REPORT ON ENVIRONMENTAL TESTING AT THE NEW BUFFALO INDUSTRIAL PARK SITE

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Attention: Mr. James R. Militello

Vice Chairman

Re: Environmental Testing at

the New Buffalo Industrial

Park Site

Gentlemen:

In accordance with our proposal, we are pleased to submit this final report of our findings for the above referenced work.

We appreciate the opportunity to work with you on this project and look forward to being of continued service.

Very truly yours,

GOLDBERG-ZOINO ASSOCIATES OF N.Y., P.C.

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IGR:kf
Enclosures

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1.00 INTRODUCTION

This report presents the findings of recent environmental studies by Goldberg-Zoino Associates of New York, P.C. (GZA) at the proposed New Buffalo Industrial Park (NBIP) site. These environmental studies were done to supplement and expand previous studies done by GZA in 1983. GZA, acting as a subconsultant to Olson & Terzian, P.C., completed all work under the authorization of the Buffalo Urban Renewal Agency (BURA). BURA currently owns the majority of the site and plans infra-structure construction for subsequent light industrial and commercial development by future owners.

1.10 Background

The findings of GZA's 1983 studies are summarized in a report entitled "Geotechnical/Geohydrological Considerations for the New Buffalo Industrial Park". That report identified various isolated waste deposits within the heterogenous fills found at the site with an indication that ground water may have been adversely affected by these wastes. Subsequent to GZA's preliminary work the New York State Department of Environmental Conservation (DEC) listed the site as a priority code 2a in their October 1983 "Inactive Hazardous Waste Disposal Site Report". The 2a classification is a temporary ranking indicating that additional testing is required to make a determination of the site's hazard potential and assign a final ranking.

A primary purpose of GZA's studies was to supplement and expand upon earlier work so as to provide the DEC with data to update their classification for the NBIP site. Prior to field work GZA submitted to DEC, for approval, a work plan outlining sampling locations and test parameters. Additionally a DEC representative was on-site to observe GZA's field work and collect split samples for duplicate analysis.

1.20 Site History and Conditions

The NBIP site is located on an approximately 135 acre tract of land near the eastern boundary of the City of Buffalo, New York. The site is generally bounded by William Street to the north, South Ogden Street to the east, Dingens Street to the south and Bailey Avenue to the west. A project locus map is presented as Figure 1.

As indicated by GZA's preliminary studies much of the NBIP site was previously used as a railroad yard with switching and car maintenance facilities. Several small industries, such as a lumber yard in the northwest corner of the site, were located adjacent to the railroad lines. The central portion of the site (near the current ponded water) was apparently open lands throughout much of the site's history.



Landfilling has been common to most areas of the site, particularly the central portion. Heterogeneous fills including; soil fills, construction debris, rubbish, and suspected industrial wastes were determined during GZA's subsurface explorations. Based upon the review of historical aerial photographs much of this landfilling occurred between the 1920s and 1950s, when the site was dominated by the railroads.

Currently the site is unoccupied and it contains several vacant structures including:

- 1. the former A & R waste building and several smaller storage buildings near the Niagara Mohawk Power Corporation (NMPC) substation on Bailey Avenue;
- 2. the former Kintex Building on Dingens Street; and
- 3. a former railroad embankment bisecting the site from Dingens Street (near the current NFS property) to the northeastern corner of the site.

A 90 to 110 foot wide NMPC right-of-way (R.O.W.) running behind the NMPC substation to the northeastern corner of the site also bisects the NBIP site. The central section of the site (south of the NMPC R.O.W.) is dominated by an area of ponded water with associated drainage ways, the majority of which are within the NMPC R.O.W. Southwest of the ponded water the large stockpile of stone, present during GZA's earlier studies, has recently been removed and the area graded. North of the NMPC R.O.W. railroad tracks and ties, present during GZA's earlier studies, have also been removed and this area graded.

Currently the vacant NBIP site is open and unoccupied land. A chain link fence has recently been constructed behind the Super Duper plaza on South Ogden Street and at a former site entry point located approximately 700 feet north of the Bailey Avenue and Dingens Street intersection. The fence was constructed to restrict site access and preclude unauthorized dumping.

There is little evidence of current widespread dumping at the site as only isolated piles of recent rubbish and construction debris were observed behind Super Duper and some recent construction debris were found near the former stone pile. The majority of the wastes found during GZA's studies apparently resulted from former site usage.

1.30 Scope of Services

The intent of this study was to supplement and expand GZA's earlier work by collecting representative samples of waste types for analytical testing to ascertain their chemical nature.



Also samples of surface water/sediments and ground water were collected for analytical testing to evaluate the impact of wastes found at the NBIP site upon the environment.

The Scope of Services provided by GZA for these recent environmental studies included the following:

- -in-situ testing of previously installed monitoring wells to determine which wells were functioning properly and suitable for sampling;
- -collection of ground water samples from seven ground water monitoring wells for analytical testing by various analytical laboratories;
- -subcontracting of a backhoe and operator to excavate 23 test pits, throughout the site, to locate suspected waste fills;
- -monitoring of the test pit excavations, logging of subsurface conditions, and the collection of representative waste samples for subsequent analytical testing;
- -sampling for analytical testing of surface water and sediments at several locations on the site;
- -collection of various surfical wastes encountered on the site (spilled oils, apparent glues, etc.) for analytical testing;
- -subcontracting of analytical laboratories to complete the required testing; and
- -preparation and submittal of a report of the findings.



2.00 FIELD INVESTIGATIONS AND ANALYTICAL TESTING PROGRAM

The recent environmental testing program completed by GZA consisted of several phases directed at assessing the environmental impact of various suspected industrial wastes determined during previous studies. Samples were collected from various sources representative of the exposure routes for on-site wastes to off-site receptors. These routes include; direct physical contact with the waste or ingestion of either surface water or ground water affected by the waste. Since much of the waste was buried and the site is relatively isolated from nearby residential areas, the likelihood of air-borne migration of wastes was considered inconsequential and not examined during these studies. To satisfy the required analytical testing specifications, samples were collected from various sources including:

-surfical waste deposits including spilled oils and suspected industrial wastes;

-buried wastes recovered from test pits excavated into the heterogeneous fills of the site;

-surface water and sediments collected from on-site ponds and drainage ways; and

-ground water from wells sealed both in the on-site fills and in natural soil deposits of the "uppermost" water bearing zone.

The following sections describe the field investigation methodologies employed and the analytical testing program implemented for each of the materials sampled during this program. The results of the analytical testing completed during this study are presented in Appendix A.

2.10 Surfical Waste Deposits

Site reconnaissance indicated four prominent areas of surficial waste deposits. Their locations are included on the sampling location plan, Figure 2.

The area behind the NMPC sub-station, during GZA's studies in the Spring 1985, included a small pond of water with an apparent coating of oil. A semi-solid tar deposit is located near this ponded water and the tar may have been the source of oil. Three samples were collected from this area for analytical testing as outlined on the next page:



Sample Number	Sample Type	Analaytical Laboratory	Test Parameters
W-D	Oil/Water	Recra Environemental Laboratories	EPA Method 601 (volatile organics, including all halogenated compounds from method 602)
			EPA Method 625 (base neutral and acid phenolics)
			EPA Method 608 (pesticide and PCBs)
			Priority Pollutant Metals
W-E	Oil/Water	Recra Environmental Laboratories	EPA Method 601 (volatile organics, including all halo-genated compounds from method 602)
W-F	Tar	The Aro Corporation	EPA Method 604 (phenols)
		_	EPA Method 610 (polynuclear aromatics)

Two samples of surfical wastes were collected from locations near the former Kintex Building on Dingens Street. These sample locations (W-A and W-B) are presented in Figure 2. The W-A sample was collected from oil soaked soil adjacent to reputed electrical capacitors stockpiled along the outer east wall of the building. It was originally planned to sample the oil within the capacitors, but upon examination it was found they were empty. The oil soaked earth, because of its proximity, likely represents oil spilled from the "capacitors". Sample W-B was collected from a shallow pit (less than three feet deep) that contained water coated with approximately 1/2 inch of oil. The three samples tested (W-A, W-A duplicate sample, and W-B) were analyzed for Polychlorinated Bipheynals (PCBs) since the suspected source of this oil was capacitor oil that potentially could have contained PCBs as a cooling agent.

A surface waste deposit located behind the former A & R waste building near Bailey Avenue (W-C: see Figure 2) was also sampled and tested. This sample is a mixture of apparent purple dye and glue material similar to wastes discovered in many of the test pits in this area. An infra-red (IR) scan was done on this sample to identify discernable types and levels of contamination (identification tests for major contaminant groups to aid in establishing subsequent analytical testing). This sample was also tested for total phenolics, a contaminant of concern established during previous work at the site.



2.20 Test Pit Explorations

Twenty-three (23) test pits, designated herein by the prefix "TP III", were excavated in the locations shown on Figure 2. These test pits were made to examine subsurface conditions identified during previous studies (determined during test pit explorations designated by the "TP I" & "TP II" prefix, see Figure 3 for locations) and collect representative samples for analytical testing. The "TP III" test pits were made July 18 and 19, 1985 by Amherst Construction, Inc. using a Case Model 580 backhoe. The test pit explorations were continuously monitored by a GZA representative who prepared a stratigraphic log of the subsurface conditions encountered and maintained a photographic record of each test pit. Additionally, suspect waste materials encountered in the test pits were collected and placed in pre-cleaned glass jars or self sealing sample bags and stored in iced coolers for subsequent analytical testing.

An Analytical Instruments Development (AID) Incorporated Model 580 photoionization detector (PID) was used to scan the air space within the workers breathing zone, during test pit excavation, to determine the need for respiratory protection. Generally when working around the open test pit the GZA worker was outfitted in a disposable Sarenex suit, gloves, rubber boots, and carried an air-purifying respirator for use as needed.

Ground water samples were collected from six of the test pits. In-situ measurements of the pH (using a Corning model 103 portable pH meter) and specific conductance (using a Yellow Springs Instruments model SCT-33 meter) were made to detect any anamolous readings compared to those measured in samples collected from the monitoring wells. These in-situ measurements are summarized in Appendix A.

The analytical testing program for the test pit samples collected during this study are summarized in Table I on the following page.

