

PHASE I

ENVIRONMENTAL

SITE ASSESSMENT

April 25, 2003

Site Identification: Buffalo Small Boat Harbor and Gallagher Beach
Fuhrmann Boulevard
City of Buffalo
Erie County, New York

Tax Lot Identification: 132.06-1-2.1, 132.15-1-2, and 132.41-1-2

Property Description: Approximately 210-acre property containing a marina, marine maintenance facility, restaurant, public beach, boat-mooring harbor, and boat rental shop

ESI File: NB03035.10

Prepared By:

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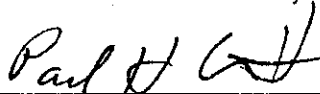
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Prepared For:

**New York State Office of Parks, Recreation,
and Historic Preservation
Real Property Bureau
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Services performed by Ecosystems Strategies, Inc. and summarized in this Phase I Environmental Site Assessment have been conducted in accordance with Method E 1527-00 as developed by the American Society for Testing and Materials (ASTM).

The undersigned has reviewed this Phase I Environmental Site Assessment and certifies to New York State Office of Parks, Recreation, and Historic Preservation that the information provided in this document is accurate as of the date of issuance by this office.



Paul H. Ciminello
President

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1.0 INTRODUCTION

1.1 Purpose of the Investigation

This Phase I Environmental Site Assessment (Phase I ESA) identifies environmental conditions that might represent a financial liability resulting from or associated with the storage, use, transport, or disposal of hazardous or regulated materials on the Buffalo Small Boat Harbor and Gallagher Beach property located on Fuhrmann Boulevard, City of Buffalo, Erie County, New York. More complete property descriptions are provided in Sections 2.1 and 3.4.2, below.

1.2 Methodology

This Phase I ESA has been prepared in conformance with guidelines set forth by the American Society for Testing and Materials (ASTM) Method E1527-00. The specific components of this Phase I ESA are as follows:

1. Investigation of the subject property's history and characteristics through the analysis of historic maps and photographs, local and regional maps, municipal records, and information provided by subject property representatives. Complete references are provided in Section 5.0 of this Phase I ESA.
2. Review of federal and state computer databases and printed records for documentation of potential liabilities relevant to the subject property. Records reviewed and corresponding search distances are consistent with, or exceed, the requirements set forth by the ASTM.
3. Visual inspection of the subject property conducted on March 24, 2003 by Carl Kochersberger of Ecosystems Strategies, Inc. (ESI). Mr. Kochersberger was accompanied by Bob Mariea, the site maintenance supervisor, for portions of the site inspection.

1.3 Limitations

This Phase I ESA is an evaluation of the property described in Section 2.1 below and is not valid for any other property or location. It is a representation of the property analyzed as of the dates that services were provided. This Phase I ESA cannot be held accountable for activities or events resulting in environmental liability after the respective dates of the site inspection or historic and regulatory research.

This Phase I ESA is based in part on certain information provided in writing or verbally by federal, state and local officials (including public records) and other parties referenced herein. The accuracy or completeness of this information was not independently verified. Unless specifically noted, the findings and conclusions contained herein must be considered not as scientific certainties, but as probabilities based on professional judgement.

2.0 SITE LOCATION AND DESCRIPTION

2.1 Description of the Subject Property

The subject property as defined in this Phase I ESA consists of the Approximately 210-acre (total) Buffalo Small Boat Harbor and Gallagher Beach property, located on Fuhrmann Boulevard, City of Buffalo, Erie County, New York. The subject property comprises three tax lots (City of Buffalo Tax ID's: 132.06-1-2.1, 132.15-1-2, and 132.41-1-2). A map depicting the location of the subject property is provided on Page 5 of this Phase I ESA.

The subject property is comprised of three irregularly-shaped, non-contiguous parcels located in between the western side of Fuhrmann Boulevard and the Buffalo Outer Harbor. Parcel 1 consists of a public beach and a small-craft marina with a restaurant/office building, a marine repair shop, a seasonal bait shop, and a gasoline-sales dock. Parcel 2 consists of a boat-mooring harbor. Parcel 3 consists of a concrete and corrugated-metal maintenance building and a dirt and gravel area containing stored items and debris. Parcels one and two are occupied primarily by surface waters contiguous to Lake Erie.

Photographs of the subject property are provided in Appendix A. A map illustrating the layout of the subject property is provided on Page 6.

2.1.1 Site Topography

Information on the subject property's topography was obtained from the review of the United States Geological Survey (USGS) Topographic Map of the Buffalo Southeast, New York Quadrangle. A copy of the relevant portion of the USGS Topographic Map, with the subject property indicated, is included in Appendix B.

According to this map, and observations made during the site inspection, the area in which the subject property is located is relatively level, and the subject property has a surface elevation of approximately 580 feet above mean sea level (msl).

Topographic patterns seen on the map, including many right angles along the Lake Erie shoreline, are indicative of landfilling activities on and in the immediate vicinity of the subject property.

2.1.2 Site Geology

No information regarding site-specific investigations of the subsurface (e.g., test pits or borings) was readily available; therefore no documented determinations are provided in this Phase I ESA. The presence of on-site structures suggests that soils located on the subject property may have been altered by cutting, regrading and/or filling activities.

The United States Department of Agriculture Soil Conservation Service's Soil Survey of Erie County, New York (Soil Survey), dated December 1986, was reviewed by this office to ascertain which soil types are likely to be present on the subject property. A summary of the information obtained from this review is provided below.

The Soil Survey indicates that the subject property is located in an area composed of the Urban Land soil type. The urban land soil unit consists of areas where at least 80% of the surface is covered by buildings, parking areas or other impervious structures. No information regarding depth to bedrock was provided for the Urban Land soil type. No bedrock was observed during the site inspection.

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2.1.3 Site Hydrogeology

No site-specific investigation of groundwater depth or direction of flow is known to have been performed on the subject property; therefore, no documented determinations are provided in this Phase I ESA. In ESI's opinion, the direction of on-site groundwater flow is likely to be in a westerly direction, toward Lake Erie, of which portions of are located on the subject property.

2.1.4 Surface Hydrology

Information regarding on-site surface hydrology was obtained from the review of available maps and from observations made by this office during the March 24, 2003 site inspection. According to these sources, portions of the subject property are comprised of surface waters contiguous to Lake Erie.

Wetlands

This office reviewed the New York State Department of Environmental Conservation (NYSDEC) Freshwater Wetlands Map and the United States Department of the Interior National Wetlands Inventory Map of the quadrangle in which the subject property is located. These maps show that two designated state wetlands (BU-7 and BU-15) are located approximately 300 feet east of Parcels 1 and 2 of the subject property. These state designated wetlands are comprised of nine federal wetlands, which include: three seasonally flooded areas; five, permanent man-made wetlands; and one semi-permanent wetland. The Buffalo River, a state designated permanent wetland, is located approximately 400 feet west of Parcel 3. The federal map depicts two wetlands in the dyked area of Parcel 1 of the subject property; however, available information indicates that these wetlands have been filled in since the date of the map (1978). Relevant portions of the state and federal wetlands maps are included in Appendix B.

2.2 Description of Surrounding Properties

2.2.1 Surrounding Land Uses

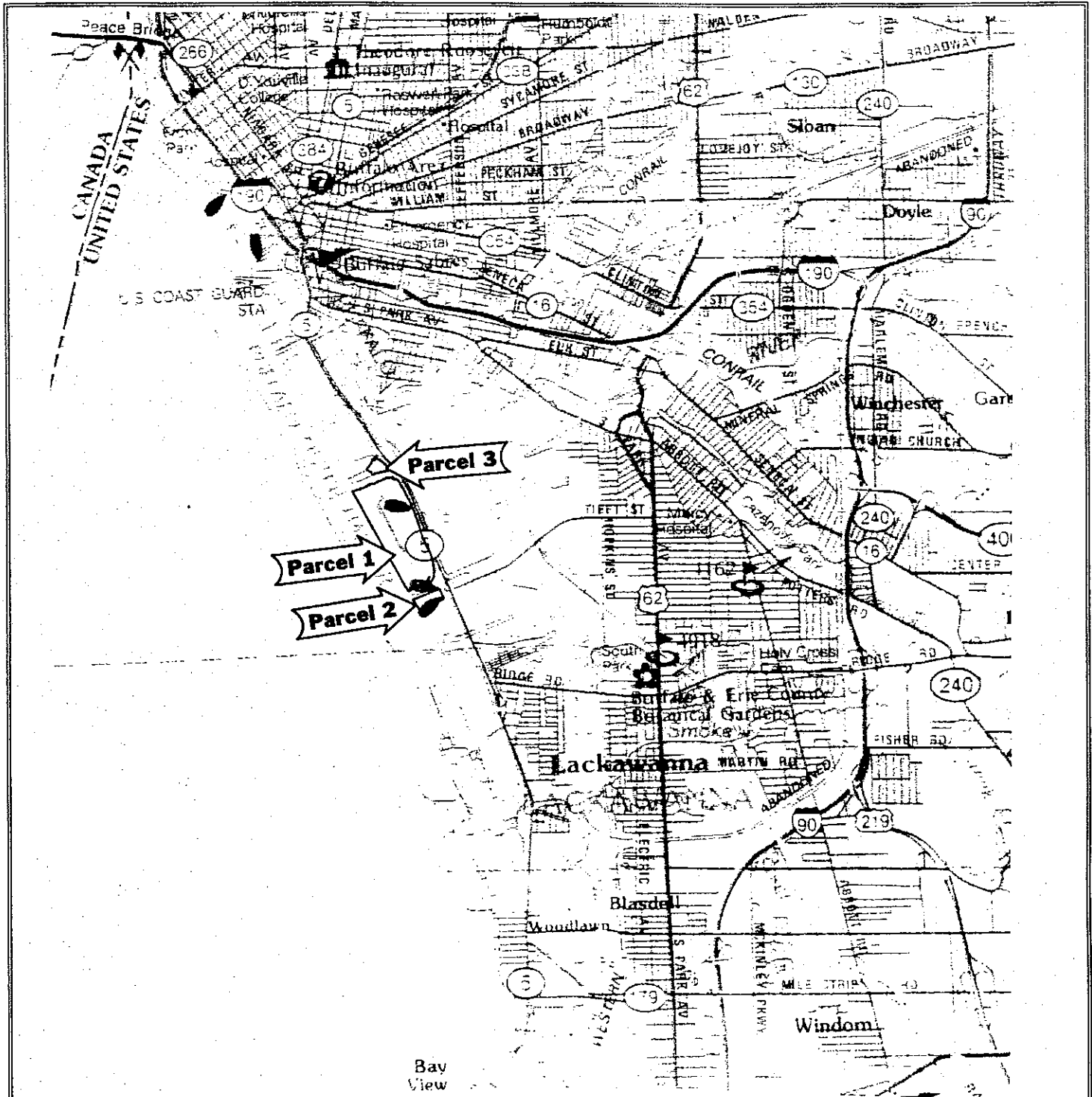
Observations reveal that the subject property is located in an urban area comprised primarily of industrial and commercial properties. A description of the adjoining and nearby properties is provided in Table 1, below.

Table 1: Land Uses in the Vicinity of Subject Property

Direction		Adjoining Use(s)	Vicinity Use(s)
Parcel 1	North	• Frozen food plant	• Industrial
	East	• Nature Preserve • Buffalo River Improvement Corporation Pump Station	• Nature Preserve • Industrial
	South	• Abandoned grain elevators	• Industrial • Parcel 2
	West	• Buffalo Outer Harbor (part of Lake Erie)	• Lake Erie
Parcel 2	North	• Abandoned grain elevators • Boat Storage	• Parcel 1
	East	• Vacant land • Industrial	• Industrial
	South	• Cement Factory	• Steel Mill (only current operation is galvanizing) • Coke Plant (ceased operations in 2002)
	West	• Buffalo Outer Harbor	• Lake Erie
Parcel 3	North	• Industrial	• Industrial
	East	• Industrial	• Industrial
	South	• Frozen food plant	• Parcel 1
	West	• Port of Buffalo Warehouse	• Lake Erie

2.2.2 Sensitive Environmental Receptors

The review of maps and observations made during the site inspection indicate that there are two sensitive environmental receptors located on the subject property. Surface waters of Lake Erie comprise the majority of Parcels 1 and 2. Gallagher Beach, which is a public beach, is located on the southern portion of Parcel 1.



Source: DeLorme USA, Atlas & Gazetteer dated 1991

Site Location Map

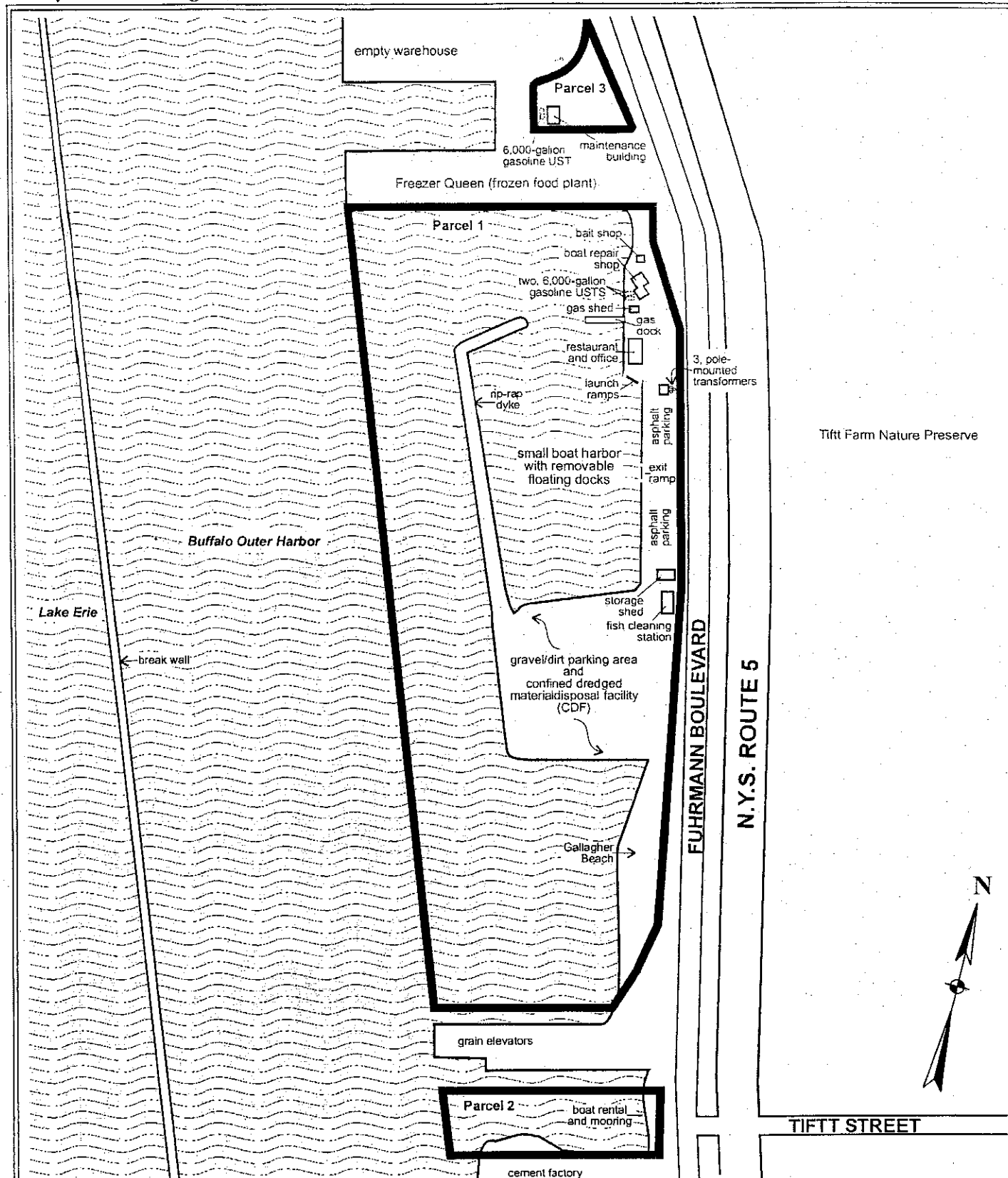
Buffalo Small Boat Harbor and Gallagher Beach
Fuhrmann Boulevard
City of Buffalo
Erie County, New York



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All feature locations are approximate.

Map is based in part on a Site Plan from the N.Y.S. Office of Parks, Recreation and Historic Preservation, Undated.

Selected Site Features Map

Buffalo Small Boat Harbor and Gallagher Beach
Fuhrmann Boulevard
City of Buffalo
Erie County, New York

Legend:

- subject property border
- structure

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Scale: 1" = 430' (approximately)

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3.0 INVESTIGATION

3.1 Ownership Records

Property ownership information is gathered from available sources, including City of Buffalo Assessor's Office and Building Department records. This ownership summary does not constitute a title search.

Table 2: Ownership Information

Parcel ID	Owner	Date of Ownership
Parcel 1 132.06-1-2.1	Richard Jackson	1953
	Niagara Frontier Transit Authority (NFTA)	1985
Parcel 2 132.14-1-2	NFTA	2003
Parcel 3 132.15-1-1.2	NFTA	2003

3.2 Site History

In order to research the history of the subject property, the following sources were utilized: historic maps and aerial photographs, City of Buffalo Assessor's Office and Building Department files, and information provided by subject property representatives.

3.2.1 Aerial Photographs and Sanborn Fire Insurance Maps

AERIAL PHOTOGRAPHS

A summary of the information obtained from the review of aerial photographs dated 1958, 1966, 1985, and 1990 is provided below. The small scale and quality of the photographs made distinguishing details difficult. Copies of these photographs are provided in Appendix D.

1958: Parcel 1 of the subject property contains a protected harbor on the northern portion and open shoreline area on the southern portion. Two structures and three docks are visible on the northeast portion of Parcel 1. Parcel 2 is an open harbor area. The majority of Parcels 1 and 2 is comprised of surface waters of Lake Erie. A structure is visible on the westernmost portion of Parcel 3; the remainder of the parcel is vacant.

Parcels 1 and 2 are adjoined by the Buffalo Outer Harbor to the west and vacant land (a portion of which is labeled "Dump" on the photograph) to the east. The properties that adjoin Parcel 1 to the north, separate Parcels 1 and 2, and adjoin Parcel 2 to the south are occupied by industrial facilities. Parcel 3 is adjoined by industrial properties on all sides.

Further to the north and south of the subject property are industrial properties with some residential clusters. Further to the west is Lake Erie. Vacant land and more industrial properties are located further to the east.

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- 1966: The dyke forming the protected harbor on Parcel 1 is smaller and differently shaped than in the previous photograph. No other significant changes are noted on the subject property, adjoining parcels, or in the immediate vicinity of the subject property.
- 1985: An area formerly containing surface waters, approximately one-half of the size of the protected harbor of Parcel 1, at the southern end of the harbor has been filled in and appears to be vacant. No other significant changes are noted on the subject property, adjoining parcels, or in the immediate vicinity of the subject property.
- 1990: No significant changes are noted on the subject property, adjoining parcels, or in the immediate vicinity of the subject property.

SANBORN FIRE INSURANCE MAPS

A summary of the information obtained from the review of historic Sanborn Fire Insurance Company Maps dated 1900, 1917, 1940, 1950, and 1986 is provided below. Copies of relevant Sanborn maps are provided in Appendix I. No coverage of Parcel 3 is provided on the available maps.

- 1900: The central-eastern portion of Parcel 1 is covered on the available maps. No structures are depicted on the subject property. Lake Erie adjoins the subject property to the west. Adjoining to the east are several warehouses. Further to the east is the City Ship Canal, several lumber yards, and the Leigh Valley Railroad coal-dock. Properties to the north and south are not covered on the available maps for this year.
- 1917: The eastern portions of Parcels 1 and 2 are covered on the available maps. Present on the northeastern portion of Parcel 2 is a store with a dock that extends into Lake Erie. No other significant changes are noted on the subject property.
- A bathhouse is present on the eastern portion of the property separating Parcels 1 and 2. The lands adjoining Parcel 2 to the east appear to be vacant. Properties adjoining Parcel 1 to the east include a large tract of land labeled "Tift Farm Yards of Leigh Valley Railroad", and Railroad freight houses that are likely to be the previously noted warehouses. The land further to the east previously containing lumber yards now appears to be vacant. No other significant changes are noted on adjoining parcels or in the immediate vicinity of the subject property.
- 1940: A single story structure is now present on the southeastern portion of Parcel 2. Municipal water is depicted as being available in the area of the subject property. No other significant changes are noted on the subject property.

A small, single-story welding shop now adjoins Parcel 1 to the east. The property adjoining Parcel 1 to the north contains a large warehouse and cold-storage facility, and eleven small, single-story structures including three stores, two automobile repair shops, five offices, and a filling stations. Associated with these structures are nine gasoline underground storage tanks (USTs). The capacities of the USTs are not listed. The property adjoining Parcel 2 to the south contains a large industrial facility labeled as the "Great Lakes Portland Cement Company". The property that separates Parcels 1 and 2 contains grain elevators labeled "Saskatchewan Pool Terminal Elevator, LTD.". No other significant changes are noted on adjoining parcels.

Further to the north of the subject property is a large grain milling facility. Just south of the southerly adjoining cement factory to Parcel 2 is the Bethlehem Steel Company. No other significant changes are noted in the immediate vicinity of the subject property.

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- 1950: No significant changes are noted on the subject property. Several single-story structures are now present on the land adjoining Parcel 1 to the east. No other significant changes are noted on adjoining properties or in the immediate vicinity of the subject property.
- 1986: A structure is now present at the northeastern portion of Parcel 1. The writing on the map describing the structure is illegible, however the structure appears to be the size of a large barn. A total of three small, single-story structures are now present at the southeast corner of Parcel 2, which is now labeled as "Bouquard's Boat Rental". No other significant changes are noted on the subject property, adjoining parcels, or in the immediate vicinity.

3.2.2 Local Records

Assessor's Office Records

On March 26, 2003, City of Buffalo Assessor's Office property card records for the subject property were reviewed by this office. No information relevant to the environmental integrity of the subject property was noted on the property cards.

Building Department Records

This office reviewed City of Buffalo Building Department records for the subject property on March 26, 2003. Included in the files for Parcel 1 are 1953 permit for the construction of a refreshment stand, a permit dated 1955 for the installation of a 2,000-gallon gasoline UST, a permit dated 1963 for the installation of a 2,000 gallon gasoline UST, and a permit dated 1985 for the construction of a guard house. No information pertaining to Parcels 2 and 3, or other information pertaining to Parcel 1 was found in readily available building department records.

Local Agency Interviews

A request was made in March 2003 to search the available City of Buffalo Department of Fire Prevention records for information regarding the subject property. As of the date of this Phase I ESA, no response from this agency has been received by this office.

3.2.3 Subject Property Representative Information

Pertinent information regarding the subject property was provided to this office by Peter Burke of the Niagara Frontier Transit Authority (NFTA), the subject property owner. According to Mr. Burke, no past, threatened, or pending environmental liens, violations, governmental notifications, lawsuits, administrative proceedings, or documents relevant to the environmental condition of the property are known to exist. Mr. Burke had no specific knowledge or experience regarding previous ownership or uses that were relevant to identifying recognized environmental conditions.

When queried about the potential presence and/or usage of petroleum products or hazardous substances on the subject property, Mr. Burke stated that two, 6,000-gallon gasoline USTs are present at the base of the gasoline dock on Parcel 1, and one 6,000-gallon gasoline UST is present adjacent to the western side of the maintenance building on Parcel 3. Mr. Burke stated that he was not aware of any other former or current presence or usage of these materials.

Pertinent information provided by Mr. Burke is also provided in relevant sections of this Phase I ESA, where appropriate.

3.2.4 Previous Environmental Reports

A Report of the Niagara River Toxics Committee (Report 1), dated October 1984, reports analytical results of surface and subsurface water samples collected at three confined dredged materials disposal facilities (CDFs) used by the U.S. Army Corps of Engineers to dispose of materials dredged from area shipping channels including the Buffalo River, the Black Rock Canal, and the Buffalo Outer Harbor. Report 1 states that each of the three sites is contaminated with metals and organic compounds, and that the containment dykes do not appear to prevent the migration of contaminants.

An Environmental Study (Study) by Empire/Thomsen Associates, dated February 1987, chronicles soil, sediment, and groundwater monitoring activities conducted on a portion of Parcel 1 that was used by the U.S. Army Corps of Engineers as CDF from 1967 to 1979. It is documented in the Study that contamination of on-site soils and groundwater with both inorganic and organic priority pollutants is well distributed throughout the site, and that arsenic, lead, chromium, and mercury were found in one or more wells in concentrations exceeding the concentration specified for EP Toxicity.

A Letter from the NYSDEC to the NFTA (Letter 1), dated April 17, 1987 states that the current plans of the NFTA for filling the CDF for use as a parking area exceed the scope of what was originally approved by the NYSDEC, and while the NYSDEC lacks sufficient information to cause the cessation of the filling activities, the NYSDEC stated that filling of the CDF is "a continuing concern relative to its impact on possible remediation, water quality, and public health." Letter 1 also stated that filling activities continue to be done solely at the risk of the NFTA.

A Letter from the NYSDOH to the NYSDEC (Letter 2), dated May 4, 1987, states that the lateral migration of on-site contaminants from the site is not properly addressed in remedial alternatives discussed in the above referenced Study. Letter 2 states that while capping the site with an impervious layer would limit infiltration of stormwater, it would not prevent substances from reaching surface waters or shoreline areas. Letter 2 states that the addition of fill material to the site would be counterproductive to the prevention of contaminant migration, and that the added weight of a parking lot facility on the site could potentially force contaminated materials through the containment dyke, which is somewhat porous.

A Letter from the NYSDEC to the NFTA (Letter 3), dated July, 1, 1987, states that the NYSDEC is concerned over the fill material being used at the CDF site. According to the letter, the NFTA stated that only clean soil fill would be used to fill the site, but that fill being used at the site also included construction and demolition debris consisting of bricks, stone, asphalt, and other non-soil materials.

A Report on Contaminant Mobility in Buffalo Harbor (Report 2), from the U.S. Army Corps of Engineers, dated July 1988, states that the sediment contained in the Small Boat Harbor CDF do not exhibit the characteristic of EP toxicity when analyzed using the toxicity characteristic leachate procedure (TCLP), but that the concentrations of soluble cyanide, chlorobenzene, and zinc in groundwater samples exceed federal water quality criteria for toxicity to fresh water aquatic life. Report 2 also states that mathematical models suggest that annual contaminant loading into Buffalo Harbor from the CDF are 3 kg cyanide, 26 kg chlorobenzene, and 0.7 kg soluble zinc. These estimates are based, in part, on the infiltration of precipitation into the CDF. It is stated in the summary of Report 2 that "the evaluation of potential impacts of this site is a local authority decision that is beyond the scope of this memorandum." (ESI Note: While Report 2 addresses the conditions of the site at the time of the research, it does not address the concerns of the NYSDEC and NYSDOH regarding the potential release of contaminants due to the compression of the site as a result of adding fill material and creating a 650-car parking lot. Additionally, Report 2 suggests that the only criteria used to determine whether or not any on-site materials are

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hazardous were TCLP procedures. 6 NYCRR Part 371.3, (d) (1) (v) states that a cyanide or sulfide bearing waste, which when exposed to pH conditions between 2 and 12.5 can generate toxic gases, vapors, or fumes in a quantity sufficient to present a danger to human health or the environment, is a hazardous waste. No testing of on-site wastes for reactivity is documented in the materials provided to this office for review.)

A Letter from the NYSDOH to the NYSDEC (Letter 4), dated August 23, 1991 states that the NYSDOH agrees that no hazardous wastes, as defined in [NYCRR Part 371], were found to have been disposed of at the Small Boat Harbor CDF, and that the NYSDOH concurs with the delisting of the CDF as an IHWDS. Letter 4 states that the NYSDOH's concurrence is contingent on the division of water for further assessment and that any change in use of the site or adjacent properties are to be reviewed by the NYSDOH.

A Letter from the NYSDEC to the NFTA (Letter 5) dated November 21, 1991, states that the Small Boat Harbor CDF has been deleted from the NYSDEC IHWDS registry, and that the site will not appear on future registries unless information that justifies the relisting of the site is brought to the attention of the NYSDEC.

3.3 Review of Federal and State Agency Records

3.3.1 Methodology

Federal and state computer databases and printed records were reviewed for documentation of potential liabilities relevant to the subject property. Records reviewed and corresponding search distances are consistent with, or exceed, the requirements set forth by ASTM.

The following ASTM databases were searched at their specified search distances, consistent with ASTM protocol:

- USEPA National Priority List (1.0 mile)
- USEPA CERCLIS List (0.5-mile)
- USEPA CERCLIS NFRAP List (subject/adjoining properties)
- USEPA RCRIS Hazardous Waste Generators List (subject/adjoining properties)
- USEPA RCRIS CORRACTS Hazardous Waste Facilities List (1.0 mile)
- USEPA RCRIS non-CORRACTS Hazardous Waste TSD Facilities List (1.0 mile)
- USEPA Emergency Response Notification System (subject property)
- NYSDEC Registry of Inactive Hazardous Waste Disposal Sites (IHWDS) (1.0 mile)
- NYSDEC List of Sites under Investigation for IHWDS Registry (0.5 mile)
- NYSDEC Leaking Underground Storage Tank (LUST) Records (0.25 mile)*
- NYSDEC Petroleum Bulk Storage Tank Records (subject/adjoining)
- NYSDEC Chemical Bulk Storage Tank Records (subject/adjoining properties)
- NYSDEC Registry of Active and Inactive Landfills (0.5 mile)

* The search distance for this ASTM database has been reduced due to the high level of development of the area in which the subject property is located.

The following databases not required by ASTM protocol were also reviewed:

- USEPA RCRIS Hazardous Waste Transporters List (subject/adjoining properties)
- NYSDEC Major Oil Storage Facilities (0.5 mile)
- NYSDEC Petroleum and Chemical Spill Records (0.25 mile)
- NYSDOH Basement Radon Readings (by County, Municipality and Zip Code)
- USEPA and NYSDEC Wastewater Discharge Permits (subject/adjoining properties)

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A copy of a database search conducted by Environmental FirstSearch Corporation for ESI is provided in Appendix C. Not all of the sites contained in the attached database search may be referenced in Section 3.3.2 of this Phase I ESA. Some sites were not included based on either ASTM requirements, ESI's scope of services or professional opinion, and/or information obtained during the review of historic records and the site inspection. Likewise, sites or additional information not included in the database search may also be referenced based on ESI's knowledge of the subject property area.

3.3.2 Findings of Regulatory Records Review

Federal Hazardous Waste-Contaminated Sites

The subject property is not identified on the United States Environmental Protection Agency's (USEPA) National Priority (NPL) list of uncontrolled or abandoned hazardous waste sites identified for priority remedial actions. These records indicate there are no NPL sites within 1.0 mile of the subject property.

The subject property is not listed on the USEPA's CERCLIS list which details all sites that are proposed to the NPL or are in the screening and assessment phase for possible proposal to the NPL. The CERCLIS list identifies no sites within 0.5-mile of the subject property.

The subject property is not listed on the USEPA's CERCLIS No Further Remedial Action Planned (NFRAP) list. This is a list of former CERCLIS sites that were delisted because no significant hazardous waste contamination was found or because the site has been remediated. The CERCLIS NFRAP list notes no sites that adjoin the subject property.

State Hazardous Waste Sites

A review of the IHWDS registry revealed that Parcel 1 of the subject property, known as the Small Boat Harbor Containment Site (former NYSDEC site ID#: 915127), was formerly listed with the New York State Department of Environmental Conservation (NYSDEC) as an inactive hazardous waste disposal site (IHWDS)(see section 3.2.4, Previous Environmental Reports). According to a review of NYSDEC records, the U.S. Army Corps of Engineers (COE) constructed a rubble and limestone dyke around a 27.8-acre portion of Buffalo Harbor adjacent to the southern end of the Buffalo Small Boat Harbor in 1967. This enclosure was used to contain contaminated dredge spoils from area shipping channels until 1976, at which point, an estimated total of 1.1 million cubic-yards of contaminated dredge spoils were disposed of on-site. Documented contamination of the site includes volatile organic compounds, semi-volatile organic compounds, and RCRA metals. According to documentation provided to this office by the NYSDEC, this site was removed from the IHWDS registry because no hazardous wastes, as defined in 6 NYCRR Part 371 were identified at the site. The site was capped with clean fill in 1986 and is currently used as a parking area for users of the Buffalo Small Boat Harbor boat-launch ramps. NYSDEC records state that the containment dyke is permeable to water and non-aqueous phase liquids, and could potentially allow the migration of contaminants from the containment area into Lake Erie and the Small Boat Harbor.

A review of the IHWDS registry also revealed five additional NYSDEC IHWDS sites located within 1.0 mile of the subject property. These sites are the Alltiff Landfill Site (NYSDEC ID#: 915054), the Buffalo Outer Harbor Site (NYSDEC ID#: 915026), the Leigh Valley Railroad Site (NYSDEC ID#: 915071), the Shenango Steel Mold Site (NYSDEC ID# 915172), and the Tift Farm Nature Preserve Site (NYSDEC ID#: 915072). Based on several factors, including the distance between sites, and the presumed direction of groundwater flow in the vicinity, these sites are not likely to have impacted the subject property. Summaries of these sites are provided in Appendix C.

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The subject property is not on the NYSDEC's list of sites under investigation for inclusion on the IHWDS registry. This list indicates there are no such sites within 0.5-mile of the subject property.

Federal Hazardous Waste Handlers

The USEPA Resource Conservation and Recovery Information System (RCRIS) database details facilities which report treatment, storage or disposal of hazardous waste (TSD facilities) or generation or transportation of hazardous waste. Of these facilities, some have been notified by the USEPA to take corrective action with regard to their handling of hazardous waste, and they are thus classified as CORRACTS facilities.

CORRACTS AND/OR TSD FACILITIES

The subject property is not registered with the USEPA as a CORRACTS and/or TSD facility for hazardous waste or materials. These records identify two CORRACTS and/or TSD facilities within 1.0 mile of the subject property. Saftey-Kleen Systems, Inc. Buffalo (USEPA ID# NYD980593842), located 0.48 mile northeast of the subject property at 60 Katherine Street, and Saftey-Kleen Systems, Inc. Lackawanna (USEPA ID#: NYD981556541), located 0.68 mile southeast of the subject property at 41 North Gates Avenue, are listed as CORRACTS facilities. No other pertinent information regarding these sites was found in readily available records. Based on the distance between sites, and the presumed direction of groundwater flow in the vicinity, neither of these sites is likely to impact the subject property. No other CORRACTS and/or TSD facilities are located within 1.0 mile of the subject property.

GENERATORS OR TRANSPORTERS (NON-CORRACTS)

The subject property is not registered with the USEPA as a generator or transporter of hazardous waste, as per a review of the RCRIS database. This database indicates that there is one generator of hazardous waste located on adjoining properties. The Niagara Frontier Transit Authority (USEPA ID#: NYD000514000), which adjoins Parcel 3 to the northwest, is listed as a small quantity generator. Three RCRA facilities that are no longer subject to USEPA regulation (NLR) are also present on properties adjoining Parcels 1 and 3. The NLR facilities are: Penske Truck Leasing CO LP (USEPA ID#: NYD981565724), Tops Markets, Inc. (USEPA ID#: NYD981565724), and United Foods, Inc., Freezer Queen Division (USEPA ID#: NYD101277747). No other information regarding these facilities was found in readily available records. Based on available information, it is unlikely that these sites would have impacted the subject property.

Landfills and Solid Waste Disposal Facilities

The NYSDEC's Facility Register does not list the subject property as an active or inactive landfill or solid waste disposal facility. No landfills or solid waste disposal facilities are located within 0.5-mile of the subject property according to this register.

Chemical Bulk Storage

A review of NYSDEC records indicates that the subject property is not registered with the NYSDEC as a chemical bulk storage (CBS) facility. Observations made during the site inspection did not indicate the presence of chemical bulk storage on the subject property. No adjoining properties are registered with the NYSDEC as CBS facilities.

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Petroleum Bulk Storage

SUBJECT PROPERTY

The Subject property (NYSDEC ID# 9-493228) is listed with the NYSDEC as a Petroleum Bulk Storage (PBS) Facility. Two, 6,000-gallon gasoline underground storage tanks (USTs) are present on the northern portion of Parcel 1 and one 6,000-gallon gasoline UST is located on the western portion of Parcel 3.

According to NYSDEC records, the USTs located on Parcel 1 are constructed of steel. One was installed on January 1, 1985 and the other was installed on May 1, 1990. The tank on Parcel 3 is constructed of fiberglass-reinforced plastic, and was installed on January 1, 1985. Documentation provided to this office suggests that the USTs on Parcel 1 passed tank-tightness tests on March 3, 2003 (a copy of the test report is provided in Appendix G). According to available information and observations made during the site inspection, each of the three tanks is equipped with a 24-hour monitoring system. A Spill Prevention, Control, and Countermeasures Plan (SPCC Plan) for the subject property was also provided to this office (provided in Appendix F).

Federal PBS Regulations

Federal Regulations specified in 40 CFR Part 112 apply to all facilities storing greater than 42,000 gallons of petroleum product underground or 1,360 gallons aboveground. Based on the known storage capacity of the subject property (18,000 gallons underground), the subject property is not subject to these regulations.

State PBS Regulations

NYSDEC Petroleum Bulk Storage Regulations 6 NYCRR Parts 612-614 apply to facilities with a combined storage capacity greater than 1,100 gallons (excluding tanks less than 1,100 gallons used to store fuel oil for on-site consumption). Based on the known storage capacity of the subject property (18,000 gallons underground), the subject property is subject to State PBS regulations. Available information suggests that the USTs are managed in accordance with all applicable regulations.

Seven NYSDEC spills are reported for the subject property (see the State Chemical and Petroleum Spill and Leaking Underground Storage Tank Events subsection, below).

ADJOINING PROPERTIES

According to a review of NYSDEC records, three adjoining properties are registered with the NYSDEC as PBS facilities.

The Port of Buffalo (NYSDEC ID# 9-493228), located at 901 Fuhrmann Boulevard adjoins Parcel 3 to the northwest. This facility shares its PBS registration number with the subject property because both properties are owned by the same entity. This facility has one, 10,000-gallon diesel aboveground storage tank (AST) and one, 280-gallon waste-oil AST. The 10,000-gallon AST is secondarily contained by a steel dyke.

The Buffalo River Improvement Corporation (NYSDEC ID# 9-500658) adjoins Parcel 1 to the east, across Fuhrmann Boulevard and NYS Route 5. This facility has no active tanks, and is described as unregulated by PBS.

Freezer Queen Foods, Inc. (NYSDEC ID# 9-008893) is located in-between Parcels 1 and 3. This facility has no active tanks and is described as being unregulated by PBS.

Based on the quantities of petroleum stored (only one adjoining facility has active PBS tanks), distance between these facilities and the subject property, and secondary containment features, these facilities are not likely to impact the subject property. No open NYSDEC spill events are reported for these adjoining properties (see the State Chemical and Petroleum Spill and Leaking Underground Storage Tank Events subsection, below). No overt evidence of PBS tanks was noted on adjoining properties during the site inspection.

Major Oil Storage Facilities (MOSFs)

The subject property is not listed with the NYSDEC as a major oil storage facility (MOSF). According to a review of NYSDEC records, there are no MOSFs located within 0.5-mile of the subject property.

Federal Chemical and Petroleum Spills

The USEPA Emergency Response Notification System (ERNS) database details initial reports of releases of oil and hazardous substances as reported to federal authorities. There are currently five chemical or petroleum spills on record for the subject property, according to a review of the USEPA ERNS database. The ERNS spill events are listed in Table 3, below.

Table 3: Summary of on-site ERNS events

ERNS ID #	Parcel	Spill Date	Material and Quantity	Status
268124	1	05/23/1992	10 gallons of gasoline and perhaps oil	Marine vessel
267127	1	05/23/1992	10 gallons gasoline	Unknown
594507	1	09/13/1998	Unknown quantity of petroleum product	Unknown
451798	1	08/29/1995	Unknown quantity of petroleum product	Unknown
324243	2	06/01/1993	1 gallon of gasoline	Unknown

State Chemical and Petroleum Spill and Leaking Underground Storage Tank Events

A review of the NYSDEC spill database (maintained since 1986) indicates that seven spill events are known to have occurred on the subject property. These on-site spill events are summarized in Table 4, below.

Table 4: Summary of on-site NYSDEC spill events

Spill #	Parcel	Date of Spill	Material Spilled	Quantity	Status	Closure Date
9206749	2	08/24/1992	Diesel	Unknown	Closed	09/10/1992
9302812	2	06/01/1993	Gasoline	1 gallon	Closed	06/08/1993
9315061	1	03/23/1994	Diesel	100 gallons	Closed	12/15/1994
9807221	1	09/13/1998	Gasoline	Unknown	Closed	09/14/1998
9107514	1	10/14/1991	Gasoline	20 gallons	Closed	10/15/1991
9202240	1	05/23/1992	Gasoline	10 gallons	Closed	05/28/1992
8701466	1	05/22/1987	Gasoline	5 gallons	Closed	05/27/1987

Available information indicates that 54 spill events are known to have occurred within 0.25 mile of the subject property. Of these surrounding events, seven are classified as leaking underground storage tank (LUST) events. Based on a review of the materials spilled, intervening distances between the releases and the subject property, and other information located in the records reviewed, it is unlikely that these events have impacted the subject property.

Air Discharges

No NYSDEC permits for air discharges from the subject property are known to exist. No operations likely to require a NYSDEC air discharge permit were noted on the subject property during the site inspection.

Groundwater Usage

Observations made during the site inspection and information provided by the property representative indicate that the subject property obtains potable water from the municipal water system. No uses of groundwater were noted on the subject property during the site inspection.

Wastewater Discharges

A NYSDEC State Pollutant Discharge Elimination System (SPDES) permit (NYSDEC permit #: R00B971) exists for the discharge of stormwater from the parking lot located on Parcel 1. No other USEPA National Pollutant Elimination Discharge System (NPDES) or SPDES permits are known to exist for the subject property. No other operations likely to require a NPDES or SPDES permit were noted on the subject property during the site inspection. According to observations made during the site inspection and information provided by the property representative, the subject property is connected to the municipal wastewater system. No adjoining properties are registered with the USEPA as NPDES or SPDES facilities. A copy of the SPDES permit invoice is provided in Appendix H.

Radon

Information on radon levels was obtained from New York State Department of Health (NYSDOH) documents. No regulatory standards for radon levels currently exist in New York State. The USEPA has established a guidance value (the level where mitigation measures may be appropriate) for radon concentrations of 4.0 or greater picoCuries/liter (pCi/l). A summary of available radon information for the subject property's vicinity is provided below in Table 5.

Table 5: Basement Radon Levels in Vicinity of Subject Property

All radon levels provided in picoCuries/liter (pCi/l)

NYSDOH Radon Information	Erie County	City of Buffalo	Zip Code (14220)
Median Radon Level	1.6	0.7	0.8
Percent of Homes >4.0 pCi/l	20.9	4.5	Not Provided
Number of Homes Tested	5516	660	69

These median radon levels are below the USEPA's guidance value of 4.0 pCi/l and less than 21% of the homes tested in the subject property's vicinity had levels in excess of this guidance value. Therefore, it is unlikely that there are elevated radon levels on the subject property. No radon testing is known to have been conducted on the subject property. The absence of any residential use of the property precludes the need for radon testing at this time.

3.4 Site Inspection

3.4.1 Protocol

The site inspection was conducted on March 24, 2003 in order to address any potential concerns raised during the investigation of the site's history (above, Section 3.2), the regulatory agency records review (above, Section 3.3) and to identify any additional indications of contamination from the use, storage, or disposal of hazardous or regulated materials. To the extent possible, site structures, vegetation, topography, surface waters, and other relevant site features were examined for any obvious evidence of existing or previous contamination or unusual patterns (e.g., vegetative stress, soil staining, surface water sheen, or the physical presence of contaminants), which would indicate that the environmental integrity had been or could be impacted.

Section 3.4.2 describes the physical characteristics of the subject property. Section 3.4.3 is divided into topics on specific environmental conditions or concerns, actual or potential, noted on the subject property during the site inspection. Section 3.4.4 describes the physical characteristics of adjoining properties as they concern the potential or actual environmental condition of the subject property.

A Selected Site Features Map illustrating the general layout of the subject property and the locations of specific identified concerns discussed specifically in this Section of the Phase I ESA is provided on Page 6. Photographs of the subject property are provided in Appendix A.

3.4.2 Physical Characteristics of Subject Property

3.4.2.1 Property

The subject property consists of three, non-contiguous, irregularly-shaped parcels that total approximately 210 acres. Each of the three parcels is located along the western side of Fuhrmann Boulevard.

Parcel 1 consists of the Buffalo Small Boat Harbor, which is a small-craft marina, and Gallagher Beach, which is a public beach. The majority of this parcel consists of surface waters contiguous to Lake Erie. Several structures, including a restaurant/office building and marine maintenance facility, a bait shop, a gasoline sales office, a fish cleaning station, and a storage shed, are located on the Parcel. The remainder of the parcel consists of paved and unpaved parking areas, rip-rap and sand shoreline areas, lawns, and landscaping. A portion of the Buffalo Small Boat property, central to Parcel 1, is a former U.S. Army Corps of Engineers confined dredged materials disposal facility (CDF). The CDF was used to contain contaminated materials dredged from area shipping channels (see section 3.2.4, Previous Environmental Reports). This portion of the parcel is currently used as a parking lot.

Parcel 2 is located south of Parcel 1 and consists of Bouquard's Marina, which is a boat-mooring marina with a boat-rental shop. This property consists mainly of surface waters contiguous to Lake Erie. There is one small structure located on the southern portion of the parcel, which is used as a boat-rental and mooring office. The remainder of the parcel consists of a small parking area and a beach-like shoreline area.

Parcel 3 is located north of Parcel 1 and consists of a maintenance building and an outdoor area for storing seasonally used items and debris.

3.4.2.2 Structures

Parcel 1

Eight structures are located on Parcel 1, which include a restaurant/office building, a marine maintenance facility, a fish cleaning station, a bait shop, a gasoline sales office, a storage shed, a guard house, and an electric meter shed.

The fish cleaning station is a single-story, concrete-block building with an asphalt-shingle roof. The marine maintenance facility is a masonry building with an asphalt shingle roof and a treated wood exterior. All other structures on Parcel 1 are wood-framed structures with treated-wood exteriors and asphalt shingle roofs. The marine maintenance facility is a split-level structure. All other on-site buildings are single-story.

The restaurant/office building has ceramic tile floors, sheetrock and dropped acoustic tile ceilings, and sheetrock, ceramic tile, and wood-paneled walls. The marine maintenance facility has concrete-block, brick, and sheetrock interior walls, sheetrock, wooden, and dropped acoustic tile ceilings, and concrete and carpeted floors. The bait shop, guard house, and electric shed are have wooden interiors with concrete floors. The storage shed and gasoline sales office have completely wooden interiors. The fish cleaning station has concrete-block walls, concrete floors, and sheetrock ceilings.

Parcel 2

One, small wooden structure is located on the northeastern portion of Parcel 2. This structure was not accessed during the site inspection.

Parcel 3

One structure, a single-story, concrete-block and corrugated metal building, is present on Parcel 3. This building has a corrugated metal roof, corrugated metal and dropped acoustic tile ceilings, concrete floors, and vinyl-like and corrugated metal walls.

Potable Water Supply

According to available information, the subject property is serviced by the municipal water system. No water supply wells were noted on the subject property during the site inspection and no on-site uses of groundwater are known to exist for the subject property.

Sewage Disposal System

According to available information, the marine maintenance facility, maintenance building, fish cleaning station, bait-shop, and restaurant/office building are connected to the City of Buffalo municipal sewer system. The other on-site structures have no facilities that would require connection to the municipal sewer system.

Heating/Cooling

Heat and hot water for the restaurant/office building, marine maintenance facility, and maintenance shop are supplied by natural-gas appliances. An individual air conditioning unit is used to cool a portion of the maintenance shop during the warmer months. There are no heating or cooling mechanisms in the other on-site structures.

3.4.3 Specific On-Site Environmental Conditions

Debris Areas

Approximately 70-80 cubic yards of metal is present on the eastern portion of Parcel 3. No other significant areas of debris were noted during the site inspection.

Petroleum Storage

Two 6,000-gallon gasoline USTs are present on Parcel 1 and one 6,000-gallon gasoline UST is present on Parcel 3. The tanks are equipped with 24-hour leak detection systems and appear to be managed in accordance with applicable NYSDEC regulations. The two USTs located on Parcel 1 passed tank-tightness tests in March 2003 (see section 3.3.2, Petroleum Bulk Storage). No small quantities of petroleum products or aboveground storage tanks were noted on the subject property during the site inspection. No indications of other underground petroleum bulk storage tanks (e.g., fill ports or vent pipes) were noted on the subject property during the site inspection.

Chemical Storage

No small quantities of chemicals or aboveground chemical bulk storage tanks were noted on the subject property during the site inspection. No indications of underground chemical bulk storage tanks (e.g., fill ports or vent pipes) were noted on the subject property during the site inspection.

Asbestos-Containing Materials

Asbestos-containing materials (ACMs) are those materials which are known to contain over 1% of any type of asbestos. The presence or absence of asbestos within a material can only be determined through the physical analysis of material samples.

The date of construction of the on-site buildings was not found in readily available records. ACMs may have been used during initial building construction and/or during subsequent maintenance work of the marine maintenance facility, restaurant/office building, and maintenance shop. Other on-site structures appear to have been constructed relatively recently. An asbestos survey of the subject property is not known to have been conducted. Dropped acoustic ceiling tiles, which are a suspect ACM, were noted in the three above-referenced buildings during the site inspection. The ceiling tiles were noted to be in good condition. Other building construction materials (e.g., roofing, mastics, etc.) could also potentially contain asbestos.

Lead-Based Paint

The presence or absence of lead-based paint (paint containing 0.5% lead by weight) can only be determined through the material analysis of paint samples. However, as the manufacture of lead-based paint (LBP) is known to have been regulated since 1978, a building's date of construction is often used to help assess the likelihood that LBP was used during initial tenant space construction and/or subsequent maintenance work. The presence of deteriorated paint is indicative of a potential health risk in that paint dust and chips could be inhaled and/or ingested.

The dates of construction of the on-site structures were not found in readily available records. LBP may have been used previously on the marine maintenance facility, maintenance shop, and/or the restaurant/office buildings. Other on-site structures appear to have been constructed more recently. A lead-based paint survey of the subject property's structures is not known to have been conducted. All of the painted surfaces of the areas inspected by this office were in good condition at the time of the site inspection. Some building surfaces may have been painted multiple times, and no statement can be made by this office regarding the presence or absence of LBP in underlying layers of paint.

Floor Drains/Sumps/Conduits

No floor drains, sumps, or conduits to the subsurface were noted on the subject property during the site inspection.

Wastewater Discharges

Storm drains for the collection of wastewater that discharge into the surface waters of Lake Erie are located throughout the parking lot areas of Parcel 1. The NFTA possesses a SPDES permit (NYSDEC Permit #) for the discharge of stormwater. With the exception the permitted stormwater discharges, and the sewage discharges discussed previously, no evidence of wastewater or other liquid discharges (including stormwater) into drains, ditches, or streams on or adjacent to the property was observed during the site inspection.

Staining/Corrosion/Leaks

No evidence of corrosion, leaks or staining indicative of a reportable release, or evidence of a material threat of a release, was noted on the subject property during the site inspection.

Topographic Irregularities

The parking lot on Parcel 1, used for the parking of vehicles with boat-trailers, is a former U.S. Army Corps of Engineers CDF (see section 3.2.4, Previous Environmental Reports) and is filled with non-natural materials, some of which are documented as being contaminated with several priority pollutants. No other overt topographic irregularities (e.g., sinkholes or berms) indicative of the presence of non-natural materials (including debris) in the subsurface were noted on the subject property during the site inspection.

Vegetative Features

No overt areas of stressed or dying vegetation indicative of the presence of contaminants in surface or subsurface soils were noted on the subject property during the site inspection.

Pits, Ponds, or Lagoons

No pits, ponds, or lagoons exhibiting evidence (e.g., discolored water, distressed vegetation, obvious wastewater discharge) of holding liquids or sludge containing hazardous substances or petroleum products were noted during the inspection.

Surface Waters

The majority of the subject property consists of surface waters contiguous to Lake Erie. Based on observations made during the site inspection, no other surface water bodies are located on the subject property.

Odors

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No unusual odors indicative of the presence of contamination were noted during the site inspection.

PCBs

An inspection for the presence of equipment likely to contain PCBs was conducted by this office during the site inspection. PCBs were widely used in equipment such as transformers, capacitors, and hydraulic equipment until 1979 when the USEPA regulated their use in this capacity.

Florescent light fixtures are present throughout the on-site structures. The ballasts of these fixtures are a potential source of PCBs. Three pole-mounted transformers are located on the eastern portion of Parcel 1. These transformers are likely to be the property of the local electricity provider, who would be the responsible party in the event of a release. No other equipment likely to contain PCBs was noted on the subject property during the site inspection.

3.4.4 Observed Environmental Conditions on Adjoining Properties

No overt conditions judged by this office to pose a threat to the environmental integrity of the subject property were noted on adjoining properties during the site inspection.

4.0 CONCLUSIONS AND RECOMMENDATIONS

This Phase I ESA has been performed in conformance with the scope and limitations of ASTM Practice E 1527-00 on the approximately 210-acre Buffalo Small Boat Harbor and Gallagher Beach property, located on Fuhrmann Boulevard, City of Buffalo, Erie County, New York, as described in Section 2.0, above. This Phase I ESA has revealed no evidence of potential recognized environmental conditions in connection with the property with the exception of the items detailed below. With respect to these conditions, the following conclusions and recommendations (in **bold**) are made. Cost estimates for proposed investigations and/or remedial actions are provided in *italics* where appropriate.

1. Information obtained during a review of historic maps and photographs, municipal records, and information provided by the property representative indicates that the mid 1980s or prior, and the subject property has been used as it is at the present day since the 1940s or before. Available information indicates that the immediately surrounding area has been highly industrialized since 1900 or prior. NYSDEC records show that a portion of Parcel 1, known as the Small Boat Harbor CDF, was used by the U.S. Army Corps of Engineers to dispose of materials dredged from area shipping channels, and document that many of the materials disposed of at this site as being contaminated with several priority pollutants. City of Buffalo Building Department records suggest that permits were issued for the installation of two, 2,000-gallon gasoline underground storage tanks (USTs) on Parcel 1; one in 1955 and the other in 1963. No other information regarding these tanks was found in readily available records.

