNDWATER CONTAMINATION INDICATORS

SAMPLE INFORMATION

Sample Description Well # 1
TSL# 623131
Date of Sample 11/14/85

ANALYTICAL DATA

GROUNDWATER QUALITY PARAMETERS (ppm)	METHOD	RESULT	DETECTION LIMIT
Chloride	EPA 325.3	20.	1.0
Phenol	EPA 420.1	ND	0.005
Sulfate	EPA 375.4	68.	1.0
Ammonia Nitrogen	EPA 350.3	7.8	0.05

GROUNDWATER CONTAMINATION
INDICATORS (ppm)

Total Organic Carbon	EPA 415.1	205.	1.
Total Inorganic Carbon	EPA 130.2	274.	1.
Total Organic Halogen	EPA 450.1	0.01	0.001
Specific Gravity	ASTM D-1429	1.004	--

ND = Not Detected

Technical Service Laboratories
Mobil Technical Center
Princeton, New Jersey
BPDeMaine/BAS Stephans
February 7, 1986
0113G

TABLE 8B

BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION
GROUNDWATER QUALITY / GROUNDWATER CONTAMINATION INDICATORS

SAMPLE INFORMATION

Sample Description Well # 2
TSL# 623132
Date of Sample 10/30/85

ANALYTICAL DATA

GROUNDWATER QUALITY PARAMETERS (ppm)	METHOD	RESULT	DETECTION LIMIT
Chloride	EPA 325.3	36.	1.0
Phenol	EPA 420.1	ND	0.005
Sulfate	EPA 375.4	12.	1.0
Ammonia Nitrogen	EPA 350.3	0.7	0.05

GROUNDWATER CONTAMINATION
INDICATORS (ppm)

Total Organic Carbon	EPA 415.1	14.	1.
Total Inorganic Carbon	EPA 130.2	86.	1.
Total Organic Halogen	EPA 450.1	0.01	0.001
Specific Gravity	ASTM D-1429	1.003	--

ND = Not Detected

Technical Service Laboratories
Mobil Technical Center
Princeton, New Jersey
BPDeMaine/BASStephens
February 7, 1986
0113G

TABLE 8C

BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION
GROUNDWATER QUALITY / GROUNDWATER CONTAMINATION INDICATORS

SAMPLE INFORMATION

Sample Description Well # 3
TSL# 623133
Date of Sample 11/7/85

ANALYTICAL DATA

GROUNDWATER QUALITY PARAMETERS (ppm)	METHOD	RESULT	DETECTION LIMIT
Chloride	EPA 325.3	149.	1.0
Phenol	EPA 420.1	ND	0.005
Sulfate	EPA 375.4	269.	1.0
Ammonia Nitrogen	EPA 350.3	7.0	0.05

GROUNDWATER CONTAMINATION
INDICATORS (ppm)

Total Organic Carbon	EPA 415.1	8.	1.
Total Inorganic Carbon	EPA 130.2	346.	1.
Total Organic Halogen	EPA 450.1	0.03	0.001
Specific Gravity	ASTM D-1429	1.004	--

ND = Not Detected

Technical Service Laboratories
Mobil Technical Center
Princeton, New Jersey
BPDeMaine/BASStephens
February 7, 1986
0113G

TABLE 8D

BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION
GROUNDWATER QUALITY / GROUNDWATER CONTAMINATION INDICATORS

SAMPLE INFORMATION

Sample Description Well # 4
TSL# 623134
Date of Sample 11/17/85

ANALYTICAL DATA

GROUNDWATER QUALITY PARAMETERS (ppm)	METHOD	RESULT	DETECTION LIMIT
Chloride	EPA 325.3	31.	1.0
Phenol	EPA 420.1	ND	0.005
Sulfate	EPA 375.4	285.	1.0
Ammonia Nitrogen	EPA 350.3	1.9	0.05

GROUNDWATER CONTAMINATION
INDICATORS (ppm)

Total Organic Carbon	EPA 415.1	28.	1.
Total Inorganic Carbon	EPA 130.2	306.	1.
Total Organic Halogen	EPA 450.1	0.00	0.001
Specific Gravity	ASTM D-1429	1.004	--

ND = Not Detected

Technical Service Laboratories
Mobil Technical Center
Princeton, New Jersey
BPDeMaine/BASStephens
February 7, 1986
0113G

TABLE 8E

BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION
GROUNDWATER QUALITY / GROUNDWATER CONTAMINATION INDICATORS

SAMPLE INFORMATION

Sample Description Well # 5
TSL# 623135
Date of Sample 11/7/85

ANALYTICAL DATA

GROUNDWATER QUALITY PARAMETERS (ppm)	METHOD	RESULT	DETECTION LIMIT
Chloride	EPA 325.3	20.	1.0
Phenol	EPA 420.1	ND	0.005
Sulfate	EPA 375.4	190.	1.0
Ammonia Nitrogen	EPA 350.3	1.0	0.05

GROUNDWATER CONTAMINATION
INDICATORS (ppm)

Total Organic Carbon	EPA 415.1	16.	1.
Total Inorganic Carbon	EPA 130.2	225.	1.
Total Organic Halogen	EPA 450.1	0.01	0.001
Specific Gravity	ASTM D-1429	1.003	--

ND = Not Detected

Technical Service Laboratories
Mobil Technical Center
Princeton, New Jersey
BPDeMaine/BASStephens
February 7, 1986
0113G

TABLE 8F

BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION
GROUNDWATER QUALITY / GROUNDWATER CONTAMINATION INDICATORS

SAMPLE INFORMATION

Sample Description Well # 5 (Duplicate)
TSL# 623136
Date of Sample 11/7/85

ANALYTICAL DATA

GROUNDWATER QUALITY PARAMETERS (ppm)	METHOD	RESULT	DETECTION LIMIT
Chloride	EPA 325.3	21.	1.0
Phenol	EPA 420.1	ND	0.005
Sulfate	EPA 375.4	188.	1.0
Ammonia Nitrogen	EPA 350.3	1.1	0.05

GROUNDWATER CONTAMINATION
INDICATORS (ppm)

Total Organic Carbon	EPA 415.1	9.	1.
Total Inorganic Carbon	EPA 130.2	228.	1.
Total Organic Halogen	EPA 450.1	0.01	0.001
Specific Gravity	ASTM D-1429	1.003	--

ND = Not Detected

Technical Service Laboratories
Mobil Technical Center
Princeton, New Jersey
BPDeMaine/BASStephens
February 7, 1986
0113G

TABLE 8G

BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION
GROUNDWATER QUALITY / GROUNDWATER CONTAMINATION INDICATORS

SAMPLE INFORMATION

Sample Description Field Blank
TSL# 623137
Date of Sample 11/7/85

ANALYTICAL DATA

GROUNDWATER QUALITY PARAMETERS (ppm)	METHOD	RESULT	DETECTION LIMIT
Chloride	EPA 325.3	1.	1.0
Phenol	EPA 420.1	ND	0.005
Sulfate	EPA 375.4	ND	1.0
Ammonia Nitrogen	EPA 350.3	0.1	0.05

GROUNDWATER CONTAMINATION
INDICATORS (ppm)

Total Organic Carbon	EPA 415.1	1.	1.
Total Inorganic Carbon	EPA 130.2	7.	1.
Total Organic Halogen	EPA 450.1	0.01	0.001
Specific Gravity	ASTM D-1429	1.003	--

ND = Not Detected

Technical Service Laboratories
Mobil Technical Center
Princeton, New Jersey
BPDeMaine/BASStephens
February 7, 1986
0113G

BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION
GROUNDWATER QUALITY / GROUNDWATER CONTAMINATION INDICATORS

SAMPLE INFORMATION

Sample Description Buffalo River Upstream Water
TSL# 623138
Date of Sample 10/30/85

ANALYTICAL DATA

GROUNDWATER QUALITY PARAMETERS (ppm)	METHOD	RESULT	DETECTION LIMIT
Chloride	EPA 325.3	33.	1.0
Phenol	EPA 420.1	ND	0.005
Sulfate	EPA 375.4	39.	1.0
Ammonia Nitrogen	EPA 350.3	ND	0.05