2.30 Ground Water Sampling and Testing

The selection of monitoring wells for sampling was based on several factors. These included evaluating the existing wells to determine if they had been vandalized since installation. Monitoring wells that had not been vanadalized were tested via a rising head permeability test to determine if they were properly functioning. Monitoring wells that were determined to be properly functioning were then evaluated to determine which should be sampled such that:

-monitoring wells were selected based on the location of their well screen ("shallow" wells with their well screen sealed within miscellaneous fills and "deep" wells sealed in natural water bearing deposits) so that representative samples could be collected from various depths;

TABLE I: SUMMARY OF ANALYTICAL TESTING TEST PIT SAMPLES

TEST PARAMETERS	- EPA priority pollutants by GC - Total phenolics	- EPA method <u>604</u> (phenolics) - Reactivity - EP Toxicity - metal fraction - pH	- IR scan - EPA method <u>609-612</u> (base/neutrals) - EPA method <u>604</u> (phenolics) - pH - EP Toxicity - metal fraction	- IR scan - pH	- EPA method <u>604</u> (phenolics) - pH Reactivity	- EPA method 604 (phenolics)	- IR scan - EPA method 604 (phenolics)	- Iron - pH - total phenolics
SAMPLE DESCRIPTION	Soil fill and intermixed purple sludge purple fiberous sludge	8	white chalky material	gray, suspected industrial fill	black, foundry sand, cinders and ash	gray-green clayey silt with intermixed oil	soil fill and timber fragments with inter- mixed oil	rust stained - white chalky fill
SAMPLE DEPTH	6 ft. 3.5 ft.		3 ft.	6 ft.	. 3 ft.	5.5 ft.	4 ft.	2 ft.
TEST . PIT	*TP III-2 *TP III-8		6-111 dl	TP III-10	TP III-12	TP III-12	TP III-18	TP III-21

Notes: *TP III-2 and TP III-8 composite sample

All analytical testing by the ARO Corporation Buffalo Division

-monitoring wells that exhibited the "poorest" water quality during earlier testing were selected to examine a "worst case" situation;

'-monitoring wells were selected such that they were located adjacent to suspected waste disposal areas; and

-monitoring wells were selected to examine ground water quality in down-gradient positions of the site relative to the regional ground water flow patterns.

Based upon these considerations seven (7) monitoring wells were sampled. These wells include "shallow" wells B-6, B-11, and B-12 and "deep" wells B-1, B-9, B-16 and B-18. the location of these monitoring wells are presented on Figure 2.

The monitoring wells were sampled by GZA and the sampling observed by a DEC representative on July 11 and 12, 1985. The ground water sampling procedure is outlined below:

- -Sample bottles, with appropriate preservatives were obtained from the analytical laboratory.
- -Prior to sample collection the ground water level was measured in each well.
- -A separate, bottom loading, stainless steel bailer with a teflon check valve was dedicated to each well to initially purge the well of a minimum of three well volumes or until dry and then to sample the well. The purge water was retained in sealed 5-gallon pails for future disposal.
- -The monitoring well was allowed to recover to 90 percent of its original ground water level before a sample was collected for analysis.
- -The samples were then placed in iced storage chests and delivered to the analytical laboratory for testing following chain of custory procedures.

The following table presents the analytical testing program completed on the ground water samples.



Sample Number: B-1, B-6, B-9, B-11, B-12, B-16, & B-18

Analytical Laboratory: The ARO Corporation ,

Test Parameters: EPA method 601, 602 (volatile organics)

EPA method 604 (phenolic compounds) EPA method 608 (PCBs & pesticides)

EPA method 609-612 (base/neutral extractables)

Metals (unfiltered) - antimony, beryllium,
& thallium

B-6 only - EPA priority pollutant metals (unfiltered)

B-18 only - EPA method 601 (total xylenes)

Analytical Laboratory: Erie County Laboratory
Metals (unfiltered): arsenic, cadmium, chromium, copper,

arsenic, cadmium, chromium, copper, lead, mercury, nickel, selenium,

silver, zinc

Sample Number: B-12 only

Analytical Laboratory: Advanced Environmental Systems, Inc. Test Parameters: EPA method 624 (EPA priority pollutant

volatile organics)

EPA method 601 (methylene chloride)

EPA method 608 (EPA priority pollutant PCBs and pesticides)

2.40 Surface Water Sampling and Testing

Four samples were collected, during this study, from surface water bodies at the site. These samples included two grab surface water samples (SW-3 and SW-4) and two water/sediment samples (SD-3a and SD-4a) collected at the same location. Additionally the results of two surface water samples collected during earlier studies (SW-1 and SW-2), but not discussed in GZA's previous report, are presented in this report. The location of the surface water sampling points are shown on Figure 2.

All samples were collected using a stainless steel grab sampler. The sampler was cleaned by successive rinses with distilled water, analytical grade methanol, and distilled water between samples. The samples collected were placed in bottles provided by the analytical laboratory and stored in iced coolers until delivered for testing following chain of custody procedures.

The samples collected were analyzed for the following test parameters:

Sample Number	Analytical Laboratory	Test Parameters
SW-1 & SW-2	The ARO Corp.	arsenic, barium, cadmium, lead, mercury, selenium, silver, zinc, chromium (+6), BOD5, COD, chlorides, pH, nitrates, phosphates, sulfates, total solids, total suspended solids (TSS)
SW-3, SD-3a, SW-4, & SD-4a	The ARO Corp.	BOD5, oil & grease, TSS, total dissolved solids (TDS), total organic halogens (TOX)
SW-3, SD-3a, SW-4, & SD-4a	GZA	in-situ pH and specific conductance
SW-3 only	The Erie Co. Laboratory	arsenic, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver, zinc



3.00 ANALYTICAL RESULTS

This section presents the results of the analytical testing completed during this study. It is divided into three sections based upon the type of material tested including:

- waste deposits found either at the ground surface or buried and encountered during test pit explorations;
- ground water samples collected from monitoring wells at the NBIP site and sealed at various horizons; and
- surface water samples from ponded areas and drainage ways on the NBIP site.

3.10 Waste Deposits

The six surfical wastes (W-A through W-R were collected from three locations (Figure 2) and each location was tested for parameters indicative of the suspected waste. Samples W-A and W-B were collected adjacent to the former Kintex Building in the vicinity of suspected electrical capacitors. Both samples contained oil, and since the source of this oil was suspected to be from capacitors, PCBs were measured. However, no PCBs were measured in either sample above the laboratory detection limit.

Sample W-C, located behind the former A & R Waste Building, contained intermixed purple fibrous sludge and apparent glue, similar in nature to materials found within test pits in the area. W-C was initially examined using an Infra-Red (IR) scan to ascertain prominent contaminant types for establishment of subsequent analytical tests. The IR scan was, however, inconclusive as no discernable peaks could be identified. The sample did, however, have a total phenolics concentration of 15.35 milligrams per kilogram (mg/kg = parts per million).

Three samples (W-D through W-F) were collected from an area of apparent spilled oil and tar behind the NMPC substation (Figure 2) for analysis. Samples W-D and W-E were collected from an oil coated pool of standing water and W-F from an adjacent tar deposit which appeared to be a source of the oil. The primary contaminants identified in the W-D and W-E samples were fluorene (580 ppm), naphthalene (present in concentrations below the detection limit of 190 ppm), and Chromium (1.0 ppm). The W-F sample tested for the EPA priority pollutant polynuclear aromatic hydrocarbon (PNA) and phenolic compound fractions contained relatively low levels of compounds from each fraction. For example, the highest concentration of phenols determined was 0.025 ppm of pentachlorophenol and the highest PNA concentration was 0.039 ppm of Benzo (a) pyrene. Compared to W-D and W-E the concentrations of fluorene and naphthalene determined in W-F were significantly lower (fluorene = 0.009 ppm and naphthalene 0.009 ppm).

Various tests were done on suspected waste samples collected from the test pits discussed in section 2.20. Generally four different types of waste were examined as they were most common to the NBIP site. Typical examples of these wastes and the test pits in which they were found are presented below:

Waste Description	Test Pits
purple fibrous sludge	TP III-2, TP III-8
white chalky material	TP III-9, TP III-21
black suspected foundry sand, intermixed with cinders and ash	TP III-12 @ 3 ft.
petroleum soaked soils and fills	TP III-12 @ 5.5 ft., TP III-18

The purple sludge deposits appear to be located in the central section of the NBIP site in the vicinity of the former stone pile and to a lesser extent, behind the former A & R waste building. Initially a composite sample of TP III-2 and TP III-8 was tested for a full list of EPA priority pollutants by Gas Chromatographic methods for organics and atomic absorbtion for metals. The phenols fraction was tested twice to confirm the initial findings. The results of this testing for parameters measured above the laboratory detection limits are listed below:

	<u>Initial Test</u> - all res	<u>Duplicate Test</u> ults in ppm -
2-Chlorophenol 2, 4-Dichlorophenol 2, 4-Dimethylphenol 4, 6-Dinitro-O-Cresol 2, 4-Dinitro-Phenol P-Chloro-M-Cresol Pentachlorophenol Phenol 2, 4, 6-Trichlorophenol Cadmium Chromium Copper Lead Mercury Nickel Selenium Silver Zinc	0.06 0.10 0.22 LT 0.02 0.27 0.30 0.11 0.19 0.70 3.40 131. 782. 0.06 0.80 177.	0.003 0.005 LT 0.001 0.002 0.002 0.002 0.004 LT 0.001 NT NT NT NT NT NT
LT = less than NT - not tested		COA

The elevated metal concentrations found necessitated the running of an EP (Extraction Procedure) Toxicity test to determine if this material is capable of leaching metals in sufficient quantites to be considered a hazardous waste according to the requirements of the Resource Conservation and Recovery Act (RCRA). The metal concentrations determined via the EP Toxicity test were all below the maximum allowable concentration presented in RCRA.

The purple sludge does, however, have a low (acidic) pH measured on two occasions to be 2.69 and 4.88. This low pH makes it potentially corrosive to underground structures and care must be taken to prevent physical contact. The low pH of this material also required the analysis of its reactivity (the determination of the materials cyanide and sulfide content to access its potential for generating toxic gases, vapors, or fumes in a sufficient quantity to present a danger to human health or the environment). The cyanides concentration reported for the composite sample from TP III-2 and TP III-8 of 1747 mg/kg is elevated and represents a potential of generating hydrogen cyanide gas under certain conditions. It should be noted, however, that cyanides measured in the purple sludge deposits collected during GZA's 1983 studies were not elevated. It is thus possible that the elevated cyanides may be a localized occurrance and additional testing may be required to better define the extent of the problem.

The extract of white chalky material as found in TP III-9 contained a significant hydrocarbon content (455 mg/kg) as determined by the IR scan, and pH of 8.60. The hydrocarbon content indicated that the material was potentially contaminated with petroleum products and thus the phenol and base/neutral extractables constiuents were tested. The results indicated that all base/neutral extractables were below the laboratory detection limit with the exception of acenaphtylene (0.002 ppm). The phenol compounds measured above the laboratory detection limit included; 2-Chlorophenol (0.002 ppm), 2, 4-Dichlorophenol (0.004 ppm), P-Chloro-M-Cresol (0.008 ppm), Pentachlorophenol (0.010 ppm), and phenol (0.003 ppm).