It is recommended that additional inquiries be made with the City of Buffalo Building and Fire Departments regarding the two, 2,000-gallon gasoline USTs that may have been present on Parcel 1. No other further investigation of historic records is recommended; however, see paragraph 2, below.

2. A portion of Parcel 1 was formerly used by the U.S. Army Corps of Engineers to dispose of materials known to be contaminated with several priority pollutants. This site was formerly included on the NYSDEC registry of Inactive Hazardous Waste Disposal sites. The site was filled-in with construction debris and converted to a parking lot in 1987. The site was deleted from the registry in 1991 because on site materials submitted for laboratory analysis were considered hazardous according to 6 NYCRR part 371. However, the NYSDOH and NYSDEC expressed concerns over the contaminated materials contained on the site and the potential impact of the site on public health and surrounding surface waters. Documents contained in NYSDEC records provided to this office for review suggest that additional investigation of the site will be necessary if there is a change in the usage of the site or surrounding properties.

It is recommended that soil cores be extended to the groundwater interface throughout the Small Boat Harbor CDF site in order to document the current environmental conditions of the site. Because the site is known to be filled with construction debris, it is recommended that the sampling be conducted using a hollow-stem auger.

Estimated cost: \$7,000-\$9,000

3. Two, 6,000-gallon gasoline USTs are located on Parcel 1. These tanks are registered with the NYSDEC and equipped with a 24 hour monitoring system. Both tanks passed tightness tests in March 2003. One, 6,000-gallon gasoline UST is located on Parcel 3. This tank is also registered with the NYSDEC and equipped with a 24 hour monitoring system. It is not known by this office if the tank was recently tested for tightness.

It is recommended that all PBS tanks be managed in accordance with the requirements of NYSDEC PBS regulations 6 NYCRR -Parts 612-614. It is recommended that the UST present on Parcel 3 be tested for tightness if it was not recently done so.

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4. Approximately 70-80 cubic yards of metal debris is present on the eastern portion of Parcel 3. None of these debris materials were judged by this office to pose a threat to the environmental integrity of the subject property.

It is recommended that all debris materials be segregated into appropriate waste streams (i.e., those which can be disposed of as solid waste and those which require special handling) and be disposed of in accordance with applicable regulations.

5. Asbestos-containing materials could potentially be present on the subject property. No asbestos survey is known to have been conducted. Items such as roofing materials and ceiling tiles could potentially contain asbestos.

No further investigation is recommended. It is recommended that any suspect material encountered during maintenance, renovation, or demolition activities be tested for asbestos or be treated as though it were asbestos in the absence of analytical data. All maintenance, renovation, or demolition activities should be conducted in accordance with applicable regulations.

6. Lead-based paint could potentially be present on the subject property. A lead-based paint survey is not known to have been conducted. All of the painted surfaces of the areas inspected by this office were in good condition at the time of the site inspection and may have been painted multiple times. No statement can be made by this office regarding the presence or absence of LBP in underlying layers of paint.

No further investigation is recommended. It is recommended that any suspect material encountered during maintenance, renovation, or demolition activities be tested for lead or be treated as though it were lead-based paint in the absence of analytical data. All maintenance, renovation, or demolition activities should be conducted in accordance with all applicable regulations.

7. PCBs could potentially be present in on-site fluorescent light fixture ballasts. Three pole-mounted transformers are present on the eastern portion of Parcel 1. These transformers are likely to be owned by the local electricity provider, who would be the responsible party in the event of a release. No other equipment likely to contain PCBs was noted on the subject property during the site inspection.

No further investigation is recommended. It is recommended that any equipment, which could potentially contain PCBs or materials contaminated with PCBs encountered during maintenance, renovation, or demolition activities, be handled, removed, and disposed of in accordance with applicable regulations.

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5.0 SOURCES OF INFORMATION

5.1 Maps and Documents

Aerial photographs dated 1958, 1966, 1985, and 1998, available for viewing at the Erie County Soil and Water Conservation District Office.

Environmental FirstSearch Report, prepared by FirstSearch Technology Corporation, dated March 10, 2003.

New York State Department of Environmental Conservation Freshwater Wetlands Map of the Buffalo Southeast, New York Quadrangle, dated 1975.

Sanborn Fire Insurance Company Maps dated 1900, 1917, 1940, 1950, and 1986.

United States Department of Agriculture Soil Conservation Service's Soil Survey for Erie County, dated December 1986.

United States Department of the Interior National Wetlands Inventory Map of the Buffalo Southeast, New York Quadrangle, dated October 1978.

United States Geological Survey Topographic Map of the Buffalo Southeast, New York Quadrangle, dated 1965.

5.2 Local Agency Records

City of Buffalo Assessor's Office records, reviewed March 26, 2003.

City of Buffalo Building Department records, reviewed March 26, 2003.

City of Buffalo Fire Department Records, requested March 26, 2003.

5.3 Communications

Bob Mariea, Niagara Frontier Transportation Authority, Maintenance Supervisor, March 24, 2003

Peter Burke, NFTA, property owner, various dates, March 2002.

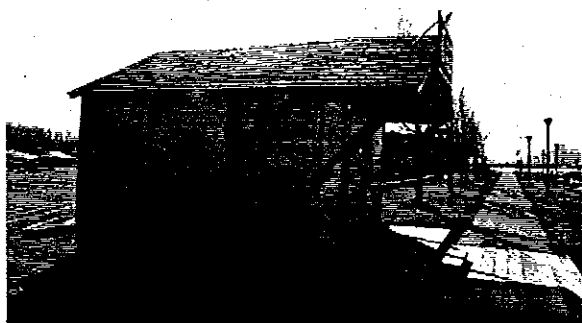
APPENDIX A
Site Photographs



1. Restaurant/office building and parking area located on northern portion of Parcel 1, looking west



2. Location of (2) 6,000-gallon gasoline USTs, Parcel 1, looking northeast; marine repair shop in background



3. Gasoline-sales shed, Parcel 1



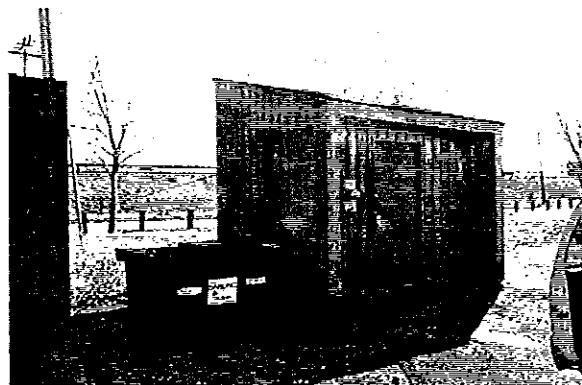
4. Bait shop, Parcel 1



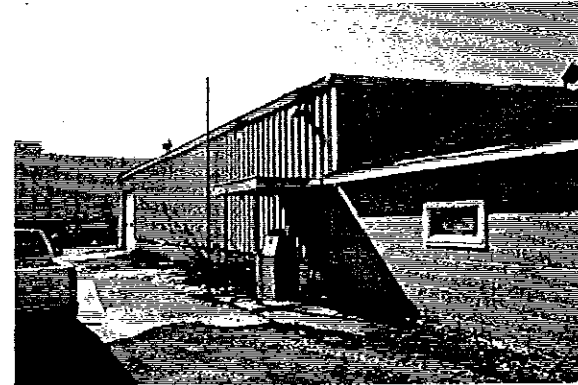
5. Storage shed, Parcel 1



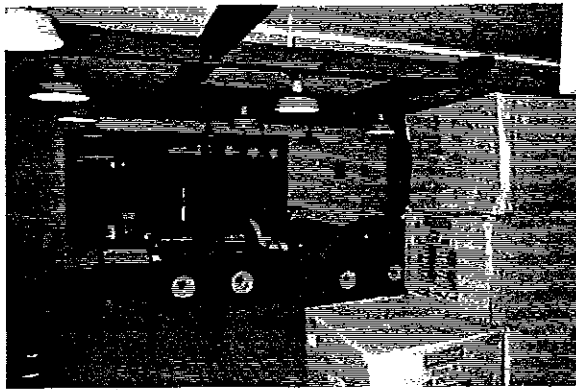
6. Fish-cleaning station, Parcel 1



7. Electric-meter shed, Parcel 1



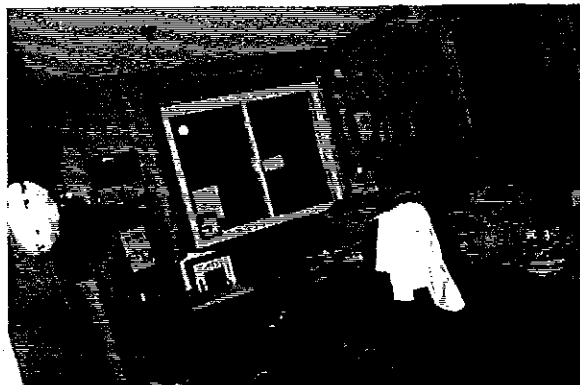
8. Maintenance building and gasoline pump, Parcel 3; UST located beneath truck



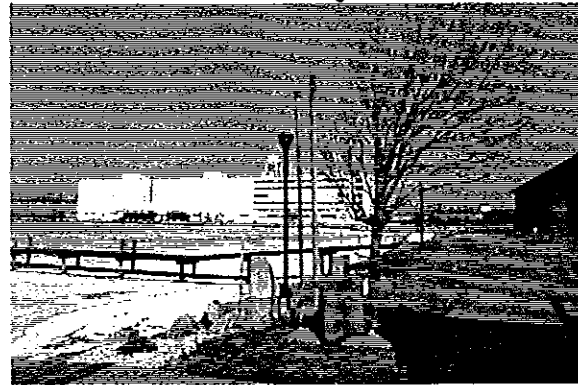
9. Dining area, restaurant/office building



10. Slip-holders bathroom/shower, restaurant/office building



11. Harbor-Master's office, restaurant/office building



12. Gasoline-sales dock, vent-pipes, and adjoining property to the north



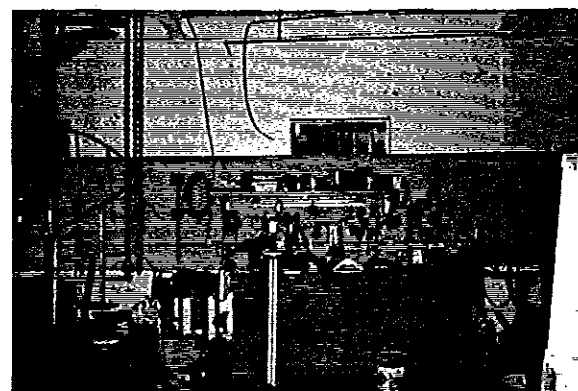
13. Interior of storage shed



14. Interior of fish-cleaning station



15. Office and sales area of marine repair shop



16. Work area of marine repair shop



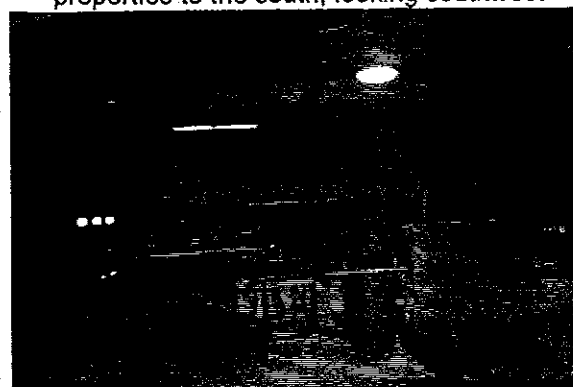
17. Living area upstairs from marine repair shop



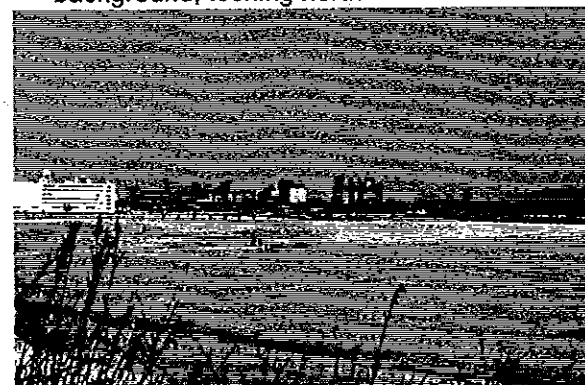
18. Parcel 1, and adjoining and nearby properties to the south, looking southwest



19. View of southern portion of Parcel 1 with former U.S. Army Corps of Engineers CDF in background, looking north



20. Interior of maintenance building



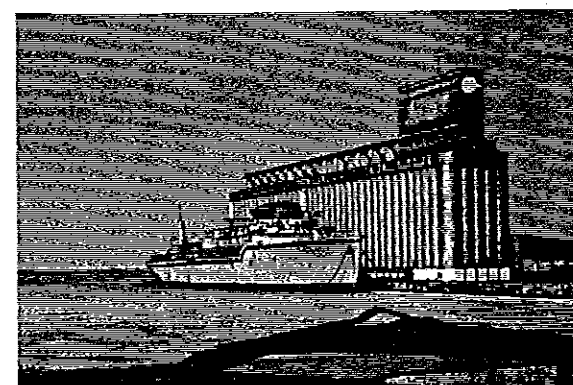
21. View across northern portion of Parcel 1, looking northeast from western dyke



22. Properties adjoining Parcel 2 to the north and south, looking south



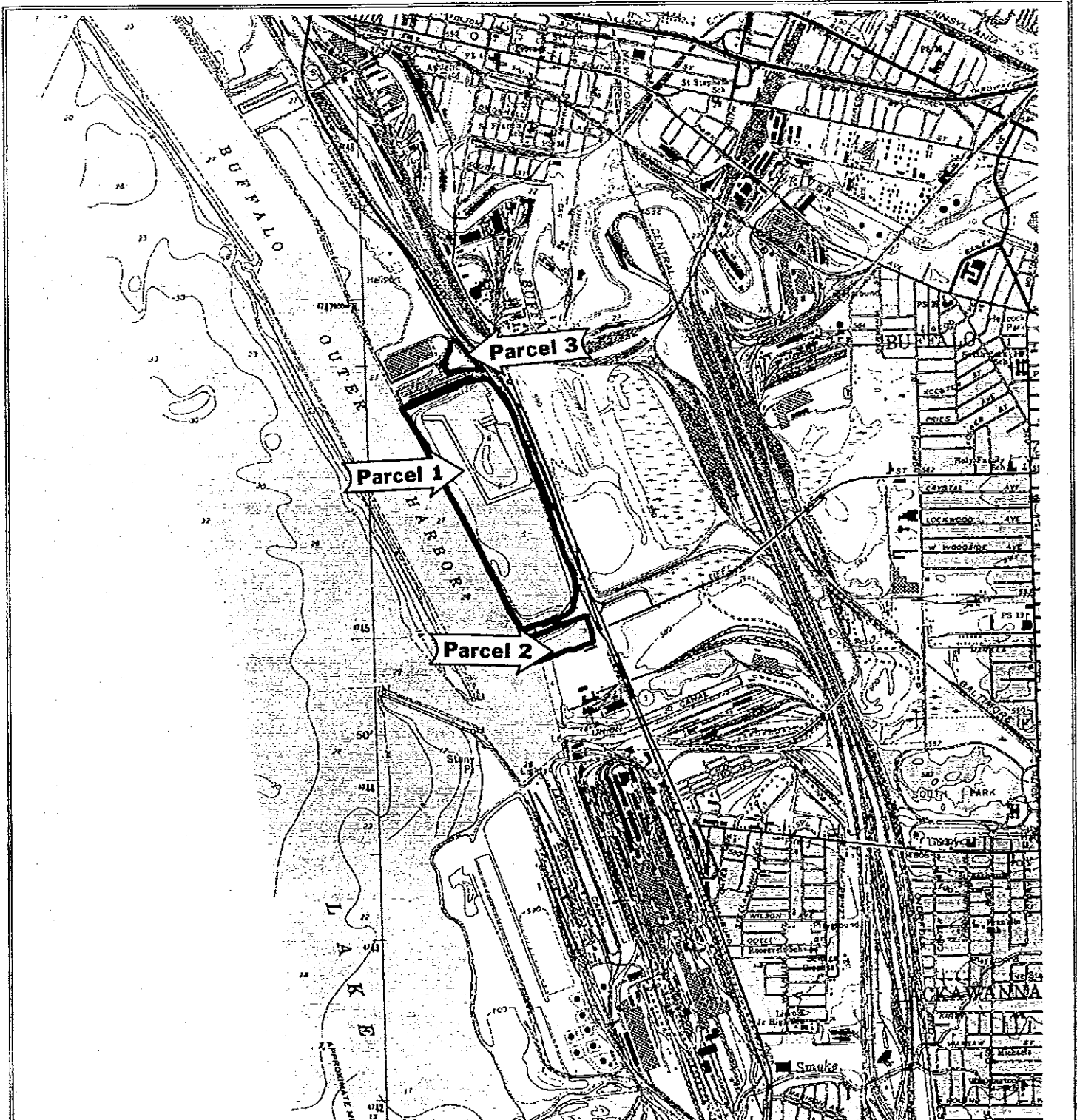
23. Northerly adjoining property to Parcel 3, looking northwest



24. Property between Parcels 1 and 2, looking northwest

APPENDIX B

Maps



Source: U.S. Department of the Interior Geological Survey Topographic Map of the Buffalo SE, NY Quadrangle, dated 1965

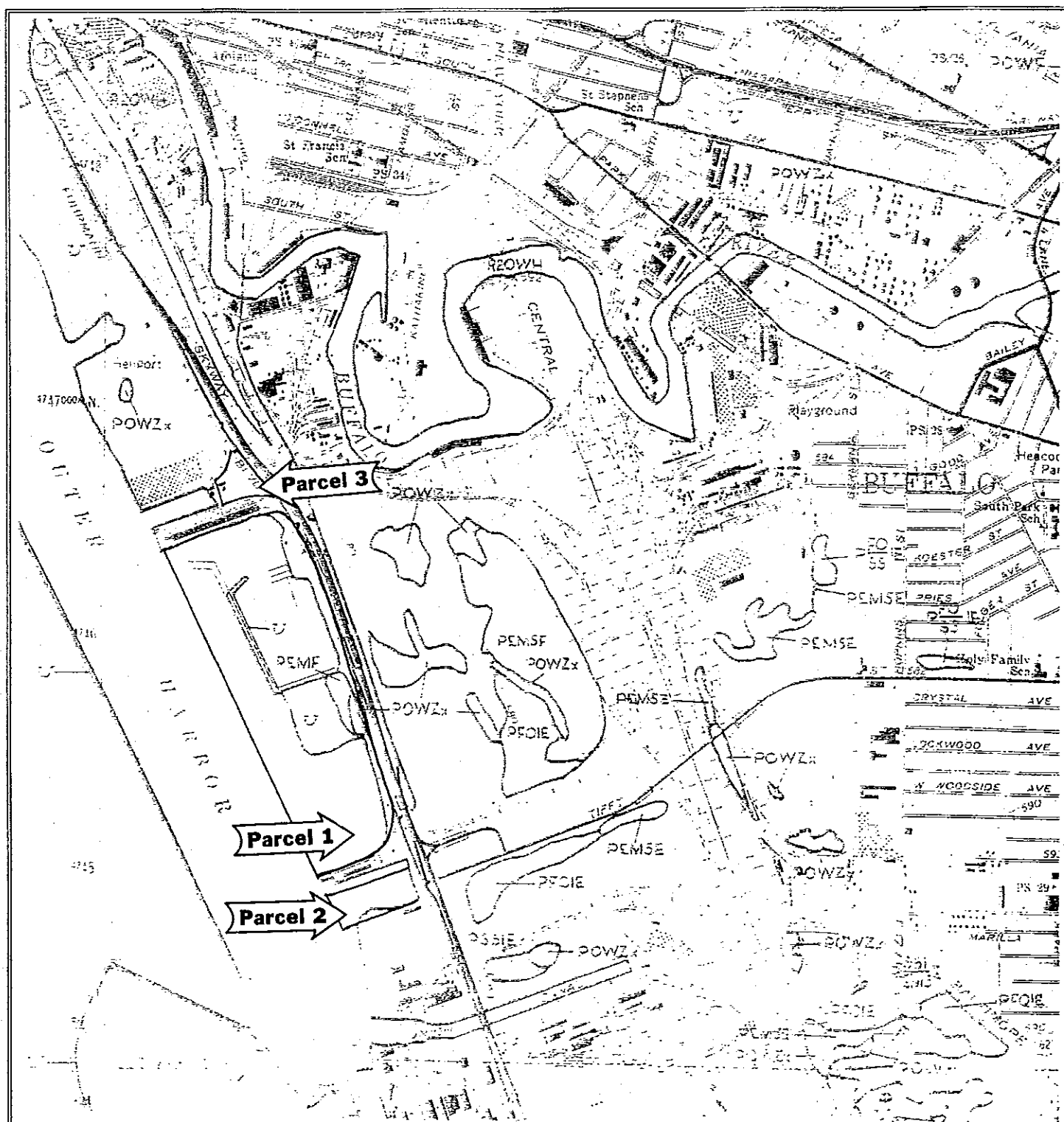
U.S.G.S. Topographic Map
 Buffalo Small Boat Harbor and Gallagher Beach
 Fuhrmann Boulevard
 City of Buffalo
 Erie County, New York



ESI File: NB03035.10

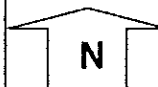
Date: April 2003

Scale: 1:24000



Source: U.S. Department of the Interior National Wetlands Inventory Map of the Buffalo SE, NY Quadrangle, dated October 1978

National Wetlands Inventory Map
Buffalo Small Boat Harbor and Gallagher Beach
Fuhrmann Boulevard
City of Buffalo
Erie County, New York



ESI File: NB03035.10

Date: April 2003

Scale: 1:24000



Buffalo Small Boat Harbor and Gallagher Beach
Fuhrmann Boulevard
City of Buffalo
Erie County, New York



Scale: 1:24000

APPENDIX C
Regulatory Review

FirstSearch Technology Corporation

Environmental FirstSearchTM Report

TARGET PROPERTY:

FUHRMANN BLVD

BUFFALO NY 14220

Job Number: NB03035.10

PREPARED FOR:

Ecosystems Strategies, Inc.

24 Davis Avenue

Poughkeepsie, NY 12603

03-10-03



Tel: (781) 320-3720

Fax: (781) 320-3715

Environmental FirstSearch Search Summary Report

Target Site: FUHRMANN BLVD
BUFFALO NY 14220

FirstSearch Summary

Database	Sel	Updated	Radius	Site	1/8	1/4	1/2	1/2>	ZIP	TOTALS
NPL	Y	02-10-03	1.00	0	0	0	0	0	0	0
CERCLIS	Y	01-09-03	0.50	0	0	0	0	-	0	0
NFRAP	Y	01-09-03	0.12	0	0	-	-	-	0	0
RCRA TSD	Y	12-09-02	1.00	0	0	0	0	0	0	0
RCRA COR	Y	12-09-02	1.00	0	0	0	1	1	0	2
RCRA GEN	Y	12-09-02	0.12	0	1	-	-	-	0	1
RCRA NLR	Y	12-09-02	0.12	2	1	-	-	-	0	3
ERNS	Y	12-31-02	0.12	1	4	-	-	-	0	5
NPDES	Y	12-15-02	0.12	0	0	-	-	-	0	0
FINDS	N	07-16-98	0.12	-	-	-	-	-	-	-
TRIS	N	12-31-02	0.12	-	-	-	-	-	-	-
State Sites	Y	01-01-03	1.00	2	0	1	1	3	0	7
Spills-1990	Y	01-01-02	0.50	3	13	9	15	-	0	40
Spills-1980	Y	10-18-00	0.50	1	3	3	5	-	0	12
SWL	Y	03-03-02	0.50	0	0	0	0	-	0	0
Permits	Y	NA	0.12	0	0	-	-	-	0	0
Other	Y	01-01-02	0.50	0	0	0	1	-	0	1
REG UST/AST	Y	01-01-02	0.12	1	2	-	-	-	0	3
Leaking UST	Y	01-01-02	0.50	1	2	0	4	-	0	7
State Wells	N	02-02-98	0.50	-	-	-	-	-	-	-
Aquifers	N	07-06-01	0.50	-	-	-	-	-	-	-
ACEC	N	NA	0.50	-	-	-	-	-	-	-
Wetlands	N	11-20-00	0.50	-	-	-	-	-	-	-
Floodplains	N	04-08-98	0.50	-	-	-	-	-	-	-
Nuclear Permits	N	04-30-99	0.50	-	-	-	-	-	-	-
Historic/Landmark	N	09-01-02	0.50	-	-	-	-	-	-	-
Federal Land Use	N	06-17-98	0.50	-	-	-	-	-	-	-
Federal Wells	N	NA	0.50	-	-	-	-	-	-	-
Releases(Air/Water)	N	12-31-01	0.12	-	-	-	-	-	-	-
HMIRS	N	05-24-02	0.12	-	-	-	-	-	-	-
NCDB	N	03-28-02	0.12	-	-	-	-	-	-	-
PADS	N	12-10-02	0.12	-	-	-	-	-	-	-
Federal Other	N	NA	0.25	-	-	-	-	-	-	-
Misc	N	NA	0.25	-	-	-	-	-	-	-
Towers	N	08-16-01	0.25	-	-	-	-	-	-	-
Soils	N	03-18-97	0.25	-	-	-	-	-	-	-
Receptors	N	01-01-95	0.12	-	-	-	-	-	-	-
- TOTALS -				11	26	13	27	4	0	81

Notice of Disclaimer

Due to the limitations, constraints, inaccuracies and incompleteness of government information and computer mapping data currently available to FirstSearch Technology Corp., certain conventions have been utilized in preparing the locations of all federal, state and local agency sites residing in FirstSearch Technology Corp.'s databases. All EPA NPL and state landfill sites are depicted by a rectangle approximating their location and size. The boundaries of the rectangles represent the eastern and western most longitudes; the northern and southern most latitudes. As such, the mapped areas may exceed the actual areas and do not represent the actual boundaries of these properties. All other sites are depicted by a point representing their approximate address location and make no attempt to represent the actual areas of the associated property. Actual boundaries and locations of individual properties can be found in the files residing at the agency responsible for such information.

Waiver of Liability

Although FirstSearch Technology Corp. uses its best efforts to research the actual location of each site, FirstSearch Technology Corp. does not and can not warrant the accuracy of these sites with regard to exact location and size. All authorized users of FirstSearch Technology Corp.'s services proceeding are signifying an understanding of FirstSearch Technology Corp.'s searching and mapping conventions, and agree to waive any and all liability claims associated with search and map results showing incomplete and or inaccurate site locations.

*Environmental FirstSearch
Site Information Report*

Request Date: 03-10-03
Requestor Name: Carl Kochersberger
Standard: ASTM

Search Type: AREA
Job Number: NB03035.10
Filtered Report

TARGET ADDRESS: FUHRMANN BLVD
BUFFALO NY 14220

Demographics

Sites: 81	Non-Geocoded: 0	Population: NA
Radon: OF THE 69 HOMES TESTED, THE AVG. PCI/L LEVEL WAS 1.0		

Site Location

	<u>Degrees (Decimal)</u>	<u>Degrees (Min/Sec)</u>		<u>UTMs</u>
Longitude:	-78.864165	-78:51:51	Easting:	674536.321
Latitude:	42.843948	42:50:38	Northing:	4745483.629
			Zone:	17

Comment

Comment: SMALL BOAT HARBOR/GALLAGHER BEACH

Additional Requests/Services

Adjacent ZIP Codes: 1 Mile(s)

Services:

ZIP Code	City Name	ST	Dist/Dir	Sel		Requested?	Date
14203	BUFFALO	NY	0.00 --	Y	Sanborns	Yes	03-10-03
14204	BUFFALO	NY	0.67 NW	Y	Aerial Photographs	No	
14210	BUFFALO	NY	0.13 NE	Y	Topographical Maps	No	
14218	BUFFALO	NY	0.20 SE	Y	City Directories	No	
					Title Search	No	
					Municipal Reports	No	
					Online Topos	No	

Environmental FirstSearch Sites Summary Report

TARGET SITE: FUHRMANN BLVD
BUFFALO NY 14220

JOB: NB03035.10
SMALL BOAT HARBOR/GALLAGHER BEACH

TOTAL: 81 **GEOCODED:** 81 **NON GEOCODED:** 0 **SELECTED:** 31

ID	DB Type	Site Name/ID/Status	Address	Dist/Dir	Map I
1	RCRACOR	SAFETY-KLEEN SYSTEMS INC BUFFALO NYD980593842/SGN	60 KATHERINE ST BUFFALO NY 14210	0.48 NE	2
2	RCRACOR	SAFETY-KLEEN SYSTEMS INC LACKAWANNA NYD981556541/TSD	41 N GATES AVE LACKAWANNA NY 14218	0.68 SE	3
3	RCRAGN	NIAGARA FRONTIER TRANS. AUTH. (PA) NYD000514000/SGN	901 FUHRMANN BLVD BUFFALO NY 14203	0.12 NW	1
4	RCRANLR	PENSKE TRUCK LEASING CO LP NYD981565724/NLR	975 FUHRMANN BLVD BUFFALO NY 14220	0.00 --	8
5	RCRANLR	TOPS MARKETS INC NYD982737165/NLR	901 FUHRMAN BLVD TERMINAL A BUFFALO NY 14203	0.12 NW	1
6	RCRANLR	UNITED FOODS INC FREEZER QUEEN DIV. NYD101277747/NLR	975 FUHRMANN BLVD BUFFALO NY 14203	0.00 --	8
7	ERNS	THOMAS ANSWEENEY 268124/MARINE VESSEL (EPA R	MARINA (SMALL BOAT HARBOR) BUFFAOL NY 14203	0.12 NW	1
8	ERNS	267127/UNKNOWN	SMALL BOAT HARBOR MARINIA. 90 BUFFALO NY 14203	0.12 NW	1
9	ERNS	594507/UNKNOWN	SMALL BOAT HARBOR BUFFALO NY 14203	0.12 NW	1
10	ERNS	451798/UNKNOWN	1111 FUHRMANN BLVD BUFFALO NY 14203	0.00 --	10
11	ERNS	324243/UNKNOWN	BOUGUARD MARINA BUFFALO NY 14203	0.02 NE	11
12	STATE	ALLTIFT LANDFILL 915054	TIFFT STREET BUFFALO NY 14202	0.99 NE	30
13	STATE	BUFFALO OUTER HARBOR 915026	910 FUHRMANN BOULEVARD BUFFALO NY 14203	0.84 NW	12
14	STATE	LEHIGH VALLEY RAILROAD 915071	TIFFT STREET BUFFALO NY 14202	0.67 NE	13
15	STATE	SHENANGO STEEL MOLD 915172	1750 FUHRMANN BOULEVARD BUFFALO NY 14220	0.22 SE	7
16	STATE	SM. BOAT HARBOR/DIKED DISPOSAL HS9058/HAZ SUBST WASTE DISP	FURHMAN BLVD. BUFFALO NY 14203	0.00 --	14
17	STATE	SMALL BOAT HARBOR CONTAINMENT SITE 915127	FUHRMANN BOULEVARD BUFFALO NY 14205	0.00 --	14
18	STATE	TIFFT FARM NATURE PRESERVE 915072	1200 FUHRMANN BOULEVARD BUFFALO NY 14203	0.26 NE	15
19	SPILLS	BETHLEHEM STEEL 9002102/CLOSED	UNION SHIP CANAL ROUTE 5 LACKAWANNA NY 14218	0.14 SE	16
20	SPILLS	BETHLEHEM STEEL 9908642/CLOSED	1941 HAMBURG TURNPIKE RT5 LACKAWANNA NY 14220	0.28 SE	17
21	SPILLS	BETHLEHEM STEEL 9908382/CLOSED	1941 HAMBURG TURNPIKE RT5 LACKAWANNA NY 14220	0.28 SE	17

Environmental FirstSearch

Sites Summary Report

TARGET SITE: FUHRMANN BLVD
BUFFALO NY 14220

JOB: NB03035.10
SMALL BOAT HARBOR/GALLAGHER BEACH

TOTAL: 81 **GEOCODED:** 81 **NON GEOCODED:** 0 **SELECTED:** 31

ID	DB Type	Site Name/ID/Status	Address	Dist/Dir	Map I
22	SPILLS	BILL MARTELLANO 9302923/CLOSED	54 SHEFFIELD STREET BUFFALO NY 14203	0.02 NE	11
23	SPILLS	BOOTH OIL 9200968/CLOSED	KATHERINE STREET BUFFALO NY 14210	0.48 NE	2
24	SPILLS	BOOTH OIL 9012170/CLOSED	KATHERINE STREET BUFFALO NY 14210	0.48 NE	2
25	SPILLS	BOOTH OIL 8910594/CLOSED	KATHERINE STREET BUFFALO NY 14210	0.48 NE	2
26	SPILLS	BOOTH OIL 9313779/CLOSED	KATHERINE STREET BUFFALO NY 14210	0.48 NE	2
27	SPILLS	BOOTH OIL 9010165/CLOSED	KATHERINE STREET BUFFALO NY 14210	0.48 NE	2
28	SPILLS	BOOTH OIL COMPANY 9012893/CLOSED	30 KATHERINE STREET BUFFALO NY 14210	0.48 NE	2
29	SPILLS	BOUQUARDS BOAT RENTAL 9206749/CLOSED	1581 FUHRMANN BOULEVARD BUFFALO NY 14203	0.02 NE	11
30	SPILLS	BUFFALO CRUSHED STONE 9506080/CLOSED	1941 FUHRMANN BLVD LACKAWANNA NY 14203	0.28 SE	17
31	SPILLS	CONRAIL PROPERTY 9709500/CLOSED	776 OHIO STREET BUFFALO NY 14210	0.24 NW	6
32	SPILLS	EURO UNITED CORP 9903733/CLOSED	901 FUHRMANN BLVD BUFFALO NY 14203	0.12 NW	1
33	SPILLS	EURO UNITED CORP 9903734/CLOSED	901 FUHRMANN BLVD BUFFALO NY 14203	0.12 NW	1
34	SPILLS	FORMER HANNA FURNACE SITE 0175309/CLOSED	COMMERCE STREET BUFFALO NY 14220	0.22 SE	7
35	SPILLS	FREEZER QUEEN/LAKE ERIE 0175401/CLOSED	975 FUHRMANN BLVD. BUFFALO NY 14220	0.00 --	8
36	SPILLS	HANNA FURNACE 9002873/CLOSED	FURHMANN BLVD. - ROUTE 5 BUFFALO NY 14203	0.22 SE	7
37	SPILLS	HANNA FURNACE 9312534/CLOSED	ROUTE 5 BUFFALO NY 14203	0.22 SE	7
38	SPILLS	IN THE UNION SHIP CANAL 0108522/CLOSED	JUST PASS SKYWAY BUFFALO NY 14220	0.20 SE	18
39	SPILLS	INDEPENDANT CONCRETE 9513509/CLOSED	1751 FUHRMAN BLVD BUFFALO NY 14203	0.13 SE	9
40	SPILLS	INDEPENDENT CEMENT 9206800/CLOSED	1751 FUHRMAN BLVD ROUTE 5 BUFFALO NY 14203	0.13 SE	9
41	SPILLS	JEFFERY DEAZ CAR 9710909/CLOSED	TIFFT AND FURMANN BLVD BUFFALO NY 14203	0.02 NE	19

Environmental FirstSearch

Sites Summary Report

TARGET SITE: FUHRMANN BLVD
BUFFALO NY 14220

JOB: NB03035.10
SMALL BOAT HARBOR/GALLAGHER BEACH

TOTAL: 81 **GEOCODED:** 81 **NON GEOCODED:** 0 **SELECTED:** 31

ID	DB Type	Site Name/ID/Status	Address	Dist/Dir	Map I
42	SPILLS	MARTELLANO BOAT 9302812/CLOSED	BOGUART LIVERY RAMP BUFFALO NY 14203	0.02 NE	11
43	SPILLS	NFTA 9315061/CLOSED	1111 FUHRMANN BLVD BUFFALO NY 14203	0.00 --	10
44	SPILLS	NFTA - PORT OF BUFFALO 9008645/CLOSED	FUHRMAN BLVD. ROUTE 5 BUFFALO NY 14203	0.12 NW	1
45	SPILLS	NFTA SMALL BOAT HARBOR 9807221/CLOSED	901 FUHRMANN BLVD BUFFALO NY 14203	0.12 NW	1
46	SPILLS	OIL CHANGE AT BOAT LAUNCH 9606940/CLOSED	OHIO STREET BUFFALO NY 14203	0.02 NE	20
47	SPILLS	PIERCE AND STEVENS 9906962/CLOSED	710 OHIO STREET BUFFALO NY 14210	0.32 NW	5
48	SPILLS	SAFETY KLEEN 0011113/CLOSED	60 KATHERINE STREET BUFFALO NY 14210	0.48 NE	2
49	SPILLS	SAFETY KLEEN 9912061/CLOSED	60 KATHREEN STREET BUFFALO NY 14210	0.48 NE	2
50	SPILLS	SMALL BOAT HARBOR 9107514/CLOSED	HAMBURG TURNPIKE ROUTE 5 BUFFALO NY 14203	0.02 NE	20
51	SPILLS	SMALL BOAT HARBOR SPILL 9202240/CLOSED	901 FUHRMAN BLVD. - RT 5 BUFFALO NY 14203	0.12 NW	1
52	SPILLS	TANK ON FLATBED TRUCK 9100335/CLOSED	TIFFT AND OHIO STREETS BUFFALO NY 14203	0.06 NE	22
53	SPILLS	TOPS MARKETS (WAREHOUSE) 9410143/CLOSED	901 FUHRMAN BLVD. BUFFALO NY 14203	0.12 NW	1
54	SPILLS	TRUCK AT FREEZER QUEEN 9713250/CLOSED	975 FUHRMANN BLVD BUFFALO NY 14203	0.00 --	8
55	SPILLS	TRUCK AT PIERCE & STEVENS 9975120/CLOSED	710 OHIO STREET BUFFALO NY 14210	0.32 NW	5
56	SPILLS	TRUCK AT PIERCE & STEVENS 9975216/CLOSED	710 OHIO STREET BUFFALO NY 14210	0.32 NW	5
57	SPILLS	8503181/CLOSED	RT. 5 LACKAWANNA NY 14218	0.33 SE	23
58	SPILLS80	ARTMEIER, JOHN 8607560/CLOSED	ROUTE 5 SKYWAY BUFFALO NY 14220	0.03 NE	4
59	SPILLS80	BOOTH OIL 8703550/CLOSED	30 KATHERINE STREET BUFFALO NY 14210	0.48 NE	2
60	SPILLS80	BUFFALO HARBOR 8903002/CLOSED	901 FURHMAN BLVD. ROUTE 5 BUFFALO NY 14203	0.12 NW	1
61	SPILLS80	DINEAIRE 8706553/CLOSED	601 OHIO STREET BUFFALO NY 14203	0.45 NW	24

Environmental FirstSearch Sites Summary Report

TARGET SITE: FUHRMANN BLVD
BUFFALO NY 14220

JOB: NB03035.10
SMALL BOAT HARBOR/GALLAGHER BEACH

TOTAL: 81 **GEOCODED:** 81 **NON GEOCODED:** 0 **SELECTED:** 31

ID	DB Type	Site Name/ID/Status	Address	Dist/Dir	Map 1
62	SPILLS80	DONALD C. HANNA TUG BOAT 8703877/CLOSED	LACKAWANNA SHIP CANAL LACKAWANNA NY 14218	0.35 SE	25
63	SPILLS80	FREEZER QUEEN 8704556/CLOSED	975 FURHMAN BOULEVARD BUFFALO NY 14203	0.00 --	8
64	SPILLS80	HANNON LUMBER 8605591/CLOSED	ROUTE 5 LACKAWANNA NY 14218	0.38 SE	26
65	SPILLS80	NFTA 8701466/CLOSED	SMALL BOAT HARBOR BUFFALO NY 14203	0.12 NW	1
66	SPILLS80	PJB COMMODITY TRANSPORTER 8603530/CLOSED	RT 5, FATHER BAKER BRIDGE BUFFALO NY 14203	0.21 SE	27
67	SPILLS80	UNION SHIP CANAL 8708241/CLOSED	ROUTE 5 BUFFALO NY 14203	0.20 SE	18
68	SPILLS80	7901464/COMMERCIAL FACI	UNION SHIP CANAL LACKAWANNA NY 14218	0.14 SE	16
69	SPILLS80	8503181/UNKNOWN	RT. 5 LACKAWANNA NY 14218	0.33 SE	23
70	OTHER	BOOTH OIL CO. INC. MOS9-1700/NO LONGER A MOSF	FT OF KATHERINE STREET BUFFALO NY 14210	0.48 NE	2
71	UST	BUFFALO RIVER IMPROVEMENT CORP PBS9-500658/UNREGULATED BY PBS	1016 FUHRMAN BLVD BUFFALO NY 14203	0.01 NE	29
72	UST	FREEZER QUEEN FOODS INC PBS9-008893/UNREGULATED BY PBS	975 FUHRMANN BLVD BUFFALO NY 14203	0.00 --	8
73	UST	PORT OF BUFFALO-SMALL BOAT HARBOR PBS9-493228/ACTIVE PBS FACILITY	901 FUHRMANN BOULEVARD BUFFALO NY 14203	0.12 NW	1
74	LUST	FREEZER QUEEN FOODS INC. 8704197/CLOSED	975 FURHMAN BOULEVARD BUFFALO NY 14203	0.00 --	8
75	LUST	NFTA - PORT OF BUFFALO 8707963/CLOSED	901 FUHRMAN BLVD. ROUTE 5 BUFFALO NY 14203	0.12 NW	1
76	LUST	PIERCE & STEVENS 9212797/CLOSED	710 OHIO STREET BUFFALO NY 14203	0.32 NW	5
77	LUST	PIERCE AND STEVENS 9106398/CLOSED	710 OHIO STREET BUFFALO NY 14203	0.32 NW	5
78	LUST	RIGIDIZED METALS 9707392/CLOSED	658 OHIO STREET BUFFALO NY 14203	0.38 NW	21
79	LUST	SAFETY KLEEN 9408523/CLOSED	FOOT OF KATHERINE STREET BUFFALO NY 14210	0.48 NE	2
80	LUST	TIFFT NATURE PRESERVE 8901812/CLOSED	1200 FUHRMAN BLVD. BUFFALO NY 14203	0.01 NE	28
81	SPILLS	HANNA FURNACE 0075639/CLOSED	FURHMAN BOULEVARD BUFFALO NY 14203	0.22 SE	7

Environmental FirstSearch
Site Detail Report

TARGET SITE: FUHRMANN BLVD
BUFFALO NY 14220

JOB: NB03035.10
SMALL BOAT HARBOR/GALLAGHER BEACH

RCRA COR SITE

SEARCH ID: 1 **DIST/DIR:** 0.48 NE **MAP ID:** 2

NAME: SAFETY-KLEEN SYSTEMS INC BUFFALO
ADDRESS: 60 KATHERINE ST
BUFFALO NY 14210
ERIE
CONTACT:

REV: 12/9/02
ID1: NYD980593842
ID2:
STATUS: SGN
PHONE: 2125551212

SITE INFORMATION

CONTACT INFORMATION: DANIEL HOLDNACK
FACILITY MGR
60 KATHERINE ST
BUFFALO NY 14210

PHONE: 2125551212

CONTACT INFORMATION: AHSEN YELKIN
PLANT MANAGER
60 KATHERINE ST
BUFFALO NY 14210

PHONE: 7168552212

UNIVERSE NAME:

SGN: GENERATES 100 - 1000 KG/MONTH OF HAZARDOUS WASTE

SIC INFORMATION:

2992 - MANUFACTURING - LUBRICATING OILS AND GREASES

ENFORCEMENT INFORMATION:

AGENCY: S - STATE **DATE:** 30-JUL-87
TYPE: 120 - WRITTEN INFORMAL

AGENCY: S - STATE **DATE:** 29-JUL-86
TYPE: 120 - WRITTEN INFORMAL

AGENCY: S - STATE **DATE:** 25-MAR-87
TYPE: 120 - WRITTEN INFORMAL

VIOLATION INFORMATION:

VIOLATION NUMBER: 0001 **RESPONSIBLE:** S - STATE
DETERMINED: 24-JUL-86 **DETERMINED BY:** S - STATE
CITATION: **RESOLVED:** 10-SEP-86
TYPE: DOT - TSD OTHER REQUIREMENTS (OVERSIGHT LEVEL)

VIOLATION NUMBER: 0002 **RESPONSIBLE:** S - STATE

- Continued on next page -

Environmental FirstSearch
Site Detail Report

TARGET SITE: FUHRMANN BLVD
BUFFALO NY 14220

JOB: NB03035.10
SMALL BOAT HARBOR/GALLAGHER BEACH

RCRA COR SITE

SEARCH ID: 1

DIST/DIR: 0.48 NE

MAP ID: 2

NAME: SAFETY-KLEEN SYSTEMS INC BUFFALO
ADDRESS: 60 KATHERINE ST
BUFFALO NY 14210
ERIE

REV: 12/9/02
ID1: NYD980593842
ID2:
STATUS: SGN
PHONE: 2125551212

CONTACT:

DETERMINED:	11-FEB-87	DETERMINED BY:	S - STATE
CITATION:		RESOLVED:	29-APR-87
TYPE:	DOT - TSD OTHER REQUIREMENTS (OVERSIGHT LEVEL)		

VIOLATION NUMBER:	0003	RESPONSIBLE:	S - STATE
DETERMINED:	27-JUL-87	DETERMINED BY:	S - STATE
CITATION:		RESOLVED:	13-DEC-88
TYPE:	DOT - TSD OTHER REQUIREMENTS (OVERSIGHT LEVEL)		

VIOLATION NUMBER:	0004	RESPONSIBLE:	X - EPA OVERSIGHT
DETERMINED:	11-FEB-87	DETERMINED BY:	X - EPA OVERSIGHT
CITATION:		RESOLVED:	13-DEC-88
TYPE:	DOT - TSD OTHER REQUIREMENTS (OVERSIGHT LEVEL)		

VIOLATION NUMBER:	0005	RESPONSIBLE:	S - STATE
DETERMINED:	29-NOV-90	DETERMINED BY:	S - STATE
CITATION:		RESOLVED:	23-AUG-93
TYPE:	DOT - TSD OTHER REQUIREMENTS (OVERSIGHT LEVEL)		

Environmental FirstSearch
Site Detail Report

TARGET SITE: FUHRMANN BLVD
BUFFALO NY 14220

JOB: NB03035.10
SMALL BOAT HARBOR/GALLAGHER BEACH

RCRA COR SITE

SEARCH ID: 2

DIST/DIR: 0.68 SE

MAP ID: 3

NAME: SAFETY-KLEEN SYSTEMS INC LACKAWANNA
ADDRESS: 41 N GATES AVE
LACKAWANNA NY 14218
ERIE

REV: 12/9/02
ID1: NYD981556541
ID2:
STATUS: TSD
PHONE: 3126978460

CONTACT:

SITE INFORMATION

CONTACT INFORMATION: KEVIN HERSEY

41 N GATES AVE
LACKAWANNA NY 14218

PHONE: 3126978460

CONTACT INFORMATION: BRENDA GRIFFIN
SR EHS MANAGER
PO BOX 475
SYRACUSE NY 13211

PHONE: 3154558638

UNIVERSE NAME:

SUBJECT TO CEI
SUBJECT TO CORRECTIVE ACTION
INCINERATOR
ST: STORAGE AND TREATMENT
DF: LAND DISPOSAL FACILITY
TSDS SUBJECT TO CORRECTIVE ACT

SIC INFORMATION:

5013 - WHOLESALE TRADE - MOTOR VEHICLE SUPPLIES AND NEW P
7389 - SERVICES - BUSINESS SERVICES, NEC
5172 - WHOLESALE TRADE - PETROLEUM PRODUCTS, NEC
5084 - WHOLESALE TRADE - INDUSTRIAL MACHINERY AND EQUIPME

ENFORCEMENT INFORMATION:

AGENCY: S - STATE **DATE:** 03-APR-96
TYPE: 120 - WRITTEN INFORMAL

AGENCY: S - STATE **DATE:** 04-APR-95
TYPE: 120 - WRITTEN INFORMAL

AGENCY: S - STATE **DATE:** 22-OCT-86
TYPE: 120 - WRITTEN INFORMAL

AGENCY: S - STATE **DATE:** 10-AUG-87

- Continued on next page -

Environmental FirstSearch

Site Detail Report

TARGET SITE: FUHRMANN BLVD
BUFFALO NY 14220

JOB: NB03035.10
SMALL BOAT HARBOR/GALLAGHER BEACH

RCRA COR SITE

SEARCH ID: 2

DIST/DIR: 0.68 SE

MAP ID: 3

NAME: SAFETY-KLEEN SYSTEMS INC LACKAWANNA
ADDRESS: 41 N GATES AVE
LACKAWANNA NY 14218
ERIE

REV: 12/9/02
ID1: NYD981556541
ID2:
STATUS: TSD
PHONE: 3126978460

CONTACT:

TYPE:	120 - WRITTEN INFORMAL		
AGENCY:	S - STATE	DATE:	16-DEC-87
TYPE:	120 - WRITTEN INFORMAL		
AGENCY:	S - STATE	DATE:	05-JUN-90
TYPE:	120 - WRITTEN INFORMAL		
AGENCY:	S - STATE	DATE:	14-MAY-99
TYPE:	210 - INITIAL 3008(A) COMPLIANCE ORDER		
AGENCY:	S - STATE	DATE:	06-DEC-99
TYPE:	310 - FINAL 3008(A) COMPLIANCE ORDER		
AGENCY:	S - STATE	DATE:	16-AUG-89
TYPE:	120 - WRITTEN INFORMAL		
AGENCY:	S - STATE	DATE:	24-DEC-01
TYPE:	120 - WRITTEN INFORMAL		
AGENCY:	S - STATE	DATE:	19-JUN-01
TYPE:	210 - INITIAL 3008(A) COMPLIANCE ORDER		
AGENCY:	S - STATE	DATE:	21-JAN-88
TYPE:	210 - INITIAL 3008(A) COMPLIANCE ORDER		

VIOLATION INFORMATION:

VIOLATION NUMBER:	0001	RESPONSIBLE:	S - STATE
DETERMINED:	22-OCT-86	DETERMINED BY:	S - STATE
CITATION:		RESOLVED:	24-OCT-86
TYPE:	GMR - GENERATOR MANIFEST REQUIREMENTS		

VIOLATION NUMBER:	0002	RESPONSIBLE:	S - STATE
DETERMINED:	11-SEP-87	DETERMINED BY:	S - STATE
CITATION:		RESOLVED:	21-JAN-88
TYPE:	DOT - TSD OTHER REQUIREMENTS (OVERSIGHT LEVEL)		

VIOLATION NUMBER:	0003	RESPONSIBLE:	S - STATE
DETERMINED:	10-AUG-87	DETERMINED BY:	S - STATE
CITATION:		RESOLVED:	08-MAY-88
TYPE:	DCL - TSD CLOSURE/POST CLOSURE REQUIREMENTS		

VIOLATION NUMBER:	0004	RESPONSIBLE:	S - STATE
DETERMINED:	16-DEC-87	DETERMINED BY:	S - STATE
CITATION:		RESOLVED:	18-DEC-87
TYPE:	GMR - GENERATOR MANIFEST REQUIREMENTS		

- Continued on next page -

Environmental FirstSearch

Site Detail Report

TARGET SITE: FUHRMANN BLVD
BUFFALO NY 14220

JOB: NB03035.10
SMALL BOAT HARBOR/GALLAGHER BEACH

RCRA COR SITE

SEARCH ID: 2

DIST/DIR: 0.68 SE

MAP ID: 3

NAME: SAFETY-KLEEN SYSTEMS INC LACKAWANNA
ADDRESS: 41 N GATES AVE
LACKAWANNA NY 14218
ERIE

REV: 12/9/02
ID1: NYD981556541
ID2:
STATUS: TSD
PHONE: 3126978460

CONTACT:

VIOLATION NUMBER:	0005	RESPONSIBLE:	S - STATE
DETERMINED:	07-JUL-89	DETERMINED BY:	S - STATE
CITATION:		RESOLVED:	29-MAR-90
TYPE:	DOT - TSD OTHER REQUIREMENTS (OVERSIGHT LEVEL)		

VIOLATION NUMBER:	0006	RESPONSIBLE:	S - STATE
DETERMINED:	24-MAY-90	DETERMINED BY:	S - STATE
CITATION:		RESOLVED:	08-AUG-90
TYPE:	DOT - TSD OTHER REQUIREMENTS (OVERSIGHT LEVEL)		

VIOLATION NUMBER:	0008	RESPONSIBLE:	S - STATE
DETERMINED:	04-APR-95	DETERMINED BY:	S - STATE
CITATION:		RESOLVED:	06-APR-95
TYPE:	DOT - TSD OTHER REQUIREMENTS (OVERSIGHT LEVEL)		

VIOLATION NUMBER:	0009	RESPONSIBLE:	S - STATE
DETERMINED:	03-APR-96	DETERMINED BY:	S - STATE
CITATION:		RESOLVED:	03-APR-96
TYPE:	DOT - TSD OTHER REQUIREMENTS (OVERSIGHT LEVEL)		

VIOLATION NUMBER:	0010	RESPONSIBLE:	S - STATE
DETERMINED:	01-OCT-97	DETERMINED BY:	S - STATE
CITATION:		RESOLVED:	06-DEC-99
TYPE:	DOT - TSD OTHER REQUIREMENTS (OVERSIGHT LEVEL)		

VIOLATION NUMBER:	0011	RESPONSIBLE:	S - STATE
DETERMINED:	19-JUN-00	DETERMINED BY:	S - STATE
CITATION:	372.3(b)(6)	RESOLVED:	
TYPE:	DMR - TSD MANIFEST REQUESTS		

VIOLATION NUMBER:	0012	RESPONSIBLE:	S - STATE
DETERMINED:	05-DEC-01	DETERMINED BY:	S - STATE
CITATION:	373-1.6(a)(1)	RESOLVED:	10-JAN-02
TYPE:	DOT - TSD OTHER REQUIREMENTS (OVERSIGHT LEVEL)		

VIOLATION NUMBER:	0013	RESPONSIBLE:	S - STATE
DETERMINED:	03-AUG-00	DETERMINED BY:	S - STATE
CITATION:	373-2.8	RESOLVED:	
TYPE:	DFR - TSD FINANCIAL RESPONSIBILITY REQUIREMENTS		