GROUNDWATER CONTAMINATION
INDICATORS (ppm)

Total Organic Carbon	EPA 415.1	7.	1.
Total Inorganic Carbon	EPA 130.2	71.	1.
Total Organic Halogen	EPA 450.1	0.03	0.001
Specific Gravity	ASTM D-1429	1.003	--

ND = Not Detected

Technical Service Laboratories
Mobil Technical Center
Princeton, New Jersey
BPDeMaine/BASStephens
February 7, 1986
0113G

BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION
GROUNDWATER QUALITY / GROUNDWATER CONTAMINATION INDICATORS

SAMPLE INFORMATION

Sample Description Buffalo River Downstream Water
TSL# 623139
Date of Sample 10/30/85

ANALYTICAL DATA

GROUNDWATER QUALITY PARAMETERS (ppm)	METHOD	RESULT	DETECTION LIMIT
Chloride	EPA 325.3	31.	1.0
Phenol	EPA 420.1	ND	0.005
Sulfate	EPA 375.4	43.	1.0
Ammonia Nitrogen	EPA 350.3	ND	0.05

GROUNDWATER CONTAMINATION
INDICATORS (ppm)

Total Organic Carbon	EPA 415.1	7.	1.
Total Inorganic Carbon	EPA 130.2	73.	1.
Total Organic Halogen	EPA 450.1	0.03	0.001
Specific Gravity	ASTM D-1429	1.003	--

ND = Not Detected

Technical Service Laboratories
Mobil Technical Center
Princeton, New Jersey
BPDeMaine/BASStephens
February 7, 1986
0113G

TABLE 8J

BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION
GROUNDWATER QUALITY / GROUNDWATER CONTAMINATION INDICATORS

SAMPLE INFORMATION

Sample Description Buffalo River Upstream Sediment
TSL# 623140
Date of Sample 10/29/85

ANALYTICAL DATA

GROUNDWATER QUALITY PARAMETERS (ppm)	METHOD	RESULT	DETECTION LIMIT
Chloride	EPA 325.3	2.	1.0
Phenol	EPA 420.1	ND	0.05
Sulfate	EPA 375.4	29.	1.0
Ammonia Nitrogen	EPA 350.3	ND	0.5

GROUNDWATER CONTAMINATION
INDICATORS (ppm)

Total Organic Carbon	EPA 415.1	18.	1.0
Total Inorganic Carbon	SM 314 A	416.	1.
Total Organic Halogen	EPA 450.1	NA	--
Specific Gravity	ASTM D-1429	1.817	--

NA = Not Applicable

ND = Not Detected

Technical Service Laboratories
Mobil Technical Center
Princeton, New Jersey
BPDeMaine/BASStephens
February 7, 1986
0113G

BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION
GROUNDWATER QUALITY / GROUNDWATER CONTAMINATION INDICATORS

SAMPLE INFORMATION

Sample Description Buffalo River Downstream Sediment
TSL# 623141
Date of Sample 10/29/85

ANALYTICAL DATA

GROUNDWATER QUALITY PARAMETERS (ppm)	METHOD	RESULT	DETECTION LIMIT
Chloride	EPA 325.3	5.	1.0
Phenol	EPA 420.1	ND	0.05
Sulfate	EPA 375.4	6.	1.0
Ammonia Nitrogen	EPA 350.3	ND	0.5

GROUNDWATER CONTAMINATION
INDICATORS (ppm)

Total Organic Carbon	EPA 415.1	22.	1.0
Total Inorganic Carbon	SM 314 A	180.	1.
Total Organic Halogen	EPA 450.1	NA	--
Specific Gravity	ASTM D-1429	2.13	--

NA = Not Applicable

ND = Not Detected

Technical Service Laboratories
Mobil Technical Center
Princeton, New Jersey
BPDeMaine/BASStephens
February 7, 1986
0113G

TABLE 8L

BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION
GROUNDWATER QUALITY / GROUNDWATER CONTAMINATION INDICATORS

SAMPLE INFORMATION

Sample Description Boring # 5 (composite)
TSL# 623142
Date of Sample 10/24/85

ANALYTICAL DATA

GROUNDWATER QUALITY PARAMETERS (ppm)	METHOD	RESULT	DETECTION LIMIT
Chloride	EPA 325.3	2.	1.0
Phenol	EPA 420.1	ND	0.05
Sulfate	EPA 375.4	98.	1.0
Ammonia Nitrogen	EPA 350.3	ND	0.5

GROUNDWATER CONTAMINATION
INDICATORS (ppm)

Total Organic Carbon	EPA 415.1	33.	1.0
Total Inorganic Carbon	SM 314 A	1110.	1.
Total Organic Halogen	EPA 450.1	NA	--
Specific Gravity	ASTM D-1429	2.108	--

NA = Not Applicable

ND = Not Detected

Technical Service Laboratories
Mobil Technical Center
Princeton, New Jersey
BPDeMaine/BASStephens
February 7, 1986
0113G

TABLE 8M

BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION
GROUNDWATER QUALITY / GROUNDWATER CONTAMINATION INDICATORS

SAMPLE INFORMATION

Sample Description Boring # 6 (composite)
TSL# 623143
Date of Sample 10/24/85

ANALYTICAL DATA

GROUNDWATER QUALITY PARAMETERS (ppm)	METHOD	RESULT	DETECTION LIMIT
Chloride	EPA 325.3	2.	1.0
Phenol	EPA 420.1	ND	0.05
Sulfate	EPA 375.4	146.	1.0
Ammonia Nitrogen	EPA 350.3	ND	0.5

GROUNDWATER CONTAMINATION
INDICATORS (ppm)

Total Organic Carbon	EPA 415.1	33.	1.0
Total Inorganic Carbon	SM 314 A	1710.	1.
Total Organic Halogen	EPA 450.1	NA	--
Specific Gravity	ASTM D-1429	1.976	--

NA = Not Applicable

ND = Not Detected

Technical Service Laboratories
Mobil Technical Center
Princeton, New Jersey
BPDeMaine/BASStephens
February 7, 1986
0113G

TABLE 8N

BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION
GROUNDWATER QUALITY / GROUNDWATER CONTAMINATION INDICATORS

SAMPLE INFORMATION

Sample Description Boring # 7 (composite)
TSL# 623144
Date of Sample 10/24/85

ANALYTICAL DATA

GROUNDWATER QUALITY PARAMETERS (ppm)	METHOD	RESULT	DETECTION LIMIT
Chloride	EPA 325.3	2.	1.0
Phenol	EPA 420.1	ND	0.05
Sulfate	EPA 375.4	122.	1.0
Ammonia Nitrogen	EPA 350.3	ND	0.5

GROUNDWATER CONTAMINATION
INDICATORS (ppm)

Total Organic Carbon	EPA 415.1	41.	1.0
Total Inorganic Carbon	SM 314 A	1360.	1.
Total Organic Halogen	EPA 450.1	NA	--
Specific Gravity	ASTM D-1429	1.681	--

NA = Not Applicable

ND = Not Detected

Technical Service Laboratories
Mobil Technical Center
Princeton, New Jersey
BPDeMaine/BASStephens
February 7, 1986
0113G

TABLE 9A

BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION
WELL #2 FREE HYDROCARBON CHARACTERIZATION

Sample Information

Date of Sample 10/29/85
TSL Number 623132
Sample Description free product obtained from Well #2
at the Buffalo Terminal

Analytical Data

API Gravity, @ 60°F 36.0
Lead Content g/gal 0.05
(ASTM D-3237)

GC Fingerprint The GC Fingerprint of the free product obtained from Well #2 (TSL #623132) shows an environmentally degraded mixture of approximately 40% gasoline and 60% distillate fuel in the diesel fuel boiling range. This is evidenced by an absence of the lower boiling gasoline compounds due to evaporation and the notable reduction of the normal hydrocarbons in C₈-C₁₆ hydrocarbon range of the diesel fuel, a result of biodegradation

GC Distillation	IBP	185
ASTM D-2887	10%	273
	20%	309
	30%	335
	50%	393
	70%	485
	90%	622
	FBP	811

Technical Service Laboratories
Mobil Technical Center
Princeton, New Jersey
RWCrisman/mjg
February 7, 1986
0113G

BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION
WELL BORING COMPOSITE SAMPLE
RCRA WASTE ANALYSIS

SAMPLE INFORMATION

Date Sampled: 10/29/85
Date Received at TSL: 10/30/85
Date Analysis Completed: 12/2/85

SAMPLE ANALYSIS

TSL Number: 623145
Sample Description: Composite sample of three (3) drums filled with boring wastes generated during well installation

Total Hydrocarbons, % Wt.
EPA Method 3540

0.