An EP toxicity test (metal fraction), was also done on the TP III-9 sample. The metals measured were all low the maximum allowable concentrations established in FCRA

The black suspected foundry sand intermixed with cinders and ash deposit as found in TP III-12 @ 3.3 feet had a pH of 8.65 and it contained relatively low concentrations of EPA priority pollutant phenol compounds with the largest concentrations determined for the parameters P-Chloro-M-Cresol (0.004 ppm) and pentachloro-phenol (0.003 ppm). A cyanides concentration of 5.65 mg/kg and a sulfide concentration of 4.1 mg/kg were measured as part of the reactivity test done on this material.

The final type of waste deposit examined during this study was petroleum soaked soils and fills as encountered in TP III-12 @ 5.5 ft. and TP III-18. The parameters with concentrations

above the laboratory detection limits for these samples are summarized below:

	TP III-12 @ 5.5 ft - all results	
2, 4 Dichlorophenol P-Chloro-M-Cresol Pentachlorophenol Phenol 4, 6-Dinitro-O-Cresol	0.002 0.003 0.007 0.002 LT 0.001	0.002 0.002 0.003 0.002 0.001

LT = less than

3.20 Ground Water

The primary contaminants identified in the ground water samples collected during this study are phenolic compounds and heavy metals. Generally the remaining parameters tested were below the laboratory detection limit. The only exception was a concentration of 0.043 ppm of methylene chloride measured in a split sample collected from monitoring well B-12. A second sample from monitoring well B-12 was collected on October 7, 1985 and tested for methylene chloride to confirm the earlier testing. This second sample did contain methylene chloride in concentrations above the laboratory detection limit (0.001 ppm).

It should be noted that the 1983 testing of ground water from monitoring well B-18 indicated an elevated total xylene concentration of 300 parts per billion (ppb). Ground water from B-18 analyzed during this study did not, however, contain total xylenes above the laboratory detection limit of 10 ppb. The 1983 total xylene measurement may have been attributable to PVC glue being inadvertently used by the drilling subcontractor during well installation and, thus, not a true constituent of the ground water.

The concentrations of phenolic compounds and metals measured above the laboratory detection limit, during analysis of monitoring wells at the NBIP site, are presented in Table II on the next page. Where applicable, the Class GA ground water quality standard as established in DEC regulations 6 NYCRR Part 703 pursuant to the New York State Environmental Conservation Law are also included for reference. It should be noted that the best usage of Class GA ground water is as a source of potable water.

3.30 Surface Water

Test data from the surface water and bottom sediment samples showed them to be relatively clean. All samples had a 5-day Biochemical Oxygen Demand (BOD) less than 15 ppm and no oil and grease nor Total Organic Halogens (TOX) were detected above the laboratory detection limit. Generally the EPA priority pollutant metals were not detected in elevated concentrations other than a slightly elevated lead concentration measured in

TABLE II: ANALYTICAL RESULTS OF GROUND WATER SAMPLES COLLECTED. JULY 1985

Test Parameter	Class GA Standard	8-1	B-6	8-9	8-11	B-12	8-16	B-18
Total Phenolics	0.001	0.020	0.031	0.016	0.024	0.026	0.008	0.019
2-Chlorophenol	;	0.004	0.003	0.003	0.002	0.001	LT0.001	LT0.001
2, 4-Dichlorophenol	}	0.003	0.002	0.001	0.001	LT0.001	0.001	0.002
4, 6-Dinitro-O-Cresol	}	0.002	0.002	0.001	0.001	0.002	0.001	0.002
2, 4-Dinitrophenol	;	0.001	0.003	0.001	LT0.001	LT0.001	0.001	0.002
P-Chloro-M-Cresol	;	0.002	0.004	0.004	0.002	0.004	0.002	0.003
Pentachlorophenol	0.021	0.003	0.005	0.005	0.002	0.003	0.002	0.002
Phenol	;	0.002	0.003	0.003	0.002	0.003	0.002	0.003
Arsenic	0.025	LT0.02	LT0.015	LT0.02	0.04	LT0.02	LT0.02	LT0.02
Cadmium	0.01	LT0.001	0.002	0.001	0.004	LT0.001	LT0.001	LT0.001
Chromium	0.05	LT0.010	0.04	LT0.010	0.090	0.040	0.02	LT0.001
Copper	1.0	90.0	0.258	LT0.02	0.09	0.05	0.03	LT0.02
Lead	0.025	0.07	0.474	0.015	0.52	0.73	0.08	0.029
Nickel	;	LT0.05	0.082	0.05	0.17	0.05	LT0.05	LT0.05
Zinc	5.0	0.03	0.516	90.0	0.37	0.65	0.08	0.03

all concentrations reported in parts per million (ppm) metal concentrations for B-6 are an average value (2 tests) metal concentrations determined in an unfiltered sample LT = less than 4.3.5. Notes:



one sample (SW-2; lead = $\emptyset.039$ ppm) collected in February, 1984. The lead level measured during this sampling program (July, 1985), for the one surface water sample tested for lead (SW-3), was below the laboratory detection limit.



4.00 CONCLUSIONS AND RECOMMENDATIONS

The NBIP site has been subjected to landfilling from various sources throughout its history. Heterogeneous fills identified during GZA's studies included; soils, rubbish, construction debris, and suspected industrial wastes. Surfical spills of apparent oil and other waste materials were also observed in isolated locations around the NBIP site.

Analytical tests have been done on selected samples of the suspected industrial wastes to assess their chemical nature and evaluate their environmental impact. Also samples from ground water monitoring wells and surface water have been collected and tested. These tests were done to evaluate the environmental impact of on-site materials on nearby ground water and surface water supplies.

The available analytical data indicates that phenolic compounds and heavy metals are the primary contaminants identified at the site. The source of these contaminants is likely related to the past use of the site. For example many of the phenolic compounds (P-chloro-M-Cresol, 2, 4 Dichloropheral, Pentachlorophenol, and 2, 4 Dinitrophenal) are associated with the manufacture of wood preservatives and germicides. These compounds probably represent the remenants of treatment processes used to protect wooden railroad ties from rotting.

The petroleum products found during GZA's explorations likely represent spilled diesel fuels and hydraulic fluids that accumulated during past railroad activity. It is noted that the petroleum products tested during this study, were generally free of polynuclear aromatic hydrocarbons (PNAs) and volatile organic compounds which are often found in waste oils. This fact indicates that the oils were on-site for many years and in that time the PNAs and volatile organics were stripped away as the oils weathered. However, components less susceptible to weathering, such as phenolic compounds and heavy metals remained in the oils and were found during this study.

The purple fibrous sludge deposits, found near the former stone pile and A & R waste building, represent materials presumably dumped by previous owners. Based upon analytical data and physical observation these materials are probably shredded waste paper impregnated with dyes and intermixed with adhesives. Several of the phenolic compounds found in this material are common to dyes and adhesives including;

- -2, 4, 6-Trichlorophenol used in many book binding glues;
- -P-Chloro-M-Cresol used as a preservative in the manufacture of certain glues, paints, inks, and textiles, and;
- -Phenol used in many general purpose glues and adhesives.

It is also known that dyes and paints contain metals, such as those found in the purple sludge (zinc, nickel, lead, copper, and chromium), for use as pigments. The elevated cyanide concentration may also indicate that this material contains dyes, as cyanides are common to many blue dyes. The typically low pH of the material is likely due to the intermixed glues and adhesives, components of which are often acidic. The purple sludge also contained compounds which are not typical of dyes and adhesives such as pentachlorophenol (a wood preservative). It is theorized that since the purple sludge is fibrous, it soaks up and holds these other compounds which presumably originated from a second source.

Another prominent waste material found during GZA's studies was the surfical tar deposit found behind the NMPC sub-station. This tar deposit apparently leached into adjacent standing water causing an oil coating. Analytical testing of samples from this area indicate the presence of a variety of PNAs and phenolic compounds not uncommon to asphalt products such as tar. This material does not, however, appear to be migrating significant distances from its present location as "downstream" surface waters did not have measureable levels of oil and grease nor were PNAs found in nearby downgradient monitoring wells.

Phenolic compounds and heavy metals have been measured in ground water samples collected from all seven monitoring wells. source of these compounds is likely attributable to the leaching of on-site wastes, since similar compounds were found within waste and ground water samples. Typically the contaminant concentrations (phenolics and metals) are higher in the "shallow" wells (B-6, B-11 & B-12) than in the "deep" wells (B-1, B-9, B-16 & B-18). This is to be expected since the "shallow" wells are sealed within the heterogeneous fills of the site. However, the quantities of phenolics and metals found in the "deep" wells were not expected. These wells are sealed below low permeability silts and clays which typically prohibit ground water flow and thus should preclude contaminant movement. It is theorized, however, that the pond in the central section of the site may be responsible for the contaminants found in the "deep" wells. The pond was likely created when on-site materials were excavated, to construct the railroad embankment that bisects the NBIP site, and runoff and ground waters subsequently filled the excavation. The original depth of the excavation is unknown since it has been subjected to landfilling throughout its existance. is believed, however, that the pond partially or fully penetrated the natural clays and silts at the site. Thus it is possible that contaminants from the heterogeneous fills initially discharged into the pond then ultimately travelled downward through the pond to the deeper wells. This concept is supported by the nature of contaminants found in the "deep" wells. Phenolics and metals are denser than water, and to varying degrees water soluble, thus providing a mechanism for their distribution in the ground water. The parameters measured in the surface water samples

indicate, however, that the pond is not now receiving large amounts of waste. Thus the phenolics and metals found in the ground water likely represent the previous disposal practices at the site.

As shown in Table II, in section 3.00, the concentration of various parameters exceed the class GA standard for potable ground water supplies. The total phenolics and lead concentrations, measured during this study, are the prominent contaminants found in the ground water. For example, the analytical results from "deep" wells B-16 and B-18, located in downgradient positions near the site's boundary are presented below:

Test <u>Parameter</u>	Class GA Standard (ppm)	<u>B-16</u>	<u>B-18</u>
Total Phenolics (ppm) Total Lead (ppm)	0.001	0.008	Ø.Ø19
	0.025	0.08	Ø.Ø29

As shown, ground water exiting the site does contain elevated concentrations of phenolics and lead. The impact of these contaminants on off-site ground water supplies does not appear to be an immediate problem since no off-site ground water supply wells are known to exist in the vicinity of the site. It also should be noted that the lead levels measured during this study were obtained from unfiltered samples. Thus the concentrations of lead measured may represent the amount of lead in sediments collected in the well and not dissolved constituents of the -ground water. The dissolved fraction is generally considered a better representation of contaminant transport in ground water. Dissolved materials travel at the same rate as ground water and thus can migrate significant distances from the source, whereas sediments in the water are significantly less mobile and do not travel great distances from the source. completed during GZA's earlier studies (GZA's 1983 report) included analysis of filtered ground water samples (indicative of dissolved constituents of the water) and unfiltered samples (including sediments). The results of this testing for lead in well B-12(the monitoring well with the highest lead concentration measured during GZA's current study) are summarized below:

Sample <u>Date</u>	B-12 Lead Concentration (ppm)	Remarks (
6/10/83	0.240	unfiltered sample
11/21/83	less than 0.001	filtered sample

Based upon these data and the documented low mobility of lead in ground water, it is unlikely that lead from the NBIP site is significantly impacting off-site ground water supplies.