***Environmental FirstSearch
Site Detail Report***

TARGET SITE: FUHRMANN BLVD
BUFFALO NY 14220

JOB: NB03035.10
SMALL BOAT HARBOR/GALLAGHER BEACH

RCRA GENERATOR SITE

SEARCH ID: 3

DIST/DIR: 0.12 NW

MAP ID: 1

NAME: NIAGARA FRONTIER TRANS. AUTH. (PA)
ADDRESS: 901 FUHRMANN BLVD
PORT OF BUFFALO NY 14203
ERIE

REV: 12/9/02
ID1: NYD000514000
ID2:
STATUS: SGN
PHONE:

CONTACT:

SITE INFORMATION

CONTACT INFORMATION: JOHN PALILLO
MAINTENANCE
901 FUHRMANN BLVD
PORT OF BUFFALO NY 14203

PHONE: 7168521921

UNIVERSE NAME:

SGN: GENERATES 100 - 1000 KG/MONTH OF HAZARDOUS WASTE

SIC INFORMATION:

ENFORCEMENT INFORMATION:

VIOLATION INFORMATION:

Environmental FirstSearch
Site Detail Report

TARGET SITE: FUHRMANN BLVD
BUFFALO NY 14220

JOB: NB03035.10
SMALL BOAT HARBOR/GALLAGHER BEACH

RCRA NLR SITE

SEARCH ID: 4

DIST/DIR: 0.00 --

MAP ID: 8

NAME: PENSKE TRUCK LEASING CO LP
ADDRESS: 975 FUHRMANN BLVD
BUFFALO NY 14203
ERIE

REV: 12/9/02
ID1: NYD981565724
ID2:
STATUS: NLR
PHONE:

CONTACT:

SITE INFORMATION

CONTACT INFORMATION: MARK SWARTHOUT
DISTRICT MGR
1171 BRIGHTON HERNIETTA
ROCHESTER NY 146232404

PHONE: 7162720969

UNIVERSE NAME:

NO LONGER REGULATED

SIC INFORMATION:

ENFORCEMENT INFORMATION:

VIOLATION INFORMATION:

Environmental FirstSearch
Site Detail Report

TARGET SITE: FUHRMANN BLVD
BUFFALO NY 14220

JOB: NB03035.10
SMALL BOAT HARBOR/GALLAGHER BEACH

RCRA NLR SITE

SEARCH ID: 5

DIST/DIR: 0.12 NW

MAP ID: 1

NAME: TOPS MARKETS INC
ADDRESS: 901 FUHRMAN BLVD TERMINAL A
BUFFALO NY 14203
ERIE

REV: 12/9/02
ID1: NYD982737165
ID2:
STATUS: NLR
PHONE:

CONTACT:

SITE INFORMATION

CONTACT INFORMATION: RICHARD WAHL
PURCH.
901 FUHRMAN BLVD TERMINAL A
BUFFALO NY 14203

PHONE: 7168273269

UNIVERSE NAME:

NO LONGER REGULATED

SIC INFORMATION:

ENFORCEMENT INFORMATION:

VIOLATION INFORMATION:

Environmental FirstSearch
Site Detail Report

TARGET SITE: FUHRMANN BLVD
BUFFALO NY 14220

JOB: NB03035.10
SMALL BOAT HARBOR/GALLAGHER BEACH

RCRA NLR SITE

SEARCH ID: 6

DIST/DIR: 0.00 --

MAP ID: 8

NAME: UNITED FOODS INC FREEZER QUEEN DIV.
ADDRESS: 975 FUHRMANN BLVD
BUFFALO NY 14203
ERIE
CONTACT:

REV: 12/9/02
ID1: NYD101277747
ID2:
STATUS: NLR
PHONE:

SITE INFORMATION

CONTACT INFORMATION: AL SAUNDERS
PLANT ENGINEER
975 FUHRMANN BLVD
BUFFALO NY 14203

PHONE: 7168248119

UNIVERSE NAME:

NO LONGER REGULATED

SIC INFORMATION:

ENFORCEMENT INFORMATION:

VIOLATION INFORMATION:

Environmental FirstSearch
Site Detail Report

TARGET SITE: FUHRMANN BLVD
BUFFALO NY 14220

JOB: NB03035.10
SMALL BOAT HARBOR/GALLAGHER BEACH

EMERGENCY RESPONSE NOTIFICATION SITE

SEARCH ID: 7 **DIST/DIR:** 0.12 NW **MAP ID:** 1

NAME: THOMAS ANSWEENEY
ADDRESS: MARINA (SMALL BOAT HARBOR)
BUFFAOL NY

REV: 5/23/92
ID1: 268124
ID2:
STATUS: MARINE VESSEL (EPA REGIONS)
PHONE:

CONTACT:

SPILL INFORMATION

DATE OF SPILL: 5/23/1992 **TIME OF SPILL:** 0000

PRODUCT RELEASED (1): GASOLINE & PERHAPS OIL
QUANTITY (1): 10
UNITS (1): GAL

PRODUCT RELEASED (2):
QUANTITY (2):
UNITS (2):

PRODUCT RELEASED (3):
QUANTITY (3):
UNITS (3):

MEDIUM/MEDIA AFFECTED

AIR:	NO	GROUNDWATER:	NO
LAND:	YES	FIXED FACILITY:	NO
WATER:	NO	OTHER:	NO
WATERBODY AFFECTED BY RELEASE:		LAKE ERIE	

CAUSE OF RELEASE

DUMPING:	NO	EQUIPMENT FAILURE:	NO
NATURAL PHENOMENON:	NO	OPERATOR ERROR:	NO
OTHER CAUSE:	NO	TRANSP. ACCIDENT:	YES
UNKNOWN:	NO		

ACTIONS TAKEN: SAUSAGE BOOM DEPLOYED
RELEASE DETECTION: 21 CONDOR NY9511JX BOAT SANK
MISC. NOTES: NONE

DISCHARGER INFORMATION

DISCHARGER ID:	268124	DUN & BRADSTREET #:
TYPE OF DISCHARGER:	PUBLIC UTILITY	
NAME OF DISCHARGER:	THOMAS ANSWEENEY	
ADDRESS:	10136 SISSON HIGHWAY EDEN NY 14057-	

Environmental FirstSearch
Site Detail Report

TARGET SITE: FUHRMANN BLVD
BUFFALO NY 14220

JOB: NB03035.10
SMALL BOAT HARBOR/GALLAGHER BEACH

EMERGENCY RESPONSE NOTIFICATION SITE

SEARCH ID: 8 **DIST/DIR:** 0.12 NW **MAP ID:** 1

NAME:
ADDRESS: SMALL BOAT HARBOR MARINIA. 901 FUHRMANN
BUFFALO NY 14203
Erie
CONTACT:

REV:
ID1: 267127
ID2:
STATUS: UNKNOWN
PHONE:

CERCLIS (Y/N):

MAT: GASOLINE: AUTOMOTIVE (4.23G PB/G) **QUANT:** 10 GALLONS

LOCATION: SMALL BOAT HARBOR MARINIA. 901 FUHRMANN
CITY: EDEN NY 14057 **REPORTED:** 05/23/92

SOURCE: UNKNOWN **MEDIUM:** WATER
A 22 FOOT BOAT SANK AT MOORING

CAUSE: UNKNOWN

ACT: A BOOM HAS BEEN DEPLOYED AND ABSORBENTS ARE BEING USED
BY:

EMERGENCY RESPONSE NOTIFICATION SITE

SEARCH ID: 9 **DIST/DIR:** 0.12 NW **MAP ID:** 1

NAME:
ADDRESS: SMALL BOAT HARBOR
BUFFALO NY
Erie
CONTACT:

REV:
ID1: 594507
ID2:
STATUS: UNKNOWN
PHONE:

CERCLIS (Y/N):

MAT: UNKNOWN OIL **QUANT:** 0.00 UNKNOWN

LOCATION: SMALL BOAT HARBOR
CITY: **REPORTED:** 09/13/98

SOURCE: UNKNOWN **MEDIUM:** WATER
UNKNOWN / UNKNOWN SHEEN SIGHTING, SHEEN SIZE: VERY SMALL / RAINBOW COLORED

CAUSE: UNKNOWN

ACT: USCG INVESTIGATED AND FOUND NO SHEEN
BY:

Environmental FirstSearch
Site Detail Report

TARGET SITE: FUHRMANN BLVD
BUFFALO NY 14220

JOB: NB03035.10
SMALL BOAT HARBOR/GALLAGHER BEACH

EMERGENCY RESPONSE NOTIFICATION SITE

SEARCH ID: 10 **DIST/DIR:** 0.00 -- **MAP ID:** 10

NAME: ADDRESS: 1111 FUHRMANN BLVD BUFFALO NY 14203 Erie	REV: ID1: 451798 ID2: STATUS: UNKNOWN PHONE:
CONTACT:	

CERCLIS (Y/N):

MAT: UNKNOWN OIL SHEEN	QUANT: 0	UNKNOWN
LOCATION: 1111 FUHRMANN BLVD CITY:	REPORTED: 08/29/95	
SOURCE: UNKNOWN	MEDIUM: WATER	
CAUSE: UNKNOWN	UNKNOWN / UNKNOWN SHEEN SIGHTING, SHEEN SIZE:300 FT X UNKNOWN RAINBOW IN COLO	
ACT: NONE		
BY:		

EMERGENCY RESPONSE NOTIFICATION SITE

SEARCH ID: 11 **DIST/DIR:** 0.02 NE **MAP ID:** 11

NAME: ADDRESS: BOUGUARD MARINA BUFFALO NY Erie	REV: ID1: 324243 ID2: STATUS: UNKNOWN PHONE:
CONTACT:	

CERCLIS (Y/N):

MAT: GASOLINE: AUTOMOTIVE (4.23G PB/G	QUANT: 1	GALLONS
LOCATION: BOUGUARD MARINA CITY: BUFFALO NY 14220	REPORTED: 06/01/93	
SOURCE: UNKNOWN	MEDIUM: WATER	
CAUSE: UNKNOWN	21 FT P/C ANCHORED IN MARINA/SWAMPED DUE TO HEAVY WINDS. WX IS	
BREAKING UP PRODUCT IN THE WATER.		
ACT: WX IS BREAKING UP PRODUCT IN THE WATER.		
BY:		

Environmental FirstSearch

Site Detail Report

TARGET SITE: FUHRMANN BLVD
BUFFALO NY 14220

JOB: NB03035.10
SMALL BOAT HARBOR/GALLAGHER BEACH

STATE SITE

SEARCH ID: 12 **DIST/DIR:** 0.99 NE **MAP ID:** 30

NAME: ALLTIFT LANDFILL ADDRESS: TIFT STREET BUFFALO NY 14202 ERIE CONTACT:	REV: 1/1/03 ID1: 915054 ID2: NYD000513713 STATUS: PHONE:
---	---

CLASS CODE: 2 **REGION:** 9 **ESTIMATED SIZE:** 25 ACRES

SITE TYPE:
OPEN DUMP:
LAGOON: **STRUCTURE:**
POND: **LANDFILL:** X

SITE OWNER/OPERATOR INFORMATION:

CURRENT OWNER(S) NAME: Alltift, Incorporated
CURRENT OWNER(S) ADDRESS: PO Box 246
 Buffalo NY 14240

OPERATOR(S) DURING DISPOSAL: Downing Services/Alltift
OPERATOR(S) ADDRESS: PO Box 246
 Buffalo NY 14240

HAZARDOUS WASTE DISPOSAL PERIOD: 1930 **TO:** 1975

SITE DESCRIPTION:

This site is a former landfill that was previously used for the disposal of domestic and industrial wastes. Previous studies have documented surface and groundwater contamination. According to Phase II Investigation documentation, Allied Corp. (National Aniline Division) disposed miscellaneous organic chemicals, chrome sludge, copper sulfate, nitrobenzene, monochlorobenzene, and naphthalene on a monthly basis in the landfill. A smaller landfill containing automobile shredder wastes, demolition debris, fly ash and sand wastes is situated on top of the older chemical waste landfill. This smaller more recent landfill was operated between 1975 and 1984. A Consent Order for the completion of a Remedial Investigation/Feasibility Study (RI/FS) of the site was signed by Allied Signal in June 1991. Field work for the RI began in late September 1991, and an RI report was submitted in 1992. It was discovered that groundwater and the ponds adjacent to the site have been impacted by the landfill. Contaminants of concern include metals, pesticides, PCBs, chlorinated solvents and PAHs. A Record of Decision (ROD) was signed on March 27, 1995 included capping, waste consolidation, wetlands restoration, and groundwater collection. The remedial design has been completed but construction has been on Hold. Evaluations are underway to determine if modifications to the remedy should be made to make it more compatible with the South Buffalo Redevelopment Project.

CONFIRMED HAZARDOUS WASTE DISPOSAL: Miscellaneous Organic Chemicals Inorganic Chemicals Chrome Sludge Copper Sulfate Nitrobenzene Monochlorobenzene Naphthalene	QUANTITY: unknown unknown unknown unknown unknown unknown unknown
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ANALYTICAL DATA AVAILABLE FOR:

GROUNDWATER:	X	SURFACE WATER:	X
AIR:		SEDIMENT:	X
SOIL:	X		

- Continued on next page -

**Environmental FirstSearch
Site Detail Report**

TARGET SITE: FUHRMANN BLVD
BUFFALO NY 14220

JOB: NB03035.10
SMALL BOAT HARBOR/GALLAGHER BEACH

STATE SITE

SEARCH ID: 12

DIST/DIR: 0.99 NE

MAP ID: 30

NAME: ALLTIFT LANDFILL
ADDRESS: TIFFT STREET
BUFFALO NY 14202
ERIE

REV: 1/1/03
ID1: 915054
ID2: NYD000513713
STATUS:
PHONE:

CONTACT:

APPLICABLE STANDARDS EXCEEDED FOR:

GROUNDWATER: X **SURFACE WATER:** X
AIR: **DRINKING WATER:**

GEOTECHNICAL INFORMATION:

SOIL/ROCK TYPE: Clay.
DEPTH TO GROUNDWATER: Range: 1 to 20 feet.

LEGAL ACTION:

TYPE: Consent Order
STATUS: OS

REMEDATION:

PROPOSED: **DESIGN:**
ACTIVE: X **COMPLETE:**

ASSESSMENT OF ENVIRONMENTAL PROBLEMS:

The groundwater, surface waters and sediments have been contaminated by hazardous wastes. Preliminary results from the Remedial Investigation indicate that the wastes extend to the east of the existing border.

ASSESSMENT OF HEALTH PROBLEMS:

Access to the site is unrestricted. Exposures via drinking water are not expected because the area is served by public water and there are no known users of groundwater in the immediate area. Direct contact with contaminated soils and sediment is a potential route of exposure. Water from the site flows from a drainage system to the Tift Farm Nature Preserve. The remedial actions, which include consolidation of contaminated soil and sediments, capping, and installation of a groundwater extraction system, will minimize potential exposures.

Environmental FirstSearch

Site Detail Report

TARGET SITE: FUHRMANN BLVD
BUFFALO NY 14220

JOB: NB03035.10
SMALL BOAT HARBOR/GALLAGHER BEACH

STATE SITE

SEARCH ID: 13

DIST/DIR: 0.84 NW

MAP ID: 12

NAME: BUFFALO OUTER HARBOR
ADDRESS: 910 FUHRMANN BOULEVARD
BUFFALO NY 14205
ERIE

REV: 1/1/03
ID1: 915026
ID2: NYD000514000
STATUS:
PHONE:

CONTACT:

CLASS CODE: 2

REGION: 9

ESTIMATED SIZE: 6 ACRES

SITE TYPE:

OPEN DUMP: X

STRUCTURE:

LAGOON:

LANDFILL:

POND:

SITE OWNER/OPERATOR INFORMATION:

CURRENT OWNER(S) NAME: Niagara Frontier Transit Authority
CURRENT OWNER(S) ADDRESS: 181 Ellicott Street
Buffalo NY 14203

OPERATOR(S) DURING DISPOSAL: Niagara Frontier Transit Authority
OPERATOR(S) ADDRESS: 181 Ellicott Street
Buffalo NY 14205

HAZARDOUS WASTE DISPOSAL PERIOD: unknown **TO:** unknown

SITE DESCRIPTION:

In the 1800 s this site was part of Lake Erie. The site was used by a Ford Assembly plant to dispose of an unknown quantity of cafeteria, office, and plant refuse including paint sludge. The site was also used to dispose of dredged lake bottom material and demolition debris by the Corps of Engineers. Also, an unknown amount of casting sand was disposed by Chevrolet. The results of U.S.G.S. sampling conducted in 1982 detected significant concentrations of cadmium, copper, and lead. Volatile organics in the air were detected during the Phase I Investigation at concentrations 40 times higher than background levels. A Phase II Study by the NFTA found that select subsurface soil samples analyzed for EP Toxicity exceeded established threshold values for lead. Also found in subsurface soils were 39 different volatile and semi volatile compounds, metals including lead. The groundwater has been found to exceed NYSDEC Standards for 34 different semi volatile and metal compounds with lead the most pervasive. The most significantly contaminated portion of the site was found to be near a radio tower at the southern end of the property. The Radio Tower area continues to present a significant threat due to the high levels of nitrobenzene that fail the TCLP Regulatory limit and remediation is required. The remainder of the site has shown inconsistent TCLP failures for lead, at levels less than the background upper limit for Buffalo indicative of inconsequential hazardous waste. Due to these findings, the site has been redefined to include only the 6 acre Radio Tower area and the remainder of the property has been removed from the site description. A ROD for the Radio Tower remediation was issued in 1999, calling for the ex situ bioremediation of contaminated soils. In 2000, an in situ chemical oxidation field demonstration project was completed by Honeywell under an interim order on consent. The field test was inconclusive with regards to achieving remedial objectives. Honeywell is currently preparing a focused feasibility/engineering study to further examine remedial technologies and alternatives.

CONFIRMED HAZARDOUS WASTE DISPOSAL:
TCLP, nitrobenzene contaminated soil (D036)

QUANTITY:
unknown

- Continued on next page -

**Environmental FirstSearch
Site Detail Report**

TARGET SITE: FUHRMANN BLVD
BUFFALO NY 14220

JOB: NB03035.10
SMALL BOAT HARBOR/GALLAGHER BEACH

STATE SITE

SEARCH ID: 13

DIST/DIR: 0.84 NW

MAP ID: 12

NAME: BUFFALO OUTER HARBOR
ADDRESS: 910 FUHRMANN BOULEVARD
BUFFALO NY 14205
ERIE

REV: 1/1/03
ID1: 915026
ID2: NYD000514000
STATUS:
PHONE:

CONTACT:

ANALYTICAL DATA AVAILABLE FOR:

GROUNDWATER:	X	SURFACE WATER:
AIR:	X	SEDIMENT:
SOIL:	X	

APPLICABLE STANDARDS EXCEEDED FOR:

GROUNDWATER:	X	SURFACE WATER:
AIR:		DRINKING WATER:

GEOTECHNICAL INFORMATION:

SOIL/ROCK TYPE: Fill over sand.
DEPTH TO GROUNDWATER: Range: 5 to 10 feet.

LEGAL ACTION:

TYPE: Consent Order
STATUS: NE

REMEDATION:

PROPOSED:	X	DESIGN:
ACTIVE:		COMPLETE:

ASSESSMENT OF ENVIRONMENTAL PROBLEMS:

The Radio Tower area continues to present a significant threat due to the high levels of nitrobenzene found. The remainder of the property has been removed from the site description because of inconsequential amounts of hazardous waste. Environmental sampling is advised before any redevelopment of the deleted portion of the site is initiated. The property owner (NFTA) has made application to the DEC for Brownfield s assistance. A PRAP/ROD will be issued for 60 acres north of the bell slip in 2002

ASSESSMENT OF HEALTH PROBLEMS:

Exposures via drinking water are not expected because the area is served by a public water supply system. Access to the site is unrestricted. In general, surface soil contamination does not pose a significant threat to public health. However, potential excavation into identified areas of highly contaminated subsurface soils and waste in the vicinity of the radio tower could result in significant exposures. In the event of development outside the Radio Tower Area, the State recommends that the developer and municipal authorities ensure elimination of exposure routes that would be created by increased land use.

Environmental FirstSearch

Site Detail Report

TARGET SITE: FUHRMANN BLVD
BUFFALO NY 14220

JOB: NB03035.10
SMALL BOAT HARBOR/GALLAGHER BEACH

STATE SITE

SEARCH ID: 14 **DIST/DIR:** 0.67 NE **MAP ID:** 13

NAME: LEHIGH VALLEY RAILROAD
ADDRESS: TIFFT STREET
BUFFALO NY 14202
ERIE

REV: 1/1/03
ID1: 915071
ID2: NYD000513945
STATUS:
PHONE:

CONTACT:

CLASS CODE: 2 **REGION:** 9 **ESTIMATED SIZE:** 5 ACRES

SITE TYPE:

OPEN DUMP: X

STRUCTURE:

LAGOON:

LANDFILL:

POND:

SITE OWNER/OPERATOR INFORMATION:

CURRENT OWNER(S) NAME: Lehigh Valley Railroad
CURRENT OWNER(S) ADDRESS: 415 Brighton Street
Bethlehem NY 18015

OPERATOR(S) DURING DISPOSAL: Booth Oil Company
OPERATOR(S) ADDRESS: 76 Robinson Street
North Tonawanda NY 14120

HAZARDOUS WASTE DISPOSAL PERIOD: 1977 **TO:** 1982

SITE DESCRIPTION:

The Lehigh Valley Railroad site is approximately a five acre site located north of Tift Street, and adjacent to the eastern boundary of the Tift Farm Nature Preserve. Two 100,000 gallon, 24 ft. diameter above ground storage tanks formerly located on this property were utilized for the storage of waste oil mixed with chlorinated volatile organic compounds. A spill of an estimated 1,000 gallons of tank contents in 1981 was observed by representatives of the Erie County Department of Environment and Planning (ECDEP), and a profile report prepared in 1984 recommended further site investigation. Investigations conducted by the NYSDEC d in 1990 and 1991, detected chlorinated organic compounds in tank contents, site soil, and in groundwater. This parcel was classified to 2 as a result of those investigations. In October 1991, the Lehigh Valley Railroad removed the tank contents as RCRA F001 hazardous waste and scrapped the piping and tanks. In April 1993, Lehigh Valley Railroad performed a site investigation indicating low level contamination remains in site soils and groundwater. Unrestricted site use is not appropriate due to residual contamination on site. A change in land use from industrial to recreational or residential, must recognize the presence of residual contamination and take appropriate measures for any intended new use. Excavation in this area could disturb contaminated soil and groundwater, thereby increasing the potential of exposure to contaminants remaining on site. In 1996, while constructing a wetland (west of the Railroad and north of Tift St.), the New York State Department of Transportation encountered a pocket of waste material. The waste material contained elevated levels of chlorobenzenes, chloroanilines, nitroanilines and PAHs. The waste material was determined to be hazardous waste by definition. The extreme concentrations of the waste material adjacent to the Tift Farm Nature Preserve (a regulated wetland) poses a potential threat to the wetland and therefore requires remediation. Waste material was removed and disposed. Monitoring well installation is complete and future assessment is necessary.

CONFIRMED HAZARDOUS WASTE DISPOSAL:

Waste oil mixed with chlorinated volatile
organic compounds. (RCRA F001 Waste)
lead (D008 Waste)

QUANTITY:

1,000 gallons estimated
unknown
unknown

- Continued on next page -

Environmental FirstSearch

Site Detail Report

TARGET SITE: FUHRMANN BLVD
BUFFALO NY 14220

JOB: NB03035.10
SMALL BOAT HARBOR/GALLAGHER BEACH

STATE SITE

SEARCH ID: 14

DIST/DIR: 0.67 NE

MAP ID: 13

NAME: LEHIGH VALLEY RAILROAD
ADDRESS: TIFFT STREET
BUFFALO NY 14202
ERJE

REV: 1/1/03
ID1: 915071
ID2: NYD000513945
STATUS:
PHONE:

CONTACT:

ANALYTICAL DATA AVAILABLE FOR:

GROUNDWATER: X **SURFACE WATER:** X
AIR: **SEDIMENT:** X
SOIL: X

APPLICABLE STANDARDS EXCEEDED FOR:

GROUNDWATER: X **SURFACE WATER:** X
AIR: **DRINKING WATER:**

GEOTECHNICAL INFORMATION:

SOIL/ROCK TYPE: Clay with interbedded silt and sand.
DEPTH TO GROUNDWATER: Range: 1 to 10 feet.

LEGAL ACTION:

TYPE:
STATUS:

REMEDIATION:

PROPOSED: **DESIGN:**
ACTIVE: **COMPLETE:**

ASSESSMENT OF ENVIRONMENTAL PROBLEMS:

Residual hazardous waste remains on site. The waste material found during 1996, which threatens the regulated wetlands and nature preserve to the west will require remediation.

ASSESSMENT OF HEALTH PROBLEMS:

The removal of hazardous waste and some soils has occurred, however, stained and oil soaked soils still remain on site. Therefore, the potential for exposure by direct contact with contaminated soil or inhalation of contaminated windborne particulates exists. Exposures via drinking water are not expected because public water is supplied to the area.

Environmental FirstSearch

Site Detail Report

TARGET SITE: FUHRMANN BLVD
BUFFALO NY 14220

JOB: NB03035.10
SMALL BOAT HARBOR/GALLAGHER BEACH

STATE SITE

SEARCH ID: 15

DIST/DIR: 0.22 SE

MAP ID: 7

NAME: SHENANGO STEEL MOLD
ADDRESS: 1750 FUHRMANN BOULEVARD
BUFFALO NY 14203
ERIE

REV: 1/1/03
ID1: 915172
ID2:
STATUS:
PHONE:

CONTACT:

CLASS CODE: 2

REGION: 9

ESTIMATED SIZE: 18 ACRES

SITE TYPE:

OPEN DUMP:

STRUCTURE: X

LAGOON:

LANDFILL:

POND:

SITE OWNER/OPERATOR INFORMATION:

CURRENT OWNER(S) NAME: Sherland Inc.
CURRENT OWNER(S) ADDRESS: 27 Forest View Drive
Depew NY 14043

OPERATOR(S) DURING DISPOSAL: Shenango Steel Corporation/Marlen Steel
OPERATOR(S) ADDRESS: 1818A Fuhrmann Boulevard
Buffalo NY 14203

HAZARDOUS WASTE DISPOSAL PERIOD: 1962 **TO:** 1982

SITE DESCRIPTION:

The Shenango Steel Mold processed pig iron produced by Hanna Furnace. Shenango Steel Mold (also known as Shenango Steel Corporation and Marlen Steel Corporation) operated from approximately 1962 to 1982. The facility was later demolished. In 1993 NYSDEC was notified that a transformer had been salvaged on site resulting in a release of transformer oil. Sampling conducted by NYSDEC indicates that the soil was contaminated with PCBs. A removal action was initiated by NYSDEC in 1994 which consisted of excavation and disposal of foundation rubble and soil contaminated by PCBs. Seventeen 55 gallon drums and twenty five 5 gallon pails of material were removed from the site near the PCB spill area. TCLP analyses of the drummed material detected benzene, TCE, PCE, MEK, barium and lead. A portion of these materials were identified as toxicity characteristic hazardous waste due to lead, TCE, and PCE. Some materials also were flashpoint characteristic hazardous wastes. Sampling of the site was performed after the removal action as part of a Preliminary Site Assessment (PSA) of the adjacent Hanna Furnace Site. Detection of Aroclor 1260 in soil greater than 500 ppm confirms that the listed hazardous waste (B007 Other PCB Waste) remain at the Shenango Steel Mold site. High concentrations of PCBs remaining in on site surface soils and easy access (evidence of trespassing) indicates the Shenango Steel Mill poses a threat to the public health and the environment. The field work for the Remedial Investigation (RI) was completed in 2000. The RI/FS report was completed in January 2002. A Proposed Remedial Action Plan (PRAP) has been prepared and distributed to the public. The proposed remedy includes the full excavation of all soils that exceed the TAGM 4046 levels for total PCBs in the tight grid area.

CONFIRMED HAZARDOUS WASTE DISPOSAL:
PCB Wastes (B007 Waste)

QUANTITY:
unknown

ANALYTICAL DATA AVAILABLE FOR:

- Continued on next page -

**Environmental FirstSearch
Site Detail Report**

TARGET SITE: FUHRMANN BLVD
BUFFALO NY 14220

JOB: NB03035.10
SMALL BOAT HARBOR/GALLAGHER BEACH

STATE SITE

SEARCH ID: 15

DIST/DIR: 0.22 SE

MAP ID: 7

NAME: SHENANGO STEEL MOLD
ADDRESS: 1750 FUHRMANN BOULEVARD
BUFFALO NY 14203
ERIE

REV: 1/1/03
ID1: 915172

ID2:
STATUS:
PHONE:

CONTACT:

GROUNDWATER:	X	SURFACE WATER:	X
AIR:		SEDIMENT:	
SOIL:	X		

APPLICABLE STANDARDS EXCEEDED FOR:

GROUNDWATER:	X	SURFACE WATER:	X
AIR:		DRINKING WATER:	

GEOTECHNICAL INFORMATION:

SOIL/ROCK TYPE:

DEPTH TO GROUNDWATER: Range: 1 to 5 feet.

LEGAL ACTION:

TYPE:

STATUS:

REMEDIATION:

PROPOSED:

DESIGN:

ACTIVE:

COMPLETE: X

ASSESSMENT OF ENVIRONMENTAL PROBLEMS:

Aroclor 1260 greater than 500 ppm remain in on site soils. Due to high concentrations of contamination that remain on site and the unrestricted access to the site, a significant threat to the public health and environment exists.

ASSESSMENT OF HEALTH PROBLEMS:

Exposures via drinking water are not expected because the area is served by public water and there are no private wells in use in the area. The site is located in an industrial portion of south Buffalo and contains dumped construction and demolition material. Trespassing on site was observed during a 1996 NYSDOH site visit. As this site is easily accessed, the potential exists for exposures to surface contamination.

Environmental FirstSearch
Site Detail Report

TARGET SITE: FUHRMANN BLVD
BUFFALO NY 14220

JOB: NB03035.10
SMALL BOAT HARBOR/GALLAGHER BEACH

STATE SITE

SEARCH ID: 16 **DIST/DIR:** 0.00 -- **MAP ID:** 14

NAME: SM. BOAT HARBOR/DIKED DISPOSAL	REV: 10/16/01
ADDRESS: FURHMAN BLVD.	ID1: HS9058
BUFFALO NY 14205	ID2: NONE
Erie	STATUS: HAZ SUBST WASTE DISP
CONTACT:	PHONE:

SITE INFORMATION

SITE TYPE:	4 - CONSTRUCTION AND DEMOLITION DEBRIS SITE		
OPENED:	1967	CLOSED:	1979
REGION:	9	COMPLETED:	U - UNKNOWN
REGISTRY:	D - DELISTED REGISTRY SITE		REG SITE ID: 915127
HRS SCORE:	U - UNKNOWN	HRS DATE:	U - UNKNOWN
RCRA:	U - UNKNOWN	ACRES:	27.8
QUADRANGLE:	BUFFALO SE		

OWNER: P - PRIVATE OR PUBLIC HEALTH
NIAGARA FRONTIER TRANSPORTATION
181 ELLICOTT ST. BUFFALO, NY

PHONE: (716)855-7300

OPERATOR: P - PRIVATE OR PUBLIC HEALTH
SAME
SAME

PHONE: SAME

DOES A THREAT TO THE ENVIRONMENT OR PUBLIC HEALTH EXIST:

E/P - ENVIRONMENT AND PUBLIC HEALTH

DESCRIBE THE THREAT POSED BY THE DISPOSED HAZARDOUS SUBSTANCE:

Despite the high concentration of metals, the dredge spoils did not exhibit the EPA toxicity characteristic of hazardous waste. The city plans to develop the adjacent waterfront into a public beach.

DESCRIBE THE SITE:

It is believed that the Louisiana St. RR embankment excavation material, was used as fill on this site. The site contains C&D debris, and dredge fill material. The site is located on the Buffalo Harbor waterfront, adjacent to the Niagara Frontier Transportation Authority's Small Boat Harbour. In 1967 the US Army Corps of Engineers constructed limestone and slag rubble dikes to enclose 23 acres of Buffalo's Harbor for containment of contaminated sediments, dredged from the areas shipping channels. By 1979 the enclosure had been nearly filled. The site has been covered with clean fill and converted into a parking lot. This site was referred to the Division of Water on 12/10/91.

HAZARDOUS SUBSTANCE DISPOSED:

Metals (lead, mercury, zinc, nickel, chromium), naphthalene, phenanthrene

VOCS:	Y - YES	SEMI VOCS:	Y - YES
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- Continued on next page -

Environmental FirstSearch Site Detail Report

TARGET SITE: FUHRMANN BLVD
BUFFALO NY 14220

JOB: NB03035.10
SMALL BOAT HARBOR/GALLAGHER BEACH

STATE SITE

SEARCH ID: 16

DIST/DIR: 0.00 --

MAP ID: 14

NAME: SM. BOAT HARBOR/DIKED DISPOSAL
ADDRESS: FURHMAN BLVD.
BUFFALO NY 14205
Erie
CONTACT:

REV: 10/16/01
ID1: HS9058
ID2: NONE
STATUS: HAZ SUBST WASTE DISP
PHONE:

PCBS: Y - YES
METALS: Y - YES

PESTICIDES: Y - YES
ASBESTOS: N - NO

SELECTED ANALYTICAL INFORMATION

AIR:

GROUNDWATER: Metals, VOC s, and Semi VOC s were found in the groundwater. benzene @ 1000ppb, chlorobenzene @ 9400ppb, naphthalene @ 2500ppb, nitrosodiphenylamine @ 1900ppb, cyanide @ 900ppb, arsenic @ 7600ppb, chromium @ 27000ppb, mercury @ 1400ppb, lead @ 6360ppb, and zinc @ 87000ppb

SURFACE WATER: naphthalene @ 2ppb, phenanthrene @ <5.4ppb, chromium @ 1590ppb, lead @ 1020ppb, mercury @ 9.4 ppb, zinc @ 9920 ppb, nickel @ 20 ppb

SEDIMENT: N

SURFACE SOIL: PCB s, metals, pesticides, VOC s, and Semi VOC s were found in the surface soil samples.

SUBSURFACE SOIL: arsenic @ 139ug/g, cadmium @ 14ug/g, chromium @ 511ug/g, lead @ 986ug/g, mercury @ 2.14 ug/g, silver @ 2ug/g

WASTE: N

LEACHATE: N

EPTOXICITY:

TCLP: N

SITE IMPACT DATA- AFFECTED MEDIA

SURFACE WATER: Y - YES
GROUNDWATER: Y - YES
DRINKING WATER: U - UNKNOWN
HAZ SUBSTANCE EXPOSED: N - NO
CONTROLLED SITE ACCESS: N - NO
THREAT OF DIRECT CONTACT: Y - YES

SURFACE WATER CLASS: B
GROUNDWATER CLASS: U - UNKNOWN
ACTIVE DW SUPPLY: U - UNKNOWN
AMBIENT AIR CONTAM: U - UNKNOWN
FISH/WILD MORTALITY: U - UNKNOWN

SITE IMPACT DATA

SURFACE WATER: Nearest Surface Water: 50 ft, west

GROUNDWATER: Nearest Groundwater: 1.9 ft, west

DRINKING WATER: Nearest water supply: 17000 ft, northwest

FISH OR WILD LIFE MORTALITY:
BUILDING: Nearest Building: 2000 ft, north, commercial

- Continued on next page -

*Environmental FirstSearch
Site Detail Report*

TARGET SITE: FUHRMANN BLVD
BUFFALO NY 14220

JOB: NB03035.10
SMALL BOAT HARBOR/GALLAGHER BEACH

STATE SITE

SEARCH ID: 16

DIST/DIR: 0.00 --

MAP ID: 14

NAME: SM. BOAT HARBOR/DIKED DISPOSAL

ADDRESS: FURHMAN BLVD.
BUFFALO NY 14205
Erie

REV: 10/16/01

ID1: HS9058

ID2: NONE

STATUS: HAZ SUBST WASTE DISP

CONTACT:

PHONE:

REG AGENCIES INVOLVED: NYSDEC

PREPARER: JULIE WELCH ENVENGRTECH2 JULY 12, 1994

**Environmental FirstSearch
Site Detail Report**

TARGET SITE: FUHRMANN BLVD
BUFFALO NY 14220

JOB: NB03035.10
SMALL BOAT HARBOR/GALLAGHER BEACH

STATE SITE

SEARCH ID: 17 **DIST/DIR:** 0.00 -- **MAP ID:** 14

NAME: SMALL BOAT HARBOR CONTAINMENT SITE
ADDRESS: FUHRMANN BOULEVARD
BUFFALO NY 14205
ERIE

REV: 05/20/99
ID1: 915127
ID2:
STATUS:
PHONE:

CONTACT:

CLASS CODE: DI **REGION:** 9 **ESTIMATED SIZE:** 27.8 ACRES

SITE TYPE:

OPEN DUMP:

LAGOON:

POND:

STRUCTURE:

LANDFILL: X

SITE OWNER/OPERATOR INFORMATION:

CURRENT OWNER(S) NAME: Niagara Frontier Trans. Auth.
CURRENT OWNER(S) ADDRESS: 18 Ellicott St.
Buffalo NY 14205

OPERATOR(S) DURING DISPOSAL: U.S. Army Corps of Engineers
OPERATOR(S) ADDRESS: 1776 Niagara St.
Buffalo NY

HAZARDOUS WASTE DISPOSAL PERIOD: 1967 **TO:** about 1979

SITE DESCRIPTION:

The Small Boat Harbor Confined Disposal Facility (CDF) was constructed by the US Army Corps of Engineers (COE) in 1967 to store contaminated sediments dredged from the Buffalo area shipping channels. Existing harbor breakwaters were extended with limestone and slag rubble dikes to enclose a 23 acre portion of the Buffalo Harbor. The Small Boat Harbor CDF, the first of three to be built by the COE in Buffalo, is surrounded on the north, south and west by waters of the Small Boat and Buffalo Outer Harbors. By 1976 the enclosure had been nearly filled with an estimated 1.1 million cubic yards of dredge spoils. Three years later ownership of the site was transferred to the Niagara Frontier Transportation Authority (NFTA), operator of the adjacent harbor facilities. When disposal operations were terminated, the CDF had been filled to within approximately 5 feet of the top of the dykes. In 1986 the NFTA filled the northern half of the site with fill and demolition debris from local construction sites, converting this portion of the site into a parking lot. The NFTA initiated an environmental study in 1986, this study along with supplemental sampling conducted by the COE found that the dredge spoils and groundwater were severely contaminated with heavy metals and various organic compounds. However, the dredge spoils did not exhibit the characteristics of hazardous waste when subjected to the EP Tox analysis. Without an identifiable source of hazardous waste, hazardous waste disposal cannot be documented. In 1990 the NFTA covered the remainder of the site, converting the area into a parking lot.

CONFIRMED HAZARDOUS WASTE DISPOSAL: **QUANTITY:**

ANALYTICAL DATA AVAILABLE FOR:

GROUNDWATER: X **SURFACE WATER:** X
AIR: **SEDIMENT:** X

- Continued on next page -

Environmental FirstSearch
Site Detail Report

TARGET SITE: FUHRMANN BLVD
BUFFALO NY 14220

JOB: NB03035.10
SMALL BOAT HARBOR/GALLAGHER BEACH

STATE SITE

SEARCH ID: 17

DIST/DIR: 0.00 --

MAP ID: 14

NAME: SMALL BOAT HARBOR CONTAINMENT SITE
ADDRESS: FUHRMANN BOULEVARD
BUFFALO NY 14205
ERIE

REV: 05/20/99
ID1: 915127
ID2:
STATUS:
PHONE:

CONTACT:

SOIL:

APPLICABLE STANDARDS EXCEEDED FOR:

GROUNDWATER: X **SURFACE WATER:** X
AIR: **DRINKING WATER:**

GEOTECHNICAL INFORMATION:

SOIL/ROCK TYPE: Clays and fine silts
DEPTH TO GROUNDWATER: 2-10 ft. below grade.

LEGAL ACTION:

TYPE:
STATUS:

REMEDIATION:

PROPOSED: **DESIGN:**
ACTIVE: **COMPLETE:**

ASSESSMENT OF ENVIRONMENTAL PROBLEMS:

The facilities dykes designed to contain sediments, are permeable to water soluble contaminants and non-aqueous phase liquids. Loadings from the site to Lake Erie and the Niagara River are likely. There are no environmental problems associated with the disposal of hazardous waste at this site.

ASSESSMENT OF HEALTH PROBLEMS:

Environmental FirstSearch

Site Detail Report

TARGET SITE: FUHRMANN BLVD
BUFFALO NY 14220

JOB: NB03035.10
SMALL BOAT HARBOR/GALLAGHER BEACH

STATE SITE

SEARCH ID: 18 **DIST/DIR:** 0.26 NE **MAP ID:** 15

NAME: TIFFT FARM NATURE PRESERVE	REV: 1/1/03
ADDRESS: 1200 FUHRMANN BOULEVARD	ID1: 915072
BUFFALO NY 14203	ID2: NYD000513945
ERIE	STATUS:
CONTACT:	PHONE:

CLASS CODE: 5 **REGION:** 9 **ESTIMATED SIZE:** 264 ACRES

SITE TYPE:

OPEN DUMP: X	STRUCTURE:
LAGOON:	LANDFILL: X
POND:	

SITE OWNER/OPERATOR INFORMATION:

CURRENT OWNER(S) NAME: Nature Preserve
CURRENT OWNER(S) ADDRESS: 1200 Fuhrman Boulevard
Buffalo NY 14203

SITE OWNER/OPERATOR INFORMATION:

CURRENT OWNER(S) NAME: City of Buffalo
CURRENT OWNER(S) ADDRESS: City Hall - Room 201
Buffalo NY 14202

SITE OWNER/OPERATOR INFORMATION:

CURRENT OWNER(S) NAME: Buffalo Museum of Science
CURRENT OWNER(S) ADDRESS: 1020 Humboldt Parkway
Buffalo NY 14211

OPERATOR(S) DURING DISPOSAL: City of Buffalo
OPERATOR(S) ADDRESS: City Hall - Room 201
Buffalo NY 14202

HAZARDOUS WASTE DISPOSAL PERIOD: 1955 **TO:** 1975

SITE DESCRIPTION:

The site is bounded by Tifft Street to the south, Fuhrman Boulevard to the west and Lehigh Valley Railroad property to the north and east. The site can be divided into two portions; the mounds area which contains debris or waste from Squaw Island, and the area is now operated by the Buffalo Museum of Science as the Tifft Farm Nature Preserve. Republic Steel owned this site from 1955 until 1972. Republic reportedly used the site for the disposal of slag, fly ash, and other garbage. In 1972, the City of Buffalo bought the site. In 1975, acid sludge from a local Chevrolet plant was disposed at this site. In 1981 and 1982, drums were discovered in Lake Kristy. Sampling of these drums indicated that the contents included heavy metals, polynuclear aromatic hydrocarbons, and phenolics. In 1983, over 100 of these drums were removed from Lake Kristy, Lisa Pond and the east side of the mound area. A Phase II Investigation has been completed. The DEC performed a geophysical survey to the east of the Visitor s Center during September of 1991. Test pit investigation of the same area in May of 1992 did not show any buried drums and the fill samples from the test pits turned out to be non hazardous. Residual contamination exists at this site due to its proximity to rail yards and steel mills, as well as its former industrial uses. This site is designated as a significant coastal fish and wildlife zone by NYSDEC. The site is properly closed and no further action is required.

CONFIRMED HAZARDOUS WASTE DISPOSAL:

Acid Sludge
Heavy Metals
Phenolics
Polynuclear Aromatic Hydrocarbons (PAHs)

QUANTITY:

unknown
unknown
unknown
unknown

- Continued on next page -

**Environmental FirstSearch
Site Detail Report**

TARGET SITE: FUHRMANN BLVD
BUFFALO NY 14220

JOB: NB03035.10
SMALL BOAT HARBOR/GALLAGHER BEACH

STATE SITE

SEARCH ID: 18

DIST/DIR: 0.26 NE

MAP ID: 15

NAME: TIFT FARM NATURE PRESERVE
ADDRESS: 1200 FUHRMANN BOULEVARD
BUFFALO NY 14203
ERIE

REV: 1/1/03
ID1: 915072
ID2: NYD000513945
STATUS:
PHONE:

CONTACT:

ANALYTICAL DATA AVAILABLE FOR:

GROUNDWATER:	X	SURFACE WATER:	X
AIR:		SEDIMENT:	
SOIL:	X		

APPLICABLE STANDARDS EXCEEDED FOR:

GROUNDWATER:	X	SURFACE WATER:	X
AIR:		DRINKING WATER:	

GEOTECHNICAL INFORMATION:

SOIL/ROCK TYPE: Clay.
DEPTH TO GROUNDWATER: Range: 5 to 10 feet.

LEGAL ACTION:

TYPE:
STATUS:

REMEDIATION:

PROPOSED:	DESIGN:
ACTIVE:	COMPLETE:

ASSESSMENT OF ENVIRONMENTAL PROBLEMS:

Low levels of contaminants still remain in the area of Tift Farm. A clay cover was placed over the mounds area. A clay barrier wall has been installed in conjunction with the leachate collection system.

ASSESSMENT OF HEALTH PROBLEMS:

The 1983 drum removal program removed the identified hazardous wastes. Subsequent comprehensive surface soil sampling indicated higher than background levels for polycyclic aromatic hydrocarbons and metals, however, not at levels which represent a significant threat to users of the nature preserve. Samples from test pits in the area of the Visitors Center showed residual contamination at levels typical of a former industrial fill area which represent no threat to visitors. Exposures via drinking water are not expected because public water serves the area.

**Environmental FirstSearch
Site Detail Report**

TARGET SITE: FUHRMANN BLVD
BUFFALO NY 14220

JOB: NB03035.10
SMALL BOAT HARBOR/GALLAGHER BEACH

STATE SPILLS SITE

SEARCH ID: 29 **DIST/DIR:** 0.02 NE **MAP ID:** 11

NAME: BOUQUARDS BOAT RENTAL	REV: 1/1/02
ADDRESS: 1581 FUHRMANN BOULEVARD	ID1: 9206749
BUFFALO NY	ID2:
ERIE	STATUS: CLOSED
CONTACT:	PHONE:

SPILL DATE: 08/24/92	DATE REPORTED: 09/10/92
SPILL TIME: 11:30	TIME REPORTED: 15:00

MATERIAL SPILLED: DIESEL	AMOUNT SPILLED: 0
MATERIAL CLASS: PETROLEUM	AMOUNT RECOVERED: 0

CAUSE OF SPILL:	UNKNOWN
RESOURCE AFFECTED:	SURFACE WATER
WATERBODY AFFECTED:	LAKE ERIE
SOURCE OF SPILL:	VESSEL
REPORTED BY:	FEDERAL GOVERNMENT

CALLER REMARKS:
RECEIVED REPORT FROM USCG. NON-RECOVERABLE SHEEN. NO FURTHER ACTION REQUIRED. MJS TO CLOSE FILE.

REGION: 9 **UST TRUST?** F

SPILL INVESTIGATOR: MJS	
SPILL CONTACT:	TELEPHONE:

SPILLER: UNKNOWN BOAT	
ADDRESS:	

SPILLER CONTACT:	TELEPHONE:
-------------------------	-------------------

CALLER:	NOTIFIER:
AGENCY:	AGENCY:
TELEPHONE:	TELEPHONE:

LAST DEC UPDATE: 09/28/92	CLOSE DATE: 09/10/92
DOES CLEAN UP MEET STANDARDS? T	PENALTY RECOMMENDED? F

DEC REMARKS:
08/24/92: DEC RECEIVED REPORT FROM USCG, NO CLEANUP POSSIBLE, SLIGHT SHEEN PROBABLY FROM A RECREATIONAL BOAT, CLOSEOUT. 09/29/95: THIS IS ADDITIONAL INFORMATION ABOUT MATERIAL SPILLED FROM THE TRANSLATION OF THE OLD SPILL FILE: SHEEN.

Environmental FirstSearch
Site Detail Report

TARGET SITE: FUHRMANN BLVD
BUFFALO NY 14220

JOB: NB03035.10
SMALL BOAT HARBOR/GALLAGHER BEACH

STATE SPILLS SITE

SEARCH ID: 41

DIST/DIR: 0.02 NE

MAP ID: 19

NAME: JEFFERY DEAZ CAR
ADDRESS: TIFFT AND FURMANN BLVD
BUFFALO NY
ERIE

REV: 1/1/02
ID1: 9710909
ID2:
STATUS: CLOSED
PHONE:

CONTACT:

SPILL DATE: 12/28/97
SPILL TIME: 11:00

DATE REPORTED: 12/28/97
TIME REPORTED: 21:38

MATERIAL SPILLED: AUTO WASTE FLUIDS
MATERIAL CLASS: PETROLEUM

AMOUNT SPILLED: 0 G
AMOUNT RECOVERED: 0 G

CAUSE OF SPILL: TRAFFIC ACCIDENT
RESOURCE AFFECTED: ON LAND
WATERBODY AFFECTED: TIFFT NATURE PRESERV
SOURCE OF SPILL: PASSENGER VEHICLE
REPORTED BY: POLICE DEPARTMENT

CALLER REMARKS:

VEH FOUND PARTIALLY SUBMERGED IN THE ABOVE BODY OF WATER UNK WHO THE REGISTERED OWNER IS - REQ CALL

REGION: 9

UST TRUST? F

SPILL INVESTIGATOR: MNP
SPILL CONTACT: PTL SWALIK

TELEPHONE: (716) 851-4415

SPILLER: NONE
ADDRESS:

SPILLER CONTACT:

TELEPHONE: () -

CALLER:
AGENCY:
TELEPHONE:

NOTIFIER:
AGENCY:
TELEPHONE:

LAST DEC UPDATE: 01/05/98
DOES CLEAN UP MEET STANDARDS? T
DEC REMARKS:

CLOSE DATE: 12/29/97
PENALTY RECOMMENDED? F

12/29/97: MNP TELECON WITH BUFFALO PD, THEY PROVIDED RP INFO. & SAID ECO RON BOSELA RESPONDED TO COMPLAINT. 12/29/97: MNP TELECON WITH ECO RON BOSELA. NO SPILLAGE FROM CAR, NO RESPONSE OR CLEANUP NEEDED, COMPLETE.

**Environmental FirstSearch
Site Detail Report**

TARGET SITE: FUHRMANN BLVD
BUFFALO NY 14220

JOB: NB03035.10
SMALL BOAT HARBOR/GALLAGHER BEACH

STATE SPILLS SITE

SEARCH ID: 42 **DIST/DIR:** 0.02 NE **MAP ID:** 11

NAME: MARTELLANO BOAT	REV: 1/1/02
ADDRESS: BOGUART LIVERY RAMP	ID1: 9302812
BUFFALO NY	ID2:
Eric	STATUS: CLOSED
CONTACT:	PHONE:

SPILL DATE: 06/01/93	DATE REPORTED: 06/01/93
SPILL TIME: 15:30	TIME REPORTED: 20:29

MATERIAL SPILLED: GASOLINE	AMOUNT SPILLED: 1 G
MATERIAL CLASS: PETROLEUM	AMOUNT RECOVERED: 0 G

CAUSE OF SPILL:	EQUIPMENT FAILURE
RESOURCE AFFECTED:	SURFACE WATER
WATERBODY AFFECTED:	LAKE ERIE
SOURCE OF SPILL:	VESSEL
REPORTED BY:	FEDERAL GOVERNMENT
CALLER REMARKS: HIGH WINDS/WAVES OVERTOPPED BOAT	

REGION: 9 **UST TRUST?** F

SPILL INVESTIGATOR: JDC
SPILL CONTACT:

TELEPHONE:

SPILLER: BILL MARTELLANO
ADDRESS: 54 SHEFFIELD STREET
BUFFALO , NY

SPILLER CONTACT:

TELEPHONE:

CALLER:	NOTIFIER:
AGENCY:	AGENCY:
TELEPHONE:	TELEPHONE:

LAST DEC UPDATE: 06/29/93	CLOSE DATE: 06/08/93
DOES CLEAN UP MEET STANDARDS? T	PENALTY RECOMMENDED? F

DEC REMARKS:
06/08/93: DUPLICATE SPILL - CLOSE OUT. REFER TO SPILL NO. 9302923 FOR SPILL INFORMATION. 06/08/93: JDC/ENSIGN EVANISH, USCG/PHONE - CONFIRMED SPILL INFORMATION. NO FREE PRODUCT OBSERVED; ONLY MINOR SHEEN. NO CLEANUP DONE. NO FURTHER ACTION REQUIRED.

**Environmental FirstSearch
Site Detail Report**

TARGET SITE: FUHRMANN BLVD
BUFFALO NY 14220

JOB: NB03035.10
SMALL BOAT HARBOR/GALLAGHER BEACH

STATE SPILLS SITE

SEARCH ID: 43

DIST/DIR: 0.00 --

MAP ID: 10

NAME: NFTA
ADDRESS: 1111 FUHRMANN BLVD
BUFFALO NY
ERIE

REV: 1/1/02
ID1: 9315061
ID2:
STATUS: CLOSED
PHONE:

CONTACT:

SPILL DATE: 03/23/94
SPILL TIME: 10:30

DATE REPORTED: 03/23/94
TIME REPORTED: 11:30

MATERIAL SPILLED: DIESEL
MATERIAL CLASS: PETROLEUM

AMOUNT SPILLED: 100 G
AMOUNT RECOVERED: 90 G

CAUSE OF SPILL: VANDALISM
RESOURCE AFFECTED: ON LAND
WATERBODY AFFECTED:
SOURCE OF SPILL: NON-COMMERCIAL/INSTITUTIONAL
REPORTED BY: RESPONSIBLE PARTY
CALLER REMARKS:
LEAK DISCOVERED IN FUEL TANK OF CRANE.