E.P. Toxicity Data, mg/l (1)
Arsenic 0.0
Barium 0.
Cadmium 0.0
Chromium (total) 0.0
Lead 0.0
Mercury 0.00
Selenium 0.0
Silver 0.0

E.P.A. Hazardous Waste
Criteria, Maximum Limit, mg/l

5.0
100.0
1.0
5.0
5.0
0.2
1.0
5.0

Ignitability Test (1)
Flash point, °F, 160
ASTM D-92

E.P.A. Definition
Subpart C, 261.21

Corrosivity Test (1)
Agronomist's pH 7.1

Hazardous by E.P.A. Definition
Subpart C, 261.22 if
2 pH 12.5

Reactivity Test (1)
In-house testing non-hazardous
procedures

E.P.A. Definition,
Subpart C, 261.23

(1) Tests performed in accordance with EPA's "Test Methods for Evaluating Solid Waste." SW-846, 2nd edition, July 1982.

Technical Service Laboratories
Mobil Technical Center
Princeton, New Jersey
EKVogiatzis/mjg
February 7, 1986
0113G

APPENDIX 4
LETTER TO NYSDEC



AN INTERNATIONAL PROFESSIONAL SERVICES ORGANIZATION

URS COMPANY, INC.

625 DELAWARE AVE
BUFFALO, NEW YORK 14202
TEL: (716) 883-5525

NEW YORK
MONTVALE, NJ
BUFFALO
SAN FRANCISCO
WASHINGTON, D.C.
DALLAS
SEATTLE
DENVER
KANSAS CITY
HONOLULU
NEW ORLEANS
SAN MATEO
PUERTO RICO

November 6, 1985

Mr. Peter J. Buechi, P.E.
Associate Sanitary Engineer
New York State Department of
Environmental Conservation
600 Delaware Avenue
Buffalo, New York 14202-1073

RE: BUFFALO TERMINAL DISPOSAL SITE - MOBIL OIL CORPORATION

Dear Mr. Buechi:

As per our telephone conversation this morning, we have withheld sampling of monitoring well MW1 until such time when your staff is available to split the groundwater sample as agreed upon. The groundwater samples collected on October 29, 1985, which were split with the NYSDEC for well MW1 and MW2, were in our judgement not a true representation as some of them appeared turbid and contained appreciable amounts of sediment. This information was conveyed to Mr. L. Clare of your office the same day and it was requested that those samples not be analyzed as the results may not be representative of true groundwater characteristics.

Subsequently, we have further developed the wells by cleaning them out with compressed air on November 4, 1985. Each well was first blown dry, allowed to recharge and blown dry again, thus assuring that all sediments were removed from the wells. Resampling of the wells was scheduled for Wednesday, November 6, 1985 in order to avoid any further delays and this information was conveyed to Mr. Clare on phone. At that time, we did not know that your staff was committed to other assignments for this day and had we known this, we would have gladly rescheduled the sampling of wells on a day mutually convenient to you and us.

As it stands now, we have resampled all wells except MW1, as you did not want to split samples from those wells. We will sample well MW1 on a day convenient to you and respectfully propose that this sampling be done within a week if possible. Please let us know which day would suit you better. We hope it did not cause any inconvenience to you.

November 6, 1985
Page 2



AN INTERNATIONAL PROFESSIONAL SERVICE ORGANIZATION

Thank you very much for your cooperation. Please call the undersigned at 883-5525 if you have any questions.

Sincerely,

URS COMPANY, INC.

A handwritten signature in black ink, appearing to read 'Vern Singh'.

Vern Singh, P.E.
Project Manager

cc: Mr. D.H. McNerney, Mobil
Mr. R.W. Crisman, Mobil

VS/bc
35103

Received by
Date:

Vera P. Unglaub
11/2/85

APPENDIX 5
MISCELLANEOUS TEST RESULTS

TABLE 9A

BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION
WELL #2 FREE HYDROCARBON CHARACTERIZATION

Sample Information

Date of Sample	10/29/85
TSL Number	623132
Sample Description	free product obtained from Well #2 at the Buffalo Terminal

Analytical Data

API Gravity, @ 60°F	36.0
---------------------	------

Lead Content g/gal (ASTM D-3237)	0.05
-------------------------------------	------

GC Fingerprint	The GC Fingerprint of the free product obtained from Well #2 (TSL #623132) shows an environmentally degraded mixture of approximately 40% gasoline and 60% distillate fuel in the diesel fuel boiling range. This is evidenced by an absence of the lower boiling gasoline compounds due to evaporation and the notable reduction of the normal hydrocarbons in C ₈ -C ₁₆ hydrocarbon range of the diesel fuel, a result of biodegradation
----------------	--

GC Distillation	IBP	185
ASTM D-2887	10%	273
	20%	309
	30%	335
	50%	393
	70%	485
	90%	622
	FBP	811

Technical Service Laboratories
Mobil Technical Center
Princeton, New Jersey
RWCrisman/mjg
February 7, 1986
0113G

TABLE 9B

BUFFALO TERMINAL
DISPOSAL SITE INVESTIGATION
WELL BORING COMPOSITE SAMPLE
RCRA WASTE ANALYSIS

SAMPLE INFORMATION

Date Sampled:	10/29/85
Date Received at TSL:	10/30/85
Date Analysis Completed:	12/2/85

SAMPLE ANALYSIS

TSL Number:	623145
Sample Description	Composite sample of three (3) drums filled with boring wastes generated during well installation

Total Hydrocarbons, % Wt.
EPA Method 3540

0.

E.P. Toxicity Data, mg/l (1)

Arsenic	0.0
Barium	0.
Cadmium	0.0
Chromium (total)	0.0
Lead	0.0
Mercury	0.00
Selenium	0.0
Silver	0.0

E.P.A. Hazardous Waste
Criteria, Maximum Limit, mg/l

5.0
100.0
1.0
5.0
5.0
0.2
1.0
5.0

Ignitability Test (1)

Flash point, °F, ASTM D-92	160
-------------------------------	-----

E.P.A. Definition
Subpart C, 261.21

Corrosivity Test (1)

Agronomist's pH	7.1
-----------------	-----

Hazardous by E.P.A. Definition
Subpart C, 261.22 if
2 pH 12.5

Reactivity Test (1)

In-house testing procedures	non-hazardous
--------------------------------	---------------

E.P.A. Definition,
Subpart C, 261.23

(1) Tests performed in accordance with EPA's "Test Methods for Evaluating Solid Waste." SW-846, 2nd edition, July 1982.

Technical Service Laboratories
Mobil Technical Center
Princeton, New Jersey
EKVogiatzis/mjg
February 7, 1986
0113G

APPENDIX 6

REFERENCES

OFFICE OF GENERAL COUNSEL

Valley Forge
June 18, 1985

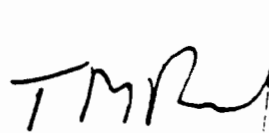
D. H. McNerney
Buffalo

cc: R. W. Hawes

BUFFALO CLOSURE

Our investigation into prior use of the disposal site at the refinery indicates that the City of Buffalo used the facility in 1939 as a landfill operation to fill in a portion of the Buffalo River. The material is classified as "unclassified fill" which indicates that it is possible that anything could be contained in the fill. The Department of Engineering for the city believe that the majority of the fill is probably coal soot, coal cinders, tree cuttings and wood. However, they do not have any records to substantiate this fact.

The Department of Engineering also indicated that there were other facilities in the area that were used as garbage dumps but this was not one of them.