Generally the NBIP site is free of clearly defined levels of hazardous wastes. For example oil wastes tested during this and earlier studies did not contain measurable levels of PCBs.

Concentrations of most EPA priority pollutant organic chemicals (base/neutral extractables, volatile organics, etc.) measured in waste and water samples were below the laboratory detection limits. Also, despite the elevated metals measured in several of the waste samples, none of the EP Toxicity tests done had concentrations above the maximum allowable limits established for this test. Thus based upon EP Toxicity these materials would not be classified as hazardous wastes. The wastes that were found at the NBIP site generally contained low or slightly elevated levels of contamination indicative of the past usage of the site (railroad facility, construction debris landfilling, etc.).

The environmental impact of wastes found at the NBIP site should not preclude its successful development. There will have to be, however, some precautions and remedial actions taken during development. An outline of items which will have to be addressed is presented below:

-The wood preservatives found in the waste deposits such as Pentachlorophenal indicate that treatment of railroad ties has occurred at the NBIP site. While the levels of wood preservatives measured during this study are relatively low it is possible that isolated pockets, where the ties were actually treated, may be encountered during excavation. If encountered, these wastes will have to be tested and if elevated concentrations are determined, contingency plans will be required for their off-site disposal.

The cyanide concentration measured in one sample of the purple waste indicates it is potentially reactive, as it could generate hydrogen cyanide gas when exposed to strong acids. This could be a problem when working in confined areas or locations where the gas could collect. Thus additional testing is recommended to ascertain the extent and type of cyanide at the NBIP site. These tests should include the determination of the quantity of cyanide amenable to chlorination so as to ascertain the amount of cyanides available for reaction as hydrogen cyanide gas. Since this material has been found in localized pockets near the former stone pile and behind A & R waste it is recommended that, following additional testing, this material be excavated and properly disposed prior to construction.

-The ground water does contain several contaminants above Class GA standards for potable supplies. The water is, however, not used as a potable water source as there are no documented nearby ground water supply wells. It may be necessary, however, during construction to test ground water collected from site dewatering activity to determine its disposal requirements. Also it is recommended that

following the draining of the current ponded area, care should be taken during backfilling to create an impermeable barrier to preclude the continued discharge of on-site wastes into the "deep" ground water systems.

-The tar deposit and ponded water area behind the NMPC site is a localized occurrence that currently does not appear to be affecting ground water or site wide surface water supplies. This material should, however, be either physically isolated or removed from the site to prevent physical contact and the potential for future migration.

-The heterogenous fills found at the NBIP could potentially contain other waste materials not found during this study. These materials, if present, are thought to be localized as this study did not find contaminants atypical of the wastes known to be deposited at the site. It is thus recommended that during site development environmental quality be continuously monitored by experienced personnel to ascertain the need for implementation of health and safety measures to protect site workers and contingency plans for the handling of "suspect" waste encountered during construction. Furthermore, such plans should be developed, and submitted to appropriate regulatory agencies for approval, prior to any construction activity at the NBIP site as a precautionary measure.



ANALYTICAL TEST RESULTS GROUND WATER SAMPLES FROM MONITORING WELLS:

B-1

B-6

B-9

B-11

B-12

B-16

B-18

CORT

Summary of In-Situ Water Quality Tests Taken 7/11/85 Ground Water Samples

Monitoring Well	Sample Time	pH (standard units)	Specific Conductance (µmhos/cm)	Remarks
B-1	10:56	6.99	2000	
B-6	13:44	6.84	800	
B-9	15:30	7.23	600	
B-11	10:45	6.92	1750	
B-12	12:13	7.43	1050	Petroleum Odor
B-16	14:21	7.54	495	
B-18	14:53	7.52	430	



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Goldberg-zoino Associates

R) W.O. 21,625W-11562 Report Date

8/15/85

	lo Indust	rial Pa	rk	. '				
	SAMP	LE 1	SAMP	LE 2	SAMI	-/2 PLE 3	AVEI	RAGE
Pollutant	Conc (ppm)	Mass (lbs)	Conc (ppm)	Mass (lbs)	Conc (ppm)	Mass (lbs)	Conc (ppm)	Mass (lbs)
Phenols	0.020		0.024		0.026			
_ ∪il & Grease	-		_		_			1
<u>crolein</u>	<0.001		<0.001		<0.001			1
_^crylonitrile	11		11		11			<u> </u>
Benzene	11		11		11			
Pis (Chloromethyl) ther	11		н		11			
Promoform	11		11		11			
earbon Tetrachloride	11		11		ii			
Chlorobenzene	II.		11		" ((
Chlorodi- I comomethane			11		11		ပ္	
Chloroethane	11		"		11	<u>a</u>	Assu P.C.	
Caleroethylvinyl Ther	II		11		11	IV E	1985 Zaino York,	
Caloroform	11		11		"	O H		
Dichlorobromethane	11		11		"	감	Goldbe	
l ichloro- C.fluoromethane	11		11		11		<u> </u>	
1,1-Dichloro-	11		11		11			ļ
_,2-Dichloro- ethane	**		11		n			
1-Dichloro-	li II		"		11			
1,2-Dichloro- gropane	11		"		11			
1,2-Dichloro- propyle e	"		11		11			

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Report Date

8/15/85

'ation New Buffalo Industrial Park

Lation New Buffalo	Industr	ial Park	:		•			
	A- SAMP		SAMP		SAMP	7-/2 PLE 3	AVE	RAGE
Pollutant	Conc (ppm)	Mass (lbs)	Conc (ppm)	Mass (lbs)	Conc (ppm)	Mass (lbs)	Conc (ppm)	Mass (lbs)
Fthylbenzene	<0.001		<0.001		<0.001			
Methyl Bromide	"		11		"			
Lethyl Chloride	"		11		11			
Methylene (lloride	ır		"		11			
1,1,2,2-Tetra- chloroethane	n		11		"			
Catrachloroethylene	n		"		"			
Soluene	"		11		"			
1,2-Trans- Dichloroethylene	ıı l		11		11		11	
1 1, 1-Tri-	"		11		"			
1,1,2-Tri- c loroethane	"		"		" (7		
Trichloro- ethylene	11		'n		n	9		
Trichloro- fluoromethane	"				ı,			
Vinyl Caloride	"		II .		"			
2 3,7,-8-Tetrachloro-	-							
libenzo-p-dioxin	<0.001		<0.001		<0.001			
2 Chlorophenol	0.004		0.002		0.001			
2,4-Dichloro- phenol	0.003		0.001		<0.001			
2 4-Dimethyl- phenol	<0.001		<0.001		<0.001			
4-6-Dinotro-O- C. esol	0.002		0.001		0.002			
2,4-Dinitro- ρ' enol	0.001		<0.001		<0.001			

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Report Date 8/15/85

ation New Buffa		-/	ı E	-//	· ·	-/2		
	SAMP		SAMP	LE 2	SAMP	LE 3		
Pollutant	Conc (ppm)	Mass (lbs)	Conc (ppm)	Mass (lbs)	Conc (ppm)	Mass (lbs)	Conc (ppm)	Mass (lbs)
2-Nitrophenol	<0.001		<0.001		<0.001			_
4-Nitrophenol	<0.001		<0.001		<0.001	_		
P-Chloro-M- (resol	0.002		0.002		0.004			
lentachloro- phenol	0.003		0.002		0.003			
lnenol	0.002		0.002	· <u> </u>	0.003			
2.4,6-Tri-	<0.001		<0.001		<0.001			
Lienaphthene	<0.001		<0.001		<0.001			_
/ :enaphtylene	11		"		It			
Anthracene	11		11		II.			
Benzid ne	11				"			
Fonzo (a)	11		"		11	\sim	1	
Benzo(a) vrene	п		"		"	6		
							_	

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Tratomer Goldberg-Zo	ino Ass	ociates		P.O. N	·			
F. 1	325W-115	<i>!</i>		Report	Date	8/15/8	5	
Ttion New Buffalo I	ndustri	al Park						
Polatant		-/	SAMP	LE 2	SAMP		AVE	RAGE
Pyrene	Conc	Mass (lbs)	Conc (ppm)	Mass		Mass (lbs)	Conc (ppm)	Mass
4-Benzo- f_ioranthene	<0.001		<0.001	,,	<0.001			
Benzo (ghi) I'erylene	"		" .		11			
Henzo (k) Fluoranthene	, ,		rt		11			
I s (2-Chloro- etnoxy) Methane	**		II .		"			
Bis (2-Chloro- e ivl) Ether	11		11		11			
Brs (2-Chloro- isopropyl) Ether			11		11			
F s (2-Ethyl- hexyt) Phthalate	17		11		"			
4 Bromo- p anyl Phenyl Ether	TI TI		"		11			
Butyl Benzyl Phthalate			11		"			
2. Chloro- naphthalene	"		"	_	"			
4' Cholgrophenyl Elenyl Ether	"				"		2	
Chrysene	н	,,,_			11		1	
L. benzo(a, h) Anthracene	"		"		"	5		
1 2-Dichloro- bunzene			11		11			
1,3-Dichloro-	ıı .		10		"			<u> </u>
1,4-Dichloro-	11				"			
3'-Dichlorobenzirine	н		п		"			
Diethyl Lithalate	n		11		"			
Dimethyl			11		. ,,			

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3695 BROADWAY, BUFFALO, N.Y. 14227 Goldberg-Zoino Associates

TR W.O. 21.625W-11562

_ Report Date_

8/15/85

tion New Buffalo	Industr:	ial Park					_	
	SAMP	SAMPLE 1 SAM		LE 2	SAME		AVEF	
Pollutant	Conc (ppm)	Mass (lbs)	Conc (ppm)	Mass (lbs)	Conc (ppm)	Mass (lbs)	Conc (ppm)	Mass (lbs)
DI-N-Butyl Phthalate	<0.001		<0.001		<0.001			
2,4-Dinitro- toluene	11		п		11			
2,6-Dinitro- coluene	19		11		11			
Di-N-Octyl Phthalate	11		11		11			
1,2-Diphenylhydrazine (as Azobenzene)	11		н		n	-		
Flouranthen e	11		11		11			
Fluor me	11		11		11			
dexa- chlorobenzene			11		18			
Hexa- chlorobutadiene	n		n		11			
Hexachloro- yclopentadiene	11		lt .	-	15			
Hexachloro- ethane	11		11		19			
indeno (1,2,3-cd) Pyrene	it .		· ·		11			
sophorona	17				11		1	
Naphthalene	11		"		It	5		
Nitrobenzene	**		11		11			
N-Nitro- sodimethylamine	n		11					
N-Nitrosodi- N-Propylamine	11		71		11			
√-Nitro- sodiphenylamine	It		11		11			
Phenanthrene	11		19		71			
Pyrene	"		II		"			
								

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P.O. No.