REGION: 9 **UST TRUST?** F

SPILL INVESTIGATOR: MJS
SPILL CONTACT:

TELEPHONE:

SPILLER: NFTA
ADDRESS: 901 FUHRMANN BLVD
BUFFALO , NY 14203

SPILLER CONTACT:

TELEPHONE:

CALLER:
AGENCY:
TELEPHONE:

NOTIFIER:
AGENCY:
TELEPHONE:

LAST DEC UPDATE: 12/22/94
DOES CLEAN UP MEET STANDARDS? T
DEC REMARKS:

CLOSE DATE: 12/15/94
PENALTY RECOMMENDED? F

03/23/94: MJS/ANTHONY LARUSSO/SITE - SMALL HOLE FOUND IN BOTTOM OF FUEL TANK ON CRANE; HOLE PLUGGED & LEAK STOPPED. GRAVE AREA AND PART OF BANK MUST BE SCRAPED AND DISPOSED. 03/23/94: MJS/ANTHONY LARUSSO/TELECON - HE HAS CONTACTED WASTE MGMT. TO PROVIDE ROLLOFF W/LINER. DEBRIS WILL BE DISPOSED AT LAKEVIEW LANDFILL, PA. LETTER TO MR. RUSSO. 03/24/94: MJS/MR. LARUSSO/TELECON - ROLLOFF ON-SITE. APPROX. 3/4 FULL OF CONTAMINATED SOIL. MR. LARUSSO REQUESTS INSPECTION. SOIL SAMPLE TAKEN. MJS TO INSPECT SITE. 03/24/94: MJS/MR. LARUSSO/SITE - AREA UNDER CRANE SUFFICIENTLY SCRAPED DOWN. BANK HAND DUG. ALL CONTAMINATED MATERIAL IN LINED ROLLOFF. MJS ASKED THAT CONTAM. ICE BE CHOPPED OUT AND ADDED TO ROLLOFF. 04/15/94: MJS RECEIVED ANALYTICAL RESULTS FOR CONTAMINATION. NON-HAZARDOUS DETERMINATION. 12/15/94: MJS TELECON TO TONY LARUSSO. HE NEVER RECEIVED WEIGH SLIPS. THEY MAY HAVE BEEN SENT TO W/BILL TO MAIN OFFICE. ANALYTICAL AND SERVICE AGREEMENT TO SERVE AS DISPOSAL DOCUMENTATION. MJS CLOSE FILE.

**Environmental FirstSearch
Site Detail Report**

TARGET SITE: FUHRMANN BLVD
BUFFALO NY 14220

JOB: NB03035.10
SMALL BOAT HARBOR/GALLAGHER BEACH

STATE SPILLS SITE

SEARCH ID: 44 **DIST/DIR:** 0.12 NW **MAP ID:** 1

NAME: NFTA - PORT OF BUFFALO	REV: 1/1/02
ADDRESS: FUHRMAN BLVD. ROUTE 5	ID1: 9008645
BUFFALO NY	ID2:
ERIE	STATUS: CLOSED
CONTACT:	PHONE:

SPILL DATE: 11/06/90	DATE REPORTED: 11/07/90
SPILL TIME: 05:00	TIME REPORTED: 13:15

MATERIAL SPILLED: DIESEL	AMOUNT SPILLED: 40 G
MATERIAL CLASS: PETROLEUM	AMOUNT RECOVERED: 40 G

CAUSE OF SPILL:	OTHER
RESOURCE AFFECTED:	SURFACE WATER
WATERBODY AFFECTED:	BUFFALO HARBOR
SOURCE OF SPILL:	VESSEL
REPORTED BY:	FEDERAL GOVERNMENT
CALLER REMARKS: NFTA WORK BOAT SUNK AT PIER	

REGION: 9 **UST TRUST?** F

SPILL INVESTIGATOR: MJH	TELEPHONE:
SPILL CONTACT:	

SPILLER: NFTA - PORT OF BUFFALO	
ADDRESS: BUFFALO , NY	
SPILLER CONTACT:	TELEPHONE:

CALLER:	NOTIFIER:
AGENCY:	AGENCY:
TELEPHONE:	TELEPHONE:

LAST DEC UPDATE: 11/21/90	CLOSE DATE: 11/21/90
DOES CLEAN UP MEET STANDARDS? T	PENALTY RECOMMENDED? F
DEC REMARKS: 11/07/90: MJH INFO 11/07/90, USCG ON SITE AND HANDLING SPILL, BOAT HAS BEEN SALVAGED. 11/21/90: USCG ON SITE NO SIGNIFICANT SPILL FOUND NO CLEANUP NEEDED.	

Environmental FirstSearch
Site Detail Report

TARGET SITE: FUHRMANN BLVD
BUFFALO NY 14220

JOB: NB03035.10
SMALL BOAT HARBOR/GALLAGHER BEACH

STATE SPILLS SITE

SEARCH ID: 45

DIST/DIR: 0.12 NW

MAP ID: 1

NAME: NFTA SMALL BOAT HARBOR
ADDRESS: 901 FUHRMANN BLVD
BUFFALO NY
ERIE

REV: 1/1/02
ID1: 9807221
ID2:
STATUS: CLOSED
PHONE:

CONTACT:

SPILL DATE: 09/13/98
SPILL TIME: 10:20

DATE REPORTED: 09/13/98
TIME REPORTED: 10:57

MATERIAL SPILLED: GASOLINE
MATERIAL CLASS: PETROLEUM

AMOUNT SPILLED: 0 G
AMOUNT RECOVERED: 0 G

CAUSE OF SPILL: UNKNOWN
RESOURCE AFFECTED: SURFACE WATER
WATERBODY AFFECTED: LAKE ERIE
SOURCE OF SPILL: UNKNOWN
REPORTED BY: AFFECTED PERSONS
CALLER REMARKS:

QTY OF GASOLINE IN BETWEEN THE BOAT SLIPS - UNK WHERE IT IS COMING FROM

REGION: 9

UST TRUST? F

SPILL INVESTIGATOR: MF
SPILL CONTACT: TIM SHEEHAN

TELEPHONE: (716) 828-0027

SPILLER: UNK
ADDRESS:

SPILLER CONTACT:

TELEPHONE:

CALLER:
AGENCY:
TELEPHONE:

NOTIFIER:
AGENCY:
TELEPHONE:

LAST DEC UPDATE: 09/14/98
DOES CLEAN UP MEET STANDARDS? T
DEC REMARKS:

CLOSE DATE: 09/14/98
PENALTY RECOMMENDED? F

09/13/98: MF S/V/TIM SHEEHAN, NFTA. SHEEN IN HARBOR, SOURCE BETWEEN 2ND & 3RD DOCKS, COULD NOT TELL WHAT BOAT SHEEN WAS COMING FROM. SLIGHT NW WIND BLOWING SHEEN TO SHORE. NO ODOR NOTICED, VERY HOT DAY. COAST GUARD HAS BEEN NOTIFIED BY NFTA. TIM WILL WATCH AREA. NO FURTHER ACTION POSSIBLE.

Environmental FirstSearch
Site Detail Report

TARGET SITE: FUHRMANN BLVD
BUFFALO NY 14220

JOB: NB03035.10
SMALL BOAT HARBOR/GALLAGHER BEACH

STATE SPILLS SITE

SEARCH ID: 50 **DIST/DIR:** 0.02 NE **MAP ID:** 20

NAME: SMALL BOAT HARBOR
ADDRESS: HAMBURG TURNPIKE ROUTE 5
BUFFALO NY
ERIE

REV: 1/1/02
ID1: 9107514
ID2:
STATUS: CLOSED
PHONE:

CONTACT:

SPILL DATE: 10/14/91
SPILL TIME: 14:15

DATE REPORTED: 10/14/91
TIME REPORTED: 14:17

MATERIAL SPILLED: GASOLINE
MATERIAL CLASS: PETROLEUM

AMOUNT SPILLED: 20 G
AMOUNT RECOVERED: 0 G

CAUSE OF SPILL: UNKNOWN
RESOURCE AFFECTED: SURFACE WATER
WATERBODY AFFECTED: LAKE ERIE
SOURCE OF SPILL: VESSEL
REPORTED BY: FIRE DEPARTMENT
CALLER REMARKS:
BOAT ON FIRE, FD ON THE SCENE.

REGION: 9 **UST TRUST?** F

SPILL INVESTIGATOR: MF
SPILL CONTACT:

TELEPHONE:

SPILLER: WILLIAM SHERK
ADDRESS: 6064 THORWOOD DRIVE
BOSTON , NY 14075

SPILLER CONTACT:

TELEPHONE: (716) 648-4136

CALLER:
AGENCY:
TELEPHONE:

NOTIFIER:
AGENCY:
TELEPHONE:

LAST DEC UPDATE: 11/04/91
DOES CLEAN UP MEET STANDARDS? T
DEC REMARKS:

CLOSE DATE: 10/15/91
PENALTY RECOMMENDED? F

10/15/91: MF 10/14/91 SITE VISIT/NOTIFIED COAST GUARD. FD HAD FIRE BOAT ON THE SCENE. ALL PRODUCT BURNED,
BOAT SANK. NO FURTHER ACTION POSSIBLE.

Environmental FirstSearch
Site Detail Report

TARGET SITE: FUHRMANN BLVD
BUFFALO NY 14220

JOB: NB03035.10
SMALL BOAT HARBOR/GALLAGHER BEACH

STATE SPILLS SITE

SEARCH ID: 51 **DIST/DIR:** 0.12 NW **MAP ID:** 1

NAME: SMALL BOAT HARBOR SPILL	REV: 1/1/02
ADDRESS: 901 FUHRMAN BLVD. - RT 5	ID1: 9202240
BUFFALO NY	ID2:
ERIE	STATUS: CLOSED
CONTACT:	PHONE:

SPILL DATE: 05/23/92	DATE REPORTED: 05/23/92
SPILL TIME: 14:00	TIME REPORTED: 19:30

MATERIAL SPILLED: GASOLINE	AMOUNT SPILLED: 10 G
MATERIAL CLASS: PETROLEUM	AMOUNT RECOVERED: 0 G

CAUSE OF SPILL:	EQUIPMENT FAILURE
RESOURCE AFFECTED:	SURFACE WATER
WATERBODY AFFECTED:	LAKE ERIE
SOURCE OF SPILL:	VESSEL
REPORTED BY:	FEDERAL GOVERNMENT
CALLER REMARKS:	
SMALL GASOLINE SPILL FROM PARTIALLY SUBMERGED BOAT.	

REGION: 9	UST TRUST? F	
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SPILL INVESTIGATOR: MNP	
SPILL CONTACT:	TELEPHONE:

SPILLER: THOMAS ANSWEENEY	
ADDRESS: 10136 SISSON HIGHWAY	
EDEN, NY	
SPILLER CONTACT:	TELEPHONE:

CALLER:	NOTIFIER:
AGENCY:	AGENCY:
TELEPHONE:	TELEPHONE:

LAST DEC UPDATE: 08/06/92	CLOSE DATE: 05/28/92
DOES CLEAN UP MEET STANDARDS? T	PENALTY RECOMMENDED? F

DEC REMARKS:
05/28/92: 5/28/92 MNP TELECON WITH LARUSSO AT BOAT HARBOR, SORBENTS BAGGED & DISPOSED IN DUMPSTER. NO FURTHER ACTION NEEDED, COMPLETE.

**Environmental FirstSearch
Site Detail Report**

TARGET SITE: FUHRMANN BLVD
BUFFALO NY 14220

JOB: NB03035.10
SMALL BOAT HARBOR/GALLAGHER BEACH

STATE SPILLS 80's SITE

SEARCH ID: 60

DIST/DIR: 0.12 NW

MAP ID: 1

NAME: BUFFALO HARBOR
ADDRESS: 901 FURHMAN BLVD. ROUTE 5
BUFFALO NY
ERIE

REV: 10/18/00
ID1: 8903002
ID2:
STATUS: CLOSED
PHONE:

CONTACT:

SPILL DATE: 06/22/89
SPILL TIME: 12:00

DATE REPORTED: 06/22/89
TIME REPORTED: 12:47

MATERIAL SPILLED: WASTE OIL
MATERIAL CLASS: PETROLEUM

AMOUNT SPILLED: 35 G
AMOUNT RECOVERED: 30 G

CAUSE OF SPILL: HOUSEKEEPING
RESOURCE AFFECTED: SURFACE WATER
WATERBODY AFFECTED: LAKE ERIE
SOURCE OF SPILL: NON-COMMERCIAL/INSTITUTIONAL
REPORTED BY: CITIZEN
CALLER REMARKS:
SHEEN ON LAKE ERIE BEHIND NFTA BUILDING

REGION: 9

UST TRUST? NO

SPILL INVESTIGATOR: MF
SPILL CONTACT:

TELEPHONE:

SPILLER: NFTA
ADDRESS: 901 FURHMAN BLVD
BUFFALO, NY 14203

SPILLER CONTACT:

TELEPHONE: (716) 852-1921

CALLER: PAM SCRIVENER
AGENCY: CITIZEN
TELEPHONE: (716) 856-1925

NOTIFIER:
AGENCY:
TELEPHONE:

LAST DEC UPDATE: 04/10/90
DOES CLEAN UP MEET STANDARDS? YES
DEC REMARKS:

CLOSE DATE: 04/09/90
PENALTY RECOMMENDED? NO

06/22/89: MF SITE VISIT WITH COAST GUARD. SOURCE OF SHEEN TRACED TO OVERFLOWING WASTE OIL DRUMS APPX 7' FROM THE WATER. DAVE PHILLIPS OF NFTA WILL CLEAN UP. 07/28/89: MF SITE VISIT, DRUMS GONE, SPILL AREA NOT CLEANED. 08/03/89: MF SITE VISIT, ESI ON SITE, REMEDIATION BEING DONE BY NFTA. SITE CLEAN, I TOLD NFTA THAT THEY COULD BACKFILL SOIL TO BE STOCKPILED ON SITE. 12/04/89: MF SENT DISPOSAL LETTER TO NFTA GIVING THEM UNTIL 1/15/90. 12/07/89: MF TELECON DAVE PHILLIPS, DISPOSAL IS OUT FOR BID, HE WILL KEEP ME INFORMED. 01/30/90: MF TELECON TONY LARUSSO, NFTA. HE CLAIMED THE DISPOSAL IS IN THE HANDS OF THE LEGAL DEPT. 02/15/90: MF TELECON NFTA LAWYER, SHE CLAIMED THE DISPOSAL IS IN THE PIPELINE & SHE WILL KEEP ME INFORMED (5 YARDS). 04/09/90: MF RECEIVED DISPOSAL RECEIPT & TEST RESULTS. SOIL HAZARDOUS (LEAD). NO FUTHER ACTION NECESSART BY SPILLS.

**Environmental FirstSearch
Site Detail Report**

TARGET SITE: FUHRMANN BLVD
BUFFALO NY 14220

JOB: NB03035.10
SMALL BOAT HARBOR/GALLAGHER BEACH

STATE SPILLS 80's SITE

SEARCH ID: 65

DIST/DIR: 0.12 NW

MAP ID: 1

NAME: NFTA
ADDRESS: SMALL BOAT HARBOR
BUFFALO NY
ERIE

REV: 10/18/00
ID1: 8701466
ID2:
STATUS: CLOSED
PHONE:

CONTACT:

SPILL DATE: 05/21/87
SPILL TIME: 18:20

DATE REPORTED: 05/22/87
TIME REPORTED: 08:00

MATERIAL SPILLED: GASOLINE
MATERIAL CLASS: PETROLEUM

AMOUNT SPILLED: 5 G
AMOUNT RECOVERED: 0 G

CAUSE OF SPILL: UNKNOWN
RESOURCE AFFECTED: SURFACE WATER
WATERBODY AFFECTED: LAKE ERIE
SOURCE OF SPILL: VESSEL
REPORTED BY: FEDERAL GOVERNMENT
CALLER REMARKS:

REGION: 9

UST TRUST? NO

SPILL INVESTIGATOR: MJH
SPILL CONTACT:

TELEPHONE:

SPILLER: UNKNOWN
ADDRESS:

SPILLER CONTACT:

TELEPHONE:

CALLER:
AGENCY:
TELEPHONE:

NOTIFIER:
AGENCY:
TELEPHONE:

LAST DEC UPDATE: 05/28/87
DOES CLEAN UP MEET STANDARDS? YES
DEC REMARKS:

CLOSE DATE: 05/27/87
PENALTY RECOMMENDED? NO

// : CONTACTED BY USCG, 05/22/87, NO APPARANT SOURCE. // : NO CLEANUP POSSIBLE NO SOURCE IDENTIFIED NO FURTHER WORK.

Environmental FirstSearch
Site Detail Report

TARGET SITE: FUHRMANN BLVD
BUFFALO NY 14220

JOB: NB03035.10
SMALL BOAT HARBOR/GALLAGHER BEACH

REGISTERED UNDERGROUND STORAGE TANKS

SEARCH ID: 71 **DIST/DIR:** 0.01 NE **MAP ID:** 29

NAME: BUFFALO RIVER IMPROVEMENT CORP	REV: 1/1/02
ADDRESS: 1016 FUHRMAN BLVD	ID1: PBS9-500658
BUFFALO NY 14203	ID2:
ERIE	STATUS: UNREGULATED BY PBS
CONTACT: BUFFALO RIVER IMPROVEMENT CORP	PHONE: (716) 826-1112

PETROLEUM BULK STORAGE FACILITY INFORMATION

TYPE OF SITE:	UTILITY		
TOTAL ACTIVE TANKS ON SITE:	0		
TOTAL FACILITY CAPACITY:	0 GALLONS		
OLD PBS NUMBER:		CBS NUMBER:	SPDES NUMBER:
ADDITIONAL ADDRESS INFO:			
TYPE OF OWNER:	LOCAL GOVERNMENT		
OWNER SUB TYPE:			
OWNER ADDRESS:	CITY HALL		
	BUFFALO NY 14202		
PHONE:	(716) 851-4200		
EMERGENCY CONTACT:	LARRY KAMINSKI C/O BUFF COLOR		
PHONE:	(716) 827-4563		
MAILING NAME:	CITY OF BUFFALO		
ADDRESS:	CITY HALL		
	BUFFALO NY 14202		
ATTENTION:			
PHONE:	(716) 851-4200		
CERTIFICATE DATE:	6/2/97	EXP. DATE:	2/9/00
RENEWAL DATE:			

TANK INFORMATION

TANK NUMBER:	1	TANK STATUS:	CLOSED - REMOVED
INSTALLED:	5/1/79	CLOSED:	7/1/98
TANK CAPACITY:	8000 GALLONS		
PRODUCT:	# 1, 2, OR 4 FUEL OIL		
TANK TYPE:	FIBERGLASS COATED STEEL		
TANK LOCATION:	UNDERGROUND		
INTERNAL PROTECTION:			
EXTERNAL PROTECTION:	FIBERGLASS		
PIPE TYPE:	STEEL/IRON		
PIPE LOCATION:	ABOVEGROUND/UNDERGROUND COMBINATION		
INTERNAL PROTECTION:			
EXTERNAL PROTECTION:			
SECONDARY CONTAINMENT:	NONE		
LEAK DETECTION:	NONE		
OVERFILL PROTECTION:			
DISPENSER:	SUBMERSIBLE		
DATE TESTED:	5/1/97		
NEXT TEST:			
TEST METHOD:	HORNER EZ CHECK		

Environmental FirstSearch
Site Detail Report

TARGET SITE: FUHRMANN BLVD
BUFFALO NY 14220

JOB: NB03035.10
SMALL BOAT HARBOR/GALLAGHER BEACH

REGISTERED UNDERGROUND STORAGE TANKS

SEARCH ID: 72 **DIST/DIR:** 0.00 -- **MAP ID:** 8

NAME: FREEZER QUEEN FOODS INC ADDRESS: 975 FUHRMANN BLVD BUFFALO NY 14203 ERIE CONTACT: HERTZ PENSKE TRUCK LEASE	REV: 1/1/02 ID1: PBS9-008893 ID2: STATUS: UNREGULATED BY PBS PHONE: (716) 824-8119
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PETROLEUM BULK STORAGE FACILITY INFORMATION

TYPE OF SITE:	OTHER		
TOTAL ACTIVE TANKS ON SITE:	0		
TOTAL FACILITY CAPACITY:	0 GALLONS		
OLD PBS NUMBER:		CBS NUMBER:	SPDES NUMBER:
ADDITIONAL ADDRESS INFO:			
TYPE OF OWNER:	CORPORATE/COMMERCIAL		
OWNER SUB TYPE:			
OWNER ADDRESS:	975 FUHRMANN BLVD BUFFALO NY 14203		
PHONE:	(716) 824-8119		
EMERGENCY CONTACT:	RICHARD MILLER		
PHONE:	(716) 835-3708		
MAILING NAME:	FREEZER QUEEN FOODS INC		
ADDRESS:	975 FUHRMANN BLVD BUFFALO NY 14203		
ATTENTION:	ROBERT PLANTER		
PHONE:	(716) 826-2500		
CERTIFICATE DATE:	8/30/96	EXP. DATE:	9/2/01
RENEWAL DATE:			

TANK INFORMATION

TANK NUMBER:	1	TANK STATUS:	CLOSED - REMOVED
INSTALLED:	12/1/70	CLOSED:	12/1/96
TANK CAPACITY:	500 GALLONS		
PRODUCT:	EMPTY		
TANK TYPE:	STEEL/CARBON STEEL		
TANK LOCATION:	UNDERGROUND		
INTERNAL PROTECTION:	NONE		
EXTERNAL PROTECTION:	PAINTED/ASPHALT COATING, NONE		
PIPE TYPE:			
PIPE LOCATION:	UNDERGROUND		
INTERNAL PROTECTION:	NONE		
EXTERNAL PROTECTION:	PAINTED/ASPHALT COATING		
SECONDARY CONTAINMENT:	NONE		
LEAK DETECTION:	NONE		
OVERFILL PROTECTION:	NONE		
DISPENSER:	SUCTION		
DATE TESTED:	8/1/87		
NEXT TEST:			
TEST METHOD:			

- Continued on next page -

Environmental FirstSearch
Site Detail Report

TARGET SITE: FUHRMANN BLVD
BUFFALO NY 14220

JOB: NB03035.10
SMALL BOAT HARBOR/GALLAGHER BEACH

REGISTERED UNDERGROUND STORAGE TANKS

SEARCH ID: 72 **DIST/DIR:** 0.00 -- **MAP ID:** 8

NAME: FREEZER QUEEN FOODS INC ADDRESS: 975 FUHRMANN BLVD BUFFALO NY 14203 ERJE CONTACT: HERTZ PENSKE TRUCK LEASE	REV: 1/1/02 ID1: PBS9-008893 ID2: STATUS: UNREGULATED BY PBS PHONE: (716) 824-8119
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TANK NUMBER:	2	TANK STATUS:	CLOSED - REMOVED
INSTALLED:	12/1/70	CLOSED:	12/1/97
TANK CAPACITY:	2000 GALLONS		
PRODUCT:	LUBE		

TANK TYPE:	STEEL/CARBON STEEL
TANK LOCATION:	ABOVEGROUND ON SADDLES, LEGS, STILTS, RACK, OR CRADLE
INTERNAL PROTECTION:	NONE
EXTERNAL PROTECTION:	PAINTED/ASPHALT COATING
PIPE TYPE:	
PIPE LOCATION:	ABOVE GROUND
INTERNAL PROTECTION:	NONE
EXTERNAL PROTECTION:	PAINTED/ASPHALT COATING
SECONDARY CONTAINMENT:	NONE
LEAK DETECTION:	NONE
OVERFILL PROTECTION:	NONE
DISPENSER:	0
DATE TESTED:	8/1/87
NEXT TEST:	
TEST METHOD:	

TANK NUMBER:	3	TANK STATUS:	CLOSED PRIOR TO 04/91 (IT IS EITHER
IN PLACE OR REMOVED)			
INSTALLED:	9/1/1925	CLOSED:	
TANK CAPACITY:	10000 GALLONS		
PRODUCT:	# 1, 2, OR 4 FUEL OIL		

TANK TYPE:	STEEL/CARBON STEEL
TANK LOCATION:	UNDERGROUND
INTERNAL PROTECTION:	
EXTERNAL PROTECTION:	
PIPE TYPE:	
PIPE LOCATION:	
INTERNAL PROTECTION:	
EXTERNAL PROTECTION:	
SECONDARY CONTAINMENT:	NONE
LEAK DETECTION:	NONE
OVERFILL PROTECTION:	
DISPENSER:	SUCTION
DATE TESTED:	
NEXT TEST:	
TEST METHOD:	

TANK NUMBER:	4	TANK STATUS:	CLOSED PRIOR TO 04/91 (IT IS EITHER
IN PLACE OR REMOVED)			
INSTALLED:	9/1/1925	CLOSED:	
TANK CAPACITY:	10000 GALLONS		
PRODUCT:	# 1, 2, OR 4 FUEL OIL		

- Continued on next page -

Environmental FirstSearch
Site Detail Report

TARGET SITE: FUHRMANN BLVD
BUFFALO NY 14220

JOB: NB03035.10
SMALL BOAT HARBOR/GALLAGHER BEACH

REGISTERED UNDERGROUND STORAGE TANKS

SEARCH ID: 72

DIST/DIR: 0.00 --

MAP ID: 8

NAME: FREEZER QUEEN FOODS INC
ADDRESS: 975 FUHRMANN BLVD
BUFFALO NY 14203
ERIE
CONTACT: HERTZ PENSKE TRUCK LEASE

REV: 1/1/02
ID1: PBS9-008893
ID2:
STATUS: UNREGULATED BY PBS
PHONE: (716) 824-8119

TANK TYPE: STEEL/CARBON STEEL
TANK LOCATION: UNDERGROUND
INTERNAL PROTECTION:
EXTERNAL PROTECTION:
PIPE TYPE:
PIPE LOCATION:
INTERNAL PROTECTION:
EXTERNAL PROTECTION:
SECONDARY CONTAINMENT: NONE
LEAK DETECTION: NONE
OVERFILL PROTECTION:
DISPENSER: SUCTION
DATE TESTED:
NEXT TEST:
TEST METHOD:

TANK NUMBER: 6
INSTALLED: 3/1/88
TANK CAPACITY: 10000 GALLONS
PRODUCT: DIESEL

TANK STATUS: CLOSED - REMOVED
CLOSED: 1/1/98

TANK TYPE: STEEL/CARBON STEEL
TANK LOCATION: ABOVEGROUND ON SADDLES, LEGS, STILTS, RACK, OR CRADLE
INTERNAL PROTECTION: NONE
EXTERNAL PROTECTION: PAINTED/ASPHALT COATING
PIPE TYPE: GALVANIZED STEEL
PIPE LOCATION: ABOVE GROUND
INTERNAL PROTECTION: NONE
EXTERNAL PROTECTION: PAINTED/ASPHALT COATING
SECONDARY CONTAINMENT: CONCRETE DIKE
LEAK DETECTION: IN-TANK SYSTEM, NONE
OVERFILL PROTECTION: VENT WHISTLE
DISPENSER: SUBMERSIBLE
DATE TESTED: 3/1/88
NEXT TEST:
TEST METHOD:

TANK NUMBER: 603
IN PLACE OR REMOVED)
INSTALLED: 12/1/70
TANK CAPACITY: 4000 GALLONS
PRODUCT: DIESEL

TANK STATUS: CLOSED PRIOR TO 04/91 (IT IS EITHER
CLOSED:

TANK TYPE: STEEL/CARBON STEEL
TANK LOCATION: UNDERGROUND
INTERNAL PROTECTION:
EXTERNAL PROTECTION:
PIPE TYPE: GALVANIZED STEEL

- Continued on next page -

Environmental FirstSearch
Site Detail Report

TARGET SITE: FUHRMANN BLVD
BUFFALO NY 14220

JOB: NB03035.10
SMALL BOAT HARBOR/GALLAGHER BEACH

REGISTERED UNDERGROUND STORAGE TANKS

SEARCH ID: 73

DIST/DIR: 0.12 NW

MAP ID: 1

NAME: PORT OF BUFFALO-SMALL BOAT HARBOR
ADDRESS: 901 FUHRMANN BOULEVARD
BUFFALO NY 14203
ERIE
CONTACT: ANTHONY LARUSSO

REV: 1/1/02
ID1: PBS9-493228
ID2:
STATUS: ACTIVE PBS FACILITY
PHONE: (716) 852-1921

PETROLEUM BULK STORAGE FACILITY INFORMATION

TYPE OF SITE: LB
TOTAL ACTIVE TANKS ON SITE: 5
TOTAL FACILITY CAPACITY: 28280 GALLONS
OLD PBS NUMBER: **CBS NUMBER:** **SPDES NUMBER:**
ADDITIONAL ADDRESS INFO:

TYPE OF OWNER: STATE GOVERNMENT
OWNER SUB TYPE: OTHER
OWNER ADDRESS: 181 ELLICOTT STREET
BUFFALO NY 14203
PHONE: (716) 855-7300

EMERGENCY CONTACT: ANTHONY LARUSSO
PHONE: (716) 852-1921

MAILING NAME: NIAGARA FRONTIER TRANSPORTATION AUTHORITY
ADDRESS: 181 ELLICOTT ST
BUFFALO NY 14203
ATTENTION: MARK CLARK
PHONE: (716) 855-7427

CERTIFICATE DATE: 10/8/99 **EXP. DATE:** 9/1/04
RENEWAL DATE:

TANK INFORMATION

TANK NUMBER: 1 **TANK STATUS:** IN SERVICE
INSTALLED: 10/1/92 **CLOSED:**
TANK CAPACITY: 10000 GALLONS
PRODUCT: DIESEL

TANK TYPE: STEEL/CARBON STEEL
TANK LOCATION: ABOVEGROUND
INTERNAL PROTECTION: NONE
EXTERNAL PROTECTION: PAINTED/ASPHALT COATING, NONE
PIPE TYPE: GALVANIZED STEEL
PIPE LOCATION: ABOVE GROUND
INTERNAL PROTECTION: NONE
EXTERNAL PROTECTION: PAINTED/ASPHALT COATING, NONE
SECONDARY CONTAINMENT: PREFABRICATED STEEL DIKE, NONE
LEAK DETECTION: NONE
OVERFILL PROTECTION: HIGH LEVEL ALARM, PRODUCT LEVEL GAUGE
DISPENSER: SUCTION
DATE TESTED:
NEXT TEST:
TEST METHOD:

- Continued on next page -

**Environmental FirstSearch
Site Detail Report**

TARGET SITE: FUHRMANN BLVD
BUFFALO NY 14220

JOB: NB03035.10
SMALL BOAT HARBOR/GALLAGHER BEACH

REGISTERED UNDERGROUND STORAGE TANKS

SEARCH ID: 73 **DIST/DIR:** 0.12 NW **MAP ID:** 1

NAME: PORT OF BUFFALO-SMALL BOAT HARBOR	REV: 1/1/02
ADDRESS: 901 FUHRMANN BOULEVARD	ID1: PBS9-493228
BUFFALO NY 14203	ID2:
ERIE	STATUS: ACTIVE PBS FACILITY
CONTACT: ANTHONY LARUSSO	PHONE: (716) 852-1921

TANK NUMBER:	401	TANK STATUS:	IN SERVICE
INSTALLED:	1/1/85	CLOSED:	
TANK CAPACITY:	6000 GALLONS		
PRODUCT:	UNLEADED GASOLINE		

TANK TYPE:	FIBERGLASS REINFORCED PLASTIC (FRP)
TANK LOCATION:	UNDERGROUND
INTERNAL PROTECTION:	FIBERGLASS LINER (FRP)
EXTERNAL PROTECTION:	FIBERGLASS, NONE
PIPE TYPE:	GALVANIZED STEEL
PIPE LOCATION:	UNDERGROUND
INTERNAL PROTECTION:	NONE
EXTERNAL PROTECTION:	PAINTED/ASPHALT COATING, WRAPPED (PIPING)
SECONDARY CONTAINMENT:	NONE
LEAK DETECTION:	IN-TANK SYSTEM, NONE
OVERFILL PROTECTION:	AUTOMATIC SHUTOFF, CATCH BASIN
DISPENSER:	SUCTION
DATE TESTED:	12/1/95
NEXT TEST:	
TEST METHOD:	HORNER EZ CHECK

TANK NUMBER:	402	TANK STATUS:	CLOSED - REMOVED
INSTALLED:		CLOSED:	8/1/90
TANK CAPACITY:	4000 GALLONS		
PRODUCT:	LEADED GASOLINE		

TANK TYPE:	STEEL/CARBON STEEL
TANK LOCATION:	UNDERGROUND
INTERNAL PROTECTION:	
EXTERNAL PROTECTION:	
PIPE TYPE:	STEEL/IRON
PIPE LOCATION:	
INTERNAL PROTECTION:	
EXTERNAL PROTECTION:	
SECONDARY CONTAINMENT:	NONE
LEAK DETECTION:	NONE
OVERFILL PROTECTION:	
DISPENSER:	SUCTION
DATE TESTED:	
NEXT TEST:	
TEST METHOD:	

TANK NUMBER:	403	TANK STATUS:	CLOSED - REMOVED
INSTALLED:		CLOSED:	3/1/98
TANK CAPACITY:	2000 GALLONS		
PRODUCT:	DIESEL		
TANK TYPE:	STEEL/CARBON STEEL		

- Continued on next page -

**Environmental FirstSearch
Site Detail Report**

TARGET SITE: FUHRMANN BLVD
BUFFALO NY 14220

JOB: NB03035.10
SMALL BOAT HARBOR/GALLAGHER BEACH

REGISTERED UNDERGROUND STORAGE TANKS

SEARCH ID: 73 **DIST/DIR:** 0.12 NW **MAP ID:** 1

NAME: PORT OF BUFFALO-SMALL BOAT HARBOR
ADDRESS: 901 FUHRMANN BOULEVARD
BUFFALO NY 14203
ERIE
CONTACT: ANTHONY LARUSSO

REV: 1/1/02
ID1: PBS9-493228
ID2:
STATUS: ACTIVE PBS FACILITY
PHONE: (716) 852-1921

TANK LOCATION: UNDERGROUND
INTERNAL PROTECTION:
EXTERNAL PROTECTION:
PIPE TYPE: STEEL/IRON
PIPE LOCATION:
INTERNAL PROTECTION:
EXTERNAL PROTECTION:
SECONDARY CONTAINMENT: NONE
LEAK DETECTION: IN-TANK SYSTEM
OVERFILL PROTECTION:
DISPENSER: SUCTION
DATE TESTED: 1/1/96
NEXT TEST:
TEST METHOD: HORNER EZ CHECK

TANK NUMBER: 404 **TANK STATUS:** CLOSED - REMOVED
INSTALLED: **CLOSED:** 8/1/90
TANK CAPACITY: 4000 GALLONS
PRODUCT: LEADED GASOLINE

TANK TYPE: STEEL/CARBON STEEL
TANK LOCATION: UNDERGROUND
INTERNAL PROTECTION:
EXTERNAL PROTECTION:
PIPE TYPE: STEEL/IRON
PIPE LOCATION:
INTERNAL PROTECTION:
EXTERNAL PROTECTION:
SECONDARY CONTAINMENT: NONE
LEAK DETECTION: NONE
OVERFILL PROTECTION:
DISPENSER: SUCTION
DATE TESTED:
NEXT TEST:
TEST METHOD:

TANK NUMBER: 405 **TANK STATUS:** CLOSED - REMOVED
INSTALLED: **CLOSED:** 8/1/90
TANK CAPACITY: 4000 GALLONS
PRODUCT: LEADED GASOLINE

TANK TYPE: STEEL/CARBON STEEL
TANK LOCATION: UNDERGROUND
INTERNAL PROTECTION:
EXTERNAL PROTECTION:
PIPE TYPE: STEEL/IRON
PIPE LOCATION:
INTERNAL PROTECTION:

- Continued on next page -

Environmental FirstSearch
Site Detail Report

TARGET SITE: FUHRMANN BLVD
BUFFALO NY 14220

JOB: NB03035.10
SMALL BOAT HARBOR/GALLAGHER BEACH

REGISTERED UNDERGROUND STORAGE TANKS

SEARCH ID: 73

DIST/DIR: 0.12 NW

MAP ID: 1

NAME: PORT OF BUFFALO-SMALL BOAT HARBOR
ADDRESS: 901 FUHRMANN BOULEVARD
BUFFALO NY 14203
ERIE
CONTACT: ANTHONY LARUSSO

REV: 1/1/02
ID1: PBS9-493228
ID2:
STATUS: ACTIVE PBS FACILITY
PHONE: (716) 852-1921

EXTERNAL PROTECTION:

SECONDARY CONTAINMENT: NONE

LEAK DETECTION: NONE

OVERFILL PROTECTION:

DISPENSER: SUCTION

DATE TESTED:

NEXT TEST:

TEST METHOD:

TANK NUMBER: 406 **TANK STATUS:** CLOSED - REMOVED
INSTALLED: **CLOSED:** 8/1/90
TANK CAPACITY: 4000 GALLONS
PRODUCT: LEADED GASOLINE

TANK TYPE: STEEL/CARBON STEEL
TANK LOCATION: UNDERGROUND

INTERNAL PROTECTION:

EXTERNAL PROTECTION:

PIPE TYPE: STEEL/IRON

PIPE LOCATION:

INTERNAL PROTECTION:

EXTERNAL PROTECTION:

SECONDARY CONTAINMENT: NONE

LEAK DETECTION: NONE

OVERFILL PROTECTION:

DISPENSER: SUCTION

DATE TESTED:

NEXT TEST:

TEST METHOD:

TANK NUMBER: 407 **TANK STATUS:** CLOSED - REMOVED
INSTALLED: **CLOSED:** 8/1/90
TANK CAPACITY: 4000 GALLONS
PRODUCT: LEADED GASOLINE

TANK TYPE: STEEL/CARBON STEEL
TANK LOCATION: UNDERGROUND

INTERNAL PROTECTION:

EXTERNAL PROTECTION:

PIPE TYPE: STEEL/IRON

PIPE LOCATION:

INTERNAL PROTECTION:

EXTERNAL PROTECTION:

SECONDARY CONTAINMENT: NONE

LEAK DETECTION: NONE

OVERFILL PROTECTION:

DISPENSER: SUCTION

DATE TESTED:

- Continued on next page -

**Environmental FirstSearch
Site Detail Report**

TARGET SITE: FUHRMANN BLVD
BUFFALO NY 14220

JOB: NB03035.10
SMALL BOAT HARBOR/GALLAGHER BEACH

REGISTERED UNDERGROUND STORAGE TANKS

SEARCH ID: 73 **DIST/DIR:** 0.12 NW **MAP ID:** 1

NAME: PORT OF BUFFALO-SMALL BOAT HARBOR	REV: 1/1/02
ADDRESS: 901 FUHRMANN BOULEVARD	ID1: PBS9-493228
BUFFALO NY 14203	ID2:
ERIE	STATUS: ACTIVE PBS FACILITY
CONTACT: ANTHONY LARUSSO	PHONE: (716) 852-1921

NEXT TEST:
TEST METHOD:

TANK NUMBER:	408	TANK STATUS:	IN SERVICE
INSTALLED:	1/1/85	CLOSED:	
TANK CAPACITY:	6000 GALLONS		
PRODUCT:	UNLEADED GASOLINE		

TANK TYPE:	STEEL/CARBON STEEL
TANK LOCATION:	UNDERGROUND
INTERNAL PROTECTION:	NONE
EXTERNAL PROTECTION:	SACRIFICIAL ANODE, NONE
PIPE TYPE:	STEEL/IRON
PIPE LOCATION:	UNDERGROUND
INTERNAL PROTECTION:	NONE
EXTERNAL PROTECTION:	SACRIFICIAL ANODE, NONE
SECONDARY CONTAINMENT:	DOUBLE-WALLED TANK, NONE
LEAK DETECTION:	INTERSTITIAL MONITORING, NONE
OVERFILL PROTECTION:	FLOAT VENT VALVE, CATCH BASIN
DISPENSER:	SUCTION
DATE TESTED:	2/1/96
NEXT TEST:	
TEST METHOD:	HORNER EZ CHECK

TANK NUMBER:	409	TANK STATUS:	IN SERVICE
INSTALLED:	5/1/90	CLOSED:	
TANK CAPACITY:	6000 GALLONS		
PRODUCT:	UNLEADED GASOLINE		

TANK TYPE:	STEEL/CARBON STEEL
TANK LOCATION:	UNDERGROUND
INTERNAL PROTECTION:	NONE
EXTERNAL PROTECTION:	SACRIFICIAL ANODE, NONE
PIPE TYPE:	GALVANIZED STEEL
PIPE LOCATION:	UNDERGROUND
INTERNAL PROTECTION:	NONE
EXTERNAL PROTECTION:	SACRIFICIAL ANODE, NONE
SECONDARY CONTAINMENT:	DOUBLE-WALLED TANK, NONE
LEAK DETECTION:	INTERSTITIAL MONITORING, NONE
OVERFILL PROTECTION:	FLOAT VENT VALVE, CATCH BASIN
DISPENSER:	SUBMERSIBLE
DATE TESTED:	2/1/96
NEXT TEST:	
TEST METHOD:	HORNER EZ CHECK

TANK NUMBER:	410	TANK STATUS:	IN SERVICE
INSTALLED:	12/1/92	CLOSED:	
TANK CAPACITY:	280 GALLONS		

- Continued on next page -

Environmental FirstSearch
Site Detail Report

TARGET SITE: FUHRMANN BLVD
BUFFALO NY 14220

JOB: NB03035.10
SMALL BOAT HARBOR/GALLAGHER BEACH

REGISTERED UNDERGROUND STORAGE TANKS

SEARCH ID: 73

DIST/DIR: 0.12 NW

MAP ID: 1

NAME: PORT OF BUFFALO-SMALL BOAT HARBOR
ADDRESS: 901 FUHRMANN BOULEVARD
BUFFALO NY 14203
ERIE
CONTACT: ANTHONY LARUSSO

REV: 1/1/02
ID1: PBS9-493228
ID2:
STATUS: ACTIVE PBS FACILITY
PHONE: (716) 852-1921

PRODUCT: USED OIL

TANK TYPE: STEEL/CARBON STEEL
TANK LOCATION: ABOVEGROUND ON SADDLES, LEGS, STILTS, RACK, OR CRADLE
INTERNAL PROTECTION: NONE
EXTERNAL PROTECTION: PAINTED/ASPHALT COATING, NONE
PIPE TYPE: STEEL/IRON
PIPE LOCATION: ABOVE GROUND
INTERNAL PROTECTION: NONE
EXTERNAL PROTECTION: PAINTED/ASPHALT COATING, NONE
SECONDARY CONTAINMENT: NONE
LEAK DETECTION: NONE
OVERFILL PROTECTION: NONE
DISPENSER: SUCTION
DATE TESTED:
NEXT TEST:
TEST METHOD:

**Environmental FirstSearch
Federal Databases and Sources**

ASTM Databases:

CERCLIS: *Comprehensive Environmental Response Compensation and Liability Information System.* The EPA's database of current and potential Superfund sites currently or previously under investigation. Source: Environmental Protection Agency.

Updated quarterly.

ERNS: *Emergency Response Notification System.* The EPA's database of emergency response actions. Source: Environmental Protection Agency. Data since January, 2001 has been received from the National Response Center as the EPA no longer maintains this data.

Updated quarterly.

FINDS: *The Facility Index System.* The EPA's Index of identification numbers associated with a property or facility which the EPA has investigated or has been made aware of in conjunction with various regulatory programs. Each record indicates the EPA office that may have files on the site or facility. Source: Environmental Protection Agency.

Updated semi-annually.

NPL: *National Priority List.* The EPA's list of confirmed or proposed Superfund sites. Source: Environmental Protection Agency.

Updated quarterly.

RCRIS: *Resource Conservation and Recovery Information System.* The EPA's database of registered hazardous waste generators and treatment, storage and disposal facilities. Included are RAATS (RCRA Administrative Action Tracking System) and CMEL (Compliance Monitoring & Enforcement List). Source: Environmental Protection Agency.

RCRA TSD: *Resource Conservation and Recovery Information System Treatment, Storage, and Disposal Facilities.* The EPA's database of RCRIS sites which treat, store, dispose, or incinerate hazardous waste. This information is also reported in the standard RCRIS detailed data.

RCRA COR: *Resource Conservation and Recovery Information System Corrective Action Sites.* The EPA's database of RCRIS sites with reported corrective action. This information is also reported in the standard RCRIS detailed data.

RCRA GEN: *Resource Conservation and Recovery Information System Large and Small Quantity Generators.* The EPA's database of RCRIS sites that create more than 100kg of hazardous waste per month or meet other RCRA requirements. Included are RAATS (RCRA Administrative Action Tracking System) and CMEL (Compliance Monitoring & Enforcement List).

RCRA NLR: *Resource Conservation and Recovery Information System sites No Longer Regulated.* The EPA's database of RCRIS sites that create less than 100kg of hazardous waste per month or do not meet other RCRA requirements.

All RCRA databases are Updated quarterly



Aerial Photograph – 1985

Non-ASTM Databases:

HMIRS: Hazardous Materials Incident Response System: This database contains information from the US Department of Transportation regarding materials, packaging, and a description of events for tracked incidents.

Updated quarterly.

NCDB: National Compliance Database. This EPA database contains information relating to TSCA (Toxic Substances Control Act) and FTTs which provides support for the national pesticides and toxics program.

Updated quarterly

NPDES: National Pollution Discharge Elimination System. The EPA's database of all permitted facilities receiving and discharging effluents. Source: Environmental Protection Agency.

Updated semi-annually.

NRDB: National Radon Database. The NRDB was created by the EPA to distribute information regarding the EPA/State Residential Radon Surveys and the National Residential Radon Survey. The data is presented by zipcode in Environmental FirstSearch Reports. Source: National Technical Information Service (NTIS)

Updated Periodically

Nuclear: The Nuclear Regulatory Commission's (NRC) list of permitted nuclear facilities.

Updated Periodically

PADS: PCB Activity Database System

The EPA's database PCB handlers (generators, transporters, storers and/or disposers) that are required to notify the EPA, the rules being similar to RCRA. This database indicates the type of handler and registration number. Also included is the PCB Transformer Registration Database.

Updated semi-annually.

Receptors: 1995 TIGER census listing of schools and hospitals that may house individuals deemed sensitive to environmental discharges due to their fragile immune systems.

Updated Periodically

RELEASES: Air and Surface Water Releases. A subset of the EPA's ERNS database which have impacted only air or surface water.

Updated semi-annually.

Soils: This database includes the State Soil Geographic (STATSGO) data for the conterminous United States. It contains information regarding soil characteristics such as water capacity, percent clay, organic material, permeability, thickness of layers, hydrological



Subject to Change
1976
1,320'
Maryland

Aerial Photograph – 1958

the annual frequency of flooding. Source: United States Geographical Survey (USGS)

Updated quarterly

TRIS: *Toxic Release Inventory System*. The EPA's database of all facilities that have had or may be prone to toxic material releases. Source: Environmental Protection Agency.

Updated semi-annually.

**Environmental FirstSearch
New York Databases and Sources**

1. **State Sites:** The New York State Department of Environmental Conservation's Registry of Inactive Hazardous Waste Disposal Sites. The database contains information on all Class 1, Class 2, Class 2a, Class 3, Class 4, and Class 5 locations maintained by the Division of Hazardous Waste Remediation.

Updated quarterly.

The Hazardous Substance Waste Disposal Site Study list maintained by the New York State Department of Environmental Conservation is also included within the State Sites database.

Updated as available.

2. **Spills:** The New York State Department of Environmental Conservation's database of emergency response actions and spill releases maintained by the Division of Spills Management.

Updated quarterly.

3. **Landfills:** The New York State Department of Environmental Conservation's Active Facilities Registry maintained by the Division of Solid and Hazardous Materials.

Updated annually.

4. **UST:** The New York State Department of Environmental Conservation's database of Petroleum Bulk Storage (PBS) facilities, Major Oil Storage Facilities (MOSF), and Chemical Bulk Storage (CBS) facilities maintained by the Division of Spills Management and delegated Counties (Nassau, Suffolk, Rockland, and Cortland Counties).

Updated quarterly.

5. **PWS:** The State of New York Department of Health database of Public Water Supply (PWS) wells maintained by the Bureau of Public Water Supply.

Updated annually.

6. **LUST:** The New York State Department of Environmental Conservation's database of Leaking Underground Storage Tanks (LUSTs) maintained by the Division of Spills Management. The database is derived from the Spills database.

Updated quarterly.