T. M. Rush

TMR:kmd
5107c



COUNTY OF ERIE

COUNTY CLERK'S OFFICE

25 DELAWARE AVENUE
BUFFALO, N. Y. 14202

846-8865

GENEVIEVE M. STAROSCIAK
COUNTY CLERK

January 16, 1986

D.H. McNerney
Mobil Oil Corporation
P.O. Box 367
Buffalo, NY 14240

We are enclosing herewith

Declaration of Covemants & Restrictions

from *Mobil Oil Corporation*

to

which has been recorded in this office on 1/14/86

in Liber 9534 of deeds Page 117

Very truly yours,

GENEVIEVE M. STAROSCIAK
ERIE COUNTY CLERK

Charles A. DiGangi
Assistant Deputy County Clerk

DECLARATION OF COVENANTS AND RESTRICTIONS

Notice is hereby given that a portion of the premises known as 503 Elk Street, Buffalo, New York, conveyed to Socony Vacuum Oil Company, Incorporated on November 9, 1951 (Liber 5026 Page 309) was a waste disposal site through 1981. Mobil Oil Corporation and the New York State Department of Environmental Conservation have entered into a Consent Order dated October 31, 1985, to conduct an investigation to determine the nature and extent of the wastes disposed of at the Site. Any successor in title to that portion of the premises used as a waste disposal site shall be responsible for implementing the provisions of that Order.

Dated JAN 7 1986

MOBIL OIL CORPORATION

1986 JAN 14 AM 10:36

By: [Signature]
Authorized Officer
R. H. GARDNER TREASURER

FILED
ERIE COUNTY
CLERK'S OFFICE

Attest:
By: [Signature]
Sr. Assistant Secretary
G. G. GARNEY

State of NEW YORK)
County of NEW YORK) ss:

On this 7th day of January, 1986, before me, the undersigned, a Notary Public in and for said County and State, personally appeared R. H. GARDNER * and G. G. GARNEY ** personally known to me (or proved to me on the basis of satisfactory evidence) to be the persons who executed the within instrument as TREASURER and SENIOR ASSISTANT SECRETARY on behalf of the corporation therein named, and acknowledged to me that such corporation executed the same, pursuant to its laws, or a resolution of its Board of Directors. *residing at Wilton, CT **residing at Darien, CT

WITNESS my hand and official seal.

Signature [Signature]
Name (Typed or Printed) JOSEPH ZOLNOWSKI

JOSEPH ZOLNOWSKI
Notary Public, State of New York
No. 41-9810950
Qualified in Queen County
Certificate filed in New York County
Term Expires March 30, 1986

STATE OF NEW YORK
ERIE CO. CLERK'S OFFICE
Recorded in Liber 9534
Page 117 of 14
Books on the 14
day of January A. D. 1986
at St. O'zbek NY
and examined.
GENEVIENE M. SIAROSCIK, County Clerk
COUNTY CLERK

Handwritten notes:
This is the [Signature] of R. H. Gardner Treasurer of Mobil Oil Corporation
p. 9. 1984 367

Handwritten notes:
Department of Environmental Conservation
Consent Order
Mobil Oil Corporation

INTEROFFICE CORRESPONDENCE

DATE November 22, 1985

TO

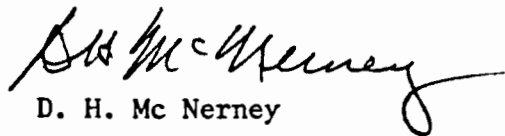
R. W. Hawes - 7N 915
Fairfax, Va.

CC

T. M. Rush - OGC - Valley Forge, Pa.

BUFFALO TERMINAL SITE INVESTIGATION

Attached for your records is a copy of the Final Order On consent
dated October 31, 1985.


D. H. Mc Nerney

bd

attach.

STATE OF NEW YORK : DEPARTMENT OF ENVIRONMENTAL CONSERVATION

In the Matter of a Field Investigation to Identify Any
Threat to the Environment Caused by the Disposal of Industrial
and Hazardous Wastes by:

ORDER
ON
CONSENT

MOBIL OIL CORPORATION
P.O. Box 367
Buffalo, New York 14240

FILE
NO. 85-76
9-1461

Respondent

WHEREAS:

1. The New York State Department of Environmental Conservation (the "Department") is responsible for the enforcement of Article 27, Title 13, of the Environmental Conservation Law of the State of New York (the "ECL") entitled "Inactive Hazardous Waste Disposal Sites".

2. Mobil Oil Corporation, (the "Respondent"), is a domestic corporation and existing under the laws of the State of New York, and is doing business in the State of New York.

3. Respondent owns property at 503 Elk Street in the City of Buffalo. A portion of that property is an inactive waste disposal site (the "Site"). A map of the Site is attached hereto and is hereby incorporated into this Order as Appendix "A".

4. That between 1915 and 1951 the City of Buffalo used the site as a dumping ground and filled all or part of the site for the Buffalo riverbed. The nature and quantity of the material used to fill the site is unknown. Beginning approximately in 1951 and continuing through 1981, the Respondent deposited industrial waste including demolition material, tank sediments and asphalt containing soils in a portion of this property.

5. The Site is an inactive waste disposal site, as that term is defined in ECL Section 27-1301(2).

6. The Department alleges that the hazardous and industrial wastes, hazardous waste constituents, and toxic degradation products thereof at the Site may constitute a significant threat to the environment.

7. Pursuant to ECL Section 27-1313(3)(a), whenever the Commissioner of the Department of Environmental Conservation (the "Commissioner") "finds that hazardous wastes at an inactive hazardous waste disposal site constitute a significant threat to the environment, he may order the owner of such site and/or any person responsible for the disposal of hazardous wastes at such site (i) to develop an inactive hazardous waste disposal site remedial program subject to the approval of the Department, at such site, and (ii) to implement such program within reasonable time limits specified in the Order."

8. The Department and Respondent acknowledge that the goals of this Order shall be that Respondent shall develop and implement a field investigation program to:

(i) determine the nature of the wastes and the areal extent and vertical distribution of the wastes disposed of at the Site;

(ii) identify any past, current and/or potential future releases or migration of hazardous waste, as that term is defined in ECL Section 27-1301(1), and/or industrial waste, from the site to other on-Site and off-Site areas; and

(iii) evaluate the on-Site and off-Site impacts of such migration upon the environment.

9. Respondent, having waived its right to a hearing herein as provided by law, and having consented to the issuance and entry of this Order, agrees to be bound by provisions, terms and conditions hereof.

NOW, having considered this matter and being duly advised, IT IS ORDERED THAT:

I. All investigations, proposals, reports, plans, remedial programs and supplements and revisions thereto required by this Order shall address both on-Site and off-Site contamination caused by the disposal of hazardous and industrial wastes at and in the vicinity of the Site, and shall be prepared, designed and executed in accordance with Requisite Technology. As used in this Order, Requisite Technology means engineering, scientific and construction of principles and practices subject to the Department's approval, which (a) are technologically feasible, and (b) will most effectively identify any present or potential future threat to the environment posed by the disposal of hazardous and industrial wastes at and in the vicinity of the Site.

II. As used herein, "hazardous wastes" shall mean hazardous wastes, any hazardous constituents thereof, and any toxic degradation products of such wastes and of each constituents.

III. Respondent shall undertake a field investigation of the Site and of areas off-Site affected by the disposal of hazardous and industrial wastes (the "Field Investigation") at this site.

IV. On or before August 15, 1985, the Respondent shall submit to the Department a proposed written scope of work (the "Proposal") outlining the nature and extent of the work to be undertaken in conducting the Field Investigation. At a minimum, the Proposal shall meet the requirements of the generic workplan attached hereto as Appendix "B" and shall include the names of the consulting firm(s), contractor(s) and laboratory to be performing the work.

V. Within 15 days after receipt of the Proposal, the Department shall provide written notification to Respondent of its approval or disapproval of the Proposal. If the Department approves the Proposal, Respondent shall perform the Remedial Investigation in accordance with the Proposal.

If the Department disapproves the Proposal, then within a mutually agreeable time after receipt of the Department's objections to the Proposal, Respondent shall revise the Proposal in accordance with the terms, provisions and conditions of this Order and shall submit to the Department a Proposal which has been revised in accordance with the Department's objections (the "Revised Proposal").