RU W.O	21,625W-1156	2		Report	Date	8/15/85		
ta on New Buf	falo Industri	al Park						
	8-	SAMPLE 1		CLE 2	& SAMP		AVEI	RAGE
Follutant		Mass (lbs)	Conc (ppm)	Mass (lbs)	Conc (ppm)	Mass (lbs)	Conc (ppm)	Mass (lbs)
1,2,4-Tri- c orobenzene	<0.001		<0.001		<0.001			
Aldrin	<0.0001		<0.0001		k0.0001			
∠ -BHC	, ,		11		11			
E -BHC	, "		"		11		-	
∠ -BHC ∠ -BHC ∠ -BHC	"		li li		11			
S -внс			11		"			
C lordane	11		11		11			
4, !'DDT	11		11		11			
4,4'-DDE	. 11		11		n			
4, 1'-DDD	"		"		"			
O aldrin	"		"		11			
∠-Endosulfan			11		11			
B -Endosulfan	"		11		11		15	
Endosulfan S fate	11		II		11	$\widehat{\mathbb{C}}(\widehat{\mathbb{C}})$	7	
Endrin	11		11		17	5		
Endrin Aldehyde			"		11			
H_ptachlor	. 11		"		"			
Heptachlor E oxide	11		11		17			
PCB-1242	71		16		17			
P.:B-1254	"		11		11			

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R(W.O. 21,625W-11562 Report Date 8/15/85

tation New Buff	alo Indust		ck					
	SAMP		SAMP		_SAMP			RAGE
Pollutant	Conc (ppm)	Mass (lbs)	Conc (ppm)	Mass (lbs)	Conc (ppm)	Mass (lbs)	Conc (ppm)	Mass (lbs)
PCB-1221	k0.0001		<0.0001		k0.0001			_
F CB-1232	11		"		11			
F ::B-1248	18		"		"			
PCB-1260	11		11		11			
FCB-1016	11		n		"			
7 xaphene	11		"		11			
Antimony	<0.010		<0.010		<0.010			
Beryllium	"		"		11			
I allium	11		"		"			
							1	
					()	<u> </u>		
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	SAMP		SAMP		SAMI		Δ 17 Ε 1	RAGE
	Conc	Mass	Conc	Mass	Conc	Mass	Conc	Mass
Pollutant	(ppm)	(lbs)	(ppm)	(lbs)	(ppm)	(lbs)	(ppm)	(lbs)
Phenois	0.016							
Uil & Grease								
crolein	<0.001					_		
Acrylonitrile	"							
Benzene	"				Ì			
Pis (Chloromethyl) ther	п							
Promoform	n .							
(arbon Tetrachloride	11					~	J	
(lorobenzene	11					NP	1	
Chlorodi- l omomethane	. 11							
Chloroethane								
(iloroethylvinyl I :he r	n							
(1oroform	11		<u></u>]	RECEI			
Dichlorobromethane	n				AUG 20	985		
l chloro- caluoromethane				Gold	New Yo	rk, P.C.		
1,1-Dichloro- hane	_ "							
1,2-Dichloro- ethane	11			<u> </u>				
1 1-Dichloro- chylene	11							
1,2-Dichloro- r opane				-	<u> </u>			
1,2-Dichloro-] "							

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2, 4-Dinitro-

phenol

0.001



TELEPHONE 683-0440 AREA CODE 716 THE ARO CORPORATION **TELEX 315078** 3695 BROADWAY, BUFFALO, N.Y. 14227 Goldberg-Zoino Associates Report Date 8/15/85 F) W.O. 21,625W-11562 B-9 SAMPLE 7 SAMPLE : SAMPLE -AVERAGE Conc I Mass Conc Mass Conc Mass Conc I Mass (mggg) (lbs) (maa) (lbs) (maga) Pollutant (lbs) (maa) (lbs) <0.001 Ethylbenzene Wethyl Bromide 11 l ethyl Chloride Methylene Chloride 1, 2, 2-Tetra-11 chloroethane ' etrachloroethylene 11 Toluene. 7 2-Trans-Dichloroethylene 1 1, 1-Tric loroethane 1, 1, 2-Tric loroethane 1 richloroethylene 7 'ichlorof.40romethane Vinyl Culoride 2 3, 7, -8-Tetrachlorok0.001 dapenzo-p-dioxin 0.003 2 Chlorophenol 2, 4-Dichloro-<u>phenol</u> 0.001 2 4-Dimethylko.ooi phenol 4.6-Dinotro-O-Cresol 0.001

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3695 BROADWAY, BUFFALO, N.Y. 14227

	Goldberg-Zoino	Associates
ac_w.o	21,625W-1	11562

Report Date

8/15/85

at n New Buffalo Industrial Park								
L SAL F	LE 7	SAMPLE :		SAMPLE		AVERAGE		
Conc (ppm)	Mass (lbs)	Conc (ppm)	Mass (lbs)	Conc (ppm)	Mass (lbs)	Conc (ppm)	Mass (lbs)	
<0.001					_			
"					_		-	
0.004						-		
0.005								
0.003								
<0.001							1	
								
<0.001					A			
			·-		61			
"				$C_{\mathcal{C}}$) 12			
11						1		
- "								
"								
						<u> </u>		
				<u> </u>		1	<u> </u>	
				_			<u> </u>	
						-		
			_					
100				<u> </u>		<u> </u>		
	Conc (ppm) <0.001 " 0.004 0.005 0.003 <0.001 " " " " "	### PLE 7 Conc Mass (ppm) (lbs)	Conc Mass Conc (ppm) (lbs) (ppm) (lbs) (ppm) (lbs) (ppm) (lbs) (lbs)	## Conc Mass Conc Mass (lbs) Conc Mass Conc (lbs) Co.001	Conc Mass Conc Mass Conc (ppm) (lbs) (ppm) (Cone Mass Cone Mass Cone Mass (lbs)	## SAMPLE SAMPLE AVER	

LIFE SUPPORT PRODUCTS DIVISION THE ARO CORPORATION ARC



TELEPHONE 683-0440 AREA CODE 716 **TELEX 315078**

Customer Goldberg-Zoino	Associ	ates		P.O. N	o			
21,625W-11	562_	·		Report	Date	8/15/8	5	.!
St ion New Buffalo					· .			
Pollutant		- <i>9</i> LE 7	SAMPLE *		SAME	PLE	AVERAGE	
I ∋nzo (a)	Conc I	Mass	Conci	Mass	Conc	Mass	Conc	Mass
Pyrene	(ppm)	(lbs)	(ppm)	(lbs)	(ppm)	(lbs)	(ppm)	
3 4-Benzo-		(100)	(55111)	(100)	(86)	(125)	(88111)	1
f_toranthene	<0.001							
Benzo (ghi)					<u> </u>			
Farylene	"		.					
Lanzo (k)								
Fluoranthene								
F's (2-Chloro-								
cemoxy) Methane	"							
Bis (2-Chloro-							-	
e wl) Ether	"							
E.s (2-Chloro-								
isopropyl) Ether	,							
E s (2-Ethyl-	<u> </u>							1
he.cyt) Phthalate	Į "							
4-Bromo-	1				 			
o enyl Phenyl Ether	1 11					1		
Butyl Benzyl								
Phthalate	,,					$\mathcal{D} \mathcal{M}$		
2 Chloro-	<u> </u>				⊅(()) (\$			
nanhthalene	11			((1		
4 Cholorophenyl					*		·	i
F envl Ether	71							
								1
Chrysene	11							
L benzo(a, h)]
Anthracene	! "							J
1 2-Dichloro-	11							
b rzene								<u> </u>
1,3-Dichloro-								1
b nzene	"							<u> </u>
1,4-Dichloro-]							
Benzene	"							
3'-Dichlorobenzidine	"							
Diethyl			i					1
I ithalate				·				
Dimethyl	1					_	Ĭ .	1.
Phihalate	"							

1 "30 0 OF 1

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TELEPHONE 683-0440 AREA CODE 716 TELEX 315078

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3695 BROADWAY, BUFFALO, N.Y. 14227

	Goldberg-Zoino Associates	,		
_F) W.O	21,625W-11562	Report Date	8/15/85	
			, , , , , , , , , , , , , , , , , , ,	
'ation	New Buffalo Industrial Dark	,	•	

iation New Buffalo	Industr	ial Park			,		.'	
	SAME	- 9 PLE 7	SAMP	LE 3	SAME	LE :	AVE	RAGE
	Conc	Mass	Conc	Mass	Conc	Mass	Conc	Mass
Pollutant	(ppm)	(lbs)	(ppm)	(lbs)	(ppm)	(lbs)	(ppni)	(lbs)
J. N-Butyl			Į					
I thalate	k0 <u>.001</u>	·						
2,4-Dinitro-	"		İ				1	
toluene	-							
2,6-Dinitro-								
toluene	11						<u> </u>	
Di-N-Octyl	 							
Phthalate				_	<u> </u>		 	
1,2-Diphenylhydrazine (as Azobenzene)	11		ļ				1	
(as Azobenzene)					-			
Flouranthene	11							
			· · · · · · · · · · · · · · · · · · ·		<u> </u>	1		
Fluorene	n l					2	1	
Hexa-	<u>"</u>					-7/		
chlorobenzene	11		1		M			
Hexa-				-(
chlorobutadiene	17				少			
Hexachloro-	n							
cyclopentadiene	"							
Hexachloro-	11							
eti ne							<u> </u>	
maeno								ļ
(1,2,3-cd) Fyrene	"							
Isophorona	"						ļ	
. — ISCONOTORE	<u> </u>				_		<u> </u>	
Naphthalene	"				1		l	
	<u> </u>	<u> </u>	<u> </u>		<u> </u>		 	
Nitrobenzene	1,				1			
N-Nitro-	 	\ 			 			
sodimethylamine			. I				1	
N-Nitrosodi-	 -		` — 		 	<u> </u>		
N-Propylamine	"							
N-Nitro-	,,							
sodiphenylamine	"							
		-		_				
Phenanthrene	"							
_								
Pyrene	<u> </u>			_				
	1							
•								

LIFE SUPPORT PRODUCTS DIVISION THE ARO CORPORATION

TELEPHONE 683-0440 AREA CODE 716 TELEX 315078

!ustomer Goldberg-Zoino Associates

3695 BROADWAY, BUFFALO, N.Y. 14227

P.O. No.