Environmental FirstSearch
Street Name Report for Streets within .25 Mile(s) of Target Property

TARGET SITE: FUHRMANN BLVD
BUFFALO NY 14220

JOB: NB03035.10
SMALL BOAT HARBOR/GALLAGHER BEACH

<u>Street Name</u>	<u>Dist/Dir</u>	<u>Street Name</u>	<u>Dist/Dir</u>
Buffalo Skwy	0.18 NW		
Father Baker Mem Brg	0.20 SE		
Father Baker Mem Hwy	0.06 NE		
Fuhrmann Blvd	0.01 NE		
Ohio St	0.05 NE		
Tifft St	0.06 NE		

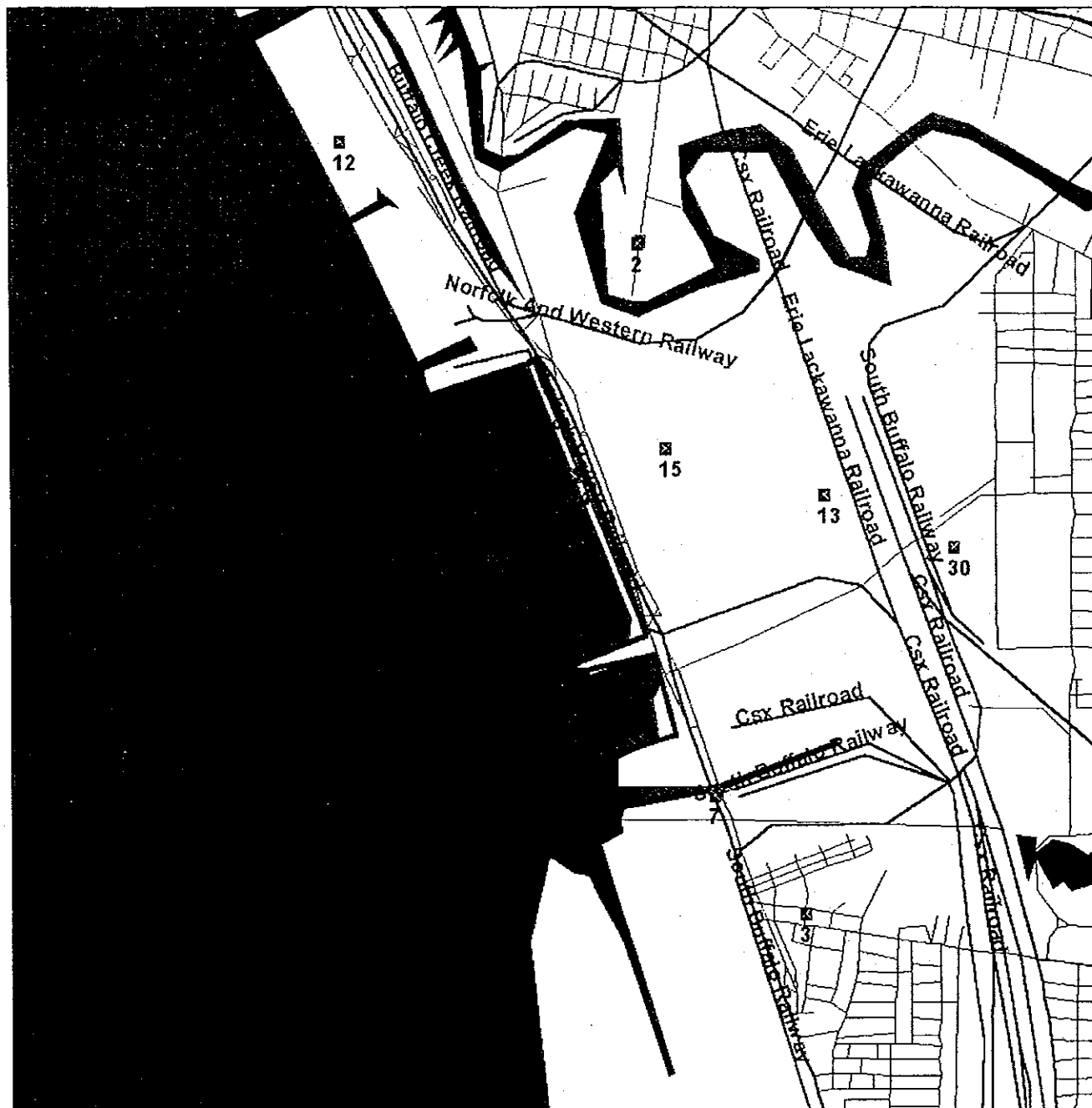


Environmental FirstSearch

1 Mile Radius from Area
ASTM Map: NPL, RCRACOR, STATE Sites



FUHRMANN BLVD, BUFFALO NY 14220



Source: 1999 U.S. Census TIGER Files

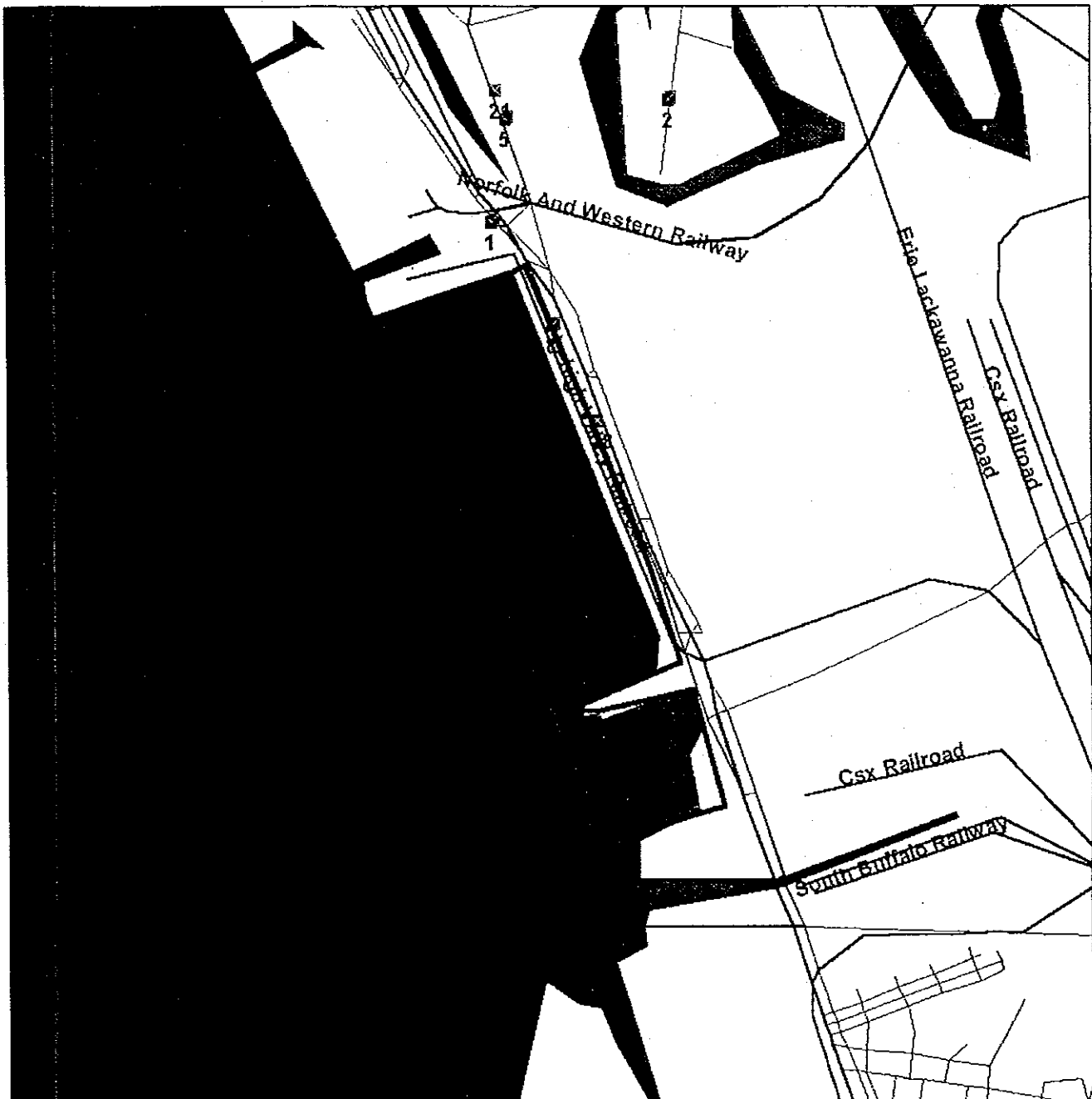
- Area Polygon
- Identified Site, Multiple Sites, Receptor
- NPL, Solid Waste Landfill (SWL) or Hazardous Waste
- Railroads
- Black Rings Represent 1/4 Mile Radii; Red Ring Represents 500 ft. Radius



Environmental FirstSearch
.5 Mile Radius from Area
ASTM Map: CERCLIS, RCRATSD, LUST, SWL



FUHRMANN BLVD, BUFFALO NY 14220



Source: 1999 U.S. Census TIGER Files

- Area Polygon 
- Identified Site, Multiple Sites, Receptor   
- NPL, Solid Waste Landfill (SWL) or Hazardous Waste 
- Railroads 
- Black Rings Represent 1/4 Mile Radii; Red Ring Represents 500 ft. Radius

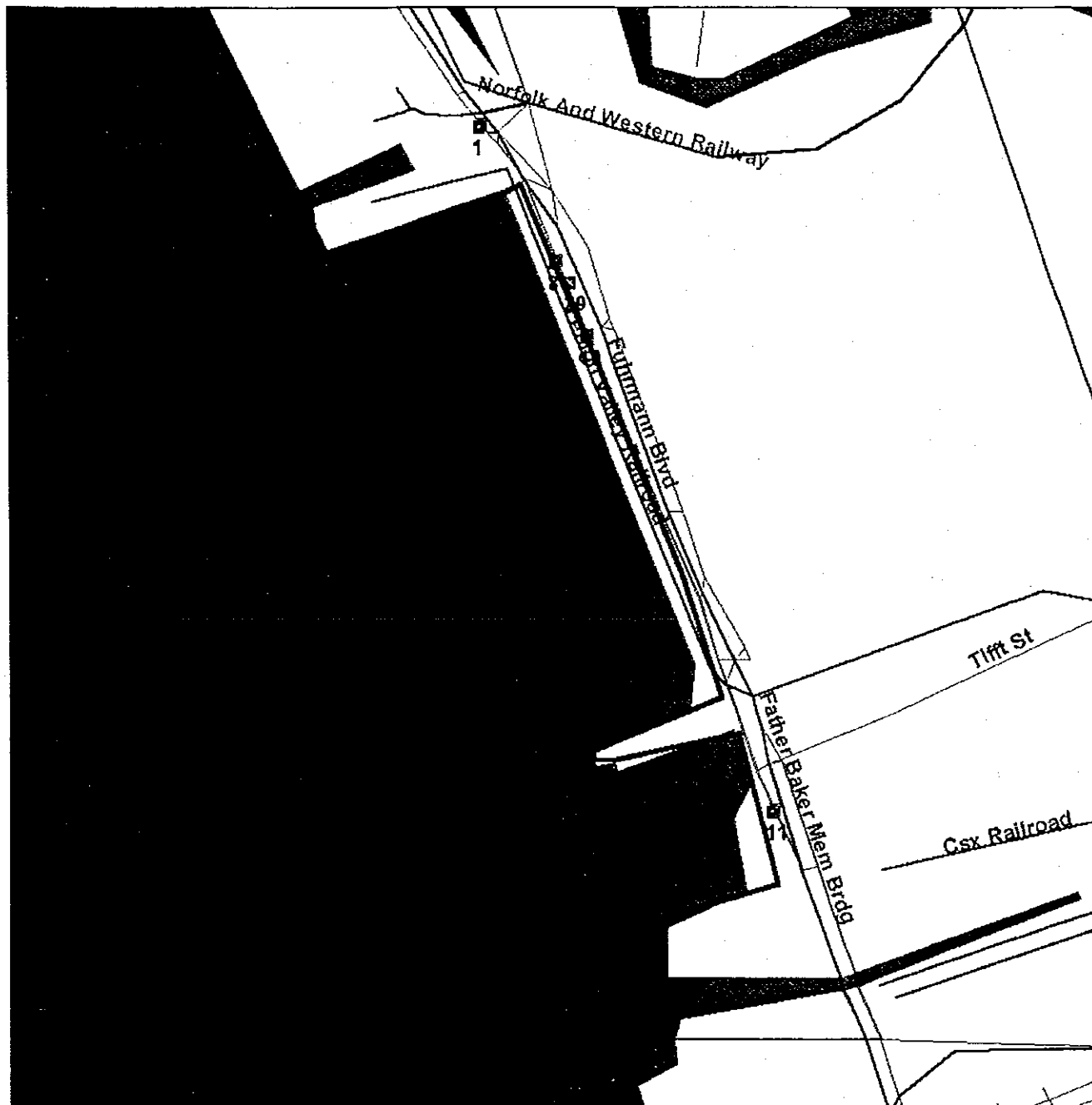


Environmental FirstSearch

.25 Mile Radius from Area
ASTM Map: RCRAGEN, ERNS, UST



FUHRMANN BLVD, BUFFALO NY 14220



Source: 1999 U.S. Census TIGER Files

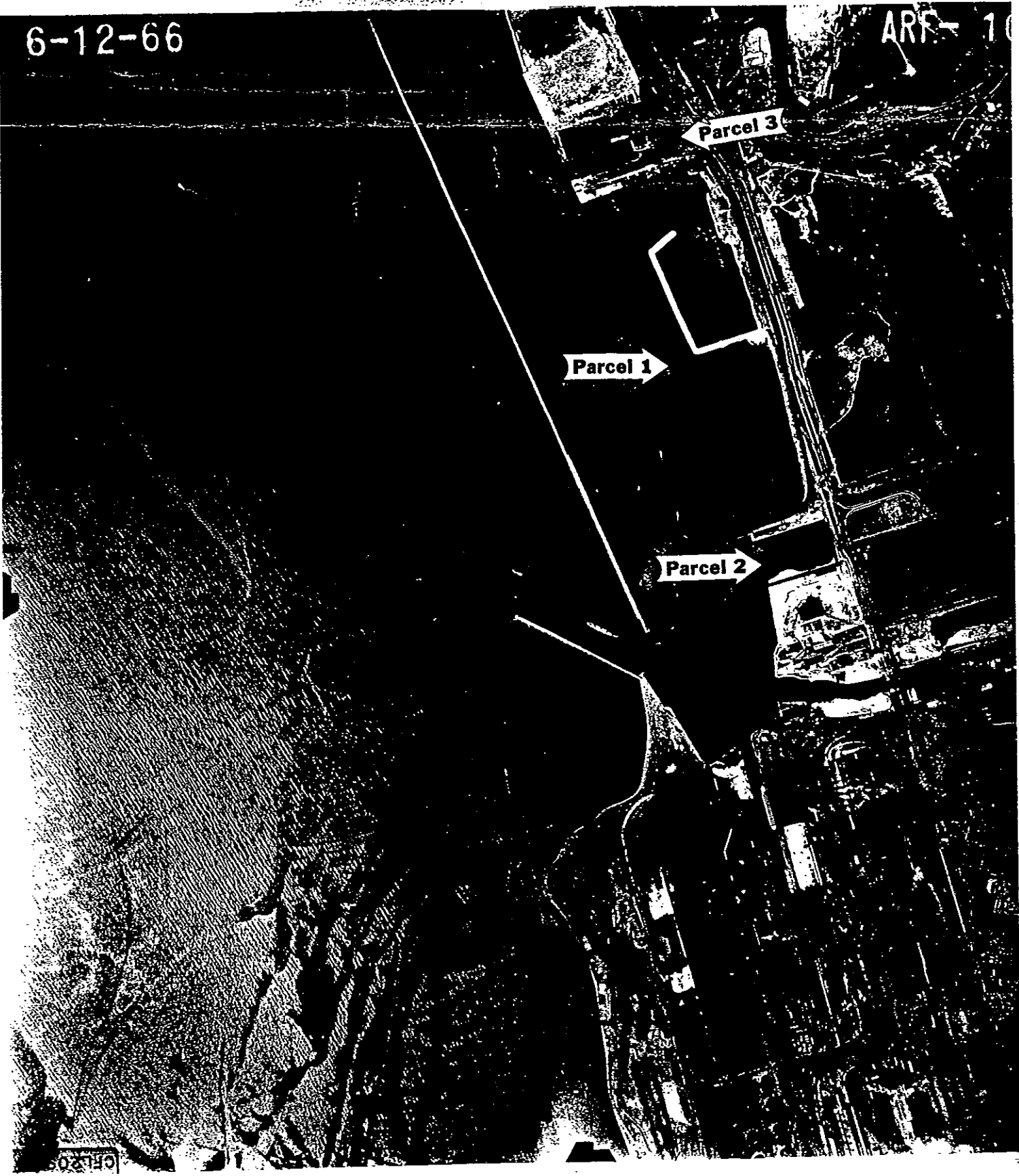
- Area Polygon
- Identified Site, Multiple Sites, Receptor
- NPL, Solid Waste Landfill (SWL) or Hazardous Waste
- Railroads
- Black Rings Represent 1/4 Mile Radii; Red Ring Represents 500 ft. Radius

APPENDIX D

Aerial Photographs

6-12-66

ARF- 10



Aerial Photograph - 1966



Aerial Photograph – 1990

APPENDIX E

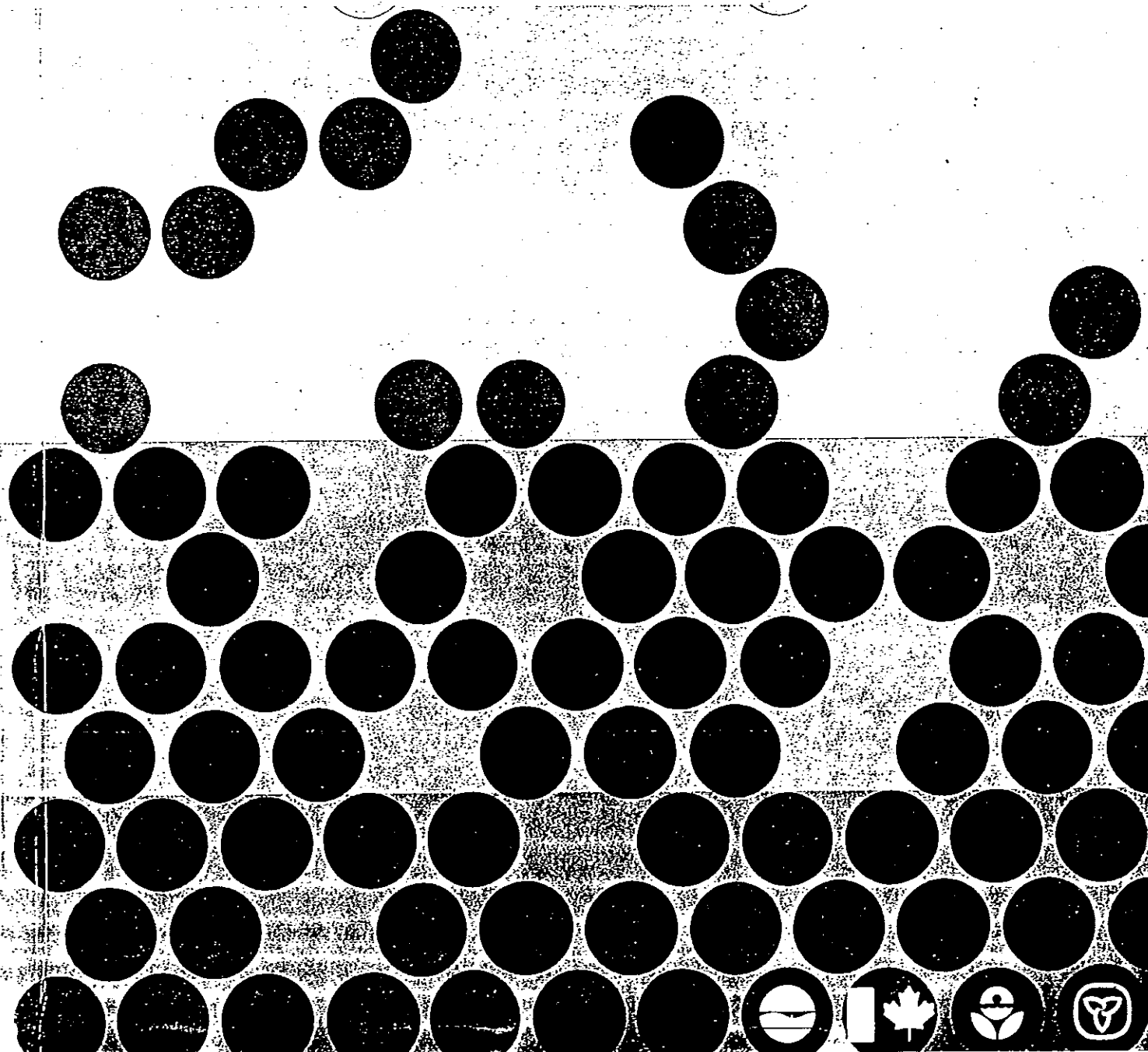
Previous Environmental Reports

SEDIMENT 1981

REPORT OF

The Niagara River Toxics Committee

OCTOBER 1984



<u>Parameter</u>	<u>Wells Screened Above Clay (ug/L)</u>		<u>Wells Screened Below Clay (ug/L)</u>	
	<u>Maximum</u>	<u>Mean</u>	<u>Maximum</u>	<u>Mean</u>
TKN as N	125,000	98,000	4,400	28,00
Phenol	89	49,5	ND	ND
Total Organic Carbon	950,000	479,800	9,000	5,300
Total halogenated hydrocarbons	8.42	3.57	ND	ND
Arsenic ^{1/}	21.3	10.7	ND	ND
Chromium ^{1/}	16	10	64	49
Copper ^{1/}	210	43	100	50
Mercury ^{1/}	10.7	3.2	ND	ND
Silver ^{1/}	4	2	ND	ND

^{1/} EPA priority pollutant

ND Not detected

Elevated levels of total Kjeldahl nitrogen, total organic carbon, phenols, arsenic, and mercury were observed above the clay but not below the clay. Chromium was observed at higher levels below the clay.

Samples collected by the DEC in December 1982 of the wells screened below the clay were analyzed for organic priority pollutants. None were detected.

Further analyses are required to determine the make up of the nitrogen compounds, which may be dye intermediates.

B.1.1.3 Times Beach-Site 241 (915080) - The Times Beach site is located adjacent to Lake Erie near the head of the Niagara River.

The Corps of Engineers used this 18.6 hectare (46 acre) site for disposal and containment of dredge spoils from the Buffalo River, Buffalo Harbor, and the Black Rock Canal from 1971-76. Approximately 420,500 cubic metres (550,000 cubic yards) of dredged material has been deposited at the site.

Recent studies indicate that the water level within the site fluctuates on a lag time basis with the lake level. The barrier itself does not appear to be preventing water from entering or leaving the containment site. Any leachate produced at the site would enter Lake Erie and the Niagara River.

The dredge spoils deposited in the containment area consist of sand, silt, and clay. The bedrock underlying the disposal site is Onondaga Limestone which is overlain by natural lake deposits of silt and clay.

In the summer of 1981, the Army Corps of Engineers collected 16 dredge spoil samples from the site. The samples were analyzed for a number of organic and inorganic constituents; the results appear below:

Concentration of Selected Inorganic and Organic Compounds
in Spoils Samples at Times Beach Dredge Spoil Site^{2/}

<u>Parameter</u>	<u>Concentration (ug/g)</u>	
	<u>Maximum</u>	<u>Mean</u>
Arsenic ^{1/}	58.9	22.7
Cadmium ^{1/}	13.3	11.9
Chromium ^{1/}	393	332
Copper ^{1/}	269	251
Lead ^{1/}	1,037	497
Mercury ^{1/}	9.4	4.8
Nickel ^{1/}	63	55
Zinc ^{1/}	1,854	1,283
Bis(2-ethylhexyl) phthalate ^{1/}	5.5	3.0
PCB (Aroclor 1242) ^{1/}	1.0	0.7
PCB (Aroclor 1254) ^{1/}	2.5	1.5
Aniline	2.8	2.3
1-Aminonaphthalene	4.1	2.7
N-Benzyl-ethylaniline	7.0	4.5
4,4'-Methylene-bis(N,N'-dimethylaniline)	1.4	0.9
p,p'-Benzylidene bis(N,N'-dimethylaniline)	4.7	3.3
Benzo(a)pyrene ^{1/}	96	39
1,2-Dichlorobenzene ^{1/}	9.8	3.5
1,3-Dichlorobenzene ^{1/}	9.5	3.9
1,4-Dichlorobenzene ^{1/}	22	12
Naphthalene ^{1/}	20	14
Phenanthrene ^{1/}	15	13
Anthracene ^{1/}	13	9.7

TABLE (continued)

<u>Parameter</u>	<u>Concentration (ug/g)</u>	
	<u>Maximum</u>	<u>Mean</u>
Fluoranthene ^{1/}	24	17
Pyrene ^{1/}	27	17
Benzo(a)anthracene ^{1/}	23	12
Chrysene ^{1/}	26	14

^{1/} EPA priority pollutant^{2/} HNO₃ extracted

Compounds identified but not quantified include 4-(dimethyl-amino) benzophenone, N,N,N',N'-tetramethylbenzidine, chlordane, toxaphene, dimethyl phthalate, diethyl phthalate, dibutyl phthalate, benzylbutyl phthalate, lindane, heptachlor, aldrin, p,p'-DDE, dieldrin, endrin, p,p'-DDD, p,p'-DDT, methoxychlor, mirex, and phenol.

Three monitoring wells were installed by the USGS in the containment site in 1982. In January 1983, the three monitoring wells installed at the site were sampled and a surface water sample was collected by the USGS. Each sample was analyzed for priority pollutants. The results of the analyses are as follows:

<u>Parameter</u>	<u>Concentration (ug/L)</u>		
	<u>Sub-surface Water</u>	<u>Surface Water</u>	
	<u>Maximum</u>	<u>Mean</u>	<u>(Single Sample)</u>
Aluminum	95,800	33,810	30,000
Antimony ^{1/}	24	8	31
Arsenic ^{1/}	106	67.3	115
Barium	2,320	929	331
Cadmium ^{1/}	17	10.2	39
Chromium ^{1/}	496	223	758
Cobalt	220	73.3	ND
Copper	1,250	472	912
Lead ^{1/}	3,560	1,331	2,020
Manganese	19,200	7,752	2,930
Mercury ^{1/}	0.96	0.32	ND
Nickel ^{1/}	659	219	129
Thallium ^{1/}	ND	ND	66
Zinc ^{1/}	761,000	261,000	3,340

TABLE (continued)

Parameter	Concentration (ug/L)		
	Sub-surface water		Surface Water (Single Sample)
	Maximum	Mean	
Benzene 1/	370	149	ND
Chlorobenzene 1/	4,600	1,743	ND
Ethylbenzene 1/	46	29.7	ND
Toluene 1/	15	7.6	ND
2-Chlorophenol 1/	39	13	ND
1,2-Dichlorobenzene 1/	230	76.7	ND
1,3-Dichlorobenzene 1/	22	7.3	ND
1,4-Dichlorobenzene 1/	120	56.3	ND
1,2,4-Trichlorobenzene 1/	77	25.7	ND
N-nitrosodiphenylamine 1/	48	24	38
Bis(2-ethylhexyl) phthalate 1/	81	37	ND
Aniline	35	11.7	ND
4-Chloroaniline	430	143	ND
Naphthalene 1/	100	33.3	ND
o-Xylene	32	10.7	ND
Fluoranthene	ND	ND	9.2
Hexane	2,500	1,533	ND

1/ EPA Priority pollutant

ND Not detected

Other organic parameters tentatively identified and semi-quantified include: methylcyclopentane, 4-ethyl-2-methylhexane, 4-methylbenzeneamine, 2-chlorobenzeneamine, 3-ethyl-5-methylpyridine, 2,4-dimethylheptane, 1,3-dimethylbenzene, 3-hexanone, 2-hexanone, 3-hexanol, 2-hexanol, and 1-hexanol.

Two other dredge spoil containment sites, the Small Boat Harbor containment site located in the Buffalo Outer Harbor and the Buffalo Harbor containment site located adjacent to the Bethlehem Steel Corporation plant along Lake Erie were sampled in a similar manner. The results of the sub-surface and surface water samples at these sites are as follows:

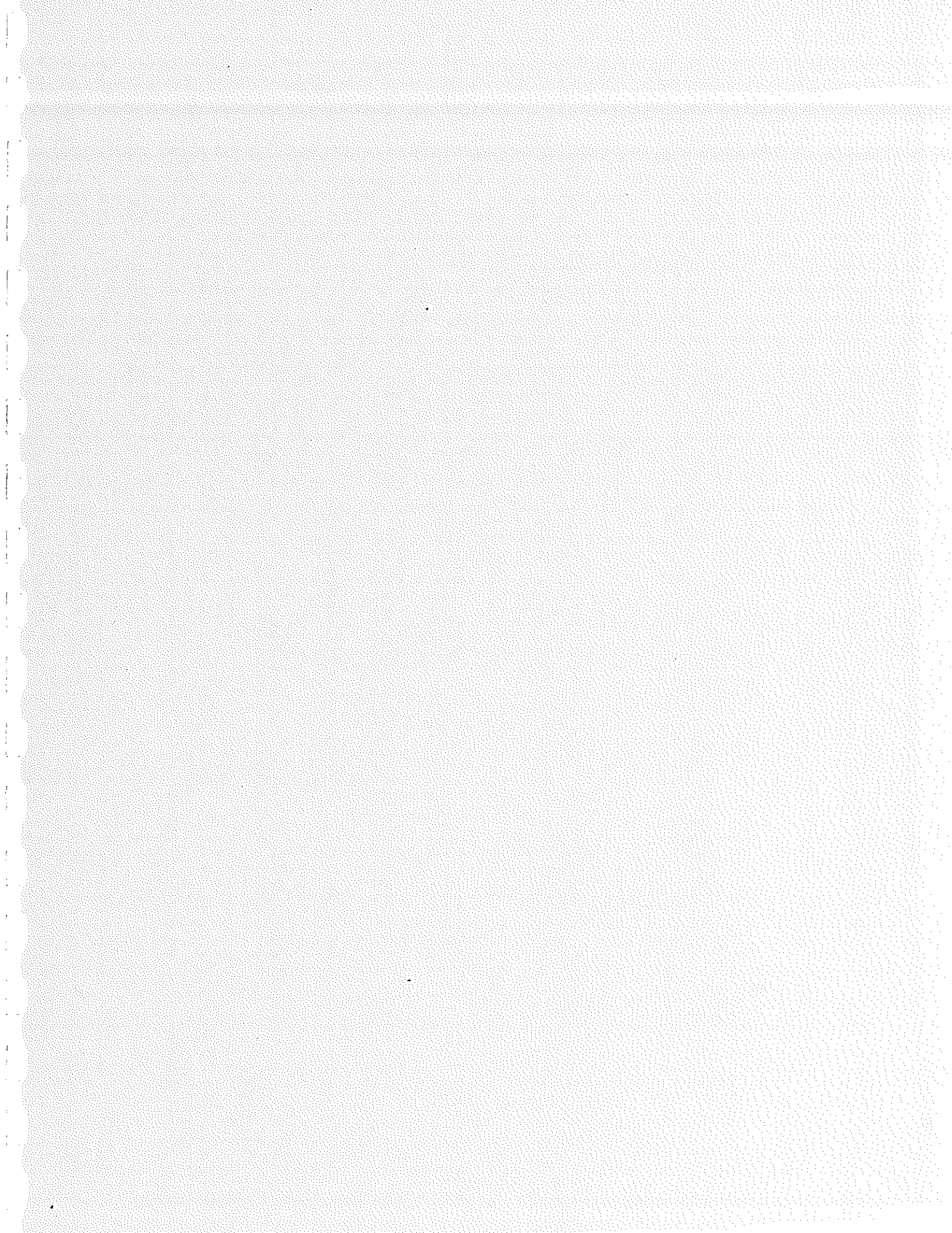
Parameter	Subsurface Water Mean Concentration (ug/L)		Surface Water Single Sample Concentration (ug/L)	
	Small Boat Harbor Site	Buffalo Outer Harbor Site	Small Boat Harbor Site	Buffalo Outer Harbor Site
Aluminum	3,690	5,030	234	1,680
Antimony 1/	7	ND	ND	ND
Arsenic 1/	44	17	ND	ND
Barium 1/	186	233	ND	ND
Cadmium 1/	9.8	6.2	ND	ND
Chromium 1/	122.3	102	ND	19
Copper 1/	94.3	20.7	ND	ND
Lead 1/	357	124	ND	72
Manganese	3,426	5,110	39	311
Mercury 1/	0.3	ND	ND	ND
Nickel 1/	47.7	ND	ND	ND
Tin	16	25.3	ND	ND
Zinc 1/	11,136	14,600	14	124
Benzene 1/	21.7	255	ND	ND
Chlorobenzene 1/	834	109	ND	ND
Toluene 1/	ND	2.8	ND	ND
Ethylbenzene 1/	3.7	ND	ND	ND
1,3-Dichlorobenzene 1/	20.7	ND	ND	ND
N-nitrosodiphenylamine 1/	23.7	ND	ND	ND
1,4-Dichlorobenzene 1/	8.7	ND	ND	ND
Bis(2-ethylhexyl) phthalate 1/	ND	20	ND	ND
Acenaphthylene	ND	7	ND	ND
Phenanthrene 1/	ND	1.9	ND	ND
Naphthalene 1/	ND	36.7	ND	ND
o-Xylene	6	1.9	ND	ND
Fluoranthene 1/	ND	8	ND	ND

1/ EPA priority pollutant

ND Not detected

Additional parameters similar to those at the Times Beach site were tentatively identified at these containment sites.

Water level measurements illustrate the occurrence of water movement from the Times Beach site. Additional monitoring would be required to determine the rate of migration.





ENVIRONMENTAL STUDY
NIAGARA FRONTIER TRANSPORTATION AUTHORITY
DIKED DISPOSAL AREA
BUFFALO, NEW YORK

For

Niagara Frontier Transportation Authority
181 Ellicott Street
Buffalo, New York 14205

BTA-86-94
FEBRUARY 1987

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ENVIRONMENTAL STUDY
NIAGARA FRONTIER TRANSPORTATION AUTHORITY
DIKED DISPOSAL AREA
BUFFALO, NEW YORK

I. INTRODUCTION

A. Project History

The environmental engineering investigation of the diked disposal area, which is located west of Fuhrmann Boulevard and south of the Small Boat Harbor in the City of Buffalo, was initiated by the Niagara Frontier Transportation Authority (NFTA) to (1) determine whether the dredged materials placed by the U.S. Army Corps of Engineers during the period of 1967 to 1979 have resulted in environmental degradation, (2) evaluate the need for site remediation prior to developing the area and (3) determine the extent of remediation required (if any).

The diked disposal area was used by the U. S. Army Corps of Engineers from 1967 to 1979 for placement of dredged materials from the Buffalo Harbor, as part of the Federal Clean Waters Act Project. The agreement between NFTA and the U. S. Army Corps of Engineers called for the diked disposal area to revert back to NFTA ownership when the site was no longer needed by the Corps of Engineers for placement of dredged materials. In 1979 the Corps of Engineers indicated that there would be no further need for the site and transferred the site to the NFTA. At that time, the Corps of

Engineers informed the NFTA that the general site grade was approximately five feet below the design elevation. For several years the site was inactive while the NFTA investigated ways to bring the site up to the design grade and prepare the site for future beneficial use.

It is not known whether any authorized or unauthorized filling of the site occurred between 1979 and the present. At the beginning of our field investigations on November 17, 1986, fill materials were being placed along the northern one-quarter of the diked disposal area. It is our understanding that the source of the fill material was the nearby Louisiana Street railroad embankment excavation. We further note that fill materials were placed above existing grades in an uncontrolled (i.e. non-engineered) manner.

B. Site Location and Description

The diked disposal site is located south of, and adjacent to, the Buffalo small boat harbor along Lake Erie (see Drawing No. A.1 in Appendix A). The site is accessed from Fuhrmann Boulevard (N.Y.S. Route 5) which runs along the eastern side of the site. The diked disposal area is surrounded on the north, west and south by water from the small boat harbor and the Buffalo Outer Harbor.

The site is approximately 1000 feet by 1000 feet (i.e. roughly 23 acres) in plan. The north, south and

western sides of the diked disposal area, which are exposed to wave action, are heavily covered with limestone rip-rap for erosion protection and stabilization. The interior of the site is of fairly low relief, with localized elevation changes of less than 10 feet. Based on visual observations, the surface features of the northern one-quarter of the site appears to contain a large amount of recently placed demolition debris. The remaining three-quarters of the site appears to consist of dredge fill material, densely covered with swamp vegetation and small trees.

C. Purpose and Scope

The purpose of this investigation was to evaluate the environmental conditions of the diked disposal area to (1) determine whether previous filling activities at the site have caused environmental degradation, (2) evaluate whether remediation of the site is necessary prior to site development, (3) assess the extent of remediation required and possibility for migration of contaminants off the site and, (4) evaluate the possibility for migration of contaminants at the site due to placement of fill on top of the existing dredged fill materials.

The scope of this investigation was limited to the field investigation, data analysis and report preparation. The field investigation for this project

included: (1) geophysical surveys using EM conductivity and magnetometer equipment, (2) monitoring well installation and soil sampling, (3) water sampling and (4) analysis of data from water and soil sample chemical testing.

II. METHODOLOGY

A. Borings and Wells

Thirteen borings were drilled using hollow stem augers. Monitoring wells were installed in each of the borings upon completion. The boring locations are shown on Drawing No. A.2 in Appendix A. Borehole locations and elevations were established at the site by a survey crew from Larsen Engineers of Rochester, New York.

During drilling, continuous soil samples were taken in each boring. The borings were advanced to depths of 10 to 28 feet below the existing ground surface (see Appendix B for boring logs). The borings were terminated at least 2 feet below the approximate mean lake elevation of 573, with the deepest boring (EW-9) extending 18.4 feet below the approximate mean lake elevation.

Monitoring wells were installed in each boring. The wells were constructed using 2-inch I.D., flush joint, threaded PVC riser pipe and well screen. The well screens are 5 feet long with 0.01 inch machine slotted openings. Sand was placed in the annular space

around the well screen to a height of at least 1 foot above the top of the well screen. A seal of bentonite pellets, approximately 2 feet thick, was placed above the filter sand backfill. The remaining annular space was filled with cement grout to minimize surface water infiltration. A locking metal protector pipe was grouted over each well. Well details are given on Drawing C.1 in Appendix C. The augers and soil sampling equipment were decontaminated by steam cleaning between borings.

B. EM Conductivity Survey

The EM conductivity survey was performed at the NFTA diked disposal area using a Geonics EM34-3 electromagnetic terrain conductivity instrument. Field measurements were taken along a 50 feet by 50 feet grid system established at the site by Larsen Engineers (see Drawing No. A.2 in Appendix A for grid locations). Conductivity readings were taken along base lines A through T at grid lines 1 through 20. This would ideally provide 400 grid points at 50 foot centers across the site. However, 10 grid points could not be measured due to (1) perimeter rip rap dike along base line T beyond grid line 14, (2) inaccessible areas due to demolition debris and (3) heavy equipment working on the site. The EM conductivity survey readings were not obtained at grid intersections J-4, N-2, O-2 and T-2 due

to demolition debris and locations T-15 through T-20 due to the perimeter rip rap dike. Thus, a total of 390 grid points were measured.

The apparent conductivity was measured directly along the grid system at the 50 foot centers using a 10 meter coil separation spacing. The instrument null was checked daily and corrected for any instrument drift. The instrument sensitivity range was adjusted during the survey to optimize readings of high and low apparent conductivity and to obtain the most accurate conductivity reading.

Based on the direct apparent conductivity values obtained in the field, the conductivity values along grid line 1 at base lines F through T were interpreted to represent background values for the site. These 15 values were used to determine the mean background conductivity value. The mean background conductivity, calculated using these 15 data points, was 16.7 millimhos/meter. Using a mean background conductivity of 16.7 millimhos/meter the field data was normalized using equation 1.

$$\begin{array}{l} \text{Normalized} \\ \text{Conductivity} = 20 \log_{10} \frac{\text{Apparent Conductivity}}{\text{Background Conductivity}} \quad (\text{Eqn.1}) \\ (\text{Decibels}) \end{array}$$

The units for the normalized conductivity are decibels, which are a dimensionless unit. Normalizing

the values of the apparent conductivity, using decibels for contouring, enhances the areas of high apparent conductivity at the site. Table D.1 in Appendix D contains the apparent conductivity readings and the normalized values for each grid intersection. The normalized values for each location were input into a computer program, gridded, plotted and contoured to produce the the apparent conductivity contour map given on Drawing A.4 in Appendix A. On Drawing No. A.4, the contour interval is one decibel, with minimum and maximum contours of 9.5 and 23.5, respectively.

C. Magnetometer Survey

The magnetometer survey was performed using a Geometrics G-826 portable proton magnetometer. Measurements were taken along the same grid system as the EM conductivity survey. The locations which were inaccessible for the magnetometer survey were K-1 and L-1 due to heavy equipment, N-2, O-2 and T-2 due to demolition debris and T-15 through T-20 due to the perimeter rip rap dike. Thus, a total of 389 grid points were measured. A base station was maintained at location A-1 and periodic readings (usually hourly) were taken during the survey to correct and remove daily variations.

The normal magnetic field intensity for the NFTA diked disposal area was estimated at 56 kilogammas (as

per EG & G Geometrics). The magnetometer was tuned to this intensity for the field survey to eliminate the effect of the earth's magnetic field for this region. Three or four readings were taken at each grid point to provide an average reading for each intersection.

The field readings were converted to total magnetic intensity of the site as explained in Table D.3, in Appendix D. The time variation correction factor was then determined from the base station location (A-1) and the total field intensity values were corrected for the daily time variations (see Table D.2 in Appendix D). The total magnetic field intensity was plotted and contoured using the same program as the EM conductivity survey and is presented as Drawing No. A.5 in Appendix A. The contour interval is 0.25 kilogammas (250 gammas) and the minimum and maximum contours are 81.5 and 83.0 kilogammas, respectively. The EM Conductivity Survey on Drawing No. A.4 and the Magnetometer Survey on Drawing No. A.5 are at the same scale as the Monitoring Well Locations given on Drawing No. A.2 in Appendix A.

D. Soil Sampling

Soil samples for chemical analyses were obtained from nine borings (EW-1 through EW-9) and nine surface sampling areas (SS-1 through SS-9). The locations of the boring and surface sampling areas are shown on

Drawing No. A.2 in Appendix A. The soil samples from the borings are composite depth samples. The composite soil samples were prepared by placing half of each split spoon sample taken at the boring in a new plastic bag or plastic bucket. After the boring was completed the samples which were placed in the bucket or bag were blended. A portion of the thoroughly blended mixture was placed in precleaned jars supplied by the laboratory for chemical analysis.

The surface soil samples were also composite samples. Each surface soil sample was a composite of four locations surrounding the similarly numbered boring location shown on Drawing No. A.2 in Appendix A (i.e. SS-1 is a composite of four locations in the vicinity of EW-1). The four locations used to prepare each of the nine surface soil composite samples are listed on the chain of custody records in Appendix E.5.

The surface soil samples were taken after removing the vegetative layer. The top four to six inches of soil was removed before the sample was taken. The four samples for each composite surface soil sample were placed in a clean plastic bag and blended. A portion of the mixture was placed in precleaned jars supplied by the laboratory.

All equipment used to obtain and blend the soil samples (shovel, bucket, split-spoon sampler) was

decontaminated between samples by washing with soap and water, followed by a distilled water rinse, hexane rinse, then final distilled water rinse. All soil samples except for composite surface soil samples SS-1 and SS-2 were delivered to the laboratory the same day of sampling. Samples from SS-1 and SS-2 were stored overnight before delivery to the laboratory the following day.

E. Water Sampling

Water samples were taken between December 2 and December 8, 1986 at 15 sampling points; 9 environmental wells (EW-1 through EW-9), 4 perimeter observation wells (POW-1 through POW-4), an area of ponded water (near grid intersection C-5), and a lake sample from the small boat harbor (near grid intersection M-1). The sampling locations are shown on Drawing No. A.2 in Appendix A.

The wells were purged before sampling to remove stagnant water. The quantity of water purged from each well prior to sampling is given on Table C.1 in Appendix C.

A teflon bailer with a teflon coated stainless steel wire was used to purge the wells and obtain the water samples (including the lake and surface water sample). The bailer and line were cleaned with soap and water, then rinsed with distilled water, hexane, and a final distilled water rinse between each sample.

Water samples were placed in precleaned bottles supplied by the laboratory. All water samples were delivered to the laboratory the same day of sampling.

F. Chemical Analysis

All water and soil samples were analyzed by RECRA Environmental, Inc. in Amherst, New York. The samples were analyzed for priority pollutants, pesticides, volatile organics, extractable organics and inorganic priority pollutants. The chemical laboratory test results are presented in Appendix E. Appendix F contains summary tables of the chemical test results.

III. FINDINGS OF THE INVESTIGATION

A. Subsurface Deposits

The borings encountered a variety of fill materials. The fill varied from slag fill to silty clay fill. Only four borings, EW-2, EW-7, EW-8 and EW-9, encountered the original lake deposits. The original lake deposits, found at the bottom of these borings, consisted primarily of sandy silts and silty sands. Between 14.5 and 21 feet of fill was encountered in the borings which extended to the lake bottom. Three borings on the outer periphery of the site, POW-2, POW-3 and POW-4, encountered slag fill. Borehole location EW-1 also encountered slag fill.

B. Ground Water

The water levels measured in the monitoring wells were between 1.9 and 10.5 feet below the ground surface (see Table C.1 Appendix C). Water levels measured after developing the thirteen monitoring wells were used to construct the water table contour map, given on Drawing No. A.3 in Appendix A. The water table contours indicate that there is a mound in the center of the site, with flow toward the lake and small boat harbor.

C. Geophysical Survey

1. EM Conductivity Survey

The EM conductivity survey identified areas of high apparent conductivity at the diked disposal area (see Drawing No. A.4 in Appendix A). Interpretation of this data, based on site conditions at the time of the survey, has resulted in the division of the conductivity anomalies into two groups; (1) conductivity anomalies due to demolition debris or fill with high metal content visible at the ground surface and (2) conductivity anomalies from unknown sources. Tables D.4a and D.4b in Appendix D list these two groups of anomalies and their locations.

The first group of conductivity anomalies was located essentially along the northern one-quarter of the site. This was an area of the site which was filled with a large amount of demolition debris with a high metal content visible at the surface. This fill area

generally extended from grid lines 1 through 6 along baselines A through J and from grid lines 1 through 4 along baselines K through T. Not all of the anomalies encountered in this area could be directly associated with the demolition debris anomalies of Group I (Table D.4a, Appendix D). Two fairly large anomalies were encountered around grid locations B-6 and C-6. Since these anomalies could not be directly associated with demolition debris or metal rubble at the surface, as the Group I anomalies were, they have been placed in Group II.

The anomalies listed with Group II, (Table D.4b in Appendix D), are from unknown sources. They represent areas of higher apparent conductivity which lie outside the zone of demolition debris and fill with a high metal content. These areas have apparent conductivities of 9.5 decibels or higher, which represent areas where the measured apparent conductivity is approximately 3 times the background conductivity.

2. Magnetometer Survey

The proton magnetometer survey was used to measure variations of the total magnetic field intensity at the diked disposal area to define areas of high iron content. Field measurements were taken along the same grid system as the EM conductivity survey. In order to assist data interpretation, two statistical analyses

were performed; (1) an analysis to determine if there was a statistical difference between magnetic measurements within the area of demolition debris and magnetic measurements outside this area, and (2) an analysis to determine which values would be outside the normal distribution of measurements.

The first statistical analysis compared the population means of data points located within the area of demolition debris and data points located outside the area of demolition debris. It was determined that there is no significant statistical difference between the means for these two areas using:

- o .1% level of significance
- o The assumption that the two population means are normally distributed.
- o The hypothesis (H_1): $\mu_1 \neq \mu_2$ where μ_1 and μ_2 are the mean of the distribution of values for the area outside the demolition debris area and within the demolition debris area, respectively.

Since the first analysis showed that there was no statistical difference between measurements in the area of demolition debris and outside this area, all 389 data points were used in the second analysis to evaluate what the normal distribution of measurements should be. Using a 99 percent level of confidence for determination of a confidence interval for the population mean (μ), it was determined that values which were greater than 81.7 kilogammas could be interpreted as magnetic anomalies

for the diked disposal area. A contour map of the values which are greater than 81.7 kilogammas is presented as Drawing No. A.5 in Appendix A. This drawing shows probable magnetic anomalies for the site.

As with the EM conductivity survey, the magnetometer data has been interpreted, based on site conditions at the time of the survey, and divided into two groups of anomalies (see Tables D.5a and D.5b in Appendix D). Group I (Table D.5a) lists the magnetic anomalies due to demolition debris or fill with a high metal content visible at the ground surface. Group II (Table D.5b) lists the magnetic anomalies from unknown sources.

The Group I magnetic anomalies were found primarily along the northern one-quarter of the site. As described previously, this was the area of the site which was filled with a large amount of demolition debris with a high metal content visible at the surface. The approximate extent of this fill area is shown on Drawing No. A.6 in Appendix A. The location of the Group I anomalies, along with a brief description of the nature of the magnetic anomaly is given in Table D.5a, Appendix D. A fairly large magnetic anomaly was identified at grid location B-5 and B-6. This is within the area of demolition debris and the anomalies associated with this area. Since there was no visible

debris of metal at the surface at this location, this anomaly is placed in Group II.

The Group II anomalies are magnetic anomalies from unknown sources. All of these anomalies, with the exception of B-5 and B-6, are located outside the area of demolition debris.

D. Ground Water Contamination

Water samples from the thirteen monitoring wells, ponded water (grid intersection C-5) and lake water were analyzed for four general groups of priority pollutants; (1) volatile organics, (2) extractable organics, (3) pesticides and (4) inorganics. The results of the analysis are presented in Appendices E and F. Appendix E contains the laboratory chemical results and Appendix F contains summary tables of chemical test results.

Tables F.1 through F.4 in Appendix F contain a summary of the parameters detected in each sample and the relevant guidance and regulatory criteria. The regulatory criteria are from New York State Codes, Rules and Regulations, Title 6, Chapter X, Part 703 "Ground Water Classifications, Quality Standards and Effluent Standards and/or Limitations". The regulatory criteria are enforceable water quality standards. The guidance criteria are from the New York State Department of Environmental Conservation Division of Water Technical and Operational Guidance Series

85-W-38, Ambient Water Quality Standards and Guidance Values, July 24, 1985. The guidance criteria have not yet been adopted as regulations, but are used by the NYSDEC in evaluating water quality.

Four pesticides, Endosulfan I, Endosulfan II, Hexachlorocyclohexane (BHC) and, Dieldrin, were found in concentrations in excess of 10 times the guidance criteria. However, 11 of the 13 wells had at least one of the above compounds in concentrations in excess of ten times the guidance criteria. One well, POW-1, had hexachlorocyclohexane in excess of 100 times the guidance criteria.

Volatile organics in concentrations exceeding 10 times the guidance criteria were found in 11 of the 13 monitoring wells. Eight of the 13 wells had one or more parameters with concentrations exceeding 100 times the guidance criteria (see Table F.6, Appendix F). Benzene, chlorobenzene and 1,2-dichlorobenzene were found in concentrations exceeding 100 times the guidance criteria. Toluene was found in concentrations exceeding 10 times the guidance criteria.

Extractable organics in concentrations exceeding 10 times the guidance criteria were found in 9 of 13 wells, and 3 wells had one or more parameters with concentrations exceeding 100 times the guidance criteria. Fourteen extractable organic parameters were

found in one or more wells in concentrations in excess of 10 times the guidance criteria. The compounds most frequently found in concentrations in excess of 10 times the guidance criteria were Naphthalene and 1,2-Dichlorobenzene. (Dichlorobenzene was also reported under the volatile priority pollutant analysis. The reported concentrations of Dichlorobenzene by the two methods of analysis are not similar, see Table F.2 and F.4 in Appendix F.) The compounds found in concentrations exceeding 100 times the guidance criteria were Naphthalene, 2,4-Dinitrophenol, Benzo(a)anthracene, and Chrysene.

The inorganic priority pollutants analyzed include cyanide and metals. Eleven of the 13 wells had one or more metals with concentrations exceeding 10 times the guidance criteria and 3 wells had one or more parameters with concentrations in excess of 100 times the drinking water standard. All inorganic priority pollutant parameters, with the exception of silver and thallium, were found in one or more wells in concentrations in excess of 10 times the guidance criteria. Lead, chromium and arsenic are the most ubiquitous metals found in concentrations in excess of 10 times the guidance criteria. Ten wells had concentrations of chromium or lead in excess of 10 times the guidance criteria, and 8 wells had concentrations of arsenic or

nickel in concentration in excess of 10 times the guidance criteria.

In order to evaluate the data, the number of parameters which exceeded 10 times the regulatory or guidance criteria at each well were tabulated for each of the four groups of parameters. Then each well was ranked with 1 being assigned to the well which had the greatest number of parameters which exceeded 10 times the guidance or regulatory criteria and 13 being assigned to the well with the least number of parameters exceeding 10 times the guidance criteria (see Table F.5, Appendix F).

Based on their ranking, the four wells which had the largest number of volatile organics, extractable organics, and inorganic priority pollutants in concentrations in excess of 10 times the guidance criteria were wells EW-2, POW-4, EW-6 and EW-9. The wells with the fewest number of inorganic priority pollutants, volatile organics and extractable organics in concentrations in excess of 10 times the guidance criteria were wells POW-3, POW-2 and EW-8. Examining the location of the wells where water samples indicate the greatest number of parameters with concentrations exceeding 10 times the guidance criteria with those indicating the least number of parameters with concentrations exceeding 10 times the guidance criteria

indicates that there is no pattern to the observed ground water contamination. Monitoring well POW-2, which had very few parameters with high concentrations, is within 150 feet of EW-2 which had the greatest number of parameters with high concentrations. A similar discrepancy is found between wells POW-4 which had the second highest ranking in terms of the number of parameters with concentrations in excess of 10 times the guidance criteria and EW-8 which had one of the lowest rankings.

E. Soil Contamination

Composite soil samples were taken to evaluate the surficial concentrations of contaminants in 9 areas and composite concentrations of contaminants at the 9 boring locations. The samples were analyzed for four general classes of priority pollutants; (1) pesticides, (2) volatile organics, (3) extractable organics and (4) inorganics (metals and cyanide). The results of the analysis are found in Appendices E and F. Appendix E contains the laboratory chemical data while Appendix F contains summary tables which list the contaminants that were found in each sample and their concentrations.

In evaluating the laboratory results for soil samples, there are no regulatory or guidance criteria with which to compare concentrations. However, a

qualitative analysis can be made by comparing soil and groundwater concentrations.

In examining the pesticide concentrations found in the soil samples, there appears to be no correlation between the composite surface soil samples taken at a given location (SS-1 through SS-9) and the composite soil samples taken at borehole locations (EW-1 through EW-9). For example, Beta-BHC and PCB-1248 were detected in the composite soil sample at borehole location EW-2, while the compounds detected in the composite surface soil sample composite for that area, SS-2, were Aldrin, Endosulfan Sulfate, Heptachlor and PCB-1254. In addition, there appears to be no correlation between the groundwater results and soil results. PCB's were detected in half the soil samples, while no PCB's were detected in water. The chemical 4'4-DDD was detected in water samples from EW-1, EW-2, EW-4, EW-6, EW-7 and EW-8 but was only found in soil samples at boreholes EW-4 and EW-6. Similar results are found with other pesticides.

Only four volatile organics were detected in soil samples; Chlorobenzene, 2,4-Dichlorobenzene, 1,3-Dichlorobenzene and Toluene (see Table F.10, Appendix F). These compounds were detected in only 3 borings, EW-2, EW-1 and EW-6. Boring EW-2 had the greatest number of volatile organics detected. The

water sample from this well (EW-2) also had the worst water quality in terms of volatile organics.

Extractable organics were found in 10 of the 18 soil samples; 5 borings (EW series) and 5 surface soil samples (SS series). (See Table F.11, Appendix F). The extractable organics were not as common in the soil samples as in the water samples where extractable organics were found in 11 of the 13 wells. The compounds most frequently found in the soil samples were Naphthalene and Fluoranthene. Naphthalene was the most frequently found compound in concentrations greater than 10 times the guidance criteria for water samples. However, Fluoranthene was only found in composite soil samples from 2 of the 13 wells. The second most frequently found extractable organics were Pyrene and Phenanthrene. Phenanthrene was detected in water samples from 7 wells, but Pyrene was only detected in samples from 2 wells (see Table F.4, Appendix F).

There does not seem to be any correlation between the composite surface soil sample results for extractable organics (SS series) and composite boring soil sample results (EW series). In some areas compounds were detected in the surface sample and not in the boring sample and in other areas the reverse was found (see Table F.11, Appendix F).

The inorganic parameters analyzed in the soil samples included cyanide and the priority pollutant metals. In evaluating the results from the soil samples, the concentrations of compounds found in surface soil samples and boring soil samples were compared. Unlike the organic compounds where there was no correlation between the surface samples and boring samples, the inorganic results indicate that for most compounds the concentrations in the composite boring samples are greater than the composite surface samples.

A comparison of the concentrations of the various inorganic compounds found in the composite boring soil samples, with water samples from the same location, indicates that for some compounds there is a correlation between high soil concentrations and high water concentrations, while for others there is no correlation. For cadmium, chromium, copper and mercury there appears to be a correlation between borings where there is a high concentration of the compound in the soil and the concentration found in ground water at that boring. For arsenic, cyanide, lead, nickel and zinc there appears to be very little correlation between soil concentrations and groundwater concentrations.

On a site wide basis, there also appears to be a correlation between metals found in high concentrations in the soil and high concentrations found in ground

water. The compounds found in soil in the highest concentrations, in relationship to the guidance criteria, were lead and chromium. These two compounds were also found in the greatest number of wells in concentrations exceeding 10 times the guidance criteria.

High concentrations of inorganic priority pollutant compounds were more widespread in soil samples than concentrations of any of the organic priority pollutant compounds.

IV. CONCLUSIONS AND RECOMMENDATIONS

A. Conclusions

The EM conductivity and magnetometer surveys have identified the anomalies listed in Tables D.4a, D.4b, D.5a and D.5b in Appendix D. The EM conductivity survey anomalies are divided into two groups of conductive anomalies; Group I (Table D.4a) for the anomalies which can be attributed to demolition debris and Group II (Table D.4b) for anomalies of unknown sources. The magnetometer survey anomalies are similarly divided (i.e. Group I and II anomalies in Tables D.5a and D.5b, respectively). The results of the EM conductivity survey and the magnetometer survey generally correlate with each other.

Most of the Group I anomalies for the EM conductivity and magnetometer surveys were correlated with demolition debris or metal visible in the fill at

the ground surface. The Group II anomalies for the EM conductivity and magnetometer surveys, based on the survey data and the boring logs for wells installed at the site, indicate that slag fill is probably responsible for anomalies at grid locations: E-7 through E-19, F-7 through F-20, G-8 through G-20, H-8 through H-20, I-8 through I-20, J-8 through J-20, L-9, R-20, S-12, S-13, S-17, S-19, S-20, T-13 and T-14. The other anomalies of unknown sources for the EM conductivity and magnetometer surveys may be due to underground pipes, buried metal or more intensive iron or slag fill areas.

The soil and water chemical test results indicate that high concentrations of both organic and inorganic priority pollutants are found at the diked disposal area. The compounds found in the highest concentrations throughout the site are Naphthalene, Benzene, Chlorobenzene, 1,2-Dichlorobenzene, Lead, Chromium, Arsenic and Nickel. These compounds are found in concentrations in excess of 10 times the guidance criteria in at least 7 of the 13 wells.

Three wells also had concentrations of metals exceeding the maximum concentration specified for determining EP Toxicity (40 CFR Part 261). Arsenic, Chromium, Lead and Mercury were found in one or more wells in concentrations exceeding the concentration specified for determining EP Toxicity.

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Although soil sample chemical test results for most compounds do not correlate directly to water sample chemical test results from the same borings, chemical testing of soil samples also indicates that both organic and inorganic contamination is found throughout the site. Ranking the soil and water sample chemical test results, indicates that the highest concentrations of priority pollutants for both soil and water samples was at monitoring well location EW-2.

Ground water contours indicate there is a mound beneath the site; groundwater is flowing radially from the center of the site toward the outer harbor and small boat harbor. Water levels also indicate POW-2 is down-gradient of EW-2. The water sample chemical test results from POW-2 indicate some attenuation may be occurring before groundwater discharges into the small boat harbor. Water quality at POW-2 was ranked second best in terms of a statistical ranking of the number of compounds detected in water samples exceeding 10 times the guidance criteria, while upgradient at EW-2 the water quality was ranked the worst. The water sample taken in the small boat harbor also did not have any detectable organic priority pollutants, and only nickel was in concentrations exceeding the guidance criteria for water. However, it must be emphasized that these

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are very preliminary conclusions based on one set of water samples.