Within 15 days after receipt of the Revised Proposal, the Department shall provide written notification to Respondent of its approval or disapproval of the Revised Proposal. If the Department approves the Revised Proposal, Respondent shall perform the Field Investigation in accordance with the Revised Proposal.

The approved Proposal or the approved Revised Proposal shall be attached hereto and shall be incorporated into this Order as Appendix "C". Such Proposal shall hereafter be referred to as the "Approved Proposal".

VI. On or before February 1, 1986, Respondent shall submit to the Department a Field Investigation report (the "Report"), founded upon its performance of the Field Investigation in accordance with the Approved Proposal. The Report shall include a copy of the Approved Proposal and all data generated, and all other information obtained, during the Field Investigation and completed site hazard ranking score sheets.

VII. Within sixty (60) days after its receipt of the Report, the Department shall determine if the Field Investigation was conducted, and the Report prepared in accordance with the terms, provisions and conditions of this Order, and shall provide written notification to Respondent of its approval or disapproval of the Report.

If the Department disapproves the Report, the Department shall notify Respondent in writing of the Department's objections. Within thirty (30) days or within a mutually agreed time after its receipt of notice of disapproval, Respondent shall revise the Report and/or reperform or supplement the Field Investigation in accordance with the terms, provisions and conditions of this Order and shall submit to the Department a Report which has been revised in accordance with the Department's objections (the "Revised Report").

Within fifteen (15) days after its receipt of the Revised Report, the Department shall determine if the Revised Report is in accordance with the terms, provisions and conditions of this Order and shall provide written notification to Respondent of its approval or disapproval of the Revised Report.

VIII. The Department reserves the right to require with mutual consent of the parties a modification and/or an amplification and expansion of the Field Investigation and Report by Respondent to address specific off-Site areas if the Department determines that further off-Site investigation is necessary, as a result of reviewing data generated by the Field Investigation or as a result of reviewing other data or facts. The Report shall be attached hereto and shall be incorporated into this Order as Appendix "D".

IX. The Department shall review the Report and shall use the Report as the basis of the development of the Site Hazard Ranking Score assigned to the Site for State (Federal) Superfund Site ranking purposes.

X. The Department shall have the right to obtain for the purpose of comparative analysis "split samples" or "duplicate samples", at the Department's option and expense, of all substances and materials sampled by Respondent pursuant to this Order. As used herein: "split samples" shall mean whole samples divided into aliquots; "duplicate samples" shall mean multiple samples, collected at the same time from exactly the same location, using the same sampling apparatus, collected into identical containers prepared identically, filled to the same volume, and thereafter identically handled and preserved.

XI. Respondent shall provide notice to the Department of any excavating, drilling or sampling to be conducted pursuant to the terms of this Order at least five (5) working days in advance of such activities.

XII. Respondent shall permit any duly designated officer, employee, consultant, contractor or agent of the Department to enter upon the Site or areas in the vicinity of the Site which may be under the control of Respondent, and any areas necessary to gain access thereto, for inspection purposes and for the purpose of making or causing to be made such sampling and tests as the Department deems necessary, and for ascertaining Respondent's compliance with the provisions of this Order.

XIII. Respondent shall obtain whatever permits, easements, right-of-way, rights-of-entry, approvals or authorizations which are necessary in order to perform the Field Investigation and all of Respondent's other obligations pursuant to this Order.

XIV. Respondent shall retain a third-party professional consultant, contractor, and/or laboratory to perform the technical, engineering and analytical obligations required by this Order. Said consultant, contractor, and/or laboratory shall have demonstrable experience, capabilities and qualifications in the type of work which they will be performing.

Or if a laboratory owned by Respondent is utilized, or professional scientists, engineers, or technicians in the employ of Respondent are utilized to fulfill the terms and conditions of this Order, said laboratory, laboratory staff, and professionals shall have demonstrable experience, capabilities and qualifications in the type of work which they will be performing.

XV. Respondent shall not suffer any penalty under any of the provisions, terms and conditions hereof, or be subject to any proceedings or actions for any remedy or relief, if it cannot comply

with any requirements of the provisions hereof because of an act of God, war, riot, or other condition as to which negligence or willful misconduct on the part of Respondent was not a proximate cause, provided, however, the Respondent shall immediately notify the Department in writing when it obtains knowledge of any such condition and request an appropriate extension or modification of the provisions hereof.

XVI. The failure of Respondent to comply with any provision of this Order shall constitute a default and a failure to perform an obligation under this Order and under the ECL.

XVII. Nothing contained in this Order shall be construed as barring, diminishing, adjudicating or in any way affecting (1) any legal or equitable rights or claims actions, suits, causes of action or demands whatsoever that the Department may have against anyone other than Respondent, its directors, officers, employees, servants, agents, successors and assigns; (2) the Department's right to enforce, at law or in equity, the terms and conditions of this Order against Respondent, its directors, officers, employees, servants, agents, successors and assigns in the event that Respondent shall fail to fulfill any of the provisions hereof; and (3) the Department's right to bring any action, at law or in equity against Respondent, its directors, officers, employees, servants, agents successors and assigns with respect to areas or resources that may have been affected or contaminated as a result of the release or migration of hazardous or industrial wastes from the Site or from areas in the vicinity of the Site. Nothing herein shall be construed as affecting the Department's right to commence any action

or proceeding to which it may be entitled in connection with, relating to, or arising out of Respondent's disposal of hazardous or industrial wastes at the Site.

XVIII. The terms of this Order shall not be construed to prohibit the Commissioner or his duly authorized representative from exercising any summary abatement powers, either at common law or as granted pursuant to statute or regulation.

XIX. Respondent shall indemnify and hold the Department, the State of New York, and their representatives and employees harmless for all claims, suits, actions, damages and costs of every name and description arising out of or resulting from the fulfillment or attempted fulfillment of the provisions hereof by Respondent, its directors, officers, employees, servants, agents, successors or assigns.

XX. The effective date of this Order shall be the date this Order is signed by the Commissioner or his designee.

XXI. If, for any reason, Respondent desires that any provision of this Order be changed, Respondent shall make timely written application therefore to the Commissioner, 50 Wolf Road, Albany, New York 12233, setting forth reasonable grounds for the relief sought.

XXII. Within 30 days after the effective date of this Order, Respondent shall file a Declaration of Covenants and Restrictions with the real property records of the Erie County Clerk's Office, for the purpose of providing notice of this Order to all potential future purchasers of any portion of the Site. Said Declaration must indicate that any successor in title to any portion

of the Site shall be responsible for implementing the provisions of this Order.

XXIII. In the event that Respondent proposes to convey the whole or any part of its ownership interest in the Site, Respondent shall, not less than 30 days prior to the consummation of such proposed conveyance, notify the Department in writing of the identity of the transferee and of the nature and date of the proposed conveyance. In advance of such proposed conveyance, Respondent shall notify the transferee in writing, with a copy to the Department, of the applicability of this Order.

XXIV. A. All communication required hereby to be made between the Department and Respondent shall be made in writing and transmitted by United States Postal Service return receipt requested or hand delivered to the addresses in paragraph B hereinafter.

B. Communication to be made from Respondent to the Department shall be made as follows:

1. Two copies to the Regional Director, Region IX, 600 Delaware Avenue, Buffalo, New York 14202.
2. Two copies to the Division of Solid and Hazardous Waste, Room 209, 50 Wolf Road, Albany, New York 12233.
3. Two copies to the Director, Division of Environmental Enforcement, Room 618, Wolf Road, Albany, New York 12233.

C. Communication to be made from the Department to Respondent shall be made as follows:

Mobil Oil Corporation
P.O. Box 367
Buffalo, New York 14240

D. The Department and Respondent respectively reserve the right to designate other or different addresses on notice to the other.

E. No informal advice or guidance by the Department's officers or employees or representatives upon any plan, report, proposal, study or other document, or modifications or additions thereto, submitted by Respondent to the Department, shall relieve Respondent of any obligation it may have to obtain the Department's formal written approval of the same.

XXV. The provisions of this Order shall be deemed to bind Respondent, its officers, directors, agents, servants, employees, successors and assigns.

XXVI. Nothing herein shall be construed to bind any entity not specifically bound by the terms of this Order.

XXVII. Nothing contained in this Order shall be construed as an admission by the Respondent that the site is an inactive hazardous waste disposal site.