F) W.O. 21,625W	1- 11562		Report Date 8/1,5/85						
its ion New Buffalo	Industr	rial Par	k			•			
,	SAMP	-9 LE 7	SAMP	LE	SAMI	PLE	AVE	RAGE	
Pollutant	Conc (ppm)	Mass (lbs)	Conc (ppm)	Mass (lbs)	Conc (ppm)	Mass (lbs)	Conc (ppm)	Mass (lbs)	
1,2,4-Tri- chlorobenzene	<0.001								
Aldrin	0.0001				<u></u>			<u> </u>	
oBHC	11								
P -BHC) II								
У -BHC	"								
EHC	н								
C lordane	"								
4.4'-DDT	и					5/1			
4,4'-DDE	11			(\mathbb{C}^{2}	\\ \tag{\chi}			
4 4'-DDD	,,								
Dieldrin	"					<u></u>			
∠-Endosulfan	<u>"</u>								
B -Endosulfan]	
-Endosulfan .S lfate	,,								
Endrin	"		l 					<u> </u>	
E drin Aldehyde	,,								
2 ptachlor	н								
Heptachlor Froxide	"								
I JB-1242	16								
I :B-1254	11								

LIFE SUPPORT PRODUCTS DIVISION

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TELEPHONE 683-0440 THE ARO CORPORATION AREA CODE 716 **TELEX 315078** 3695 BROADWAY, BUFFALO, N.Y. 14227 Goldberg-Zoino Associates Report Date .:ation New Buffalo Industrial Park 8-9 SAMPLE 5 SAMPLE 7 SAMPLE AVERAGE Conc | Mass Conc Mass Conc Mass Conc Mass Pollutant (maga) (lbs) (ppm) (lbs) (lbs) (mgg) (ppm) (lbs) PCB-1221 0.0001 1_CB-1232 Г СВ-1248 PCB-1260 I JB-1016 Soxaphene Antimony <0.010 Laryllium <0.010 : allium <0.010

LIFE SUPPORT PRODUCTS DIVISION THE ARO CORPORATION

TELEPHONE 683-0440 AREA CODE 716 TELEX 315078

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3695 BROADWAY, BUFFALO, N.Y. 14227

Goldberg-Zoino Associates

R) W.O. 21,625W-11562

Report Date 8/15/85

_ation New Buffalo	Industri	al Park		·				
	SAMP	LE 4	SAME		SAME		AVE	
Pollutant	Conc (ppm)	Mass (lbs)	Conc (ppm)	Mass (lbs)	Conc (ppm)	Mass (lbs)	Conc (ppm)	Mass (lbs)
Phenols	0.031		0.008		0.019			
Oil & Grease	_		-		_			
. crolein	<0.001		<0.001		<0.001			
.3 crylonitrile	11		11		11			_
Benzene	'n				"			
Dis (Chloromethyl) ther	tt		It	_	11			_
Promoform	11		11		11			
Carbon Tetrachloride			11		11			
(Norobenzene	11		11		" 6			
Chlorodi- I omomethane	. "		ft ·		6	\mathfrak{D}_{n}		
Chloroethane	11		11				Assoc. P.C.	
(iloroethylvinyl lither	***		"		77	VED	20 1985 Zoino A York, P.	
(doroform	11		11		11	ш Ш	23	
Dichlorobromethane			11		li .	표 고	Goldberg- of New	
l chloro- c.fluoromethane	"		,,		11		Golc	
1,1-Dichloro-	11		11		**			
1,2-Dicloro- ethane	, ,,		11		"			
1 1-Dichloro- echylene	"		11		**			
1.2-Dichloro- g opane	"		11		"		7.5	
1,2-Dichloro-	"		11		11			
<u> </u>								

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TELEPHONE 683-0440 AREA CODE 716 TELEX 315078

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3695 BROADWAY, BUFFALO, N.Y. 14227

_	Goldberg-Zoino Associates		
`F) W.O.	21.625W-11562	, Report Date	<u>8/15/85</u>
		•	

ita'ion New Buffalo I	Industri	al Park						
· ·		C PLE 14	SAMP	/6 LE 3	SAMI	7-/8 PLE 6	AVEI	 RAGE
Pollutant	Conc (ppm)	Mass (lbs)						
Thylbenzene	<0.001		<0.001		<0.001			
Methyl Bromide	11		11		II .			
: ethyl Chloride	11		п		ři –			
Methylene	H		11		11			
1, 1, 2, 2-Tetra- chloroethane	It		II .		"			
'retrachloroethylene	п		11		11			
' oluene	11		11		n n			
1,2-Trans- Dichloroethylene	11		н		ıı		<u>.a</u>	
1, 1-Tri- cnloroethane	11		It		11	6	4	
1 1,2-Tri-	"		17		" @	01		
Trichloro- cthylene	"		te		" (
richloro- flucromethane	"		11		ı,			
Tinyl Chloride	11		"		11			<u> </u>
3,7,-8-Tetrachloro-								
dibenzo-p-dioxin	<0.001		<0.001		k0.001			
1Chlorophenol	0.003	3	<0.001		k0.001			
2,4-Dichloro-	0.002	2	0.001		0.002			
;,4-Dimethyl- phenol	<0.001		<0.001		k0.001			
· 6-Dinotro-O- cresol	0.002	2	0.001		0.002			
2,4-Dinitro- pienol	0.003	}	0.001		0.002			

LIFE SUPPORT PRODUCTS DIVISION THE ARO CORPORATION

TELEPHONE 683-0440 AREA CODE 716 TELEX 315078

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3695 BROADWAY, BUFFALO, N.Y. 14227 Goldberg-Zoino Associates

R W.O. 21,625W-11562

Report Date 8/15/85

				&- SAME	LE 6	AVE	RAGE
Conc (ppm)	Mass (lbs)	Con c (ppm)	Mass (lbs)	Con c (ppm)	Mass (lbs)	Conc (ppm)	Mass (lbs)
<0.001		<0.001		<0.001	_		
<0.001		<0.001		<0.001			
0.004	·	0.002		0.003			
0.005		0.002		0.002			
0.003		0.002	•	0.003			
<0.001		<0.001		<0.001			
<0.001		<0.001		<0.001			
11			_	11			
11		"		"			
11		11		ıı		J	
***		"	-	" (MP	1	
н		11		., C			
				•			
	SAMP Conc (ppm) <0.001 <0.001 0.004 0.005 0.003 <0.001 """ """ """ """ """ """ """	(ppm) (lbs) <0.001 <0.001 0.004 0.005 0.003 <0.001 """ "" """ """ """ """ """	SAMPLE 4 SAMP Conc (ppm) (lbs) (ppm) (ppm) (0.001 <0.001 <0.001 <0.001 <0.002 <0.002 <0.003 0.002 <0.001 <0.001 <0.001 <0.001 <0.001	SAMPLE 4 SAMPLE 4 Conc	SAMPLE 4 SAMPLE 4 SAMP	SAMPLE 4 SAMPLE 4 SAMPLE 6	SAMPLE 4 SAMPLE 4 SAMPLE 6 AVEI Cone

THE ARO CORPORATION 3695 BROADWAY, BUFFALO, N.Y. 14227



TELEPHONE 683-0440 AREA CODE 716 TELEX 315078

Tustomer				' P.O. N				
Goldberg-Zoin ARO W.O. 21,625W-1		iates		— Report	Date	8/15/85		.!
		- 1 - Dl-				0/13/03		
Sition New Buffalo I	ndustri E-				1 0-	10		
Pollutant	SAMP	LE 4	SAMP	LE 🦣	SAMI	LE 6	AVE	RAGE
Benzo (a)	Conc	Mass	Conc	Mass	Conc	Mass	Conc	Mas
Pyrene	(ppm)	(lbs)	(ppm)	<u>(lbs)</u>	(mqq)	(lbs)	(ppm)_	(lbs
3,4-Benzo-			10 001		40 001			ĺ
luoranthene	<0.001		<0.001		<0.001		···	ļ
Benzo (ghi)	,,		,,,		11			
Perylene								<u> </u>
lenzo (k)						1		
Fluoran ene	"		"		11			
Ris (2-Caloro-	! ,,		"		11			
thoxy) Methane						<u> </u>		<u> </u>
Bis (2-Chloro-	"		11		11			
thyl) Ether	<u> </u>							
is (2-Chloro-	. .		,,		11			
isopropyl) Ether	lis III		<u> " </u>					
is (2-Ethyl- exyt) Phthalate	2 2		n		11			
	jķi ila		-		- 			+
4-Bromo-	1		11		11			1
ienyl Phenyl Ether Latyl Benzyl	1 <u> </u>	<u> </u>				 -		┼──
Phthalate	"		19					
-Chloro-	-				 			
naphthalene	"		,,		**			
1-Cholcrophenyl							11	
henyl Ether	"		"		11			
	<u> </u>		,, ·		"		1	
Chrysene	"		"					
ipenzo(a, h)								
Anthracene	<u> </u>		n		" \	<u>/</u>		
1,2-Dichloro-			ar .		,,			
enzene								
1,3-Dichloro-	"		"		**			
enzene	<u> </u>	 -	 -					
,4-Dichloro-					,,			
Benzene	"	<u> </u>	н					
,3'-Dichlorobenzidine	п		11		n			
Diethyl	11				n n			
Phthalate		ļ						
Dimethyl								
_ Phthalate	11		н		"			

LIFE SUPPORT PRODUCTS DIVISION THE ARO CORPORATION

TELEPHONE 683-0440 AREA CODE 716 **TELEX 315078**

momer :

3695 BROADWAY, BUFFALO, N.Y. 14227

Goldberg-Zoino Associates 3 W.O. 21,625W-11562

Report Date 8/15/85

	SAMP	-6 LE 4	SAMP	/6 PLE <u>\$</u>	SAME	-/8 PLE 6:	AVE	RAG
Ţ	Conc	Mass	Conc	Mass	Conc	Mass	Conc	Ma
Pollutant	(ppm)	(lbs)	(ppm)	(lbs)	(ppm)	(lbs)	(mqq)	(lb
DI-N-Butyl Phthalate	<0.001		<0.001		<0.001	-		
2,4-Dinitro- coluene	11		11		11			
2,6-Dinitro- coluene	"		11		n			
Di-N-Octyl Phthalate	"		11		"			
1,2-Diphenylhydrazine (as Azobenzene)	11		"		**			1
Flouranthene	n .		11		19			
Fluorene	11		"		"			
nexa- chlorobenzene	"		"		11			
Hexa - chlorobutadiene	"		11		It			
Hexachloro - yclopentadiene	"		11		11		1	
nexachloro- ethane	11		11		n			
naeno (1,2,3-cd) Pyrene	"		"		" ((O) (2		
Isophorona	11	i	"		" //	5		ļ
Naphthalene			"					
Nitrobenzene			"		**			
N-Nitro- sodimethylamine	"		11		11			
N-Nitrosodi- N-Propylamine	11		II .		11			
V-Nitro- sodlphenylamine	,,		11		"			
Phenanthrene	"		11					
Pyrene	l u		n		17			

LIFE SUPPORT PRODUCTS DIVISION THE ARO CORPORATION

TELEPHONE 683-0440 AREA CODE 716 TELEX 315078

3695 BROADWAY, BUFFALO, N.Y. 14227 Customer Goldberg-Zoino Associates

P.O. No.