Since the soil and water chemical test results indicate that organic and inorganic priority pollutants are found throughout the site, in both soil and water, any remediation will have to address the entire site.

B. Recommendations

Based on the results of our investigation we recommend the following:

- 1) Obtain and test one more set of water samples from the monitoring wells and boat harbor
- 2) analyze selected soil samples for EP Toxicity
- 3) Place a relatively impervious cap over the entire site
- 4) Monitor water quality in perimeter wells during placement of the cap

In order to more accurately assess the environmental concerns associated with the site we recommend additional soil and water sampling. The additional sampling and chemical testing should be performed prior to or during filling operations. The EP extraction test should be performed on soil samples from the vicinity of EW-2, EW-7, EW-6 and EW-8 to evaluate the potential release into groundwater of the priority pollutants detected in soil samples at these locations. Additional water samples should be taken from the small boat harbor and outer harbor (both west and south of the

site) to evaluate the extent of migration of priority pollutants from the site. We recommend taking two water samples from each of the three sides of the site bounded by water. In addition, water samples should be taken from each of the 13 wells.

Based on our evaluation of chemical testing to date and the proposed future use of the site as a parking lot, we recommend capping the site with relatively impervious fill materials to minimize surface water infiltration. We anticipate that the cap will need to be on the order of 2 to 3 feet thick to effectively eliminate surface water infiltration. The thickness of the "cap" is dependent on the fill material available for capping. No organic priority pollutants were found in the lake sample and concentrations of inorganic parameters were low. Since the site will only be used as a parking lot, the principal health concern is limiting contact with contaminated soil and ground water. A cap of relatively impervious fill over the site will eliminate any contact with contaminated soil or ground water.

We also recommend monitoring the four perimeter wells (POW-1, POW-2, POW-3 and POW-4) while the cap is being constructed, to evaluate whether the additional loadings on the site from the fill result in increased concentrations of priority pollutants in these wells. We recommend taking samples from these wells immediately before construction begins, then after the first two

lifts of the cap (approximately 1 foot of cover) have been placed.

Respectfully submitted,

EMPIRE-THOMSEN

Raymond A. Wagner B.

Raymond A. Wagner
Geologist

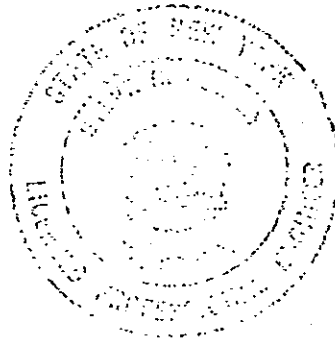
Marjory Rinaldo-Lee B.

Marjory Rinaldo-Lee, C.P.G.S.
Hydrogeologist

Steve R. Pulley

Steve R. Pulley, P.E.
Geotechnical Engineer

map



J. D. [unclear]
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STATE OF NEW YORK
DEPARTMENT OF HEALTH OFFICE OF PUBLIC HEALTH

CORNING TOWER

THE GOVERNOR NELSON A. ROCKEFELLER EMPIRE STATE PLAZA

ALBANY, N.Y. 12237

DAVID AXELROD, M.D.
Commissioner

LINDA A. RANDOLPH, M.D., M.P.H.
Director

May 4, 1987

WILLIAM F. LEAVY
Executive Deputy Director

Peter J. Buechi, P.E.
Regional Engineer for Solid and Hazardous Waste
NYSDEC
600 Delaware Ave.
Buffalo, N.Y. 14202-1073

Re: Small Boat Harbor, Erie Co.
ID #915127

Dear Mr. Buechi:

As requested, staff have reviewed the report entitled "Environmental Study Niagara Frontier Transportation Authority Diked Disposal Area Buffalo, New York", as prepared by Empire Soils Investigations, Inc.

Various concentrations of heavy metals, pesticides, and both semi-volatile and volatile organics have been noted throughout the site. Contaminant levels in perimeter observation wells suggest substantial lateral migration of toxic substances -- a condition which is not properly addressed in remedial alternatives. Properly capping the site, followed by the construction of an asphalt parking lot would effectively reduce infiltration and surface contact, but would not prevent substances from reaching surface waters or shoreline areas. In light of the recreational activities (e.g. fishing, boating, etc.) that take place on, or in the immediate environ, this approach would therefore fall short of preventing adverse health and environmental effects. Even if a remedial activity proved effective in stopping lateral migration, the enormous weight associated with a parking lot facility would have a compression effect. Likewise, any addition of fill material will be counterproductive to the prevention of lateral contaminant migration and likely increase the potential for human exposure to contaminants.

We fully concur with your advice to Mr. Franko of the NFTA that filling operations should be discontinued until an acceptable remedial plan has been developed and approved.

Please contact me at (518) 473-8427 if any questions arise.

Sincerely,

James Madigan

James Madigan
Program Research Specialist III
Bureau of Toxic Substances

cc: Dr. Hawley
Mr. Tramontano/Mr. Hudson
Mr. Tygert
Mr. Violanti
Mr. Kociela

Division of Regulatory Affairs - Region 9
600 Delaware Avenue, Buffalo, New York 14202-1073
716/847-4551

April 17, 1987

Mr. Raymond F. Gallagher, Chairman
Niagara Frontier Transportation Authority
181 Ellicott Street
P.O. Box 5008
Buffalo, New York 14205

Attention: Ms. Sharon M. West
Manager, Waterfront Planning

Proposed Small Boat Harbor Improvements
DRA #90-87-0213

Dear Mr. Gallagher:

Please consider this letter as a follow-up to our April 14, 1987 Notice of Incomplete Application and meeting with you, your staff and representatives of the U. S. Army Corps of Engineers.

At that meeting, your staff spoke of an earlier Department approval for parking on top of the diked disposal area. I wish to clarify our position since we were taken aback by NFTA's assertion. During early discussions (February 1984) for the Phase 1 Small Boat Harbor Improvement Project, we advised you that parking on the diked disposal area would be a problem because of the potentially hazardous materials at the site. This was followed by your Environmental Assessment (December 1984) which showed only a small future fisherman parking area. We concurred to NFTA's designation as SEQR Lead Agency on the basis that no parking was then proposed within the disposal area. Moreover, parking on the disposal area was neither part of your application or authorized by the Water Quality Certification (#90-85-0061) issued on July 1, 1985 for shoreline improvements.

As stated at other times, filling at the disposal area is a continuing concern relative to its impact on possible future remediation, water quality, and public health. However, this Department does not now have sufficient information to cause this operation to cease, and filling continues to be done solely at NFTA's risk.

We feel that this agency could support NFTA's selection to be SEQR Lead Agency for issuance of a Negative Declaration if the project were amended. We propose that your proposal be revised as follows:

Mr. Raymond F. Gallagher, Chairman

April 17, 1987

Page 2

- Rip rap and deadging as currently proposed, provided that the sediments are tested for pollutants and special handling procedures/disposal locations are approved by this Department.
- Docks as currently proposed, provided that no pilings are driven into the dike/fill materials and a fisherman's catwalk or similar accommodation is provided within the Small Boat Harbor.
- Temporary use of the diked disposal area for parking, provided that parking is restricted to only those sections recently filled with non-contaminated soils/rock from the stadium project, the use is limited to the smallest additional area needed to accommodate parking for the proposed number of new docks without adversely affecting boat launchers, and access to other portions of the disposal area is curtailed by the use of fences/signs. Long-term use and use of other areas of the diked disposal area should wait further studies and any Department approved remediation plans.

If you have any questions, please do not hesitate to contact Mr. Stuart Fox at the above number. Thank you.

Respectfully,



Paul D. Eismann

Alternate Regional Permit Administrator

PDE:cf

cc: Mr. J. Spagnoli

✓ Mr. J. Tygert, Attn: Mr. L. Clare

Ms. S. West

Col. D. Clark

J. C. C.
FILE

600 Delaware Avenue, Buffalo, New York 14202-1073

July 1, 1987

Niagara Frontier Transportation Authority
181 Ellicott Street
P.O. Box 5008
Buffalo, New York 14205

Attn: Mr. Walter Zmuda

Gentlemen:

Small Boat Harbor Diked Disposal Area
Buffalo (C), Erie County
Site No. 915127

This will respond to Mr. Savage's letter of June 8, 1987 concerning the above subject matter.

We have reviewed the letter and the attached plan and have the following comments:

1. Mr. Stuart Fox and the writer met with you on June 9, 1987 at the site and expressed concern relative to the contractor modifying the northern containment wall of the diked disposal area wherein the existing bank had physically been altered prior to the placement of additional fill. It was determined that at points along the dike, the contractor had cut in approximately 7 feet vertically into the existing material. Due to the placement of additional fill in the area, it is impossible to determine whether the diked material in fact entered the waters of the small boat harbor. Our most significant concern here is that the agreement between the NFTA and the Department indicated that there would be no excavation into the existing dike wherein in fact there had been.
2. Additional material, allegedly from the excavation at Pilot Field, was being trucked into the site and deposited on or adjacent to the eastern edge of the diked disposal area. In spite of contention that this material was in fact being placed east of the previously existing shoreline, physical evidence on the site indicated that some of this material was in fact being placed directly on top of the dredged spoil material.
3. Further, the material supposedly to be used for fill for the construction of a berm between the diked disposal area and Fuhrman Boulevard as well as the filled area currently existing was reportedly to be clean soil fill. It was noted that the material being

trucked in on June 9 contained in addition to soil material, bricks, stones, asphalt material, and other non-soil materials.

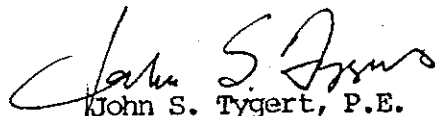
4. The question of drainage from the area which has been previously filled by the NFTA with material from Pilot Field has not been graded to prevent runoff of precipitation from remaining within the diked containment area. One of NFTA's major contentions supporting the placement of the fill material within the containment area was that the placement of the fill would in fact "cap" the site and prevent the infiltration of precipitation. In fact, the placement of the fill without provision for drainage from the already filled or "capped" area, does not serve to reduce infiltration, but merely concentrates runoff into a smaller area thereby creating localized stress on the migration of the previously deposited contaminated material to a smaller area.

It was discussed between the writer, Mr. Fox and you that the drainage should be diverted outside the containment area to prevent dissolution and migration of the contaminants from the containment area into the Small Boat Harbor or into the outer harbor.

You proposed the construction of a dike along the southerly edge of the previously filled area to divert runoff easterly outside of the containment area and thence either northerly or southerly into the Small Boat Harbor or outer harbor as appropriate. The plan submitted with Mr. Savage's letter indicated that in lieu of constructing a berm on the top of the filled area, you propose the construction of a berm directly on the spoil material and then to fill an additional $2\frac{1}{2}$ acres of the diked containment area and to provide for a drainage provision in this matter. The filling of an additional $2\frac{1}{2}$ acres is unacceptable to this Department. However, the construction of a berm on the previously filled area which will not extend to the south of the previously deposited fill material will be entertained.

If you have any questions, please do not hesitate to contact the writer at 716/847-4585.

Very truly yours,


John S. Tygert, P.E.
Associate Sanitary Engineer

JST:vam

cc: Mr. Larry Clare ✓
Mr. Stuart Fox
Mr. Walter Demick
Mr. Anthony Voell
Mr. Alfred Savage

RECEIVED
JUL 18 1988
N.F.T.A. - ENGR. DEPT.

15 JUL 1988

Water Quality Section

SUBJECT: Transmittal of Report on Contaminant Mobility in Buffalo Harbor

Mr. Alfred E. Savage
Executive Director
Niagara Frontier Transportation Authority
P.O. Box 5008
Buffalo, New York 14205

Dear Mr. Savage:

This letter and the enclosed reports are in response to your December 31, 1987 letter requesting additional information on the long-term management of the confined dredged material disposal facility (CDF) at the NFTA small boat harbor in Buffalo Harbor. Considerable testing and data evaluation have gone into our analysis of this problem. The results of the testing at this site and at the other CDF's in the Buffalo Harbor give me confidence that no contaminants which would be considered harmful to man or the aquatic environment are leaking from the CDF's at unacceptable levels.

We have examined the potential of the CDF's to discharge toxic contaminants using the most sensitive methods available, but have not been able to demonstrate any leakage from them. Mathematical models have been used to estimate an upper bound to the levels of contaminants which might be leaching from the dikes. We have also performed tests on the sediments inside the dikes to determine whether or not they might be classifiable as hazardous wastes. The Toxicity Characteristic Leachate Procedure was used and demonstrates that the sediments do not exhibit the characteristic of EP toxicity.

I understand that you are in the process of filling the remaining areas of the Small Boat Harbor CDF with low permeability soils. This fill will be compacted and graded so as to enhance surface runoff. The enclosed report appendix I concluded that the primary force for present discharges of water from the CDF are due to surface water infiltration. The proposed compacted fill and grading will minimize this discharge.

Water Quality Section

SUBJECT: Transmittal of Report on Contaminant Mobility in Buffalo Harbor

I would like to make one further suggestion concerning your continued management of the CDF. There is very little space along the Lake Erie shoreline in the immediate Buffalo area where it is easy to get close to the lake for any kind of recreation. I would like to suggest that you retain an area of managed green space, perhaps 100 feet wide, for passive recreation along the western side of the CDF. This would leave plenty of space in the CDF for the planned parking and would add a few acres of priceless recreation area for a very low cost.

My point of contact regarding this matter is Mr. John R. Adams, Engineering Division, who can be contacted by phone at 876-5454, extension 2268, or by mail at the above address.

The Buffalo District - Leadership in Engineering.

Sincerely,

BRUCE W. HAIGH
LTC, U.S. ARMY
DEPUTY COMMANDER

Hugh F. Loyd III
Colonel, U.S. Army
Commanding

Enclosures

Contaminant Mobility at Buffalo Harbor

Recent concern over the potential for contaminants associated with sediments placed in confined disposal facilities (CDF's) to leach through the containment walls to contaminate the surrounding waters has prompted the initiation of a number of projects intended to determine the extent of the problem. Contaminants, including both heavy metals and organic chemicals, are present in the Buffalo Harbor dredged material at fairly high concentrations. Several studies (1, 2, 3) have characterized the quality of sediments which have been placed in the CDF's.

Reference 1 is a report of the U.S. Environmental Protection Agency which describes the most complete survey of Buffalo area bottom sediments which has been performed to date. The study took samples from 66 sites which were analyzed for all of the inorganic and organic priority pollutants and nutrients. Additional efforts were also made to identify contaminants which could not be identified from the priority pollutants lists. This report documents in detail the heavy contamination of sediments along the Niagara Frontier from Lackawanna to Niagara Falls.

Reference 2 includes the analysis of sediment and water samples taken from within confined disposal facilities in the Buffalo Harbor by the United States Army Corps of Engineers in 1987. Twenty-nine samples were taken from the areas known as Times Beach CDF, the Small Boat Harbor CDF and the current active site CDF No. 4. Analyses included bulk chemical analysis of soils and filtered and unfiltered analysis of ground water samples taken from monitoring wells. Soils were also analyzed by the Toxicity Characteristic Leachate Procedure (TCLP). The results of this study will be presented in this report.

Reference 3 includes the results of analysis of the alga Cladophora and isooctane extracts of water which are called Static Abiotic Samples (SAS). The purpose of this study was to attempt to quantify the magnitude of the leaching of contaminants contained within the 3 Buffalo area CDF's to the surrounding waters of Lake Erie and the Niagara River. The algae samples were taken and the SAS placed inside, outside and at control locations with the objective of determining if there were differences in the level of contamination which could be detected in each of these areas and if it might be possible to assign the source of the contamination. These studies did not demonstrate that there is leakage of contamination from the CDF's to the surrounding waters. The results will be discussed in detail in this report.

Reference (4) is a report on potential contaminant leachate from the Small Boat Harbor CDF which was prepared by the U.S. Army Corps of Engineers Waterways Experiment Station. This study used the results of analysis of groundwater samples and groundwater modeling techniques to estimate the quantities of water and several contaminants which might leach from the facility. This report will not be discussed in detail here, but is appended. The modeling effort concluded that from 450,000 to 690,000 ft³ per year of water could be discharged from the site. Based on this flow and

the levels of contaminants in the monitoring well measurements, the annual loadings of cyanide, chlorobenzene and soluble zinc would be 3 kg, 26 kg, and 0.7 kg, respectively. Considering the short-term nature of this project, these estimates can only be accurate to the nearest order of magnitude. It should also be noted that the loadings of cyanide and chlorobenzene are calculated from total constituent analysis on unfiltered samples. Considering that most contaminants are strongly bound to sediment particles which cannot move in groundwater flow, it is likely that the above loading estimates are much larger than the actual loadings.

Experimental Design

Static Abiotic Samplers

A Static Abiotic Sampler (SAS) is an organic polymer film bag, usually polyethylene or polypropylene, which is filled with an organic solvent, e. g. hexane or isooctane. In the case of the present study, the SAS bags were made of polyethylene film, and the solvent was isooctane. The SAS is an invention of scientists at the Michigan State University Pesticide Research Laboratory (MSUPRL). There are no publications in the U.S. literature which document their use. Pioneering research at the MSUPRL documenting the behavior of these new environmental samplers will be the subject of forthcoming publications.

The principle of operation involves the chemical potential between the inside (lipophilic) and outside (lipophobic) of the bag. The solution chemistry adage that "like dissolves like" works to favor the movement of organic chemicals in the environmental or water phase across the permeable polyethylene membrane into the organic phase. Since the compounds of interest are infinitely soluble in the organic phase and exceedingly insoluble in the water phase, any molecules which encounter the membrane pass freely through it and remain in the organic solvent. By this mechanism, even minute concentrations of organic chemicals in the water grow in concentration inside the bags until it reaches many thousands that outside. Research at the MSUPRL shows that maximal concentrations are reached (an equilibrium condition) within approximately 14 days.

These factors make the SAS an extremely attractive probe for measuring very low concentrations of contaminants in natural water systems. Contaminants are concentrated to such a degree and without contamination by very high molecular weight compounds which interfere with analysis nor with particulates which can foul columns, that direct injection to the gas chromatograph can be done without any sample pretreatment.

The polyethylene bags are prepared from Whirl-Pak® (6 oz. size) sample containers which were partially sealed across the top by applying heat with a Dazey Seal-a-Meal II® for nine seconds. Fifty milliliters of isooctane was added to the bag using a funnel to guide the solvent through the small channel remaining at the top of the bag. After the funnel was removed, solvent residues were removed using Q-tips®. Air was squeezed out of the bag and another seal was made with the Seal-a-Meal II®. The seals were tested by inverting the bags. Because isooctane readily partitions out of

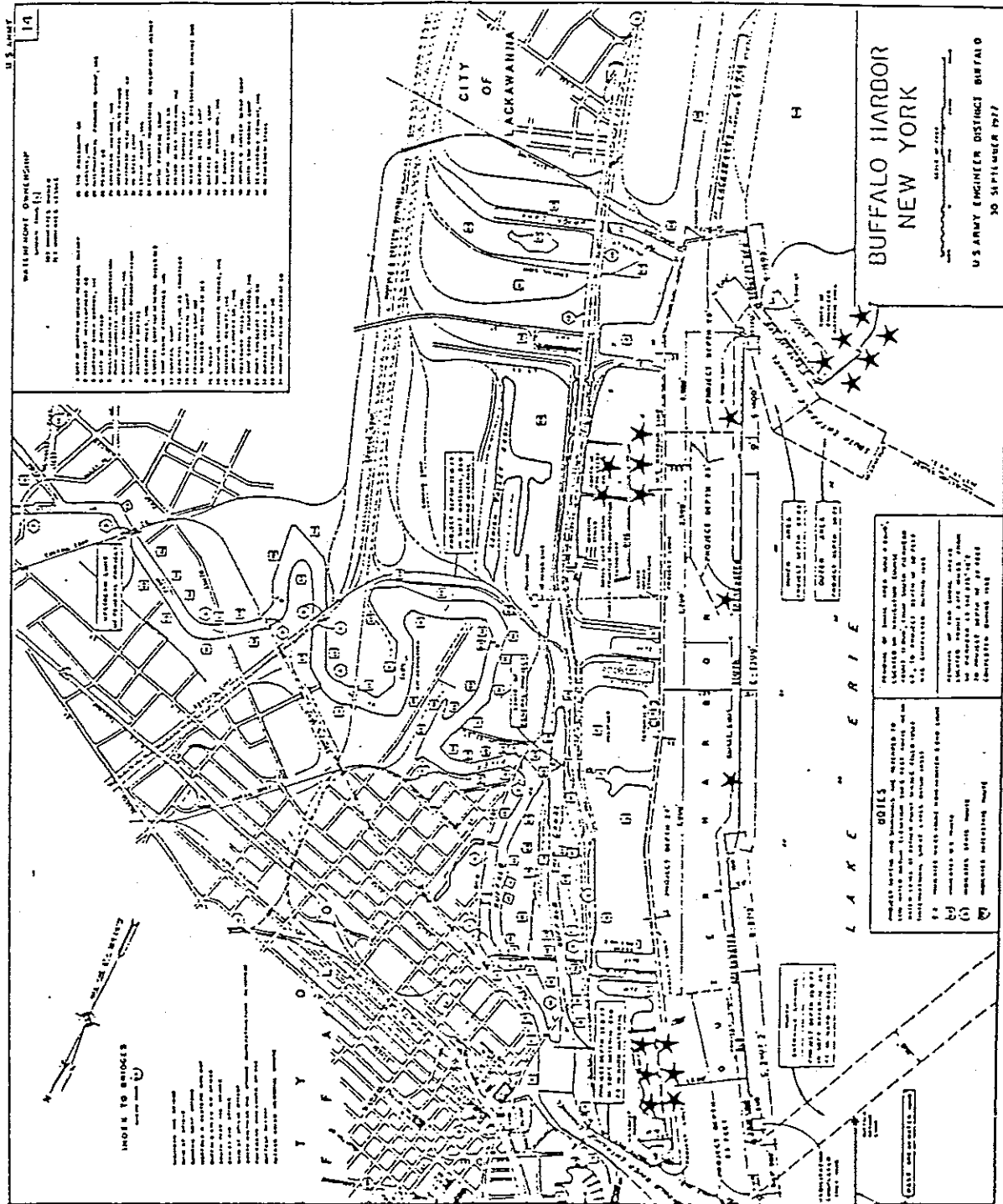


Figure 1 Buffalo Harbor Showing Approximate Sampling Locations.

Table 1 Inventory of Static Abiotic Samplers

<u>Sample ID</u>	<u>Description</u>	<u>Volume Recovered (mL)</u>
CDF4-N-I	Dike 4 -North-Inside	15.4
TB-S-I	Times Beach-South-Inside	47.2
EW-4	Small Boat Harbor-EW-4	45.5
EW-2	Small Boat Harbor-EW-2	41.8
POW-2	Small Boat Harbor-POW-2	19.8
TB-M-O	Times Beach-Middle-Outside	45.0
TB-N-O	Times Beach-North-Outside	45.0
TB-N-I	Times Beach-North-Inside	46.0
SBH-N-O	Small Boat Harbor-North-Outside	6.0
OHW-M	Outer Harbor Wall-Middle	44.5
SBH-M-O	Small Boat Harbor-Middle-Outside	24.9
OHW-S	Outer Harbor Wall-South	31.0
B1/Lab/PE	Laboratory transferred Blank	2.3
CDF4-S-I	Dike 4-South-Inside (2 bags)	15.0
Blank	Method Blank (no transfer)	93.0
Trip Blank	Trip Blank	35.8
SBH-O-S	Small Boat Harbor-Outside-South	6.5
Blank	Blank	91.5
CDF4-N-I	Dike 4-N-Inside (Dup)	11.0
TB-S-I	Times Beach-South-Inside (Dup)	3.2
EW-4	Small Boat Harbor-EW-4 (Dup)	40.5
EW-2	Small Boat Harbor-EW-2 (Dup)	22.5
POW-2	Small Boat Harbor-POW-2 (Dup)	4.6
TB-M-O	Times Beach Middle-Outside (Dup)	7.0
14D	Blank. Technique, No Bag in Field	32.0

the bags when they are in air, but not when they are in water, each bag was stored in a 16 oz. wide mouth jar which was filled with distilled water and sealed with a foil lined cap and no headspace.

SAS Placement, Exposure and Recovery

The SAS were placed at 20 locations in the Buffalo Harbor as shown in figure 1. An inventory of the samples and QC samples is given in table 1 along with the volume of isooctane recovered from each. Samples placed in water were triplicates (at least) enclosed in nylon mesh bags and anchored so that the mesh bags would remain below the water level. SAS placed in the monitoring wells in the small boat harbor dike were clipped to a string and weighted to remain below water level in the wells.

SAS were placed at intervals along the inside and outside of the 3 CDF walls and at control locations along the inside of the outer harbor wall. Dike 4 is constructed of large stone with a sheetpile wall in the middle separating the inside from the lake. The water surface is freely accessible from the top of the dike on either side of the sheetpile. SAS were suspended in the water immediately opposite each other at the sheetpile. Recovery of SAS from this location was poor due to exposure to wave energy from Lake Erie. Many bags were broken. Some were raised out of the water and left exposed to air allowing the solvent to evaporate. No bags were recovered from the outside of the wall. Two bags remaining at CDF4-S-I had been exposed to air. Their contents were combined to provide one 15 ml sample. Two SAS at CDF4-N-I were recovered and analyzed as duplicates.

At the Times Beach CDF samples were placed in shallow water at the edge of the dike. Times Beach dike is built of foundry slag armoured with small stone. Times Beach is much less permeable than CDF4, but water is known to pass through the wall because the waterlevel inside the dike does follow long period changes in water level outside. Samples were placed in small depressions dug in the stone and covered with a large rock. SAS recovery here was much better than at CDF4. All samples placed were recovered with the exception of the outside middle station where there was no evidence whatever of the samplers. They may have been found and removed by others.

The Small Boat Harbor (SBH) CDF is constructed of the same material, foundry slag, as Times Beach except that due to wall failure it has been repaired several times. The repairs have consisted of placement of a considerable thickness of armor stone on the outside of the wall so that the total thickness of the wall at its base has been increased from its original 70 feet to 130 feet. This wall is also permeable to water. However, because the dike is filled with sediments, there is much less exchange of water with Lake Erie. The water surface elevation in monitoring wells inside the dike is higher than the lake level, and has been maintained in this position by precipitation which falls on the site. There is no surface runoff to this site from other drainages, nor is there runoff from the site which is ponded toward the northeast corner.

SAS were placed on the outside of the SBH by submersing mesh bags and SAS in water as high up on the dike as possible and where lake level water could still be reached between the rocks. On the inside of the dike SAS were placed in monitoring wells which had been drilled into the dredged material. One set of SAS were placed in a well which had been drilled in the dike wall. All samplers placed at the SBH were recovered. The only problem encountered at SBH was with loss of solvent from the bags. Apparently, water surface elevation changes left the bags which were placed in the stone outside the wall exposed to air for part of the time as the volume of solvent recovered from these bags was reduced in all cases. The monitoring wells were under lock and key, so there were no problems in sample recovery.

Not all solvent losses were due to evaporation. This was the first time SAS have been used in the field, and our technique in recovery was unpracticed. We lost quite a bit of solvent to spillage.

Algae Sampling

Algae growing attached to stone surfaces on the inside and outside of the CDF's and outer harbor wall control site, were collected for laboratory analysis at the time of placement of the SAS. The SBH CDF is filled, so it would be impossible to collect algae there. It had been our intention to collect only the alga Cladophora at each of the 15 sites. The time of sampling was selected as the period of maximum growth rate for this plant. Cladophora was collected at 9 sites on the outsides of the dikes and along the outer harbor wall. However, no Cladophora was found inside the dikes. At CDF4 only a very thin growth of an unknown algae was found growing on the rocks. It was impossible to collect enough samples at each of three sites, so samples from three locations were composited to form a single sample. On the inside of Times Beach CDF, there was an abundance of algae, but it was identified as Spirogira. When Times Beach was revisited in late August, there was a rich growth of Cladophora. It is felt that differences in the physical environment inside and outside the dikes results in differences in the timing of growth of different communities of algae.

The algae were sampled by pulling or scraping the plants from the rocks with bare hands. The algae was shaken in the lake or dike water to remove loosely attached particulates, and placed in 16 oz. glass jars with aluminum foil lined lids. All samples of algae and SAS solvent were iced immediately after collection. All samples were shipped to the analytical laboratory by overnight air express delivery. No problems were detected in the shipment of samples to the laboratory. The sample volumes given in table 1 for SAS were measured by the analytical laboratory.

Analytical Methods

Isooctane extracts were determined to be free of contaminants which would interfere with direct injection to gas chromatography instrumentation, so they were analyzed by direct injection with no further sample preparation. Samples for Pesticide/PCB (SWD-846-8080) and Base/Neutral/Acid Extractable compounds (SWD-846-8270) were charged to auto sampler vials and analyzed by

gas chromatography with electron capture and mass spectroscopic detection, respectively. In the case of B/N/A analyses all non priority pollutant peaks were subjected to a computerized search using the NBS/Wiley mass spectral library. Those compounds matching library spectra were tentatively identified with an approximate concentration calculated by comparison with the response of an internal standard. Purgable halocarbons were analyzed by adding an aliquot of each extract (100 to 200 micro liters) to reagent water and purge and trap gas chromatography with halide specific detection.

Algae samples were analyzed for total solids, metals and organic compounds. Total solids (USEPA Method 160.3) was measured by weighing an approximately 10g sample in a tared evaporation dish and heating in a gravity convection oven maintained at 103 to 105°C for a minimum of 15 hours. The cooled dishes were reweighed to determine the percent solids. Mercury was measured (USEPA Method 245.5) by weighing 0.2 to 0.5g of moist algae into acid washed BOD bottles and digested with Nitric/sulfuric acid followed by potassium permanganate/potassium persulfate. The cold vapor atomic absorption technique was used to measure the mercury content.

For the remainder of the metals, aliquots of the moist algae were digested with nitric acid and diluted to a final volume of 100 ML. Each metal was analyzed by atomic absorption spectrometry. Arsenic was determined by stabilized temperature furnace atomic absorption utilizing background correction and the method of standard additions. All other metals were determined using flame atomic absorption.

Pesticides/PCB's algae samples were prepared by mixing an aliquot (approximately 10g) of moist algae with an equal amount of anhydrous sodium sulfate and extracting continuously for 16 hours with acetone/hexane (50/50) in a soxhlet extractor. The resultant extract was concentrated to 10 ML on a steam bath and then subjected to gel permeation chromatography cleanup. The eluent fraction from the GPC was concentrated on a steambath to 1-3 ml and analyzed by gas chromatography with electron capture detection. Purgable halocarbons were analyzed by mixing an aliquot of each sample (3-5g) with reagent water and analysis by purge and trap gas chromatography with halide specific detection.

The Toxicity Characteristic Leachate Procedure (TCLP) was carried out according to the procedures given in 40 CFR Part 261 as published in the Federal Register Friday, June 13, 1986 as a proposed rule. Analyses were performed according to the methods specified in the proposed rule.

Results and Discussion

The detailed results of analyses of algae and the contents of Static Abiotic Samplers are given in reference 3. Detailed results of the Toxicity Characteristic Leachate Procedure are given in reference 2.

Algae

As stated in the discussion of analytical methods algae samples were assayed for metals, purgable halocarbons, organochlorine pesticides and PCB's. No sample of any algae revealed any concentration of purgable halocarbons, organochlorine pesticides or PCB's above the detection limits given in reference 3. The results of metals analyses are given in table 2. There have been very few studies which have measured the concentration of metals which can be accumulated in the tissues of algae so, it is not known how typical these concentrations are of concentrations which may be formed in other areas.

Statistical analysis of differences in levels of metals inside and outside of each of the diked areas and the control site yielded no significant differences. This is primarily due to the small number of samples and the apparent great natural variability in the metals content of the algae. Samples were further pooled to include all taken inside (4), all outside (9) and the control (3). While not greatly reducing the variance, there is an improvement and it becomes possible to observe trends which make sense in the environmental setting.

Barium, iron and manganese are much higher in algae taken from inside the CDF's. This is significant, because iron and manganese are almost always found to be mobile in the dredged material elutriate test. Seven of eleven metals: arsenic, barium, copper, iron, lead, manganese, and zinc displayed the highest mean in algae from inside the CDF's. Mercury was present at measurable levels in 3 of 4 samples taken from inside and in none of the nine samples taken from outside the dike walls. Only one sample, taken near the center of the outer harbor wall as a control station, had an extraordinarily high level of mercury. There is no explanation for this high level. Without regard to the high mercury in the control sample, it is significant that mercury was almost always present inside the walls and almost always absent outside. Metal concentrations were never statistically significantly different between the outside of the dike wall and the control locations. Metals were higher on the outer walls for 6 of the 11 metals.

It appears that the contaminants associated with sediments inside the confined disposal facilities continue to be available to a degree great enough to produce elevated levels in plants growing inside the walls. However, it is also apparent that even though there is free exchange of water between the inside and outside of the dikes the concentrations of metals being seen by algae on the outside is not great enough to produce concentrations in plant tissue greater than those attained in algae growing in areas far removed from the CDF's.

To repeat the point made at the outset of the discussion of contaminants in algae, there were no measurements of purgable halocarbons, chlorinated pesticides or PCB's above detection limits at any location within Buffalo Harbor.

Table 2 Metals Content of Algae Residues

Station	Residue %	As : $\mu\text{g/g}$	Ba : $\mu\text{g/g}$	Cd : $\mu\text{g/g}$	Cr : $\mu\text{g/g}$	Cu : $\mu\text{g/g}$	Fe : $\mu\text{g/g}$	Pb : $\mu\text{g/g}$	Mn : $\mu\text{g/g}$	Hg : $\mu\text{g/g}$	Ni : $\mu\text{g/g}$	Zn : $\mu\text{g/g}$
TB-N-I	11.5	15.	2200.	10.	29.	19.	3100.	29.	1400.	0.7	10.	90.
TB-N-O	7.4	<8.	209.	63.	63.	104.	3100.	<60.	480.	<0.8	<42.	190.
TB-N-I	14.4	32.	390.	8.	38.	53.	12900.	92.	5200.	0.6	31.	210.
TB-N-O	9.9	8.	95.	7.	13.	26.	2100.	<20.	300.	<0.8	<10.	76.
SBII-N-O	18.5	5.	100.	<5.	16.	26.	5600.	21.	1700.	<0.2	20.	110.
SBII-N-O	24.8	3.	54.	5.	11.	11.	2300.	38.	830.	<0.3	11.	70.
SBII-5-O	17.8	3.	63.	6.	19.	13.	4300.	<19.	1100.	<0.3	38.	88.
CDF4-N-O	11.4	11.	190.	9.	19.	9.	1200.	<30.	150.	<0.5	19.	94.
CDF4-M-O	11.8	9.	240.	12.	35.	12.	1700.	<40.	280.	<0.5	24.	110.
CDF4-S-O	12.2	9.	680.	17.	34.	34.	1200.	100.	220.	<0.4	68.	270.
CDF4-I	26.7	6.	130.	7.	33.	30.	11900.	87.	1800.	0.5	27.	170.
OIH-N	13.3	8.	96.	10.	29.	19.	5800.	29.	530.	<0.4	58.	110.
OIH-M	9.4	<5.	120.	12.	37.	37.	500.	<40.	620.	3.8	49.	140.
OIH-S	11.1	4.	270.	9.	35.	35.	2700.	44.	400.	<0.5	<20.	97.
TB-S-I	10.7	16.	1000.	9.	37.	37.	7500.	46.	3200.	0.6	18.	130.
TB-S-O	14.8	5.	90.	9.	44.	9.	1900.	36.	230.	<0.4	18.	80.

Table 3 - Concentration of Metals in Cladophora
in Buffalo Harbor Confined Disposal Facilities

	Inside	Outside	Control
Arsenic	17 ± 15	7 ± 2	6 ± 1
Barium	930 ± 1280	191 ± 147	162 ± 171
Cadmium	9 ± 2	15 ± 14	10 ± 3
Chromium	34 ± 6	28 ± 13	34 ± 6
Copper	35 ± 20	27 ± 23	30 ± 19
Iron	8850 ± 6250	2600 ± 1120	4500 ± 2960
Lead	64 ± 43	40 ± 19	38 ± 13
Manganese	2900 ± 2380	588 ± 395	516 ± 204
Mercury	0.6 ± 0.2	<0.5 ± <0.1	1.6 ± 3.5
Nickel	22 ± 13	28 ± 14	42 ± 35
Zinc	150 ± 72	121 ± 50	116 ± 41
n =	4	9	3

Values are mean ±95% confidence interval for n observations in mg/kg dry weight.

Static Abiotic Samplers

Static Abiotic Samplers were placed to detect extremely low levels of contaminants being transported in water. As stated in the experimental section, the isooctane solvent recovered from the SAS was scanned for several hundreds of known organic priority pollutants using the best available instrumentation and most sensitive detection techniques available for routine laboratory use. There is no reason to believe that if contaminants had been present they would not have been detected and identified. In fact, contaminants were detected in only one pair of SAS which had been placed in one well in the Small Boat Harbor CDF. No contaminants were detected in another well in dredged material inside the CDF. No contaminants were detected in SAS placed in a well which had been drilled in the Small Boat Harbor dike wall. No contaminants were detected in any SAS placed elsewhere in the Buffalo Harbor, including in water both inside and outside CDF walls and at the control locations.

Table 4 lists the results of analysis of one pair of SAS from location EW-2, Environmental Well-2. Listed also are the mean of the two sets of analyses, the concentration of contaminants in the well water determined as described below and a "concentration factor." An independent analysis of unfiltered water samples from monitoring well EW-2 was performed by RECRA Environmental, Inc. The details of the analysis of this sample, which was taken on 19 March 1987, are given in reference 5. Analyses were performed on unfiltered samples. The concentration factor, C.F., was obtained by dividing the concentration of the compound in the isooctane extract by the the amount found in the well water sample. When the values found were less than the detection limit in well water, the number which represents the detection limit was used in calculations. For SAS, if one analysis yielded a value greater than the detection limit and the other less, then the greater number was used in calculations. The column labeled RPD is the relative percent difference between duplicate samples it is calculated as

$$RPD = ([\text{Dup 1}] - [\text{Dup 2}]) / ([\text{Dup 1}] + [\text{Dup 2}]) / 2.$$

There are a number of interesting observations which can be made from analysis of the data in table 3. Of primary importance is the fact that all of the contaminants detected by essentially the same analytical method at trace levels in the raw water sample were easily detected in the isooctane extract. It is very important that the analysis of samples from this well, which was known to be in an area of very heavy contamination, give positive results for parameters which were known to be present in the well water. Without this confirmation of this new probe's ability to detect environmental contaminants it would be very difficult to believe the results when the SAS showed that no contaminants were present.

On the contrary, there were 8 compounds detected in the well through the use of the SAS which did not exceed detection limits in the analysis of the well water. It had been hoped that the SAS could be used to detect environmental contaminants which could not be detected by normal means and that has clearly been shown to be the case. The compounds which were detected in the SAS were not measured at concentrations which are at this time describeable as

Table 4 Concentration of Chemicals Found in
Iso-octane in Static Abiotic Samplers ($\mu\text{g/mL}$)

Compound	SAS(1)	RPD	Mean	Well(2)	CF(3)
acenaphthene	122,141	14	126	0.04	3150
anthracene	106,130	20	118	0.03	3933
benzo(a)anthracene	40.7,48.1	17	44.4	<0.08	> 555
benzo(a)pyrene	20.2,22.9	13	21.6	<0.03	> 720
benzo(b)fluoranthene	47.1,51.4	9	49.3	<0.025	>1972
bis(2-ethyl hexyl)phthalate	2.0,<2.0	-	2.0	0.051	39
chrysene	28.4,35.4	22	31.9	<0.03	>1063
1,2 dichlorobenzene	16.6,21.9	28	19.3	0.021	919
1,3 dichlorobenzene	4.9,6.8	32	5.9	<0.02	> 295
1,4 dichlorobenzene	81.8,95.8	16	88.8	0.12	740
fluoranthene	222,268	19	245	0.031	7903
fluorene	90.4,102	12	96.2	0.034	2829
isophorone	<3,4.9	-	4.9	<0.022	> 222
napthalene	146,164	12	155	0.58	267
phenanthrene	167,210	23	189	0.081	2327
pyrene	77.1,90.9	16	84	0.025	3360
1,2,4 trichlorobenzene	3.5,3.7	6	3.6	<0.019	> 189
indeno(1,2,3-cd)pyrene	12.4,<3.0	-	12.4	<0.037	> 335

(1) Static Abiotic Sampler, duplicate bags in EW-2.

(2) Unfiltered water from the well. Analyzed by RECRA Research,
Tonawanda, NY.

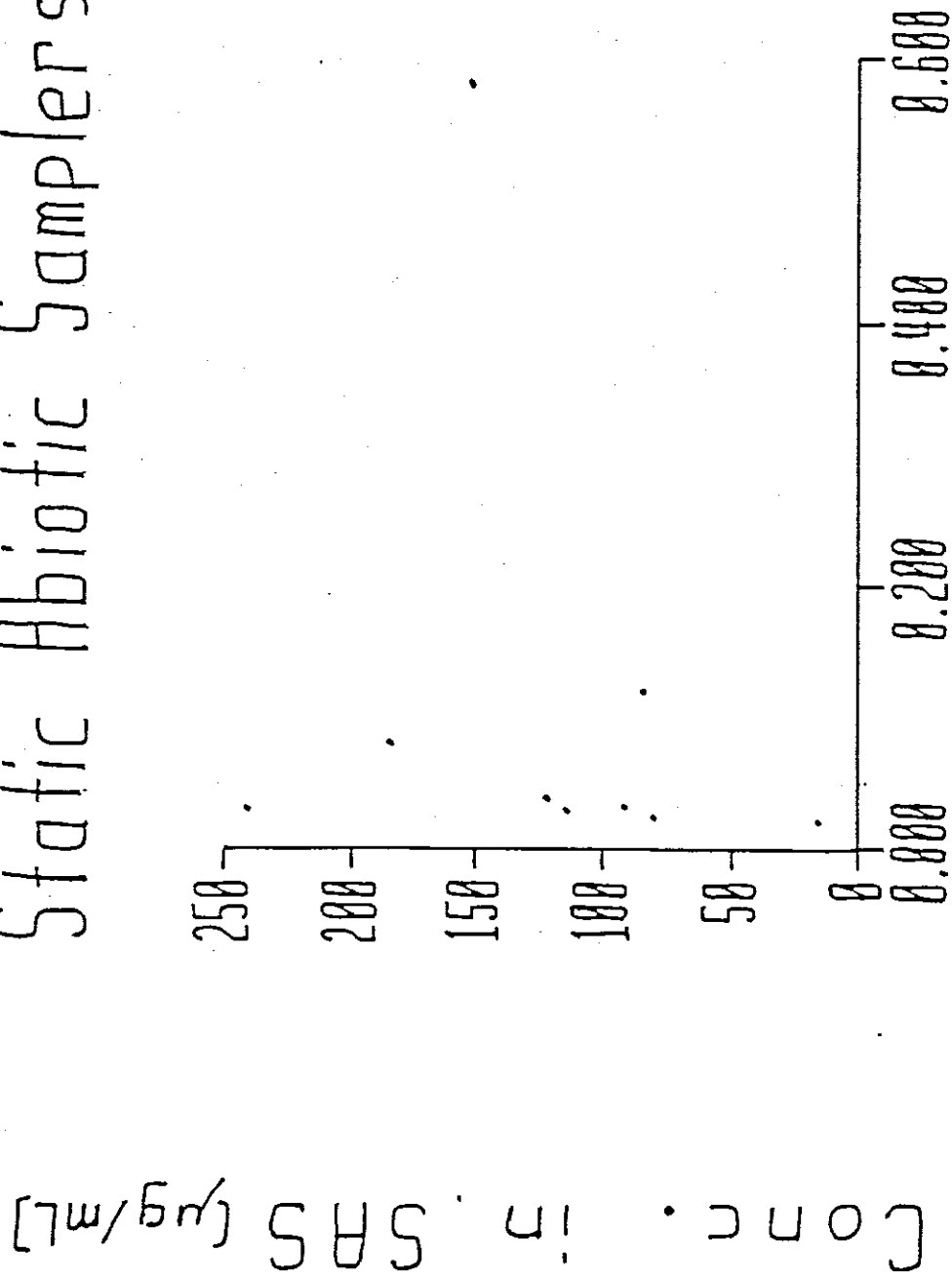
(3) Concentration factor.

representative of their concentrations in the environment. It is obvious in table 4, that the concentrations of these contaminants in isooctane were far above detection limits. This makes it very easy to identify the compounds. The column labeled CF is the concentration factor calculated as described above. For compounds which were detected in both the well water and SAS, the CF ranges from 39 to 7903 with a mean of 2553. For the 8 compounds which were not detected in the well water, the CF range was (as a minimum) 189 to 1972 and a mean of 689. With few exceptions, the contaminants which were not detected in the well water had the lowest concentrations in SAS. It is not unlikely that their concentrations are much lower than the reported detection limits. Much research needs to be done before concentrations measured in SAS can be related directly to the environment. Figure 2 is a graph of concentration in well water vs. SAS. Only those compounds which were measured in both media are plotted. There is a great variation in concentrations in isooctane around low well water concentrations. The polyethylene film which serves as the membrane between water and isooctane may interact with organic molecules in many ways. Molecular weight, size, polarity, hydrogen bonding and pi-electron interactions are characteristics which can effect the passage of these compounds through the film.

In order to be a useful environmental probe, it is required that a technique be reproducible. Current biological monitoring probes such as fish, clams or even plants such as cladophora suffer from difficulty in reproducibility of results. The health of an organism, its size, previous feeding regime (and hence fat content) and whether or not it is "happy" in the position of exposure all play a role in the magnitude of the concentration factors which they can achieve. Obviously, a biological probe cannot be used in a monitoring well or lethally toxic environment. The Static Abiotic Sampler can easily be manufactured reproducibly and be filled with identical quantities of solvent and their only constraint on position of exposure is that they remain totally under water.

The column labeled RPD in table 4 expresses the relative percent difference between the analyses of two SAS exposed in well EW-2. The RPD is a figure of merit for evaluation of a laboratory's ability to reproduce the same result in separate analyses of the same sample. In operational terms the RPD should not exceed a variation of 20%. The RPD's as reported in table 3 assess not the reproduction of the result of two analyses of the same sample, but the reproducibility of the sampling method. In this case, the RPD exceeded 20% in only 4 of 15 cases where measurable quantities of contaminant were detected in both bags. This is a very stringent test of sampling technique, and demonstrates that this method holds great promise as a reproducible method of evaluating extremely low concentrations of environmental contaminants.

Static Abiotic Samplers



Conc. in Well Water ($\mu\text{g/mL}$)

Figure 2 Concentration of Organic Chemicals in SAS vs. Well Water

Toxicity Characteristic Leachate Procedure (TCLP)

The TCLP has been published in the Federal Register as a revision to Environmental Protection Agency Rules, 40 CFR Parts 261, 271 and 302. The methodology was published on 13 June 1988. The TCLP expands the list of chemicals and method of extraction used in the definition of the Toxicity Characteristic which is required for the definition of a hazardous waste. The TCLP expands the list of chemicals which will be used to define the Toxicity Characteristic from 14 to 52. All of the added chemicals are organic compounds. All of these metals and organic compounds plus 45 additional metals and compounds which are listed as priority pollutants were measured on soil samples from Times Beach, the Small Boat Harbor and CDF No. 4. The complete results of all of these analyses are given in reference 2. Summaries of the results of metals analyses for each of the three locations are given in tables 5,6,7. The organics analyses are summarized in table 8.

Table 9 expresses the mean concentration for the TCLP metals at each of the three sites as a percentage of the proposed regulatory levels for each metal. The regulatory level is also given in the right hand column of each of tables 5 through 9.

There are 3 or 4 sample results presented for each of the 3 sites. TCLP analyses were run on the soils at each location. Samples were taken by coring with hand augur as follows:

TB1A - Collected near PVC pipe with blue flag.

Sample depth 0 to 4 inches. Consists of fine sandy top soil.

TB1B - Collected at same area as TB1A.

Sample depth 4 to 12 inches. Consists of medium sandy material with gravel.

TB2 - Collected between marsh and willows.

Sample depth 15 to 40 inches. Consists of black oily silt and clay.

TB3 - Collected 20 yards west of end of discharge pipe.

Sample depth 0 to 6 inches. Consists of sandy gravel.

SBH1A - Collected near well with yellow flag.

Sample depth 6 to 28 inches. Consists of gray silt with reddish-brown mottling.

SBH1B - Collection point same as SBH1A.

Samples depth 28 to 60 inches. Consists of black oily clay and silt.

SBH2 - Sample collected 20 yards from dike on lakeside in wooded area.

Sample depth 0 to 28 inches. Consists of medium gray brown sand and silt.

CDF4 1A - Sample collected 50 yards west of pipeline and 75 yards from waterfront.

Sample depth 0 to 12 inches. Consists of brown oxidized silt.

CDF4 1B - Same location as CDF4 1A.

Sample depth 12 to 54 inches. Sample consists of black oily silt.

Hydrocarbon odors at 12 to 14 inches.

CDF4 2 - Sample collected 20 yards east of end pipeline and 20 yards west of group of willow trees.

Sample depth 0 to 24 inches. Consists of sand with some silt. Gravel detected at 24 inches.

CDF4 3 - Sample collected at the edge of plant growth, 50 yards from breakwater.

Sample depth 0 to 8 inches. Sample consists of brown to gray fine sands with hydrocarbon odor.

It can be seen in tables 5, 6, 7, and 8 that no individual sample result at any location exceeded any of the regulatory levels of the TCLP either for metals or organic chemicals. In table 9, where means are used, it can be seen that in most cases, metals did not exceed more than a few percent of the proposed regulatory levels. Times Beach, the oldest of these confined disposal facilities, and presumably the most contaminated had the highest TCLP releases. Cadmium and chromium were released at 3.25% and 7.75% of the proposed regulatory levels and lead achieved 22.6% of the TCLP maximum value which would be required for this material to be classified as a hazardous waste.

In no case has any measurement been made which would indicate that any of the materials contained in the Buffalo Harbor confined disposal facilities could be classified as hazardous waste. No measurement has been made which suggests that unacceptable levels of any contaminant could be migrating from the site.

Table 5 Toxicity Characteristic Leachate Procedure
(TCLP) Evaluation of Small Boat Harbor CDF Sediments, Inorganic Parameters

<u>Metals</u> <u>(total, mg/L)</u>	<u>Sample</u> <u>SBH1A</u>	<u>SBH1B</u>	<u>SBH2</u>	<u>Proposed</u> <u>Regulatory</u> <u>Level (mg/L)</u>
Arsenic	<0.02	0.03	<0.02	5.0
Barium	1.0	1.0	1.5	100.
Cadmium	0.05	0.1	<0.01	1.0
Chromium	<0.10	<0.10	<0.01	5.0
Copper	0.05	0.05	<0.05	-
Iron	0.10	0.25	<0.10	-
Lead	<0.1	0.15	<0.10	5.0
Manganese	3.2	5.8	0.15	-
Mercury	0.0015	0.0015	0.0050	0.2
Nickel	0.10	0.2	<0.10	-
Silver	<0.10	<0.10	<0.10	5.0
Zinc	2	5.4	0.5	-

Table 6 Toxicity Characteristic Leachate Procedure
(TCLP) Evaluation of Times Beach CDF Sediments, Inorganic Parameters

<u>Metals</u> <u>(total, mg/L)</u>	<u>Sample</u> <u>TB-1A</u>	<u>TB-1B</u>	<u>TB-2</u>	<u>TB-3</u>	<u>Proposed</u> <u>Regulatory</u> <u>Level (mg/L)</u>
Arsenic	<0.02	<0.02	0.17	<0.02	5.0
Barium	1.0	1.0	1.0	1.0	100.0
Cadmium	<0.01	<0.01	0.1	<0.01	1.0
Chromium	<0.10	<0.10	0.85	<0.01	5.0
Copper	0.05	<0.05	0.25	<0.05	-
Iron	<0.01	<0.10	180	2.3	-
Lead	<0.01	<0.10	4.4	0.1	5.0
Manganese	2.2	1.6	8.8	2.4	-
Mercury	<0.0005	<0.0005	<0.0005	<0.0005	0.2
Nickel	<0.10	0.15	0.4	<0.10	-
Silver	<0.10	<0.10	<0.10	<0.10	5.0
Zinc	1.2	0.95	21.	0.65	-

Table 7 Toxicity Characteristic Leachate Procedure
(TCLP) Evaluation of CDF No. 4 Sediments, Inorganic Parameters

<u>Metals</u> <u>(total, mg/L)</u>	<u>Sample</u> <u>CDF4-1A</u>	<u>CDF4-1B</u>	<u>CDF4-2</u>	<u>CDF4-3</u>	<u>Proposed</u> <u>Regulatory</u> <u>Level (mg/L)</u>
Arsenic	0.03	0.02	<0.02	<0.02	5.0
Barium	1.0	<1.0	1.0	1.0	100.0
Cadmium	0.05	<0.01	<0.01	<0.01	1.0
Chromium	<0.10	<0.10	<0.10	<0.10	5.0
Copper	<0.05	<0.05	<0.05	<0.05	-
Iron	<0.10	<0.10	<0.10	<0.10	-
Lead	<0.10	<0.10	<0.10	<0.10	5.0
Manganese	1.6	9.3	2.7	4.1	-
Mercury	0.0005	0.0015	0.0050	0.0010	0.2
Nickel	<0.10	<0.10	<0.10	<0.10	-
Silver	<0.10	<0.10	<0.10	<0.10	5.0
Zinc	0.25	0.25	0.25	0.5	-

Table 8 Toxicity Characteristic Lechate Procedure (TCLP)
Evaluation of Buffalo Harbor CDF Sediments, Organic Parameters (mg/L)*

<u>Small Boat Harbor</u>	<u>SBH1A**</u>	<u>SBH1B**</u>	<u>SBH2</u>	<u>Proposed Regulatory Level (mg/L)</u>
chlorobenzene	-	18.4	-	1400
1,4 - dichlorobenzene	-	1.2	-	10800
<u>Times Beach</u>	<u>TB1A</u>	<u>TB1B</u>	<u>TB2</u>	<u>TB3</u>
chlorobenzene	-	-	187.	-
1,3 - dichlorobenzene	-	-	4.2	-
1,4 - dichlorobenzene	-	-	13.3	-
1,2 - dichlorobenzene	-	-	2.2	-
acenapthene	-	-	1.6	-
Endosulfan I	-	-	0.12	-
Endrin	-	-	0.09	-
<u>CDF No. 4</u>	<u>CDF4-1A</u>	<u>CDF4-1B</u>	<u>CDF4-2</u>	<u>CDF4-3</u>
chlorobenzene	-	3.4	-	3.0
1,4 - dichlorobenzene	-	1.8	-	1.6
acenapthene	-	3.4	-	2.4
napthalene	-	11.9	-	-

Table 9 Toxicity Characteristic Leachate Procedure
Summary Mean* Measured Concentration As Percent of Regulatory Level

<u>Metal</u>	<u>Location</u>			<u>Proposed Regulatory Level (mg/L)</u>
	<u>Times Beach</u>	<u>Small Boat Harbor</u>	<u>CDF No. 4</u>	
	(% of regulatory level)			
Arsenic	0.31	0.35	2.4	5.0
Barium	1.0	1.2	1.0	100.0
Cadmium	3.25	3.15	0.80	1.0
Chromium	7.75	0.20	2.0	5.0
Copper	-	-	-	-
Iron	-	-	-	-
Lead	22.6	0.91	2.0	5.0
Manganese	-	-	-	-
Mercury	0.25	1.3	1.0	0.2
Nickel	-	-	-	-
Silver	2.0	2.0	2.0	5.0
Zinc	-	-	-	-

* Detection Limits were used as values for calculation of the mean

References

1. Rockwell, D. C.; Claff, R. E. and Kuehl, D. W.; 1981 Buffalo Area Sediment Survey, Great Lakes National Program Office, U.S. Environmental Protection Agency, April 1984.
2. U.S. Army Engineer District, Buffalo, Bulk Chemical, TCLP and Column Leachate Analysis of Sediments from Buffalo Harbor Confined Disposal Facilities, Aqua Tech Environmental Consultants, December 1987.
3. U.S. Army Engineer District, Buffalo; Analysis of Cladophora and Static Abiotic Samplers at Buffalo Harbor, NY; Aqua Tech Environmental Consultants, July 1987.
4. Myers, T. E., "Estimation of Leachate From Buffalo Harbor Dike 1 Confined Disposal Facility, Buffalo, NY", Memorandum for Record, U.S. Army Corps of Engineers, Waterways Experiment Station, Vicksburg, MS, 10 August 1987.
5. RECRA Environmental, Inc., Report of results of analysis, Contract to the Empire-Thomsen Associates (subcontractor to the Niagara Frontier Transportation Authority, 9 April 1987, unpublished.