XXVIII. The provisions hereof shall constitute the complete and entire Order between Respondent and the Department concerning the Site. No terms, conditions, understandings or agreements purporting to modify or vary the terms hereof shall be binding unless made in writing and subscribed by the party to be bound. No informal advice, guidance, suggestions or comments by the Department regarding reports, proposals, plans, specifications, schedules or

any other writing submitted by Respondent shall be construed as relieving Respondent to its obligations to obtain such formal approvals as may be required by this Order.

DATED:

Albany, New York
October 31, 1985

HENRY G. WILLIAMS
Commissioner
New York State Department of
Environmental Conservation

Henry G. Williams

141. MOBIL OIL CORPORATION (USGS field reconnaissance)

NYSDEC 915040

General information and contaminant-migration potential.--The Mobil Oil Corporation site, in the southern part of the city of Buffalo, was used to dispose of unknown quantities of cooling water, air-flotation unit sediments, gravity-separator sediments, tetraethyl lead, lubricating sludges, spent catalysts, and soil contaminated with asphalt.

The highly permeable sand underlying the site suggests a major potential for contaminant migration to the Buffalo River. The rate of movement and the concentration of contaminants would depend on the amount of precipitation percolating through the unsaturated zone and the ground-water gradients at the site.

Geologic information.--The site consists of fill underlain by fine to medium sand and gravel. The U.S. Geological Survey drilled four test borings in August 1982; locations are shown in figure A-8. The geologic logs are as follows:

<u>Boring no.</u>	<u>Depth (ft)</u>	<u>Description</u>
1	0 - 6.5	Topsoil, fill, gravel, sand, fine to medium, brown, wet at 5.5 ft.
	6.5 - 11.5	Same but wetter.
	11.5 - 16.5	Sand, dark gray-green; depth is below river bed. SAMPLE: 8 ft.

<u>Boring no.</u>	<u>Depth (ft)</u>	<u>Description</u>
2	0 - 1.0	Topsoil, brown.
	1.0 - 1.5	Clay, greenish, with petroleum smell.
	1.5 - 5.5	Sand, brown to dark brown, fill material.
	5.5 - 6.0	Black, tar-looking material.
	6.0 - 11.5	Same as above but not as wet. Still strong petroleum smell.
	11.5 - 16.5	No return, bit looked same as above. SAMPLE: 6 ft.
3	0 - 11.5	Fill, gravel, sand, fine to medium. SAMPLE: 9 ft.
4	0 - 1.5	Topsoil.
	1.5 - 5.0	Sand, medium to coarse, brown.
	5.0 - 10.0	Sand, clayey, medium to coarse, gray-brown.
	10.0 - 11.5	Clay, sandy.
		SAMPLE: 6.5 ft.

Hydrologic information.--Ground water is at or slightly above the water-surface altitude of the Buffalo River. Direction of ground-water flow is toward the river.

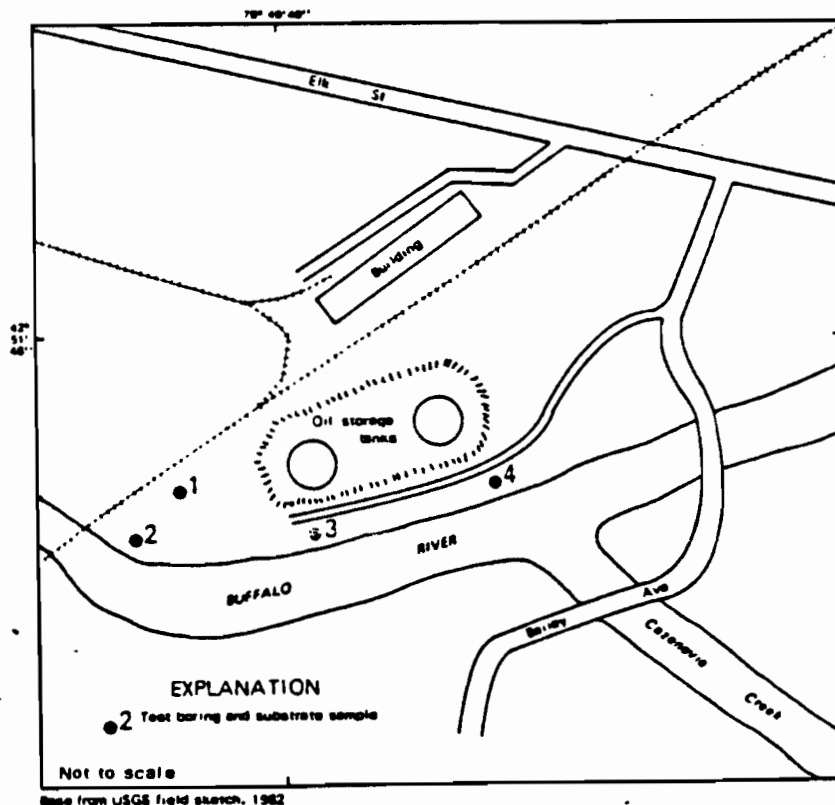


Figure A-8. Location of sampling holes at Mobil Oil Corporation, site 141, Buffalo.

Chemical information.--The U.S. Geological Survey collected a soil sample from each test boring for lead, iron, and organic compound analysis; results are given in table A-9. One substrate sample had a much greater concentration of lead (920,000 µg/kg) than samples from undisturbed areas. Samples contained 19 organic priority pollutants, some with concentrations as high as 46,000 µg/kg; and nine organic nonpriority pollutants.

Table A-9.--Analyses of substrate samples from Mobil Oil, site 141, Buffalo, N.Y. [Locations shown in fig. A-8. Concentrations are in µg/kg; dashes indicate that constituent or compound was not found, LT indicates it was found but below the quantifiable detection limit.]

	Sample number and depth below land surface (ft)			
	1	2	3	4
First sampling (08-06-82)	(8.0)	(6.0)	(9.0)	(6.5)
<u>Inorganic constituents</u>				
Iron	150,000	110,000	3,500,000	72,000
Lead	--	30,000	920,000††	--
	Sample number (depth is same as in first sampling)			
Second sampling (05-20-83)	1A	2A	3A	4A
<u>Organic compounds</u>				
<u>Priority pollutants</u>				
Methylene chloride	790	300	--	--
Ethylbenzene	--	95	--	--
Toluene	--	13	--	11
Aldrin	--	--	--	LT
α-BHC	--	LT	--	--
Fluoranthene	1,500	38,000	--	1,100
Benzo(a)anthracene	1,000	15,000	--	520
Benzo(a)pyrene	1,000	15,000	--	520
Benzo(b)fluoranthene	LT	LT	--	--
Benzo(k)fluoranthene	LT	15,000	--	--
Phenanthrene	1,000	46,000	--	730
Pyrene	LT	31,000	--	930
Chrysene	1,000	15,000	--	730
Naphthalene	--	LT	--	--
Acenaphthalene	--	15,000	--	--

¹ Tentative identification based on comparison with the National Bureau of Standards (NBS) library. No external standard was available. Concentration reported is semiquantitative and is based only on an internal standard. GC/MS spectra were examined and interpreted by GC/MS analysts.

†† Exceeds concentrations in samples taken from undisturbed soils in the Buffalo area. Analyses for iron were not done for the undisturbed soils.

Table A-9.--Analyses of substrate samples from Mobil Oil, site 141, Buffalo, N.Y.
 (continued)
 [Locations shown in fig. A-8. Concentrations are in $\mu\text{g}/\text{kg}$; dashes indicate that constituent or compound was not found, LT indicates it was found but below the quantifiable detection limit.]