'. O W.O. 21,6	Report	Date	8/15/85					
Et-tion New Buf	falo Indust	rial Pa	rk			•		
	<i>&</i> -	6 LE 4	8-16 SAMPLE S		SAME	/8 PLE 6	AVE	RAGE
Pollutant	Conc (ppm)	Mass (lbs)	Conc (ppm)	Mass (lbs)	Conc (ppm)	Mass (lbs)	Conc (ppm)	Mass (lbs)
r,2,4-Tri- chlorobenzene	<0.001		<0.001	- 	<0.001	(12,7)		
Aldrin	k0.0001		<0.0001		k0.0001		-	
∠ ~ -BHC	11		· ·	·	11			
A -BHC	п		"	· · · ·	n			
У -внс	11		"		11			
C -BHC	"		"		11			
(nlordane	н		"		li			
4.4'-DDT	п		ıı .		11			
4,4'-DDE	. 11		п		11			
4 4'-DDD			"		11		1	
Dieldrin	11		"		" (0,0		
← Endosulfan	"		11		"	7		
£ -Endosulfan	11		"		п			
-Endosulfan _S Jfate	"		11		11			
Endrin	"		11		n			
F drin Aldehyde	11		"		n			
Fiptachlor	"		11		n n			
Heptachlor Froxide	11		11		n			
CB-1242	"		17		11			
CB-1254	"							

LIFE SUPPORT PRODUCTS DIVISION THE ARO CORPORATION 3695 BROADWAY, BUFFALO, N.Y. 14227

TELEPHONE 683-0440 AREA CODE 716 **TELEX 315078**

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Goldberg-Zolno Associates

RC W.O. 21,625W-11562

Report Date 8/15/85

ation New Buffalo								
	SAMI	LE ‡ .	SAME	/6 LE 5,	SAMI SAMI		AVE	RAGE
Pollutant	Conc (ppm)	Mass (lbs)	Conc (ppm)	Mass (lbs)	Conc (ppm)	Mass (lbs)	Conc (ppm)	Mass (lbs)
PCB-1221	k0.0001	·	<0.0001		k0.0001			
I7B-1232	11		II .		11			
I CB-1248	11		"		"			
PCB-1260	11		11		11			
I JB-1016	ir ir		11	<u> </u>	**			
7 xaphene	n		"		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			
Antimony	<0.010		<0.010		<0.010			
Arsenic	0.015							
E ryllium ·	<0.010		<0.010		<0.010			
Cadmium	0.002						1	
Chromium	<0.010)_//	
C pper	0.216			·			>	
Laad	0.037					5		<u> </u>
Mercury	k0.0002							
N skel	0.035							
S lenium	k0.005	·		· 				
Silver	k0.010		•					
T allium	k0.010		<0.010		0.010			
<u>z</u> 1c	0.612							

PLACE:	Buffalo	COLLECTED: 7/11/85	7/11/85
COUNTY:	Erie	RECEIVED:	7/12/85
SOURCE	New Buffalo Industrial Park	EXAMINED:	8/29/85

Gary Klawinski SENT BY:

LAB & SAMPLE NOS.	IPLE NOS.	ARSENIC	САВМІИМ	CHROMIUM	COPPER	LEAD	MERCURY	NICKEL	SELENIUM	SILVER	ZINC
85-314	B-1	<0.02	<0.001	<0.010	90.0	0.07	0.0004	<0.05	<0.001	<0.010	0.03
85-315	B-11	0.04	0.004	060.0	0.09	0.52	<0.0004	0.17	<0.001	<0.010	0.37
85-316	B-12	<0.02	<0.001	0.040	0.02	0.73	<0.0004	0.05	<0.001	<0.010	0.65
85-317	B-6	<0.02	0.002	0.070	0.30	0.91	<0.0004	0.13	<0.001	<0.010	0.42
85-318	B-16	<0.02	<0.001	0.02	0.03	0.08	<0.0004	<0.05	<0.001	<0.010	0.08
85-319	B-18	<0.02	<0.001	<0.010	<0.02	0.029	<0.0004	<0.05	<0.001	<0.010	0.03
85-320	B-9	<0.02	0.001	<0.010	<0.02	0.015	<0.0004	0.05	<0.001	<0.010	90.0
85-321	SW-3	<0.02	<0.001	<0.010	<0.02	<0.010	<0.0004	<0.05	<0.001	<0.010	0.03

i

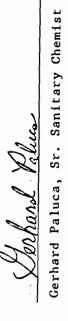
All results in mg/l

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AUG 30 1985

Goldberg—Zolno Assoc. of New York, P.C.



Matthew C. Lanighan, Ph.D., Asst. Director ERIE COUNTY LABORATORY Public Health Division

ANALYSIS OF ONE (1) GROUNDWATER SAMPLE (B-12) FOR PRIORITY POLLUTANT VOLATILES

Report Prepared For GOLDBERG-ZOINO & ASSOCIATES

Ву

ADVANCED ENVIRONMENTAL SYSTEMS, INC.

RECEIVED

SEP # 1965

Goldberg - Zoino Assoc. of New York, P.C.

W. Joseph McDougall, Ph.D. Technical Evaluation

September 3, 1985 ← AES Report AXK

ANALYTICAL METHODOLOGIES

The method numbers for each procedure are listed in the second column of the tabulated results. The source for each method is listed as a reference number in the third column. The complete Analytical Methodologies Reference List is provided in Appendix A.



ADVANCED ENVIRONMENTAL SYSTEMS, INC. LABORATORY REPORT

TYPE OF ANALYSIS: VOLATILE ORGANICS

A.E.S. JOB CODE 01AXK UNITS OF MEASURE: MICROGRAMS/LITER, OR PPB CLIENT: GOLDBERG-ZOINO

SAMPLE IDENTIFICATION DETERMINABLE LIMITS REF METHOD

ANALYSIS

!

SUSAN C. SCROCCHI G. C. SUPERVISOR

*Below determinable limits.

ADV. TO ET TONM TO ET TON TO TO THE LABORATORY REPORT

()

UNITS OF MEASURE: MICROGRAMS/LITER, OR PPB TYPE OF ANALYSIS: VOLATILE ORGANICS

CLIENT: GOLDBERG ZIONO A.E.S. JOB CODE 02AXK

SAMPLE IDENTIFICATION DETERMINABLE LIMITS METHOD REF

ANALYSIS

1798 WATTER 7/12/85

8-12

BDL* BDL BDL 10 624 1,1,2,2-TETRACHLORETHYLENE
1,1,2,2-TETRACHLOROETHANE
TOLUENE

SUSAN C. SCROCCHI G. C. SUPERVISOR

*Below determinable limits.

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GGT 17 1985

Goldberg-Zoino Assoc. of New York, P.C.

ANALYSIS OF ONE (1) GROUNDWATER SAMPLE FOR METHYLENE CHLORIDE $(\mathcal{B}\text{-}\prime\mathcal{Z})$

Report Prepared For GOLDBERG-ZOINO & ASSOCIATES

Ву

ADVANCED ENVIRONMENTAL SYSTEMS, INC.

Veonard Borzynski Technical Evaluation

October 14, 1985 AES Report AXK

ANALYTICAL METHODOLOGIES

The method numbers for each procedure are listed in the second column of the tabulated results. The source for each method is listed as a reference number in the third column. The source(s) for the Analytical Methodologies are:

!

- 1 EPA 600/D-80-021, "Guidelines Establishing Test Procedures for the Analysis of Pollutants; Proposed Regulations", Federal Register 44(233), December 3, 1979.
- 2 EPA 600/D-80-022, "Guidelines Establishing Test Procedures for the Analysis of Pollutants; Proposed Regulations, Correction", Federal Register 44(244), December 18, 1979.
- 3 EPA 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes", (1983)
- 4 EPA 600/4-79-057, "Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater", (1982)
- 5 EPA-SW-846, "Test Methods for Evaluating Solid Waste, Physical/ Chemical Methods", second edition (1982)
- 6 "Standard Methods for the Examination of Water and Wastewater", 15th Edition, (1980)
- 7 New York State Institute of Toxicology Analytical Handbook, October 1982
- 5 NIOSH Manual of Analytical Methods, second edition 1977
- 9 "The Analysis of Polychlorinated Biphenyls in Transformer Fluid and Waste Oil", EPA Environmental Monitoring and Support Laboratory, draft, June 24, 1980.
- 10 "Approved Analytical Procedures for Determining the Content of Constituents Banned from Landburial" (New York State D.E.C., Division of Solid and Hazardous Waste), Jan. 1985.
- 11 SPA 600/4-81-055, "Interim Methods for the Sampling and Analysis of Priority Pollutants in Sediments and Fish Tissue", Revised Jan. 7, 1983.
- 12 "Determination of Formaldehyde in the Atmosphere", Environmental Health Genter, Div. of Laboratories and Research, N.Y.S. Dept. of Health APC-29.
- 11 "Chemical Soil Tests", Cornell University Agricultural Experiment Station, N.Y.S. College of Agricultural, Ithaca, N.Y. Bulletin 960, Revised Oct. 1965.
- 14 "Heat of Combustion of Liquid Hydrocarbon Fuels by Bomb Calorimeter", American Society for Testing and Materials, Philadelphia, Pa., Designation: D 240-64 (Reapproved 1973).

AD CED VII. C. WAEN'LAL SYSTEMS, INC. LABORATORY REPORT

!