DEPARTMENT OF THE ARMY
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Appendix

REPLY TO
ATTENTION OF

WESEP-D

19 August 1987

MEMORANDUM FOR: Commander, U. S. Army Engineer District, Buffalo, ATTN:
CENCB-ED-HQ/Mr. J. Adams, 1776 Niagara St., Buffalo, NY 14207-3199

SUBJECT: DOTS Request for Assistance

1. The enclosed Memorandum for Record (MFR) is in response to your request for assistance in estimating the potential leachate seepage from the Buffalo Harbor Dike 1. This MFR was developed by Mr. Tommy Myers of the Environmental Engineering Division of the Environmental Laboratory.

2. We appreciate the opportunity to provide assistance through the DOTS Program, and if there are any technical questions, please contact Mr. Myers at FTS 542-3939.

FOR THE CHIEF, ENVIRONMENTAL LABORATORY

ROBERT M. ENGLER, PhD
Manager, Environmental Effects
of Dredging Programs

Encl

27 AUG 87 00 44

MAILROOM-HCBH-S

10 August 1987

MEMORANDUM FOR RECORD

SUBJECT: Estimation of Leachate Seepage From the Buffalo Harbor Dike 1 Confined Disposal Facility, Buffalo, New York

1. Background. The Buffalo Harbor Dike 1 (Small Boat Harbor) confined disposal facility (CDF) was constructed in 1967 as part of the pilot program for the diked disposal program in the Great Lakes. Buffalo Harbor Dike 1 CDF is a permeable dike facility that is surrounded on three sides by Lake Erie. Filling operations ceased after 1974, and ownership was transferred to the Niagara Frontier Transportation Authority (NFTA). In the fall of 1986, NFTA began filling the remaining capacity of the CDF for eventual use as a parking lot. When NFTA began work, the New York State Department of Environmental Conservation expressed concern about construction and asked that monitoring wells be installed to assess ground water contamination. Thirteen wells were installed, and analyses of samples taken from these wells indicated the presence of organic and inorganic contaminants exceeding regulatory criteria for ground water.

2. Scope and Purpose. This memorandum was prepared for the US Army Engineer District, Buffalo, Engineering Division, Water Quality Section (CENCB-ED-HQ) in response to a request for assistance under the Dredging Operations Technical Support (DOTS) program, DOTS request 87-130. Water level data and chemical analyses of monitoring well samples, supplied by CENCB-ED-HQ, were used to evaluate leachate seepage from Buffalo Harbor Dike 1 CDF. Assessment of contaminant levels in the facility and the seepage of contaminated water from the CDF are provided in this memorandum.

3. Sampling and Chemical Analysis. The monitoring wells have been sampled twice. The first set of samples, collected Dec 86, were analyzed for total contaminant concentrations, that is, the samples were not filtered. The second set of samples, collected Mar 87, were analyzed for unfiltered organics and cyanide and soluble metals (0.45um filtration). Analysis for total and soluble (non-filterable) metals showed that almost all of the total metal was associated with filterable particulates in the samples. The differences between total metal and soluble metal concentrations indicates that the wells are not adequately protected against intrusion by fines. In fine grain dredged material, it is probably impossible to prevent intrusion of fines into the filter pack during installation and development of monitoring wells. Since the samples for organic analysis were not filtered and organic contaminants tend to sorb to solids, the soluble (non-filterable) organic contaminant concentrations could be substantially lower than the total concentrations reported, depending on contaminant specific affinity for solids.

4. The presence of fines significantly affects the interpretation of the results. In routine ground water monitoring, wells are installed to detect migration of contaminant from a source some distance from the monitoring wells. Samples are generally analyzed for both total and soluble (0.45u filtration) metals. Substantial differences between total and soluble fractions are attributed to the original metallic ion content of the fines drawn through the filter pack and adsorption of ions by the particles. Samples for organic

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analysis are not filtered because the presence of organic contaminants in the fines is evidence of contaminant migration. (The fines in a ground water monitoring well are assumed to have been initially free of synthetic organics.) The fines in a monitoring well in a CDF, however, are contaminated from the very beginning, otherwise the material would not have required confinement. Thus, leachate sampling and analysis strategies for dredged material should be different from those for routine ground water monitoring. The sampling and analysis program for a CDF should be designed to determine if contaminants have desorbed from the dredged material solids and, therefore, are potentially migrating as seepage of soluble contaminant. Since the introduction of fines into the samples is probably unavoidable, the sampling and analysis strategy for monitoring wells in a CDF should involve filtration for organics and metals.

5. Selection of appropriate criteria against which to compare leachate contaminant concentrations in the CDF is also an issue. Ground water criteria, criteria typically applied to subsurface water several miles inland and tens to hundreds of feet beneath the surface, were not used in this memorandum because leachate seepage from this CDF discharges to surface water. (The leachate in this CDF is not a contamination plume within an aquifer, nor is it discharging to an aquifer.) Federal Water Quality Criteria of 1986 for toxicity to freshwater aquatic life were selected for evaluating the level of contamination in the monitoring wells, primarily on the basis of site hydraulics. Human health criteria for water were not used because the water in the CDF is not a source of water for private or public use.

6. Concentrations of non-metals in the unfiltered samples for Dec 86 and Mar 87 and soluble metals for Mar 87 that exceed the Federal Water Quality Criteria of 1986 for toxicity to freshwater aquatic life are listed in Table 1. Data are available for all thirteen wells from the first sampling and only seven wells for the second sampling. Well locations are shown in Figure 1. The wells with the designation "PW-" are perimeter wells installed in the dike. "EW-" wells are in dredged material. The major contaminants as shown by chemical analysis of the monitoring well samples are cyanide, chlorobenzene, and zinc. Acute toxicity for cyanide was exceeded in all but one sample, and chronic toxicity for cyanide was exceeded in every sample. Acute toxicity for chlorobenzene was exceeded in samples from two perimeter wells and in samples from six wells installed in dredged material. Chronic toxicity for chlorobenzene was exceeded in all but one sample (PW-2, Dec 86). None of the filtered samples for Mar 86 exceeded acute toxicity for zinc. Chronic toxicity for zinc was exceeded in filtered samples from Mar 87 for two perimeter wells and in all of the dredged material wells that were sampled. Well EW-2 is probably the most contaminated well in the network of monitoring wells. Samples from EW-2 contained the highest cyanide concentration and were the only samples containing soluble arsenic, chromium, copper, and lead exceeding criteria. The highest chlorobenzene concentration was measured in water from well EW-7.

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Table 1
Summary of Monitoring Well Samples^a From Buffalo Harbor Dike 1 CDF
Exceeding Federal Water Quality Criteria of 1986
For Toxicity To Freshwater Aquatic Life

Well	Contaminant	Concentration ^a ug/l	Criteria (A/C) ug/l
PW-1	Chlorobenzene		
	Dec 86	1100	250/50
	Mar 87	530	250/50
	Cyanide		
	Dec 86	605	22/5.2
	Mar 87	40	22/5.2
PW-2	Chlorobenzene		
	Mar 87	120	250/50
	Cyanide		
	Dec 86	18	22/5.2
	Mar 87	110	22/5.2
	Zinc		
PW-3	Chlorobenzene		
	Dec 86	56	250/50
	Mar 87	120	250/50
	Cyanide		
	DEC 86	100	250/50
	Mar 87	30	250/50
PW-4	Zinc		
	Mar 87	60	320/47
	Chlorobenzene		
	Dec 86	1300	250/50
	Mar 87	7700	120/50
	Cyanide		
	Dec 86	190	22/5.2
	Mar 87	70	22/5.2
	Dieldrin		
	Dec 86	0.24	2.5/0.0019

a: Organics and cyanide concentrations are for unfiltered samples

A: Acute toxicity criteria

C: Chronic toxicity criteria

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Table 1 (Continued)

Well	Contaminant	Concentration ^a ug/l	Criteria (A/C) ug/l
PW-4	Endosulfan		
	Dec 86	0.25	0.22/0.056
	Heptachlor		
	Mar 87	0.5	0.52/0.0038
*EW-1	Chlorobenzene	150	250/50
	Cyanide	87	22/5.2
EW-2	Chlorobenzene		
	Dec 86	3800	250/50
	Mar 87	7700	250/50
	Cyanide		
	Dec 86	9000	22/5.2
	Mar 87	70	22/5.2
	Dichlorobenzenes		
	Dec 86	826	1120/763
	Arsenic		
	Mar 87	69	850/48
	Chromium		
	Mar 87	22	16/11
	Copper		
	Mar 87	14	18/12
	Lead		
	Mar 87	20	82/3.2
	Zinc		
	Mar 87	100	320/47
*EW-3	Chlorobenzene	220	250/50
	Cyanide	48	22/5.2
*EW-3	Dichlorobenzenes	1700	1120/763
	Endosulfan	0.27	0.22/0.056
*EW-4	Chlorobenzene	660	250/50
	Cyanide	50	22/5.2
	Dieldrin	0.0081	2.5/0.0019

a: Organics and cyanide concentrations are for unfiltered samples

A: Acute toxicity criteria

C: Chronic toxicity criteria

*: Dec 86 sample; no data for Mar 87

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Table 1 (Concluded)

Well	Contaminant	Concentration ^a ug/l	Criteria (A/C) ug/l
*EW-5	Chlorobenzene	4700	250/50
	Cyanide	223	22/5.2
*EW-6	Chlorobenzene	3300	250/50
	Cyanide	40	22/5.2
EW-7	Chlorobenzene		
	Dec 86	9400	250/50
	Mar 87	10000	250/50
	Cyanide		
	Dec 86	32	22/5.2
	Mar 87	60	22/5.2
	Dichlorobenzenes		
	Dec 86	1100	1120/763
	Endrin		
	Dec 86	0.13	0.18/0.0023
	Chromium		
	Mar 87	12	16/11
	Zinc		
	Mar 87	90	320/37
*EW-8	Chlorobenzene	2600	250/50
	Cyanide	148	22/5.2
EW-9	Chlorobenzene		
	Dec 86	220	250/50
	Mar 87	130	250/50
	Cyanide		
	Dec 86	190	22/5.4
	Mar 87	60	22/5.4
	Endosulfan		
	Dec 86	0.12	0.22/0.056
	Mar 87	0.27	0.22/0.056
	Zinc		
	Mar 87	60	320/47

a: Organics and cyanide concentrations are for unfiltered samples

A: Acute toxicity criteria

C: Chronic toxicity criteria

*: Dec 86 sample; no data for Mar 87

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7. Cyanide and chlorobenzene are highly soluble contaminants with weak partitioning for sediment solids. Filtration might have lowered the cyanide and chlorobenzene concentrations below the chronic toxicity criteria in some of the samples, but probably not all of them. In particular, samples from wells EW-2, EW-7, and PW-4 contain cyanide and chlorobenzene concentrations that are one to two orders of magnitude above the criteria. A reduction of one order of magnitude is probably the most that filtration of the samples will provide. Thus, soluble cyanide probably exceeds the chronic toxicity criterion in all the wells, and there are two wells in the dredged material and one in the dike for which soluble chlorobenzene concentrations probably exceed criteria. The high chlorobenzene concentration in PW-4, a dike well, may be due to location of the well in dredged material, or the high concentration could indicate chlorobenzene in the dike.

8. The chemical data also show that there are other contaminants exceeding toxicity criteria in some samples. Dieldrin, dichlorobenzenes, endrin, endosulfan, and heptachlor were detected in the some samples in concentrations exceeding acute and/or chronic toxicity criteria. Confirmation of the presence of these contaminants is needed because the contaminants detected in the Dec 86 sampling were below detection limits in the Mar 87 samples and vice versa. There were also some problems with blanks in the Dec 86 samples. In addition, for some contaminants reported as below detection limits, the detection limits were above criteria. The available information is, therefore, not sufficient to determine if criteria for these contaminants are exceeded.

9. Hydraulics. Water table elevations and directions of leachate flow for 12-8-86 and 4-13-87 are shown in Figures 1 and 2, respectively. The water table elevations clearly indicate mounding of water in the CDF. Generally, the hydraulic gradient is steeper for flow to the west. The highest gradient is approximately 5 feet per 100 ft (0.05 ft/ft). Much of the rest of the site appears to have hydraulic gradients ranging from 0.01 to 0.02 ft/ft. As shown in Figures 1 and 2, flow is primarily to Lake Erie. The flow on the Fuhrmann Boulevard side probably gently curves back toward Lake Erie in response to an inland gradient. Mounding is to be expected since at the end of the filling operations in 1974 the site was fully saturated. The site has dewatered to some extent, but may not completely drain because as the mound diminishes, the hydraulic gradient also diminishes. Ultimately, the CDF could reach a quasi-stead state such that seepage from the site would be equal to infiltration.

10. In making any analysis of the flow, certain conditions existing at the time the data used to construct the water table contours and flow lines in Figures 1 and 2 are not known and must be estimated. No data are available on material specific parameters such as hydraulic conductivity or how such parameters vary within the site. In addition, there are uncertainties associated with the water table elevation data provided. Between the dates of 12-8-86 and 4-13-87, the water table elevations (Table 2) at wells PW-1, -2, -3, and -4 and EW-1, -6, -8, and -9 fell, and over the same time period the elevations in EW-2, -3, -4, and -7 rose. The differences in some cases are substantial. The water table elevations can rise and fall, but a two foot

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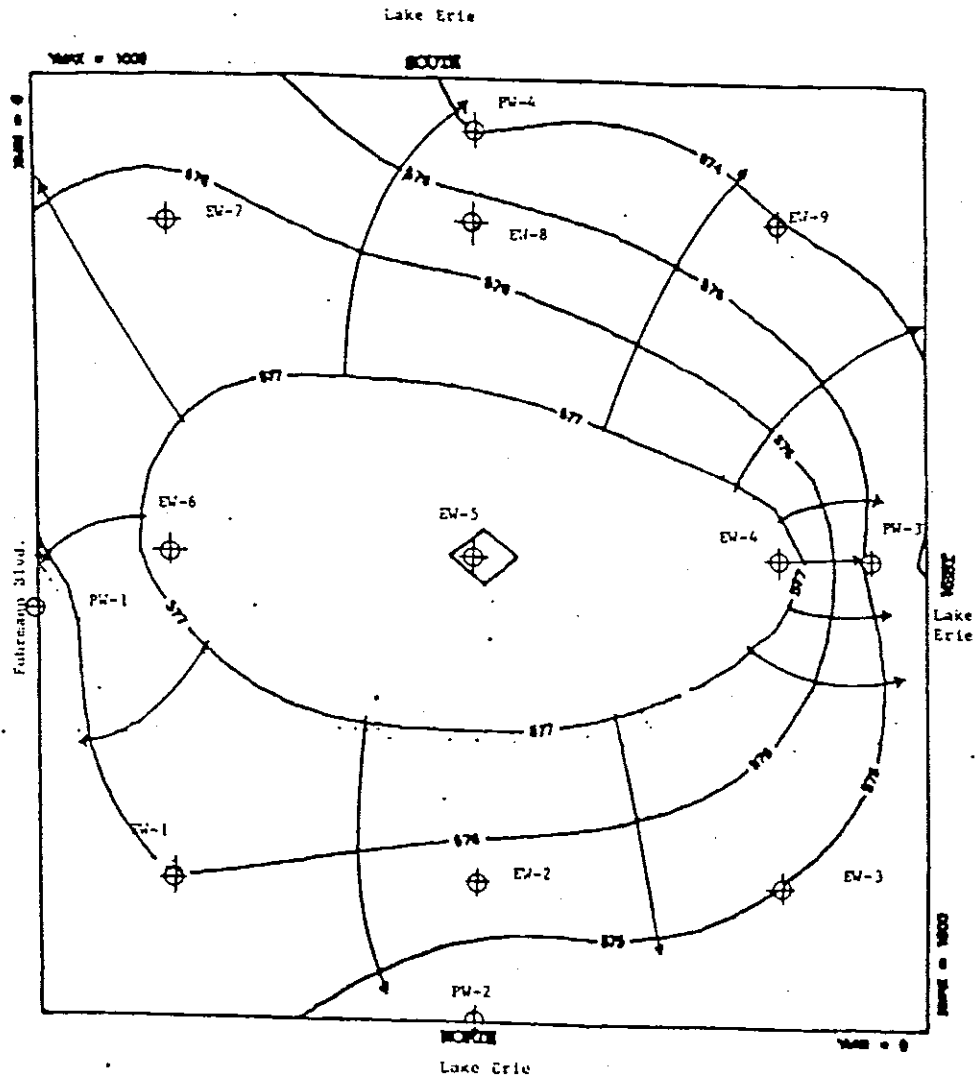


Figure 1. Water table contours in the Buffalo Harbor Dike 1 CDF
for 4 December 1986 (provided by Niagara Frontier
Transportation Authority)

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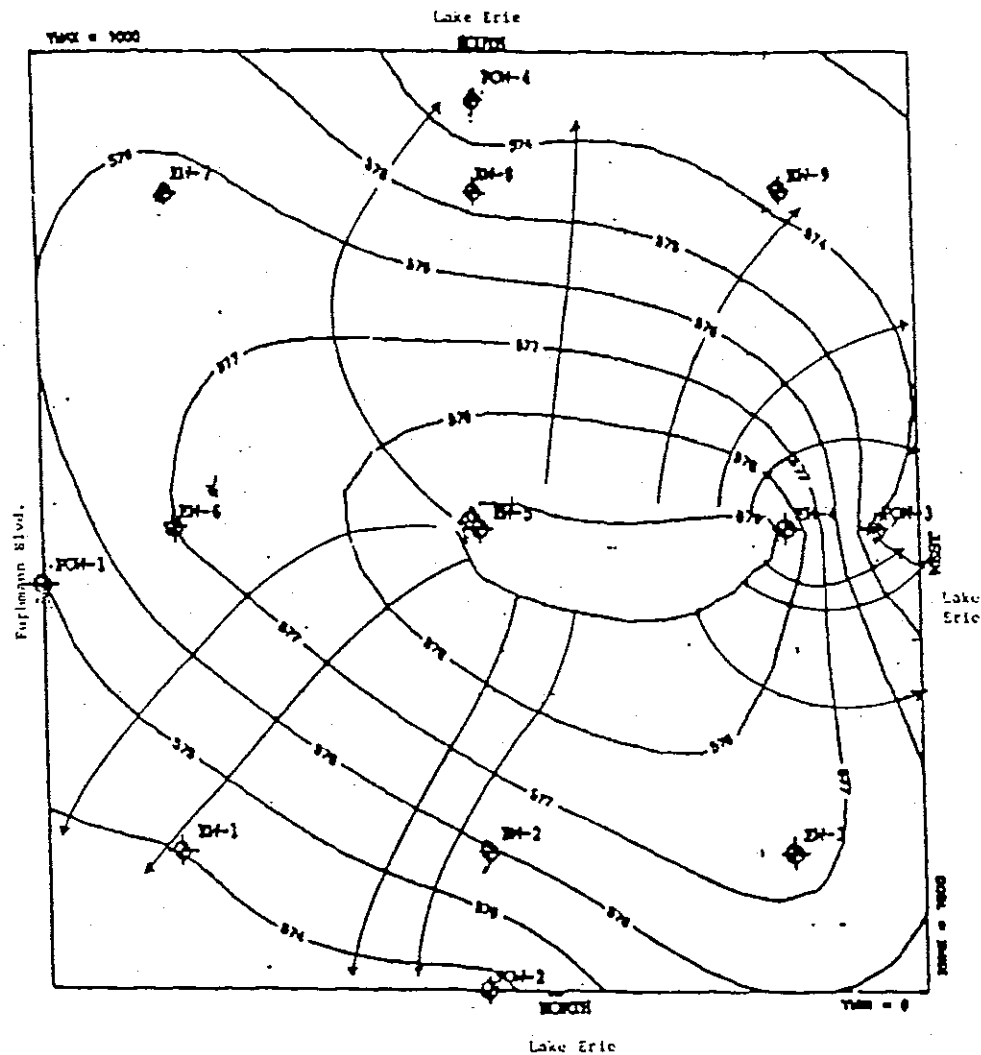


Figure 2. Water table contours in Buffalo Harbor Dike 1 CDF for 14 April 1987 (provided by Niagara Frontier Transportation Authority)

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Table 2

Comparison of Ground Surface and Water Table Elevations
for Buffalo Harbor Dike 1 Confined Disposal Facility
(provided by Niagara Frontier Transportation Authority)

WELL NO.	GROUND SURFACE ELEVATION			WATER ELEVATIONS		
	12-8-86	4-13-87	DIFFER	12-8-86	4-13-87	DIFFER
POW-1	577.37	581.91	4.54	575.57	574.90	-0.67
POW-2	584.10	583.95	-0.15	574.10	573.61	-0.49
POW-3	580.98	580.93	-0.05	574.15	573.70	-0.45
POW-4	581.87	582.39	0.52	573.83	573.40	-0.43
EW-1	583.51	584.06	0.55	576.01	573.93	-2.08
EW-2	583.58	584.57	0.99	575.58	575.91	0.33
EW-3	580.77	582.66	1.89	574.94	577.50	2.56
EW-4	584.86	584.81	-0.05	577.78	579.35	1.57
EW-5	582.65	582.74	0.09	578.15	579.31	1.16
EW-6	578.49	582.94	4.45	577.40	577.09	-0.31
EW-7	577.50	577.73	0.23	576.33	576.39	0.06
EW-8	580.47	579.95	-0.52	575.47	574.75	-0.72
EW-9	582.64	582.56	-0.08	573.97	573.80	-0.17

NOTE: LAKE ERIE WATER LEVEL MEASURED AT EL. 573.63 ON 4-13-87

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rise in one well coincident with a two foot fall in another is difficult to explain. Also during this same period of time, the ground surface elevations substantially increased at three well locations including one at which the water table elevation substantially increased. If there are inaccuracies in the data, any resulting analysis of flow will be subject to the same errors.

11. The basic equation for saturated flow in porous media is the Darcy equation presented below.

$$Q = A k (dH/dL)$$

where

Q = flow, cu ft/d

A = area, sq ft

k = hydraulic conductivity, ft/d

dH/dL = hydraulic gradient, ft/ft

Area and hydraulic gradient can be determined from the information available. The hydraulic conductivity, however, is not known. Further, the hydraulic conductivity of fine grain dredged material ranges from 3 E-04 to 3 ft/d (E-07 to E-03 cm/sec). Thus, flow estimates can vary over four orders of magnitude, depending on the hydraulic conductivity values used to make the estimates. This degree of uncertainty is simply too large for Darcy flow estimates based on assumed hydraulic conductivity to be of practical value.

12. Another approach to estimating flow is to assume that a quasi-steady state has been reached such that water table elevations respond to seasonal variations in hydrologic processes but remains relatively constant from year to year. When a quasi-steady state has been reached, leachate seepage is equal to precipitation less runoff and evapotranspiration. Although there are insufficient data to determine if the system is approaching equilibrium, the quasi-steady state concept was applied in order to arrive at an approximate value for the seepage taking place. The average annual precipitation for Buffalo, New York is 36.1 inches (years 1941 - 1980). Percolation to the water table as a percentage of the precipitation was estimated using the US Environmental Protection Agency's (EPA) Hydrologic Evaluation of Landfill Performance (HELP) computer model. Simulations conducted using the HELP model indicate that 15 to 23 percent of the annual precipitation percolates to the water table. The estimated percolation for the CDF is 450,000 to 690,000 cu ft per year. Assuming quasi-steady state, this flow is the seepage to Lake Erie.

13. To determine if this number is consistent with the hydraulic gradients in the site, simplified applications of Darcy's law were made using 1230 and 1890 cfd as the steady state flow. Assuming that flow occurs through all four sides of the CDF (perimeter equal to 4000 ft), an effective depth of 70 ft, and an average hydraulic gradient of 0.02 ft/ft, the mean hydraulic conductivity in the CDF required to yield flows estimated using the HELP model and the assumption of quasi-steady state is on the order of 3 E-01 ft/d. It should

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not be expected that this analysis defines the hydraulic conductivity of the material in the CDF, as there are many uncertainties. A hydraulic conductivity inferred from the above analysis that is lower than expected implies that the observed gradients are too high for steady state conditions, the mound is draining, and seepage is higher than implied by the quasi-steady state assumption. An inferred hydraulic conductivity that is higher than expected implies that the observed gradients are too low for steady state conditions, the unsaturated zone is storing water, the mound is increasing in size, and seepage is less than implied by the steady state assumption. Since the value obtained is within the range of expected hydraulic conductivities for dredged material, it appears that the hydraulic gradients (water table contours) currently presented could support the flow expected for the average precipitation and infiltration into this CDF. A more refined analysis using a ground water model and site-specific data for hydraulic conductivity, precipitation, evaporation, and runoff is needed if more accurate estimates of flow are required.

14. Summary. Although there are some problems with sample preparation for chemical analysis and contamination in blanks, evaluation of the chemical data indicate that leachate in the Buffalo Harbor Dike Number 1 CDF is contaminated with soluble cyanide, chlorobenzene, and zinc at levels exceeding Federal Water Quality criteria for toxicity to fresh water aquatic life. Other contaminants have also been detected that additional sampling may show to exceed toxicity criteria. Evaluation of the water level data shows that there is a mound of water in the site and that flow from the mound is to Lake Erie. The flow is estimated to be 450,000 to 690,000 cu ft per year. The annual flow estimated above and the average cyanide, chlorobenzene, and soluble zinc concentrations in the four perimeter wells suggests that the annual loadings of cyanide, chlorobenzene, and soluble zinc from the CDF to Lake Erie could be 3 kg, 26 kg, and 0.7 kg, respectively. These are order of magnitude estimates at best. The impacts of these loadings on Lake Erie depend in part on mixing in the dike and background water quality. Evaluation of potential impacts is a local authority decision that is beyond the scope of this memorandum.

15. Recommendations. Based on the evaluations presented above the following recommendations are made:

a. The sampling and analysis strategy is not adequate for dredged material assessment and requires modification. To evaluate contaminant desorption from dredged material solids and migration by leachate seepage, the wells should be resampled several times, and the samples should be filtered for organic and inorganic analyses. Glass fiber filters, 1 um nominal pore size, with no binders and precombusted at 350 degrees C for two hours are satisfactory for filtration of organic samples. Membrane filters, 0.45um nominal pore size, are satisfactory for filtration of metals. It should be realized that this approach is not satisfactory for volatile organics. There are no standard techniques for measuring the soluble concentration of volatile organics. A literature review is needed to establish interim procedures appropriate for volatile organic samples from monitoring wells installed in dredged material.

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b. Application of a ground water model should be considered. A calibrated and verified model can be used to evaluate the effectiveness of remediation alternatives and to determine if the site is approaching a steady state condition. If it is determined that there is a need for simulation capability, a two-dimensional model to simulate unsteady flow under water table conditions is recommended. The process of selecting a model involves a consideration of the mathematics needed to describe the problem, the quantity and quality of the data needed to calibrate and verify the model, and the computing and human resources that can be assigned to the problem. Since there are various models available with differing computing equipment and data requirements, a search should be conducted to find one that is appropriate for the Buffalo Harbor Dike Number 1 CDF problem.

Tommy E. Myers

TOMMY E. MYERS
Environmental Engineer
Water Supply and Waste
Treatment Group



STATE OF NEW YORK
DEPARTMENT OF HEALTH

DPL *JE*

X - J. McMahon

Corning Tower The Governor Nelson A. Rockefeller Empire State Plaza Albany, New York 12237

Lorna S. McBarnette
Executive Deputy Commissioner

OFFICE OF PUBLIC HEALTH
Linda A. Randolph, M.D., M.P.H.
Director
Sue Kelly
Executive Deputy Director

August 23, 1991

Mr. Earl Barcomb, P.E., Director
Bureau of Hazardous Site Control
NYS Dept. of Environmental Conservation
Room No. 218
50 Wolf Road
Albany, New York 12233

RE: Classification Package
Small Boat Harbor #915127
Buffalo, Erie County

Dear Mr. Barcomb:

Attached is the signed reclassification package for the referenced site. Although no hazardous wastes, as defined under Part 371, were disposed of at the Small Boat Harbor Site it is likely that contaminated groundwater is discharged into Lake Erie. The City of Buffalo has indicated it would like to develop the adjacent property south of the Small Boat Harbor Site into a public beach. If this is done, an extensive study would be required to assure no exposure to hazardous or toxic chemicals would occur in the area through water contact. My concurrence with the DEC reclassification of this site from a 2a-D1 is contingent on its referral to the Division of Water for further assessment and that any plans for change in the future use of this site and adjacent properties be referred to Erie County and New York State Departments of Health for review.

If you have any questions you may contact Dr. G. Anders Carlson or Michael Rivara of my staff at 458-6308.

Sincerely,

Ronald Tramontano, P.E.
Director
Bureau of Environmental Exposure
Investigation

JH/12320307

Attachment

cc: G.A. Carlson/M. Rivara
O. Smith-Blackwell/C. O'Connor - WRO
M. Doster - DEC, Reg. 9 *8/30/91*
W. Dornick - DEC

New York State Department of Environmental Conservation
50 Wolf Road, Albany, New York 12233



Thomas C. Jorling
Commissioner

NOV 21 1991

Niagara Frontier Trans. Auth.
18 Ellicott Street
Buffalo, New York 14203

Dear Sir:

Re: DEC Site No.: 915127
Site Name: Small Boat Harbor Containment Site
Site Address: Fuhrmann Boulevard, Buffalo, NY 14205

As mandated by Section 27-1305 of the Environmental Conservation Law, the New York State Department of Environmental Conservation (NYSDEC) must maintain a registry of all disposal sites suspected or known to contain hazardous wastes. It is this Department's procedure to notify the owner of all or any part of each site or area included in the Registry of Inactive Hazardous Waste Disposal Sites as to changes in site classification.

Our records indicate that you are the owner or part-owner of the above-referenced site. Based on the information that has been gathered to date, the NYSDEC has not identified any hazardous wastes at this site. Therefore, this letter constitutes notification of deletion of such site from the Registry of Inactive Hazardous Waste Disposal Sites in New York State. This site will not appear in future registries, unless information is brought to our attention which justifies relisting the site.

If you have any further questions, please contact Mr. Robert L. Marino, Chief, Site Control Section, Bureau of Hazardous Site Control at (518) 457-0747.

Sincerely,

Earl H. Barcomb, P.E.
Director
Bureau of Hazardous Site Control
Division of Hazardous Waste Remediation

bcc: E. Barcomb
R. Marino
D. Markell
A. Carlson, NYSDOH
L. Condra
J. Ryan
J. Sciascia
E. Belmore
W. Demick
A. Sylvester

AS/srh

APPENDIX F

**Spill Prevention, Control and Countermeasures
(SPCC) Plan**

4.5 Emergency Telephone Numbers

FIRE, AMBULANCE AND POLICE	911	
NFTA TRANSIT POLICE DISPATCH	855-6405	
U.S. COAST GUARD	843-9500	VHF CHANNEL 16

Listen carefully and answer all questions asked by the Emergency Dispatcher
DO NOT HANG UP THE PHONE UNTIL INSTRUCTED TO DO SO BY THE EMERGENCY DISPATCHER

5.0 CONTRACTORS

All contractors working in the Terminal will be informed of our Emergency Action Plan procedures prior to start of contract work.

6.0 EVACUATION ROUTES

All doors marked exit are designed as exit points. Continual inspections shall be conducted daily to ensure exit points are not impaired. Any emergency exits with escape-impairment conditions (blocked, locked, inoperable, etc.) shall be immediately reported to the Fire Department. All emergency exits routes and doors must be unobstructed and immediately available for the safe evacuation of all people during an emergency situation. During months of inclement weather the Emergency Coordinator shall be responsible for ensuring that the exits are clear of snow and ice accumulation. Exit doors must open freely and completely. All paths of egress must be cleared completely and be free of slippery conditions.

7.0 TRAINING

All employees, including seasonal and temporary personnel, shall receive training on this Emergency Action Plan during annual orientation.

EMERGENCY CONTINGENCY PLAN

This plan is for information only and does not indicate a requirement for employment. The purpose of this plan is to assure a prompt, effective response to any marine emergency that relates to safety of life, property and environmental protection.

The primary consideration is for personal and public safety. In case of fire or explosion, involved persons should be removed to safety while not endangering your own safety. In case of an accident, do not move the person unless there is continued danger. If a person is in the water, throw any flotation device (or anything that floats). Do not go into the water without some type of flotation that could support yourself and the person you are trying to help. Professional help should be called immediately.

The secondary consideration is for protection of property. In case of fire or explosion, remove all movable property from the area (i.e. boats, cars, trailers etc.).

The third consideration is for environmental protection. With any fire, explosion, sinking or accident there is usually a chance of some environmental pollution. Floating debris, oil, and fuel that drifts free should be removed from the water when possible. The boat should be removed from the water when possible. Oil booms and absorbent rags are stored at the fuel dock.

Person Overboard

1. Be aware of distress calls from anyone falling overboard.
2. Know location and procedure for life ring use.
3. Don't try to swim against wind, swim with wind toward nearest land.
4. In all overboard cases involving cold water or prolonged exposure, assume victim has hypothermia (heat loss from body) and handle gently and keep from losing further heat. Medical treatment is advised.
5. In drowning cases, assume that the victim is severely hypothermic and alive. After removing the victim from the water, immediately begin CPR first aid, and continue until Rescue or Medical personnel arrive and take over. Remember, no one should be given up as dead because they look and feel dead.

4.3 Chemical Spill/Hazardous Material Release Procedures

FUEL & OIL SPILLS

1. Contact Dock Master or Operations Manager immediately when spill is discovered. WARNING: There is a large fine if even minor spills aren't reported.
2. Use oil absorbent pads and pillows. NEVER USE DETERGENTS to contain and remove a spill.
3. Locate cause of spill and secure against spread.
4. Gas spillage - Rope area off, get fire extinguisher and proceed with clean up. If a gasoline or diesel line breaks to the fuel pier, or in case of a large sheen of oil, gasoline or diesel showing on the surface of the water, do the following:
 - Secure all valves to the fuel lines and tanks.
 - Secure all electricity.
 - Contact the Fire Department ("911") and the United States Coast Guard (VHF Channel 16) and give the following information:
 1. Type of product spilled: gas, diesel, oil or unknown.
 2. Source of spill: boater, gas dock fuel lines, or other.
 3. Quantity spilled: quarts - gallons.
 4. Wind direction and strength.
 5. What actions are presently being taken by Harbor staff to prevent spill from spreading out.
 6. Is the spill within a confined area or not?
 - Record all the above information on an Incident Report Sheet.

If the spill is large:

1. Make sure everyone is off the docks.
2. Do not allow boats to enter the area.
3. Do not allow boats to start up.
4. NO SMOKING DURING ANY SPILL and anywhere where fuel can be smelled.
5. Stand by to direct the Fire Department and assist as needed.
6. If gasoline is spilled, break out fire hose to wash away from docks and boats. If diesel or oil is spilled, do not wash away. A containment boom will be set up. Oil and diesel will not dissipate the way gasoline will.
7. In case of a small gasoline or diesel spill from overfilling a fuel tank on a boat happens, spray water on dock, boat and on the water to help gasoline evaporate or diesel to dissipate.
8. WARNING: Do not spray soap or other disbursement on the spill. This is environmentally illegal and any Employee doing this will be held liable for their actions and can be dismissed from employment.

SINKING OR SUNK BOAT

Sunken boats commonly result in oil pollution when fuel bubbles up from the submerged fuel tank (often through the air vent).

1. Know location and proper use of emergency pumps.
2. If boat is sunk, place oil spill containment boom around the boat since fuel will usually bubble up to the surface resulting in an oil spill.
3. Notify boat owner to remove boat.

4.4 Designated Emergency Responsibilities

All employees should immediately attempt to shut down any equipment they are using, provided that doing so will not place them in danger. No personnel, designated or otherwise, shall attempt to perform medical procedures beyond the scope of their training. THESE DESIGNATED TASKS ARE NOT TO BE PERFORMED IF THE EMPLOYEE IS IN IMMEDIATE DANGER.

FIRE EMERGENCY

1. Shut OFF fuel pump switches and electrical breakers.
2. Make sure everyone is away from the fire and the surrounding area.
3. DIAL "911" for the fire department and give the following information:
 - "This is (your name) at NFTA BOAT HARBOR (fuel dock, dock office, etc.) on Lake Erie at 828-0027."
 - "We have a fire at the (give location i.e. fuel pumps, boat hoist, boat ramp, etc.)"
 - Inform them whether there are any injuries or possible severity of the injuries.
 - Describe the class of fire (wood, electrical, propane gas, or gasoline).
 - Describe any hazardous conditions near the fire.
 - Describe what, if any, fire-fighting efforts are in process.
4. Call the U.S. Coast Guard on the VHF Radio on channel 16 and repeat the same information that you just gave to Fire-Rescue.
5. If safely possible, remove all boats and movable items away from the fire area.
6. If safely possible, and the fire is on a boat, secure the burning boat to the dock. This will permit the fire to be fought from the land and sea.
 - **WARNING: STAND CLEAR.** Burning boats often explode when flames reach fuel tanks.
7. If the fire is small and you are absolutely positive that no explosive materials are involved (gas and propane) you can try to use a fire extinguisher to put out the fire.
8. Call your supervisor to inform of the incident.
9. Stand by to direct the fire department once they are on site and lead them to the incident. Have someone standby the gates to control the boaters and public as requested by the fire department.

HOW TO USE A FIRE EXTINGUISHER

The nameplate includes operating instructions. Study your unit. Portable extinguishers operate by squeezing the handle lever. Each time the lever opens the valve, the stored pressure will force out some of the extinguishing agent. If the lever is released the entire contents will be discharged in as short a time as 10 seconds.

1. Should fire occur, grasp the extinguisher firmly and pull out locking pin. Hold the extinguisher upright, unclip the hose of swivel the horn so nozzle is pointed toward base of the flames.
2. Remain low, out of the smoke and heat, and approach the fire no closer than 10 feet. Squeeze and release the lever while sweeping the agent across the base of the fire (not at flames or smoke) in a side-to-side motion.
3. After the initial assault, move progressively closer to the fire to enable the discharge stream or cloud to reach the furthest burning section. Keep your back toward any strong air current or wind. If the discharge stream scatters the burning material, you are too close. Move back until the scattering action ceases.
4. Survey the area surrounding the fire as you approach the flame. Be careful to stay as far as possible from the fire's fuel source. After the fire is out, continue to check the area for several minutes for "Flashback" or small recurrences of flame.
5. Check the rubble. Where there is smoke there can be fire again. Be sure.
6. Clean up the area immediately after you are sure the fire is out. Fire loss has been minimized by the proper operation of the extinguisher, but dry chemical agents may corrode property salvaged from the fire if not cleaned up soon after. Shut off power if you suspect the fire was of electrical origin.

CAUTION: Do not discharge any extinguisher at a person's face. Keep away from children. Avoid inhaling dry chemical powers. Although not poisonous, temporarily irritation and vomiting could be caused. If this occurs, call a physician immediately. Dry chemical compounds are shown on the nameplates. Carbon Dioxide (CO₂) "snow" can inflict cold burns if it touches bare skin.

4.2 Medical Emergency Procedures

It is the policy of NFTA BOAT HARBOR to render emergency first aid when needed and as is possible and reasonable for non-medically trained personnel. The primary objectives are to stabilize the victim and reduce the risk of further harm until rescue or medical help arrives. First Aid Kits are located at the Dock Office, and are of the basic type to handle large cuts and minor emergencies.

Medical Emergency Contacts

When anyone is injured or gets sick in our Marina, Employees must do the following:

1. Notify the DockMaster.
2. Call medical authorities for help or advice.
3. Give whatever First Aid is reasonable to help stabilize and comfort the person.
4. Wait for medical help.
5. Do not move the victim if unconscious or seriously hurt.

SECTION FOUR: NFTA BOAT HARBOR EMERGENCY ACTION PLAN

**Emergencies will happen in our marina.
ALL emergencies are serious.
Small emergencies don't stay small if not rapidly handled.**

1.0 INTRODUCTION

The Occupational Safety and Health Administration (OSHA) and NYS Department of Labor (PESH) require employers to develop an Emergency Action Plan ensure employee safety from fire and other emergencies. In accordance with OSHA's Employee Emergency Plan Standard, 29 CFR 1910.38(a), the following Emergency Action Plan has been developed for the NFTA Boat Harbor.

2.0 PURPOSE

The purpose of this Emergency Action Plan is to inform employees of the proper procedures to follow during workplace emergencies. In addition to these procedures, responsibilities have been delineated to ensure employee safety in the event of an emergency. This Emergency Action Plan is given to all employees, and is available for review to anybody who requests it. A copy of this plan will be maintained in the dock and administrative offices and may be viewed as requested.

3.0 PROGRAM COORDINATION

NFTA Boat Harbor has identified the Maintenance Staff as the Emergency Coordinators. If the Maintenance Staff are not present the DockManager will act as the Emergency Coordinator. They will act as the Emergency Coordinators until relieved as appropriate.

The Emergency Coordinator has the following responsibilities:

1. Facilitate prompt evacuation of all people in the area.
2. Account for all people in the area at the time of the emergency.
3. Coordinate clean-up activities as applicable.
4. Act as a liaison between fire and other emergency service personnel, and notify appropriate authorities when necessary.
5. Provide assistance with the investigation of all accidents and incidents that occur.
6. Review this Emergency Action Plan annually and make necessary revisions due to any changes that affect plan implementation.

4.0 EMERGENCY PROCEDURES

4.1 Fire Emergency and Evacuation Procedures

Employees are NOT being asked to fight fires, unless it is something small and has little chance of growing or exploding. If an Employee does choose to try and extinguish a small fire, do so only after having called the fire department and taken all other steps to ensure that all boaters and personnel are away from the incident.

If you are afraid or nervous about fighting a fire, just remember to:

- Call the Fire Department.
- Make sure everyone is far away from the fire as possible.
- Call the DockMaster or Operations Manager.
- Direct the Fire Department to the fire.
- Do not jeopardize yourself.

**For a Fire to Burn It Needs These 3 Things: Fuel + Heat + Oxygen.
If You Remove Any One, the Fire Will Die.**

FACILITY SPILL CONTINGENCY PLAN ICEMAN HARBOR MARINA

LAND LOCATION :

WATER LOCATION :

RADIO FREQUENCY:

Iceman Harbor Marina 1030 Iceman Drive Iceman, Wisconsin 53706

TEL. (555) 655-6555 Fax. (555) 655-6556

Latitude 26 ° 08' 31" N Longitude 080° 06' 53"W

Intra Coastal Water Way

Channels monitored: VHF 16 & 71

FUEL STORAGE CAPACITIES:

Gasoline: Two 8000 gal. in-ground tanks Diesel: One 10,000 gal. in-ground tank

HOURS OF FUEL DOCK OPERATION:

Monday -Friday 7:30 a.m. to 6 p.m. Saturday -Sunday 8 a.m. to 6 p.m.

WEATHER:

Prevailing Winds :

Air Temperature :

Water Temperature :

November -April Variable May -October Variable November- April 45° -85° May- October 75° -100° November -April Mid 60° May -October 70°- 85°

(Page 2) 10/02

DESIGNATED SPILL RESPONSE MANAGER: Gene Spinazola -Spill Manager
Work (555) 655-6555, Home Phone (555) 655-2131

Training includes previous spill experience and knowledge of County & State and Federal laws regarding pollutant discharge.

Duties include:

1. Notification to the Coast Guard at the National Response Center and the Florida State Warning Point. 2. Containment of spill by deploying containment boom within one (1) hour. 3. The notification of the Spill Contractor as needed. 4. The documentation of the spill and clean-up efforts, including the time and date of the spill, names of all personnel who worked on the spill clean-up and the name of the person(s) to whom notification was made.

F ACILITIES MANAGER: Gene Spinazola
Work (555) 655-6555,

Home Phone (555) 655-2131

LOCATION OF EMERGENCY PHONE NUMBERS: Located at the Marina Office

LOCA TION OF EMERGENCY RESPONSE EQUIPMENT:
Spill Response Kit is located in the Dock Box in front of the Marina Office

NOTIFICATION: Spill Response Manager shall contact the following: U.S. Coast Guard
National Response Center 1-800-424-8802 (24 Hours)

Florida State Warning Point 1 (904) 413-9911 (24 Hours)
Note: The Florida State Warning Point will notify Florida Department of Environmental Protection and the County .

Florida Marine Patrol

1-800-342-5367

Berry Oil Reclaimers Inc. 1(800)555-5556 (24 Hours)

(Page 3) 10/02

DESCRIPTION OF INSPECTIONS ON PROPERTY : Daily visual inspection of property and basins.

VERIFICATION OF SOURCE OR DISCHARGE OF ANY POLLUTANT: Identify spill source and location; source may be determined at the point of discharge.
Identify type of pollutant. (by visual, texture, smell) Determine volume and flow rate.

ON-SCENE ASSESSMENT:

Spill Response Manager on scene is responsible for:

Immediate estimation of source and size of spill. Identify type of pollutant. Life safety issue assessment and response

Determine movement of discharge. (verify wind and current direction.) Determine any possible environmental damage.

RESPONSE TO A DISCHARGE:

Call the Fire Department if there is any possibility of fire or an explosion and evacuate the area.

Call Berry Inc., a spill response contractor who is certified by the State as a Discharge Clean-up Contractor/First Responder with complete clean-up and re-mediation services.

Spill Response Manager will alert other personnel as needed.

Trained Marina staff may deploy boom barrier to control spill as directed by the Spill Response Manager.

CLEAN-UP CONTRACTOR:

Berry Inc. -response time is 1 hour Tel. 1(800) 555-5556

SPILL RECOVERY EQUIPMENT:

In the event that spill recovery equipment is used, it must be stored in sealed bags and placed in a covered storage area until it can be removed by the Spill Response Contractor .

SPILL PLAN REVISION :

This spill response plan will be revised within 30 days of any significant change effecting the discharge response preparedness of Iceman Harbor Marina .

APPENDIX G

Tank Tightness Test Report

GALLOWAY TECHNICAL SERVICES

5726 Tonawanda Creek Road, Lockport, New York, 14094
(716) 625-6895, Fax: (716) 625-4304
email: GTSINC@Adelphia.net



March 21, 2003

William R Fedchak
Niagara Frontier Transportation Authority
Engineering Dept.
181 Ellicott Street
Buffalo, New York 14205

Re: LEAK DETECTION/TIGHTNESS TESTING ON THE UNDERGROUND
STORAGE TANKS AND PIPING LOCATED AT THE SMALL BOAT HARBOR.

Dear Mr. Fedchak;

Enclosed please find Galloway Technical Services, Inc.'s certification for doing the leak detection/tightness testing on the underground storage tanks and piping which are located at the Small Boat Harbor, 1111 Furhmann Blvd., Buffalo, New York. All tanks and piping were tested by using the EZY 3 Locator Plus method.

As indicated by the test results, all of the tanks passed without any problems and meet current EPA requirements for leak detection/tightness testing.

If you have any questions on your tank testing results, please feel free to contact me at (716) 625-6895.

Sincerely yours,

William A. Galloway, Jr.
President

GALLOWAY TECHNICAL SERVICES

5726 Tonawanda Creek Road, Lockport, New York, 14094
(716) 625-6895, Fax: (716) 625-4304
email: GTSINC@Adelphia.net



LEAK DETECTION/TIGHTNESS TANK TESTING (Sti-P3)

This letter is to certify that on March 3, 2003, Galloway Technical Services, Inc. and it's subcontractor, Prime Time Services, Inc. preformed leak detection/tightness tank testing on two (2) underground storage tanks and piping for the Niagara Frontier Transportation Authority. These tanks and piping are located at: **Small Boat Harbor**, 1111 Furhmann Blvd, Buffalo, New York, 14203.

Following are the test results and observations of the two (2) tanks and piping.

<u>Tank #</u>	<u>Registration #</u>	<u>Capacity (gallons)</u>	<u>Contents</u>	<u>Test Results</u>	<u>Pass/Fail</u>
#1	9-493228	6,000	Unld. Gas	see data sheet	Passed
#2	9-493228	6,000	Unld. Gas	see data sheet	Passed
Piping	9-493228	1 1/2"	Unld Gas	No leakage	Passed

Note: All tanks listed are single walled, steel tanks with an in-tank Veeder Root 24 hour monitoring system as stated by the NFTA.

Any questions concerning these tank testing results should be directed to William A. Galloway, Galloway Technical Services, Inc.