	Sample number and depth below land surface (ft)			
	1A (8.0)	2A (6.0)	3A (9.0)	4A (6.5)
<u>Organic compounds (continued)</u>				
<u>Priority pollutants (continued)</u>				
Anthracene	--	11,000	--	--
Benzo(ghi)perylene	--	LT	--	--
Fluorene	--	11,000	--	--
<u>Nonpriority pollutants</u>				
Fluorotrichloromethane	--	47	--	--
2-Methylnaphthalene	--	LT	--	--
Carbon disulfide	--	LT	--	--
2-Methylbutane ¹	--	45,000	--	--
Cyclohexane ¹	--	100,000	--	--
Benzo(k)fluoranthene	--	--	--	600,000
Methylcyclohexane ¹	--	550,000	--	--
1,2-Dimethyl-cis-cyclohexane ¹	--	360,000	--	--
3-Hepten-2-one ¹	--	80,000	--	--
1-Methylpyrene ¹	--	--	--	600,000
Hydrocarbons ¹	--	870,000	--	--

JOB NO. 35015

DISTRIBUTION:

JOB TITLE NYS Super-fund

MEMO OF TELECON

DATE May 17, 1983 TELEPHONE # 518-472-5381

PERSON CALLING Hanna PERSON CALLED Tom Sechrist

REPRESENTING URS REPRESENTING US Fish & Wildlife Service

PURPOSE OF TELECON AND/OR EQUIPMENT INVOLVED: _____

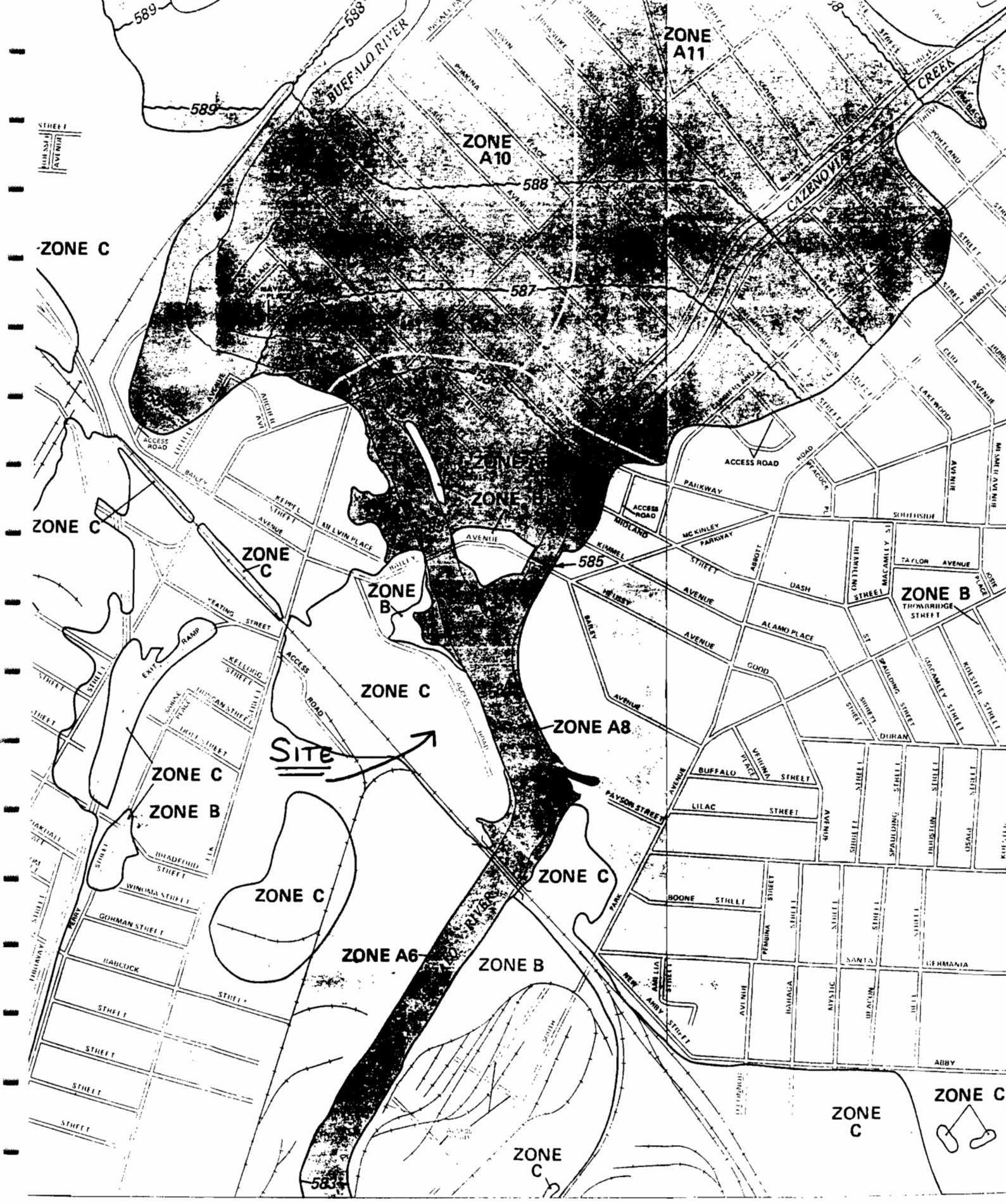
TEXT OF TELECON

I called concerning critical habitats for
endangered species in the vicinity of our
5 sites. He advised me that there are no
Federally listed critical habitat in this area.
He said we should check with the State DGC
for their lists of habitats

SIGNED CMH

DATE 5/17/83

CC:



589
588
587
585
583

ZONE A11

ZONE A10

ZONE C

ZONE C

ZONE C

ZONE B

ZONE C

SITE

ZONE C

ZONE B

ZONE C

ZONE A6

ZONE B

ZONE C

ZONE A8

ZONE C

ZONE C

ZONE C

STREET I
STREET J
STREET K

MAVERICK PLACE

ACCESS ROAD

AVENUE

ACCESS ROAD

STREET

STREET

STREET

STREET

STREET

STREET

STREET

STREET

AVENUE

AVENUE

AVENUE

AVENUE

AVENUE

AVENUE

AVENUE

AVENUE

AVENUE

AVENUE

AVENUE

AVENUE

AVENUE

AVENUE

AVENUE

AVENUE

AVENUE

AVENUE

AVENUE

AVENUE

AVENUE

AVENUE

AVENUE

AVENUE

AVENUE

AVENUE

AVENUE

AVENUE

AVENUE

AVENUE

AVENUE

AVENUE

AVENUE

AVENUE

AVENUE

AVENUE

AVENUE

AVENUE

AVENUE

AVENUE

AVENUE

AVENUE

AVENUE

AVENUE

AVENUE

AVENUE

AVENUE

AVENUE

AVENUE

AVENUE

AVENUE

AVENUE

AVENUE

AVENUE

AVENUE

AVENUE

AVENUE

AVENUE

AVENUE

AVENUE

AVENUE

AVENUE

AVENUE

AVENUE

AVENUE

AVENUE

AVENUE

AVENUE

AVENUE

AVENUE

AVENUE

AVENUE

AVENUE

AVENUE

AVENUE

AVENUE

AVENUE

AVENUE

AVENUE

AVENUE

AVENUE

AVENUE

AVENUE

AVENUE



JOB NO. 35015

DISTRIBUTION:

JOB TITLE NYS Superintendent

MEMO OF TELECON

DATE May 19, 1983 TELEPHONE # 716-632-1319

PERSON CALLING Hanna PERSON CALLED Tom Nizio

REPRESENTING URS REPRESENTING U.S. Weather Serv.

PURPOSE OF TELECON AND/OR EQUIPMENT INVOLVED: _____

TEXT OF TELECON

Tom works out of office at Buffalo Intl
Airport. He told me that the mean annual
precipitation for the area is 37.52 inches.

SIGNED _____

DATE _____

CC:

Consent by Respondent

Respondent hereby consents to the issuing and entering of the foregoing Order, waives its right to a hearing herein as provided by law, and agrees to be bound by the provisions, terms and conditions contained therein.

Respondent Mobil Oil Corporation
By Donald H. Mc Nerney
Title Terminal Superintendent
Date August, 1985

(Seal)

Corporate

State of New York)
County of Erie) ss.:

On this 3rd day of August, 19 85, before me personally came Donald H. Mc Nerney to me known, who being by me duly sworn did depose and say that he resides at 63 Erwin Rd., West Seneca, New York that he is the Superintendent of Buffalo Terminal-Mobil Oil the corporation described in and which executed the foregoing instrument; and that he signed his name as authorized by said corporation.

Bernadette L. Schintzius
NOTARY PUBLIC

BERNADETTE L. SCHINTZIUS
Notary Public State of New York
Qualified in Erie County
My Comm. expires March 30, 1987

Individual

State of)
County of) ss.:

On this day of , 19 , before me came , to me known and known to me to be the individual described in and who executed the foregoing consent and he duly acknowledged to me that he executed the same.

NOTARY PUBLIC

COUNTY OF ERIE
DEPARTMENT OF ENVIRONMENT & PLANNING
DIVISION OF ENVIRONMENTAL CONTROL

MEMORANDUM

FROM Ronald D. Koczaja DATE December 14, 1978
TO FILE
SUBJECT Mobil Oil Corporation - Reinspection of Possible Industrial Disposal Site

On December 11, 1978, the writer met with Mr. R. Rodgers, Mobil Oil, to discuss waste disposal at the refinery and to inspect the area noted in Mr. Long's (DEC) inspection report of August 21, 1978.

During Mr. Long's inspection, he noted a tar like material which had surfaced in a tank storage area. The storage site is located atop what is reported to be an abandoned City of Buffalo dump site. Broken glass, pottery, china and metal was evident throughout the site. Due to snow cover, there was some difficulty locating the outcroppings of tar like material. When located the asphalt areas were approximately two feet in diameter and $\frac{1}{4}$ " - $\frac{1}{2}$ " thick. We were unable to determine if any of this material was or had reached the Buffalo River.

Mr. Rodgers did not know of any active waste disposal at this site by Mobil Oil. Petroleum based wastes generated at the plant can be recycled into a product form. Mr. Rodgers indicated that some amounts of demolition type material and possible small amounts of asphalt may have been disposed of at this location.

Review of a past industrial waste survey indicated a potential for on-site disposal of tetraethyl lead sludges. Recent policy has been for private tank cleaning concerns to be responsible for the removal of non-recyclable sludges. It is possible that tetraethyl lead sludges may have been disposed on site following API approved weathering and disposal practices. Reference to API bulletin RP 2015 - Cleaning of Petroleum Storage Tanks approves of land burial of insoluble lead compounds which form when the sludges are allowed to age properly.

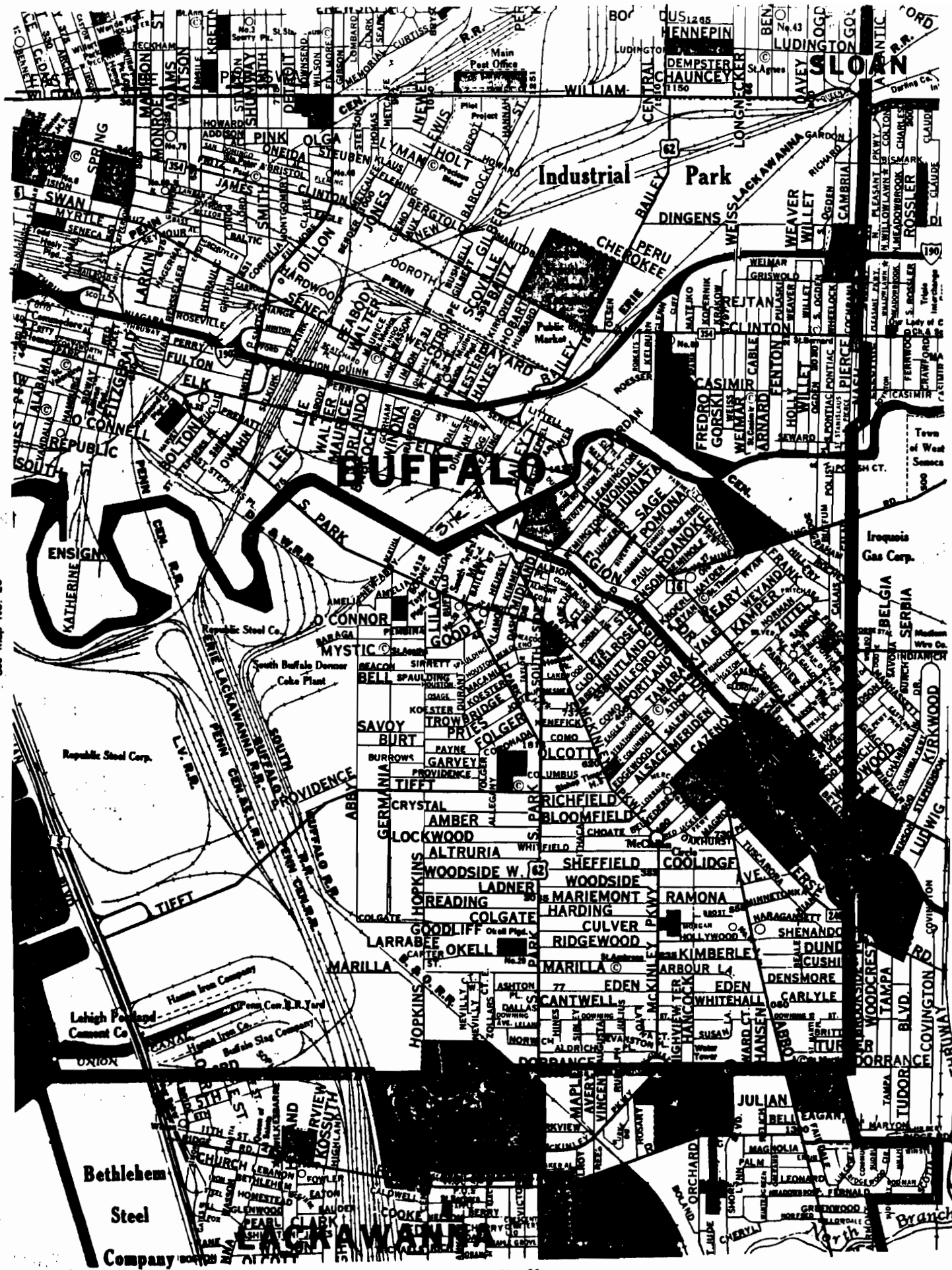
Mr. Rodgers indicated that there is little information available regarding Mobil's waste disposal. This matter had apparently been looked into to prepare a response to the Inter Agency Task Force questionnaire.

Inspection of the site found grass, brush, etc. growing in areas not used as roadway or tank storage even though a good layer of cover soil was not apparent. The asphalt which rises to the surface is periodically removed by Mobil as it could hinder workers and vehicles at the site. In as much as this is an industrial site and vegetation has taken hold in areas not actively used, it is the writer's opinion that Mr. Long's recommendation (add 6-12" of cover soil, plant vegetation) is unnecessary. It is desirable that another inspection be planned for late spring or summer to determine the full extent of asphalt surfacing and possible entry into the Buffalo River.

RDK:jk

cc: Mr. Tamol
Mr. Banaszak, NYSDEC

See Map No. 20



See Map No. 21

See Map No. 18

COUNTY OF ERIE
DEPARTMENT OF ENVIRONMENT & PLANNING
DIVISION OF ENVIRONMENTAL CONTROL

triple
July 27
DC

MEMORANDUM

FROM Don Campbell, P.E. DATE June 10, 1981
TO Lawrence G. Clare, P.E.
SUBJECT MOBIL OIL CORP.

SUSAN MROWKA Inspection Date : June 9, 1981
827-5191

Site # 915040, page B-9-103. Inspected site with Susan Mrowka, Environmental Engineer for Mobil Oil. The site appeared similar to observations noted in a December 14, 1978 inspection. The material at the surface consisted of broken glass, china, metal and some demolition debris.

Small areas of surface asphalt was evident (see sketch on enclosed aerial photograph # 21-10 dated 1972). Mobil Oil was requested to remove or cover these areas.

No Leachate was apparent either on the surface or along the bank bordering into the Buffalo River. No sheen was observed in the vicinity of the site. The entire length of the bank along the river was not accessible for inspection due to heavy brush and steep slopes.

The site did not appear active for some time.

No sampling is recommended.

A follow up inspection is planned to monitor progress of asphalt removal.

DC:rb Reinspection date
Enc. Aug 7, 1981

BORING DATA

This on file

Site inspection - August 7th, 81

Cover & Grading is essentially complete.

No violations noted. No follow inspection planned.