Sincerely yours,

William A. Galloway, Jr.
President

EZY 3 LOCATOR PLUS**PRESSURE CALCULATION & WATER SENSOR CALIBRATION**

DATE	<u>3/3/03</u>	PBS# (NEW YORK)	<u>9-493228</u>
TOTAL TANK VOL.	<u>6,000 Gallons</u>	TANK #	<u>409</u>
PRODUCT VOL.	<u>3,157 Gallons</u>	LOCATION	<u>Port of Buffalo</u>
ULLAGE VOL.	<u>2,843 Gallons</u>		<u>901 Fuhrmann Blvd.</u>
PRODUCT TYPE	<u>Gasoline</u>		<u>Buffalo, NY 14203</u>

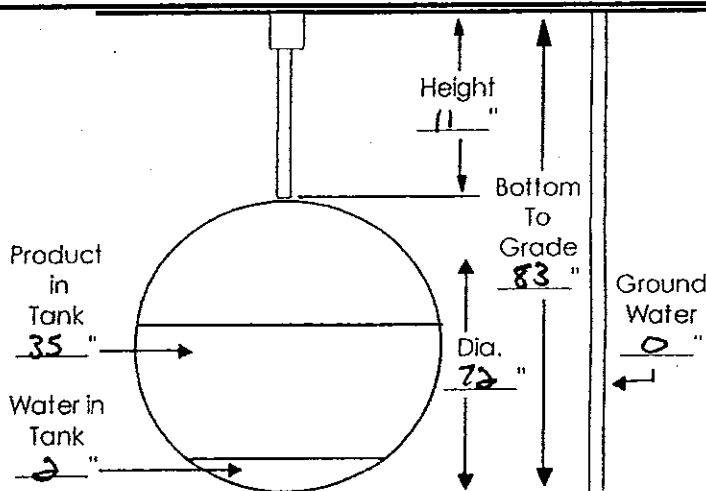
PRESSURE SENSOR CALCULATION

<u>35</u>	X	<u>.036</u>	=	<u>0.91</u> PSI (1)
INCHES of PRODUCT		WEIGHT of PRODUCT		
<u>2.00</u>	X	<u>0.036</u>	=	<u>0.07</u> PSI (2)
INCHES of WATER in TANK				
Line 1 + Line 2 = Total Positive Head Pressure in Tank				= <u>0.98</u> PSI (3)
<u>0</u>	X	<u>0.036</u>	=	<u>0.00</u> PSI (4)
INCHES of WATER OUTSIDE TANK				
Total Head Pressure Minus Outside Water Pressure				= <u>0.98</u> +/- PSI (5)
Always add .5 PSI				+ <u>1.48</u>
NOTE: If Line 6 is Less than .5 PSI, Line 7 shall be .5 PSI				
TEST PRESSURE				= <u>1.5</u> +/- PSI (7)

	TIME	PRESSURE	
Blower Started:	<u>12:00 PM</u>	<u>—</u>	
Test Pressure Reached:	<u>12:03 PM</u>	<u>1.5</u>	Depth of Groundwater Determined:
Blower Turned Off:	<u>12:03 PM</u>	<u>1.5</u>	By: <u>Double wall tank</u>
Test Began:	<u>12:03 PM</u>	<u>1.5</u>	Where: <u>Interstitial dry</u>
Test Ended:	<u>12:13 PM</u>	<u>1.5</u>	

WATER SENSOR CALIBRATION

Added:	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
	Cal # 1	Cal # 2	Cal # 3
Average:	<u> </u>		
Water Intrusion Test Period:	Began:	<u> </u>	
	Ended:	<u> </u>	
Calculation for Test Period:	<u> </u>		
<u> </u> + 3780 = <u> </u> + .05 <u> </u> X <u>60</u> = <u> </u>			
Ave. Cal.	"A" Factor	Min.	Time of test



EZY 3 LOCATOR PLUS**FINAL REPORT**

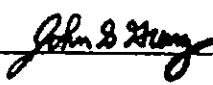
MANUFACTURED BY: ESTABROOK'S INC. (877) 368-7215

DATE	<u>3/3/03</u>	PBS# (NEW YORK)	<u>9-493228</u>
TOTAL TANK VOL.	<u>6,000 Gallons</u>	TANK #	<u>409</u>
PRODUCT VOL.	<u>3,157 Gallons</u>	LOCATION	<u>Port of Buffalo</u>
ULLAGE VOL.	<u>2,843 Gallons</u>		<u>901 Fuhrmann Blvd.</u>
PRODUCT TYPE	<u>Gasoline</u>		<u>Buffalo, NY 14203</u>

THE ACOUSTIC CHARACTERISTIC OF A LEAK REVEALS:☒ **TIGHT TANK**This underground storage tank **PASSES** the criteria set forth by the U.S. E.P.A.☐ **ULLAGE (DRY) PORTION LEAK**This underground storage tank **FAILS** the criteria set forth by the U.S. E.P.A.☐ **BELOW PRODUCT LEVEL (WET) PORTION LEAK**This underground storage tank **FAILS** the criteria set forth by the U.S. E.P.A.**WATER SENSOR INDICATES:**

(CHECK ONLY ONE)

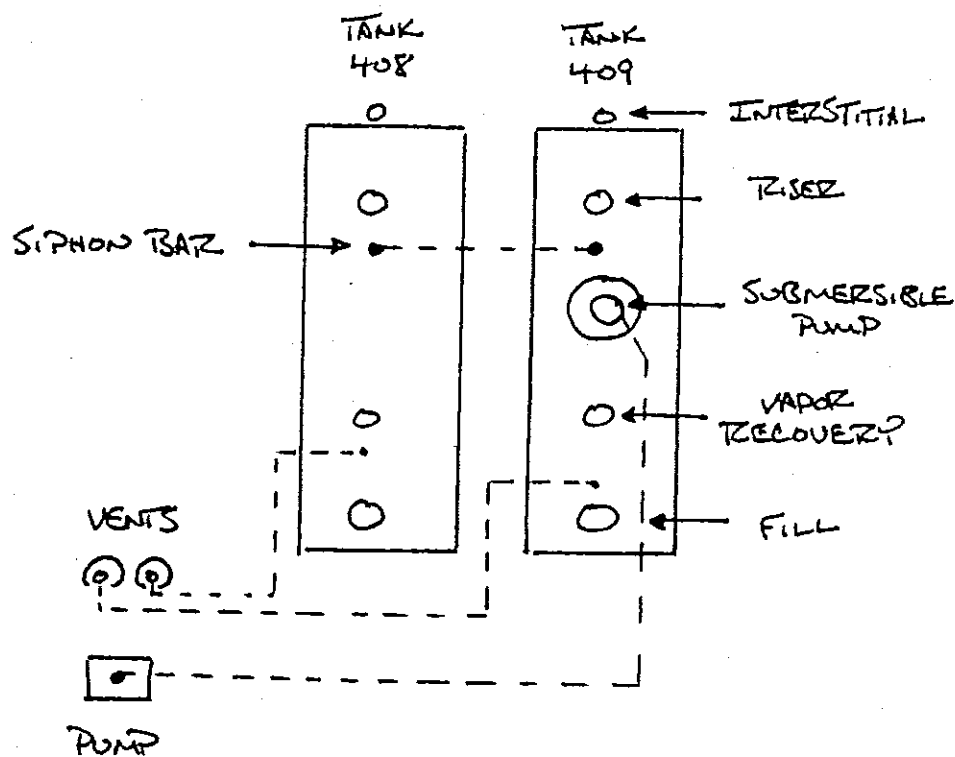
NO WATER INTRUSION: ☐ WATER INTRUSION: ☐ NOT APPLICABLE: ☒**OPERATOR INFORMATION:**

PRINT NAME:	<u>John S. Gramz</u>	CERTIFICATION #	<u>52-6418</u>
SIGN NAME:	<u></u>	EXPIRATION DATE:	<u>9/12/04</u>
TESTING FIRM:	<u>PrimeTime Services Inc.</u>	TELEPHONE #	<u>(585) 303-2771</u>
ADDRESS:	<u>780 Curran Rd. Shortsville, NY 14548</u>		

NEW YORK STATE REQUIREMENT: A DIAGRAM OF THE TANK SYSTEM MUST BE SUBMITTED TO THE STATE WITH THIS REPORT.

EZ3 Locator Plus Tank Diagram Sheet

Date	3/3/03
Owner	Port of Buffalo
Address	901 Fuhrmann Blvd.
City	Buffalo, NY 14203
PBS #	9-493228
Tank #	409



Note: Submersible pump piping system. Separate line test required for product piping.

EZY 3 LOCATOR PLUS

PRESSURE CALCULATION & WATER SENSOR CALIBRATION

DATE	3/3/03	PBS# (NEW YORK)	9-493228
TOTAL TANK VOL.	6,000 Gallons	TANK #	408
PRODUCT VOL.	4,318 Gallons	LOCATION	Port of Buffalo
ULLAGE VOL.	1,682 Gallons		901 Fuhrmann Blvd.
PRODUCT TYPE	Gasoline		Buffalo, NY 14203

PRESSURE SENSOR CALCULATION

<u>47</u>	X	<u>.026</u>	=	<u>1.22</u> PSI (1)
INCHES of PRODUCT		WEIGHT of PRODUCT		
<u>1.00</u>	X	<u>0.036</u>	=	<u>0.04</u> PSI (2)
INCHES of WATER in TANK				
Line 1 + Line 2 = Total Positive Head Pressure in Tank			=	<u>1.26</u> PSI (3)
<u>0</u>	X	<u>0.036</u>	=	<u>0.00</u> PSI (4)
INCHES of WATER OUTSIDE TANK				
Total Head Pressure Minus Outside Water Pressure			=	<u>1.26 +/-</u> PSI (5)
Always add .5 PSI			+	<u>1.76</u>
NOTE: If Line 6 is Less than .5 PSI, Line 7 shall be .5 PSI				
TEST PRESSURE			=	<u>1.8 +/-</u> PSI (7)

	TIME	PRESSURE	
Blower Started:	<u>12:50 PM</u>	<u>—</u>	
Test Pressure Reached:	<u>12:53 PM</u>	<u>1.8</u>	Depth of Groundwater Determined:
Blower Turned Off:	<u>12:53 PM</u>	<u>1.8</u>	By: <u>Double wall tank</u>
Test Began:	<u>12:53 PM</u>	<u>1.8</u>	Where: <u>Interstitial dry</u>
Test Ended:	<u>1:03 PM</u>	<u>1.8</u>	

WATER SENSOR CALIBRATION

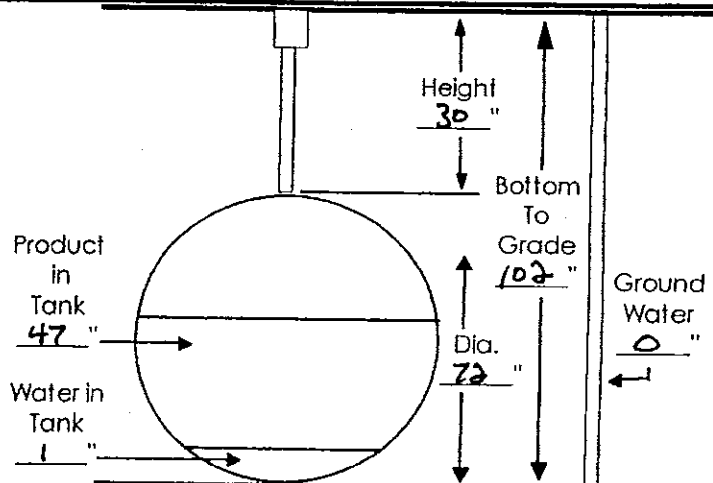
Added:	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
	Cal # 1	Cal # 2	Cal # 3

Average: _____

Water Intrusion Test Period:	Began:	_____
	Ended:	_____

Calculation for Test Period:

_____ + 3780 = _____ + .05 _____ X .60 = _____
Ave. Cal. "A" Factor Min. Time of test



EZY 3 LOCATOR PLUS**FINAL REPORT**

MANUFACTURED BY: ESTABROOK'S INC. (877) 368-7215

DATE	<u>3/3/03</u>	PBS# (NEW YORK)	<u>9-493228</u>
TOTAL TANK VOL.	<u>6,000 Gallons</u>	TANK #	<u>408</u>
PRODUCT VOL.	<u>4,318 Gallons</u>	LOCATION	<u>Port of Buffalo</u>
ULLAGE VOL.	<u>1,682 Gallons</u>		<u>901 Fuhrmann Blvd.</u>
PRODUCT TYPE	<u>Gasoline</u>		<u>Buffalo, NY 14203</u>

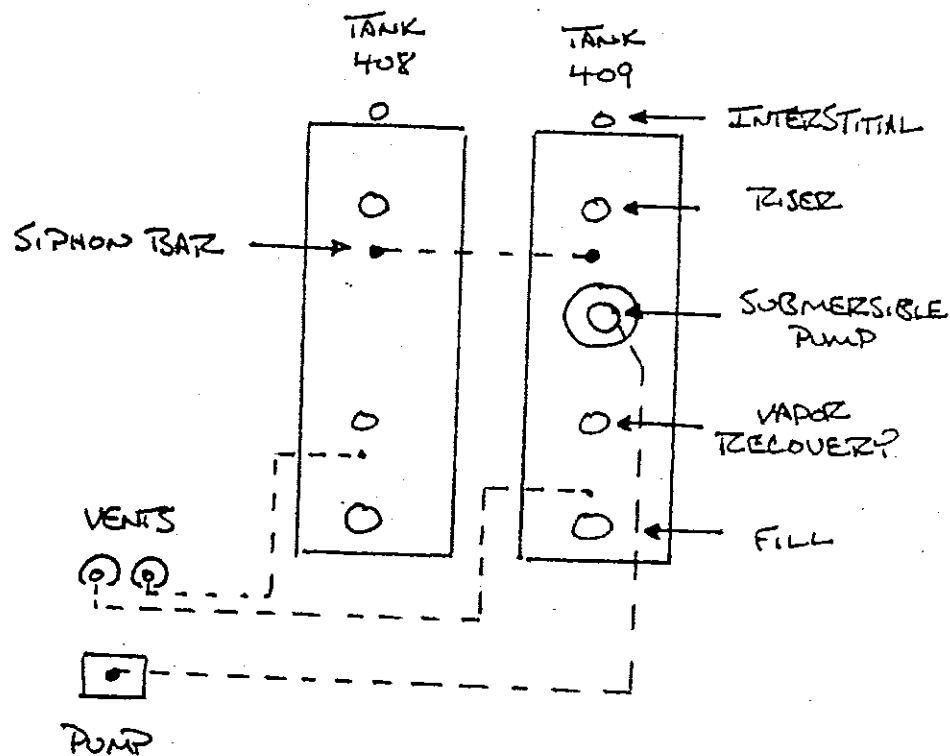
THE ACOUSTIC CHARACTERISTIC OF A LEAK REVEALS:☒ **TIGHT TANK**This underground storage tank **PASSES** the criteria set forth by the U.S. E.P.A.☐ **ULLAGE (DRY) PORTION LEAK**This underground storage tank **FAILS** the criteria set forth by the U.S. E.P.A.☐ **BELOW PRODUCT LEVEL (WET) PORTION LEAK**This underground storage tank **FAILS** the criteria set forth by the U.S. E.P.A.**WATER SENSOR INDICATES:
(CHECK ONLY ONE)**NO WATER INTRUSION: ☐ WATER INTRUSION: ☐ NOT APPLICABLE: ☒**OPERATOR INFORMATION:**

PRINT NAME:	<u>John S. Gramz</u>	CERTIFICATION #	<u>52-6418</u>
SIGN NAME:	<u><i>John S. Gramz</i></u>	EXPIRATION DATE:	<u>9/12/04</u>
TESTING FIRM:	<u>PrimeTime Services Inc.</u>	TELEPHONE #	<u>(585) 303-2771</u>
ADDRESS:	<u>780 Curran Rd. Shortsville, NY 14548</u>		

NEW YORK STATE REQUIREMENT: A DIAGRAM OF THE TANK SYSTEM MUST BE SUBMITTED TO THE STATE WITH THIS REPORT.

EZ3 Locator Plus Tank Diagram Sheet

Date	3/3/03
Owner	Port of Buffalo
Address	901 Fuhrmann Blvd.
City	Buffalo, NY 14203
PBS #	9-493228
Tank #	408



Note: Submersible pump piping system. Separate line test required for product piping.

GALLOWAY TECHNICAL SERVICES

5726 Tonawanda Creek Road, Lockport, New York, 14094
(716) 625-6895, Fax: (716) 625-4304
email: GTSINC@Adelphia.net



March 21, 2003

William R Fedchak
Niagara Frontier Transportation Authority
Engineering Dept.
181 Ellicott Street
Buffalo, New York 14205

Re: CATHODIC PROTECTION TESTING ON THE UNDERGROUND STORAGE
TANKS LOCATED AT THE SMALL BOAT HARBOR.

Dear Mr. Fedchak;

Enclosed please find Galloway Technical Services, Inc.'s certification for doing the Sti-P3 (cathodic protection) testing on the underground storage tanks which are located at the Small Boat Harbor, 1111 Furhmann Blvd., Buffalo, New York. All tanks were tested by inserting a rod with a wired probe through the "sticking" port of the tank and checking the tank to soil potential with a Sti-P3 Tank Monitor (SN# 70720683).

As indicated by the test results, all of the tanks passed without any problems and meet current EPA requirements for cathodic protection.

If you have any questions on your tank testing results, please feel free to contact me at (716) 625-6895.

Sincerely yours,

William A. Galloway, Jr.
President

GALLOWAY TECHNICAL SERVICES

5726 Tonawanda Creek Road, Lockport, New York, 14094
(716) 625-6895, Fax: (716) 625-4304
email: GTSINC@Adelphia.net



CATHODIC PROTECTION TANK TESTING (Sti-P3)

This letter is to certify that on March 3, 2003, Galloway Technical Services, Inc. performed cathodic protection (anode) testing on two (2) underground storage tanks for the Niagara Frontier Transportation Authority. These tanks are located at: **Small Boat Harbor**, 1111 Furlmann Blvd, Buffalo, New York, 14203.

Following are the test results and observations of the two (2) tanks.

<u>Tank #</u>	<u>Registration #</u>	<u>Capacity (gallons)</u>	<u>Contents</u>	<u>Anode Test Results</u>	<u>Pass/Fail</u>
#1	9-493228	6,000	Unld. Gas	.936 volts	Passed
#2	9-493228	6,000	Unld. Gas	.892 volts	Passed

Note: All tanks listed are single walled, steel tanks with an in-tank Veeder Root 24 hour monitoring system as stated by the NFTA.

Any questions concerning these tank testing results should be directed to William A. Galloway, Galloway Technical Services, Inc.

Sincerely yours,

William A. Galloway, Jr.
President

APPENDIX H

**State Pollutant Discharge Elimination System
(SPDES) Permit**

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
REGULATORY FEE DETERMINATION UNIT

Box 5973 GPO

New York, New York 10087-5973

INVOICE NUMBER: 217431970000

INVOICE DATE: 08/05/2002

PERMITTEE NAME: NIAGARA FRONTIER TRANS AUTH
AND ADDRESS 181 ELLICOTT ST
BUFFALO, NY 14203

PAGE: 2

ATTENTION: MARK CLARK

BILLING PERIOD: 01/01/2002-12/31/2002

>>>> 2002 STATE POLLUTANT DISCHARGE ELIMINATION SYSTEM PROGRAM FEE

SPDES ID NO	FACILITY NAME	FACILITY CATEGORY	DAILY DISCHARGE (MGD)	FEE AMOUNT
ROOB217	NIAGARA FALLS INTL AIRPORT	GENERAL	0.0000	\$ 50.00
ROOB730	SIERRA TECHNOLOGY INC	GENERAL	0.0000	50.00
ROOB971	SMALL BOAT HARBOR	GENERAL	0.0000	50.00

2002 TOTAL STATE POLLUTANT DISCHARGE ELIMINATION SYSTEM PROGRAM FEE: \$ 150.00

APPENDIX I

Sanborn Fire Insurance Maps

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
REGULATORY FEE-DETERMINATION UNIT

Box 5973 GPO
New York, New York 10087-5973

INVOICE NUMBER: 217431970000

INVOICE DATE: 08/05/2002

BILL TO: NIAGARA FRONTIER TRANS AUTH
181 ELLICOTT ST
BUFFALO, NY 14203

PAGE: 1

ATTENTION: MARK CLARK

RETURN THIS PAGE WITH YOUR CHECK MADE PAYABLE TO
"NYS ENVIRONMENTAL CONSERVATION" TO THE FOLLOWING ADDRESS:

NYS Department of Environmental Conservation
Regulatory Fee Determination Unit
Box 5973 GPO
New York, New York 10087-5973

Note: State agencies may charge a returned check
fee of \$ 20.00 per returned check.

>>>>

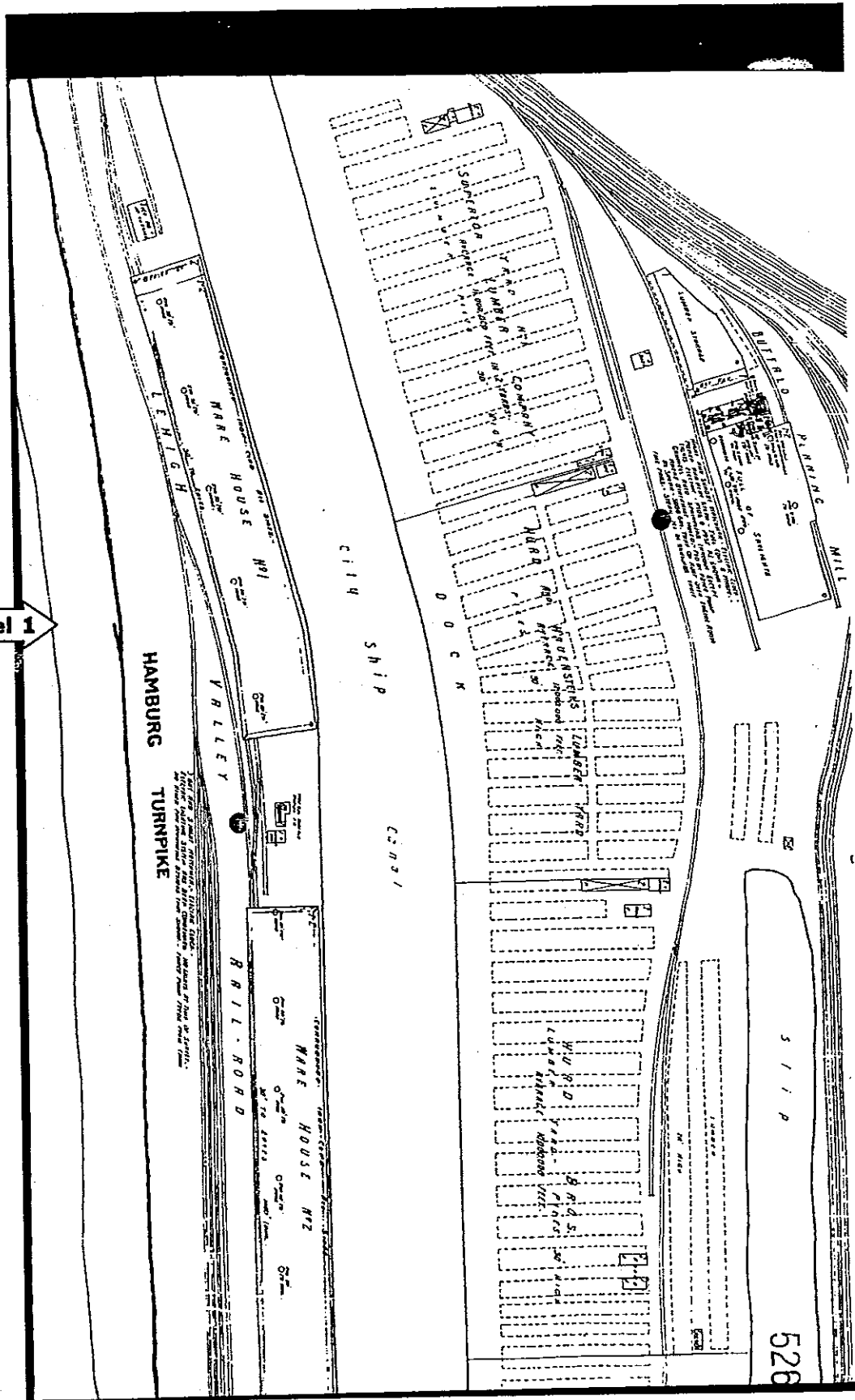
TOTAL ENVIRONMENTAL REGULATORY PROGRAM FEE

TOTAL FEE ASSESSED	PAYMENTS/CREDITS TO DATE	BALANCE
\$ 150.00	\$ 0.00	\$ 150.00

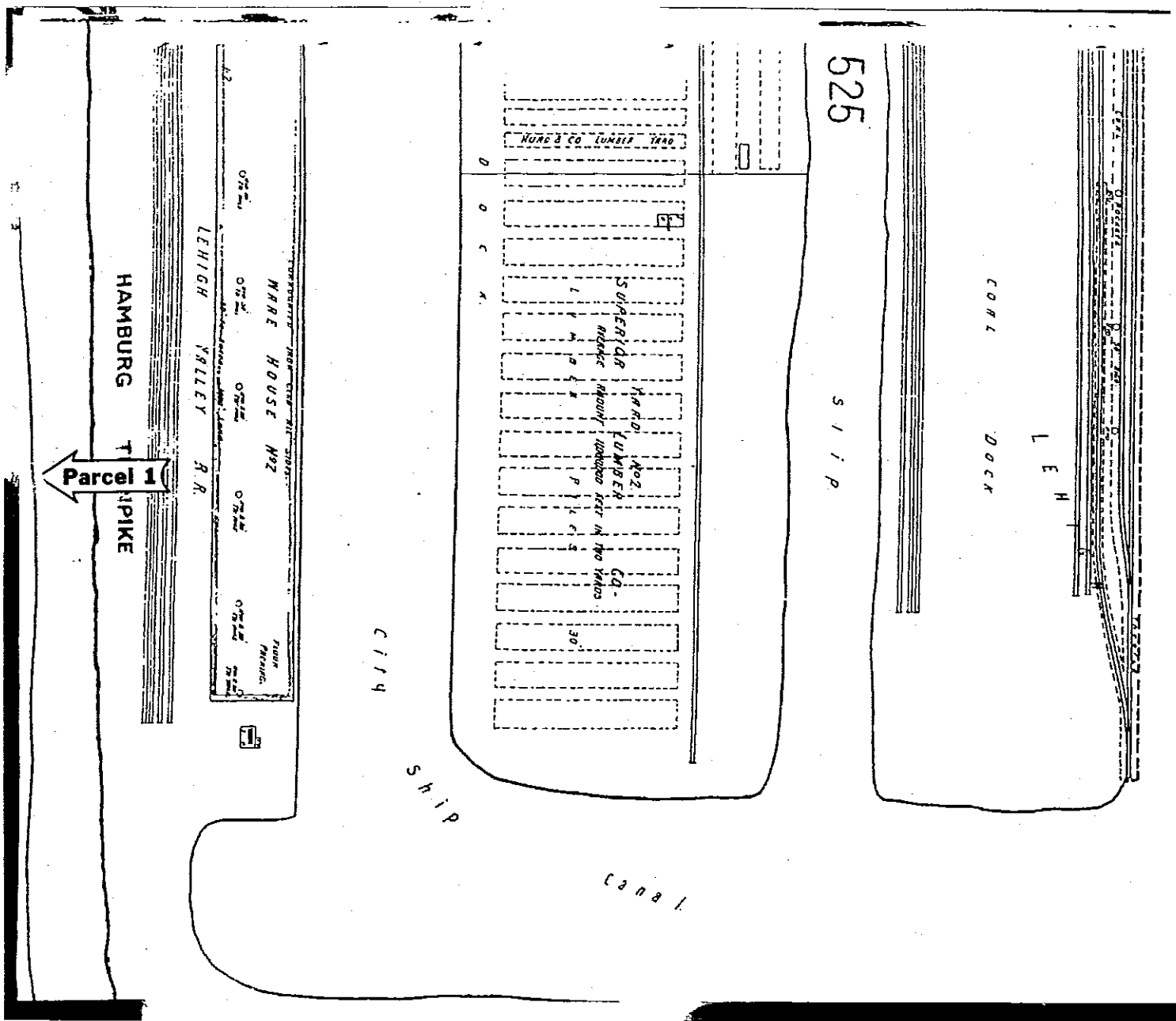
AMOUNT DUE THIS STATEMENT	PAST DUE AMOUNT	PENALTIES	INTEREST	TOTAL AMOUNT DUE
\$ 150.00	\$ 0.00	\$ 0.00	\$ 0.00	\$ 150.00

*** YOUR PAYMENT MUST BE RECEIVED BY 09/04/2002 ***

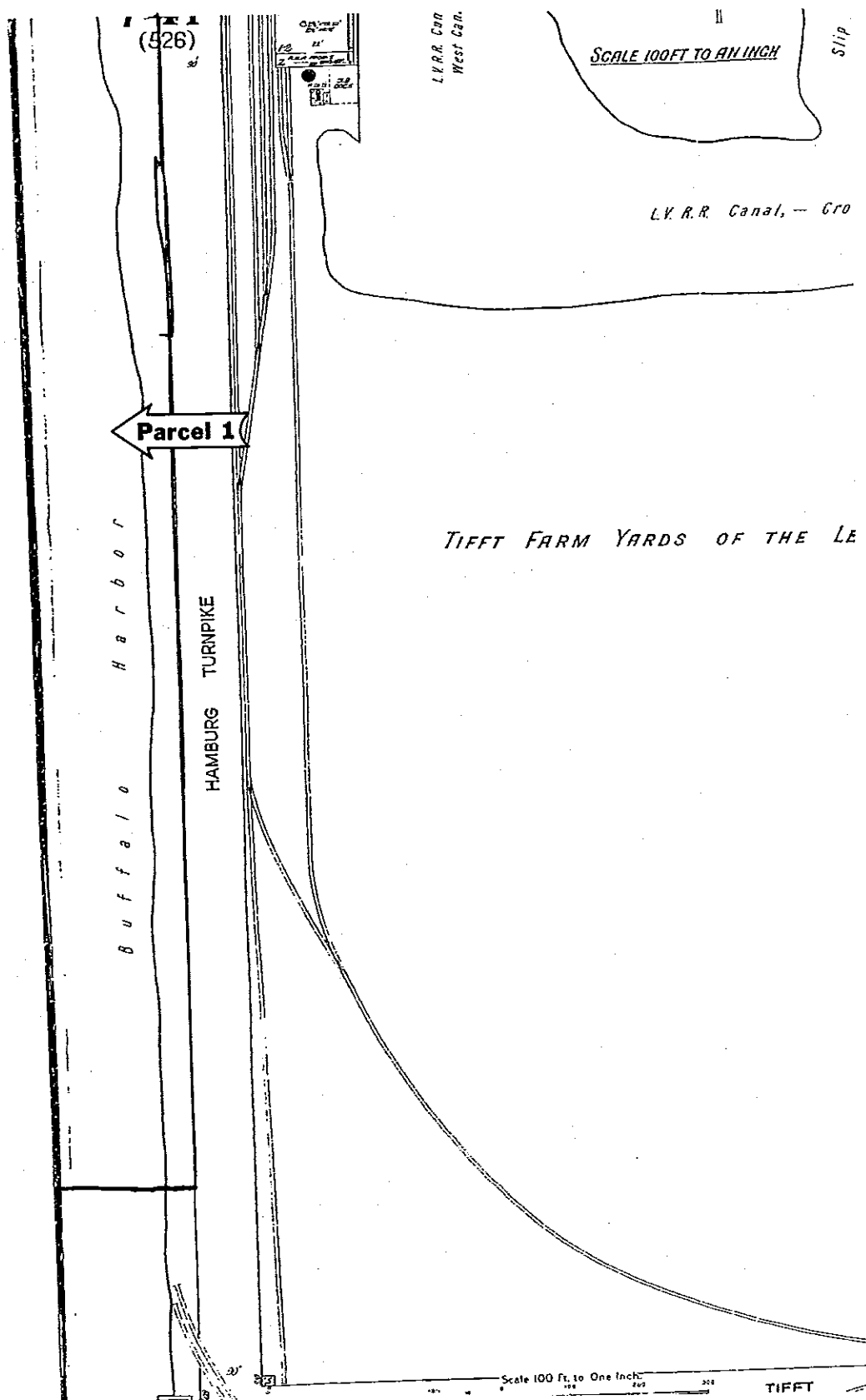
Parcel 1



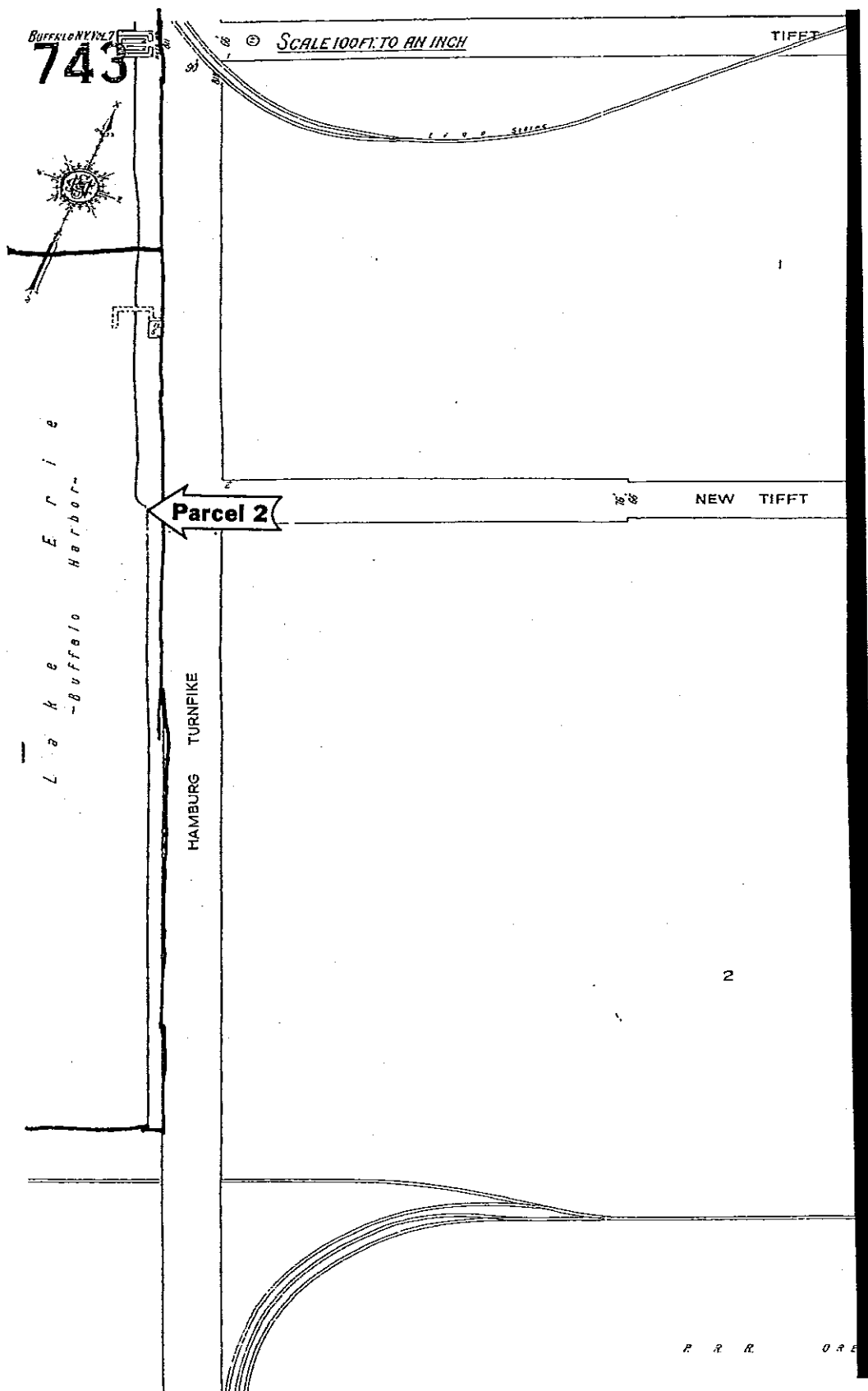
Sanborn Fire Insurance Company Map - 1900



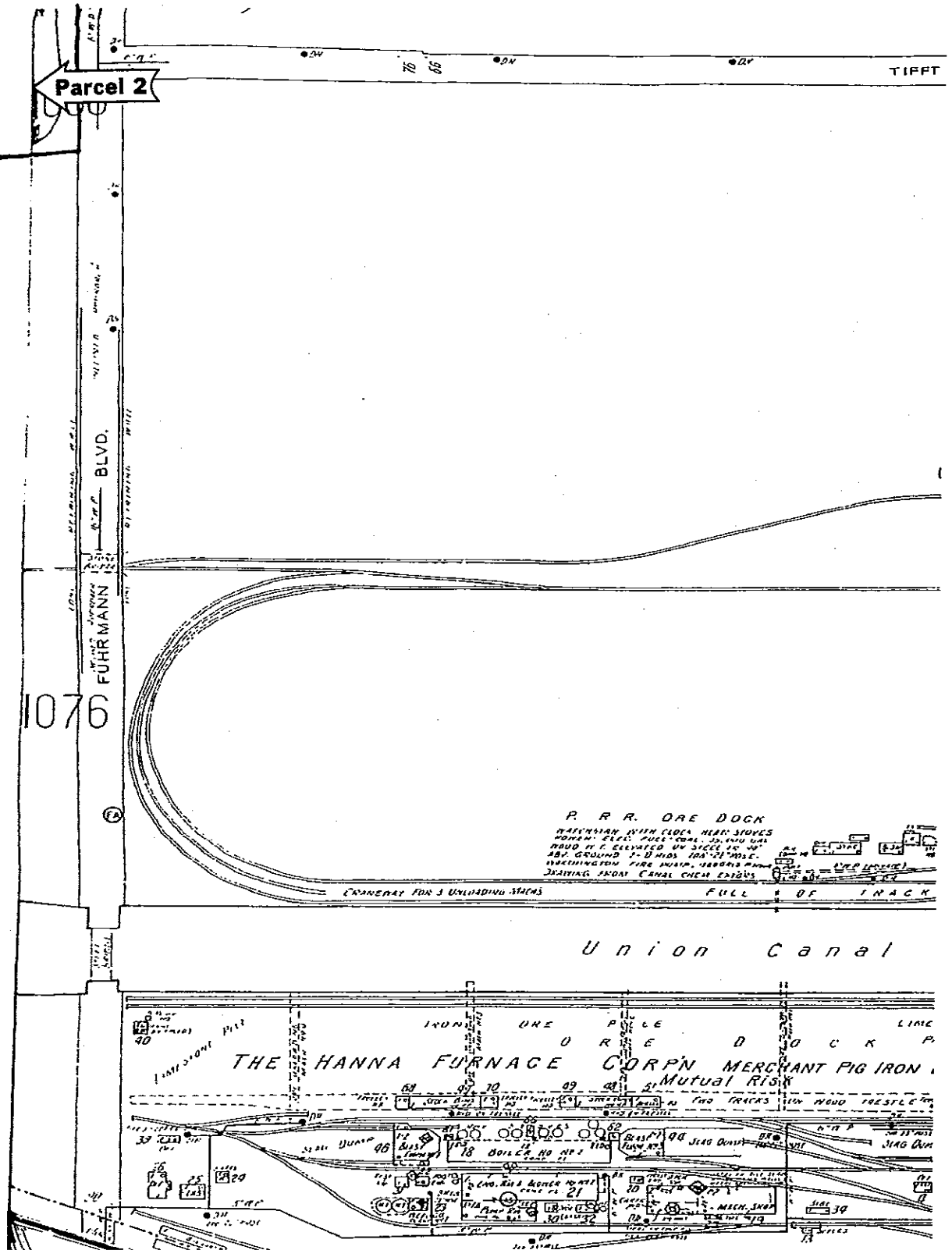
Sanborn Fire Insurance Company Map – 1900



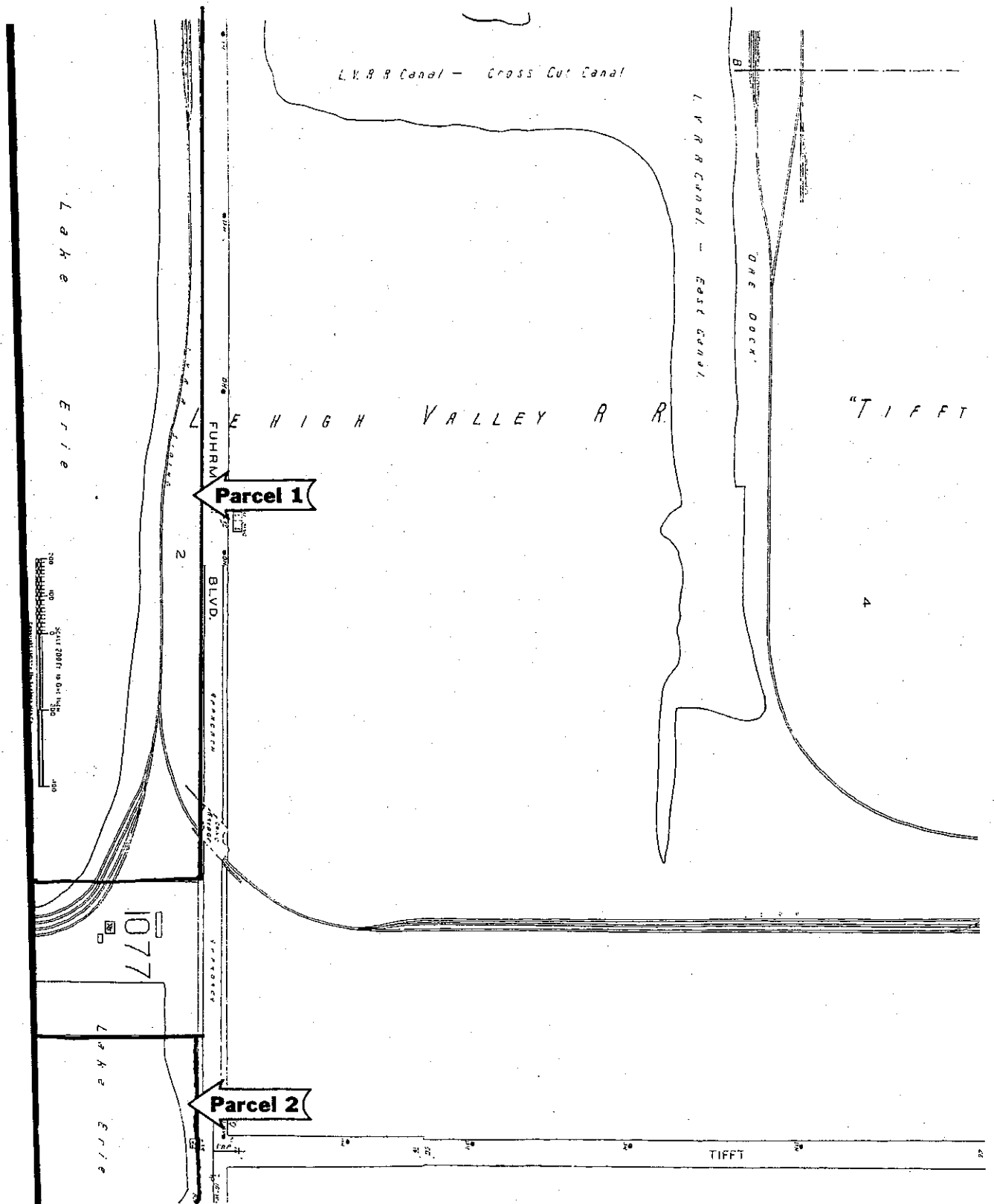
Sanborn Fire Insurance Company Map - 1917



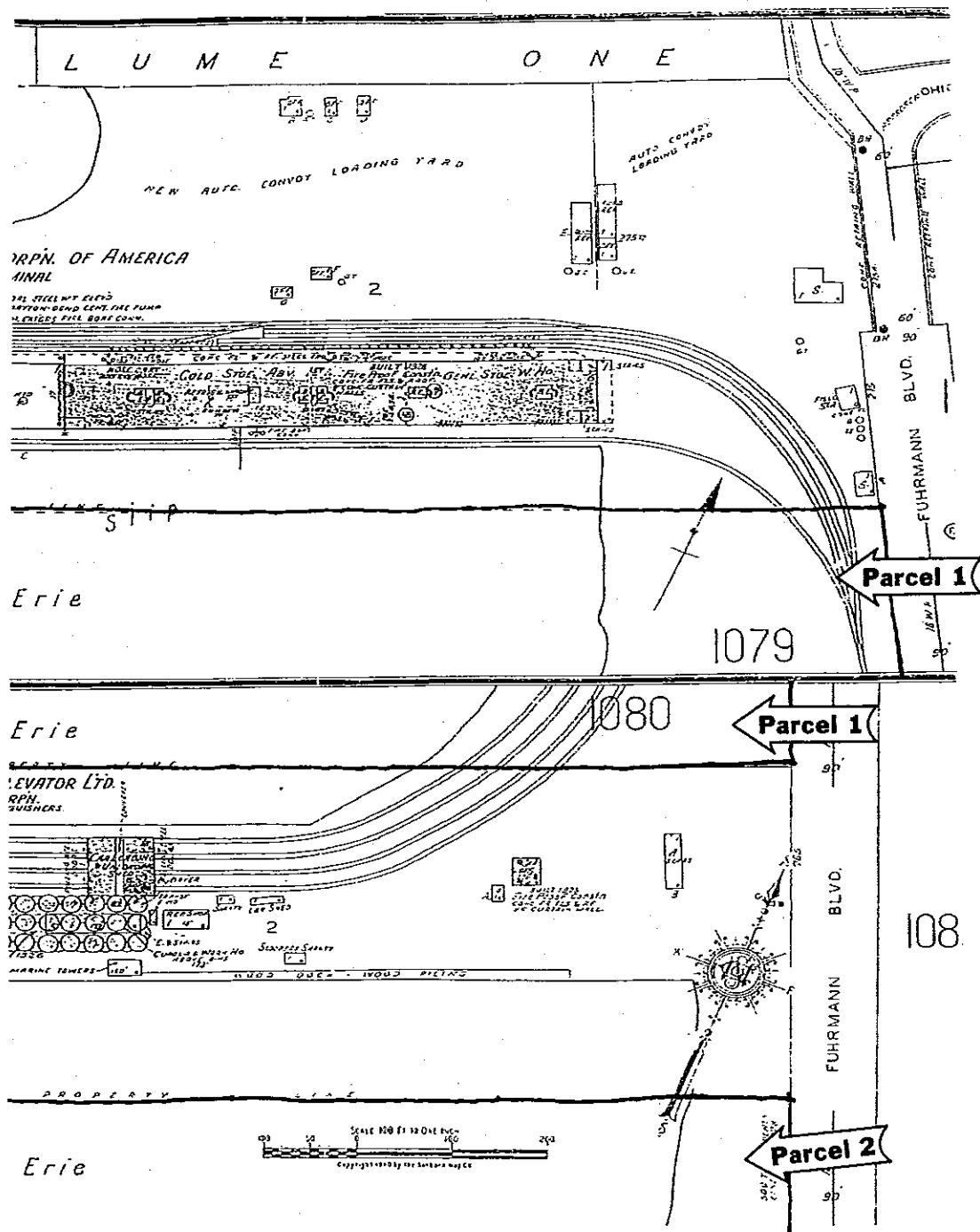
Sanborn Fire Insurance Company Map – 1917



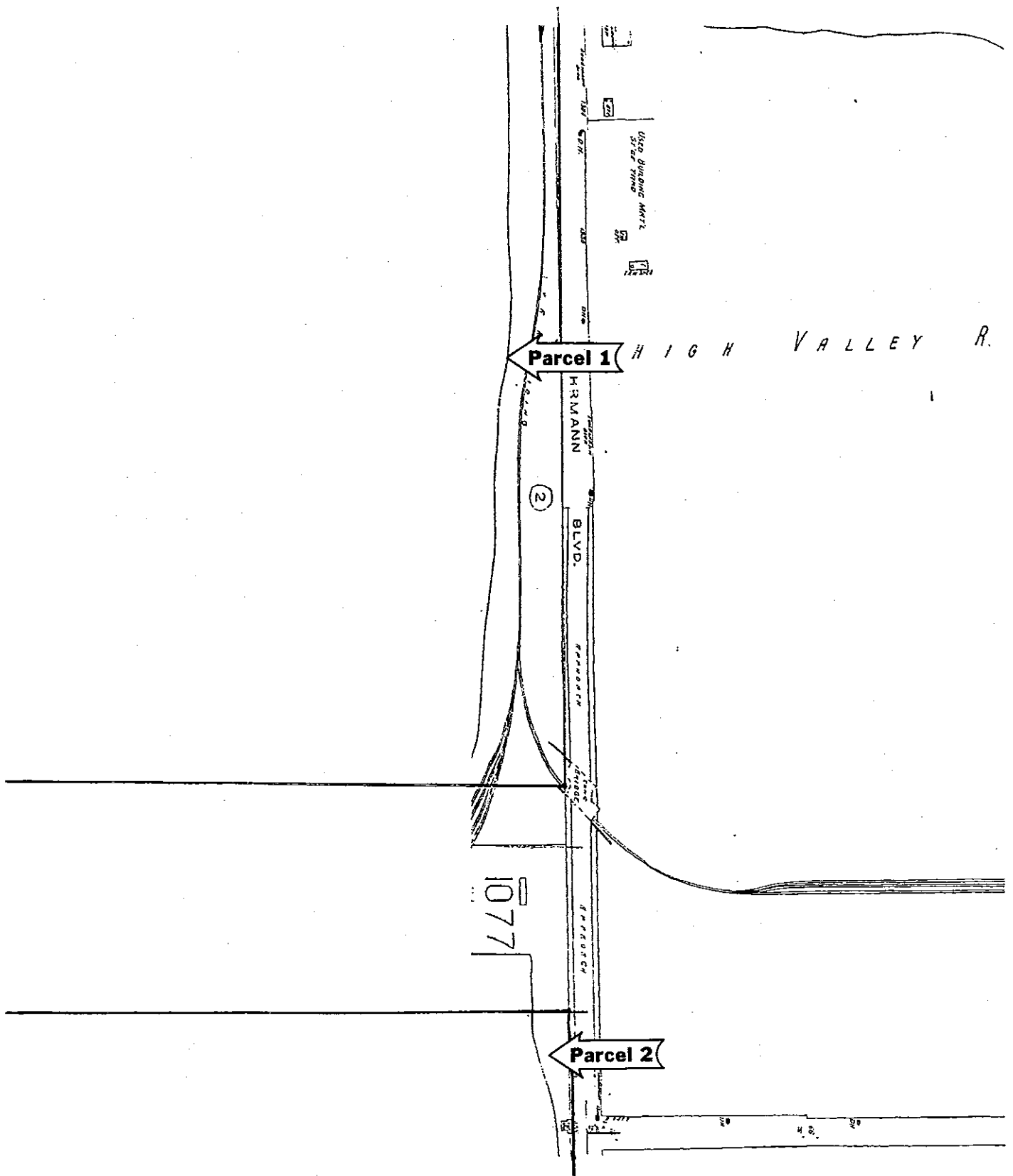
Sanborn Fire Insurance Company Map - 1940



Sanborn Fire Insurance Company Map - 1940



Sanborn Fire Insurance Company Map - 1940



Sanborn Fire Insurance Company Map - 1950

765-766-VOL.7)

Parcel 2

1076

BLVD.
FUEHRMANN

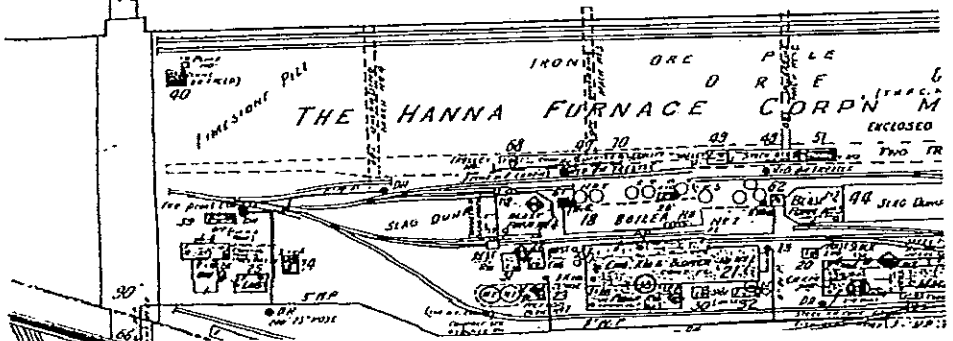
P. R. R. ORE D.O.
WATERWAY WITH CLOCK HANDS AT
POWER: ELEC. FUEL: COAL. 15,000
ROAD W. C. ELEVATED ON STEEL TR.
ADV. GROUND: 2' BANDS 100' IN 100'.
WATERWAY: FIRE PUMP, 100' IN 100'.
DRAWING FROM CANAL, CHEM. ELEV.

(CRANES FOR UNLOADING ALICE)

FUL.

Union

THE HANNA FURNACE CORP. M



NOTED: THESE ARE NOT TO BE USED FOR ANY OTHER PURPOSE THAN THAT FOR WHICH THEY WERE DESIGNED.

1078

CON-LENA CO.
FLOUR MILL
CON-LENA CO.
FLOUR MILL

INTERNATIONAL MILLING CO.
FLOUR MILL

SEE VOLUME ONE

Ford Slip

FREEZER QUEEN FOODS
PUBLIC WARE HOUSE & TERMINAL

NOTED: THESE ARE NOT TO BE USED FOR ANY OTHER PURPOSE THAN THAT FOR WHICH THEY WERE DESIGNED.

STEEL WARE HOUSE
MACHINE SHED ROOM

Parcel 1

Lake Erie

1079

Parcel 1

Lake Erie

1080

NOT IN OPERATION
CONC. 33 CM
STEEL WARE HOUSE
MACHINE SHED ROOM

Lake Erie

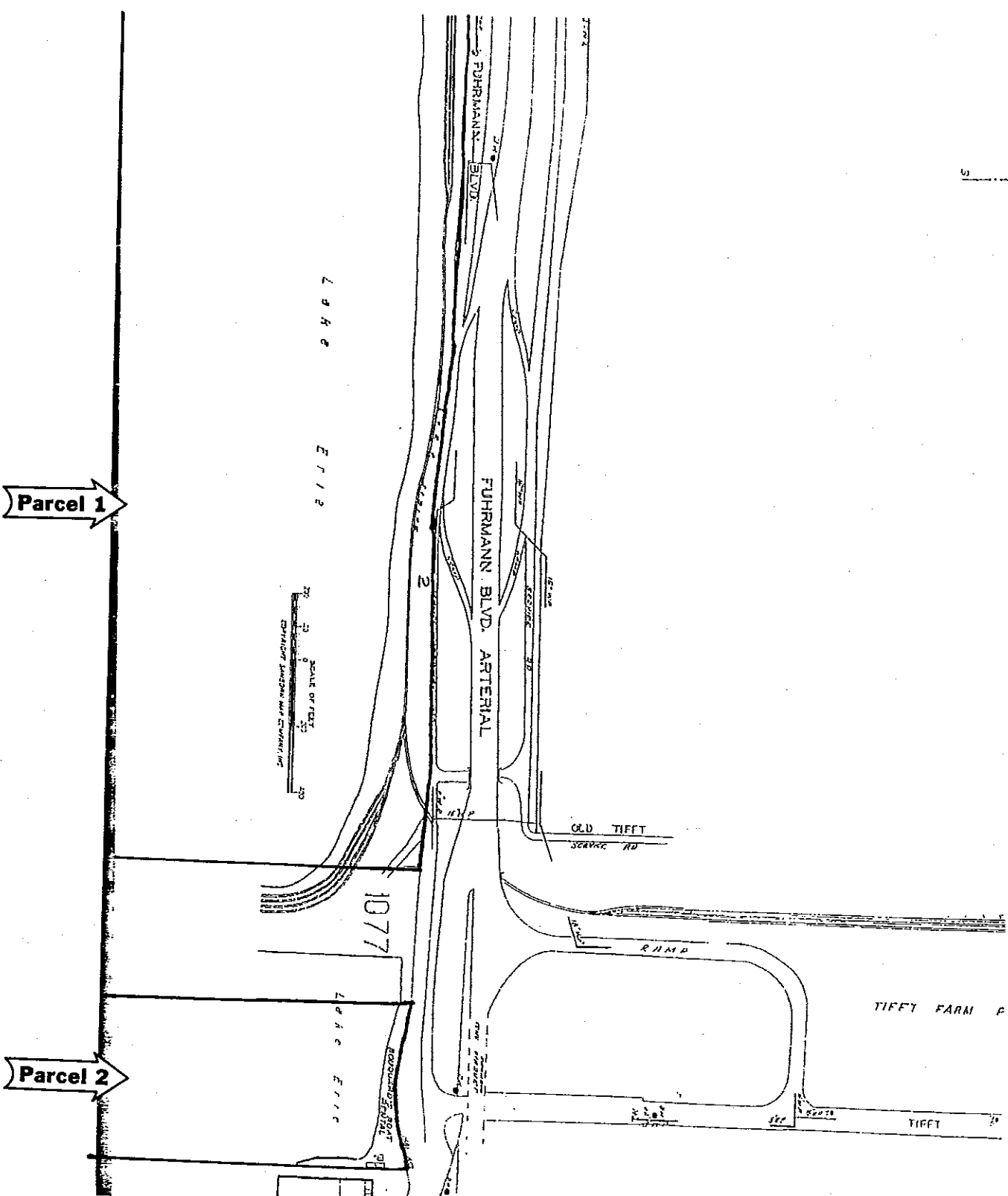
Lake Erie

Parcel 2

SCALE OF FEET
0 50 100 200



FUHRMANN BLVD



Sanborn Fire Insurance Company Map – 1986