TYPE OF ANALYSIS: VOLATILE ORGANICS

UNITS OF MEASURE: MICROGRAMS/LITER, OR PPB

CLIENT: GOLDBERG-ZOINO A.E.S. JOB CODE 01AXK

REF

METHOD

ANALYSIS

DETERMINABLE
LIMITS SAMPLE IDENTIFICATION
2940 2941
B-12 FIELD
BLANK
10/07/85 10/07/85

18.5

BDL *

1,00

601

METHYLENE CHLORIDE

*Below determinable limits.

SUSAN C. SCROCCITI G. C. SUPERVISOR

RECEIVED

GCT 1 0 1985

Goldberg - Zoino Assoc. of New York, P.C.

ANALYSIS OF ONE (1) GROUNDWATER SAMPLE FOR PCB'S AND PESTICIDES (8-12)

PRELIMINARY REPORT

Report Prepared For GOLDBERG-ZOINO & ASSOCIATES

Ву

ADVANCED ENVIRONMENTAL SYSTEMS, INC.

Leonard Borzynski Technical Evaluation

October 2, 1985 AES Report AXK

ANALYTICAL METHODOLOGIES

The method numbers for each procedure are listed in the second column of the tabulated results. The source for each method is listed as a reference number in the third column. The source(s) for the Analytical Methodologies are:

- 1 EPA 600/D-80-021, "Guidelines Establishing Test Procedures for the Analysis of Pollutants; Proposed Regulations", Federal Register 44(233), December 3, 1979.
- 2 EPA 600/D-80-022, "Guidelines Establishing Test Procedures for the Analysis of Pollutants; Proposed Regulations, Correction", Federal Register 44(244), December 18, 1979.
- 3 EPA 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes", (1983)
- 4 EPA 600/4-79-057, "Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater", (1982)
- 5 EPA-SW-846, "Test Methods for Evaluating Solid Waste, Physical/ Chemical Methods", second edition (1982)
- 6 "Standard Methods for the Examination of Water and Wastewater", 15th Edition, (1980)
- 7 New York State Institute of Toxicology Analytical Handbook, October 1982
- 8 NIOSH Manual of Analytical Methods, second edition 1977
- 9 "The Analysis of Polychlorinated Biphenyls in Transformer Fluid and Waste Oil", EPA Environmental Monitoring and Support Laboratory, draft, June 24, 1980.
- 10 "Approved Analytical Procedures for Determining the Content of Constituents Banned from Landburial" (New York State D.E.C., Division of Solid and Hazardous Waste), Jan. 1985.
- 11 EPA 600/4-81-055, "Interim Methods for the Sampling and Analysis of Priority Pollutants in Sediments and Fish Tissue", Revised Jan. 7, 1983.
- 12 "Determination of Formaldehyde in the Atmosphere", Environmental Health Center, Div. of Laboratories and Research, N.Y.S. Dept. of Health APC-29.
- 13 "Chemical Soil Tests", Cornell University Agricultural Experiment Station, N.Y.S. College of Agricultural, Ithaca, N.Y. Bulletin 960, Revised Oct. 1965.
- 14 "Heat of Combustion of Liquid Hydrocarbon Fuels by Bomb Calorimeter", American Society for Testing and Materials, Philadelphia, Pa., Designation: D 240-64 (Reapproved 1973).

ADVANCED ENVIRONMENTAL SYSTEMS, INC. LABORATORY REPORT

UNITS OF MEASURE: MICROGRAMS/LITER, OR PPB TYPE OF ANALYSIS: PCBs AND PESTICIDES

A.E.S. JOB CODE 01AXK CLIENT: GOLDBERG-ZOINO

DETERMINABLE

AN	METHOD	REF	LIMITS	SAMPLE IDENTIFICATION	NOI
				2339	
				GRND WATER 8/23/85	
		1		8-72	
ALDRIN	809	1	1.0	BDI*	
alpha-BHC	=	=	1.0	BDL	
beta-BHC	=	=	1.0	BDL	
gamma-BHC	=	=	1.0	BDL	
delta-BHC	=	=	1.0	BDL	
CHLORDANE	=	=	10.0	BDL	
4,4'-DDT	=	=	1.0	BDL	
4,4'-DDE	=	=	1.0	BDL	
4,4'-DDD	=	=	1.0	BDL	
DIELDRIN	=	=	1.0	BDL	
alpha-ENDOSULFAN	=	=	1.0	BDL	
beta-ENDOSUFAN	=	=	1.0	BDL	
ENDOSULFAN SULFATE	=	=	1.0	BDL	
ENDRIN	=	=	1.0	BDL	
ENDRIN ALDEHYDE	=	=	1.0	BDL	
HEPTACHLOR	=	=	1.0	BDL	(
HEPTACHLOR EPOXIDE	=	=	1.0	BDL	
PCB-1242	=	=	1.0	BDL	
PCB-1254	=	=	1.0	BDL	
PCB-1221	=	=	1.0	BDL	
PCB-1232	=	=	1.0	BDL	
PCB-1248	=	=	1.0	BDL	
PCB-1260	=	=	1.0	BDL	
PCB-1016	=	=	1.0	BDL	
TOXAPHENE	=	=	10.0	BDL	
				0.	C

Lugar L. Scrocchi SUSAN C. SCROCCHI

G. C. SUPERVISOR

*Below determinable limits.

THE ARO CORPORATION 3695 BROADWAY, BUFFALO, N.Y. 14227



TELEPHONE 683-0440 AREA CODE 716 TELEX 315078

ANALYTICAL RESULTS

				Ray Kampf
CUSTOMER: Goldberg-	-Zoino Associa	tes, Suite 1000	, Rand Bldg.,	14 Lafayette Sq.,
ATE COLLECTED:	?	RECEIVED: 10	0/14/85	Buffalo, NY 14203 COMPLETED: 10/21/85
7.0. NO. File 5669	20	ARO W.O.	21,765W-	2138
·.				
TEST	Total Xylene (ppb)			
Monitoring Well B-18	<10.		\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	الا كا (ر
Duplicate	<10.			
				EIVED
				2 2 1985
			Goldber of No	-Zoino Assoc W York, P.C.
·				
	·			
•				
·			0 . ,	

Bernard J Grucza, Ph.D.
Director Environmental Laborator

APPENDIX A ANALYTICAL METHODOLOGIES REFERENCE LIST

COPY

ANALYTICAL METHODOLOGIES REFERENCE LIST

Routine Analyses are Performed in Accordance with Protocols Found in the Following Numbered Sources. These Numbers Correspond to those Listed in the Laboratory Report Under the Reference ("REF") Column.

- 1 EPA 600/D-80-021, "Guidelines Establishing Test Procedures for the Analysis of Pollutants; Proposed Regulations", Federal Register 44(233), December 3, 1979.
- 2 EPA 600/D-80-022, "Guidelines Establishing Test Procedures for the Analysis of Pollutants; Proposed Regulations, Correction", Federal Register 44(244), December 18, 1979.
- 3 EPA 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes", (1983)
- 4 EPA 600/4-79-057, "Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater", (1982)
- 5 EPA-SW-846, "Test Methods for Evaluating Solid Waste, Physical/ Chemical Methods", second edition (1982)
- "Standard Methods for the Examination of Water and Wastewater", 15th Edition, (1980)
- 7 New York State Institute of Toxicology Analytical Handbook, October 1982
- 8 NIOSH Manual of Analytical Methods, second edition 1977
- 9 "The Analysis of Polychlorinated Biphenyls in Transformer Fluid and Waste Oil", EPA Environmental Monitoring and Support Laboratory, draft, June 24, 1980
- 10 "Approved Analytical Procedures for Determining the Content of Constituents Banned from Landburial" (New York State D. E. C., Division of Solid and Hazardous Waste), Jan. 1985.
- 11 EPA 600/4-81-055, "Interim Methods for the Sampling and Analysis of Priority Pollutants in Sediments and Fish Tissue", Revised Jan. 7, 1983

ANALYTICAL TEST RESULTS SURFACE WATER/SEDIMENT SAMPLES

SW-1

SW-2 SW-3

SD-3a

SW-4

SD-4a

Summary of In-Situ Water Quality Tests Taken 7/12/85 Surface Water/Sediment Samples

Sample Location	Sample Time	pH (Standard Units)	Specific Conductance (μπhos/cm)	Remarks
SW-3	13:00	8.01	850	Surface Water
SD-3a	13:20	8.10	810	Water and Black Sediments
SW-4	14:00	7.56	670	Surface Water
SD-4a	14:20	7.70	650	Water and Black Sediment

COPY

THE ARO CORPORATION

BUFFALO DIVISION 3695 BROADWAY, BUFFALO, N.Y. 14227



Page 1 of 2

MAR - 7 1984

ANALYTICAL RESULTS Goldberg - Zoino Assoc. of New York, P.C.

CUSTOMER: GOLDBER	G-ZOINO ASSOC	IATES OF N.Y.	, P.C. Attr	: Ray Laport	
ATE COLLECTED:	2/14/84	RECEIVED:	2/14/84	COMPLETED: _	2/29/84
D.O. NO. File R5	615	ARO W.O.	<u>2</u> 1,037W-8	3415/16	
Buf	falo Industri	al Park Sampl	es		
TEST	SW-1	SW-2			
Arsenic	0.004	0.009			
Barium	0.179	0.239			
Cadmium		0.001			
Lead	0.003	0.039			
Mercury		0.0004	10	- U.L.,	
Selenium	0.002	0.003			
Silver		< 0.001			
_ ?inc	0.045	0.142			
Chromium (+6)	<0.01	< 0.01			
30D ₅		10.			
:OD		21.			
Chlorides	34.	36.			
рН	7.38	7.12			
witrates (as N)	3.37	3.59			

LL RESULTS IN PPM (MG/L)

Befnard J. Gracza, Ph.D.
Director, Environmental Laboratory

THE ARO CORPORATION

BUFFALO DIVISION 3695 BROADWAY, BUFFALO, N.Y. 14227



TELEPHONE 716-683-0440 TELEX 9-1250

Page 2 of 2

ANALYTICAL RESULTS

CUSTOMER: GOLDBERG	-ZOINO ASSOC	IATES OF N.Y.,	P.C.	Attn: Ray Lapon	t
DATE COLLECTED:	2/14/84	RECEIVED:	2/14/84	COMPLETED:	2/29 /84
P.O. NOFile R_	5615	ARO W.O.	21,037	7-8415/16	
Buffalo	Industrial Pa	rk Samples			
TEST	S W-1	SW-2			
Phosphates (as P)		<0.01			
Sulfates	194.	328.			
Total Solids		846.		·	
Total Suspended Solids	•	0.80		MON	
				$\mathbb{C}^{\mathbb{Q}_{\mu}}$	

ALL RESULTS IN PPM (MG L)

Bernard J. Grucza Ph.D.

Director, Environmental Laboratory

THE ARO CORPORATION 3695 BROADWAY, BUFFALO, N.Y. 14227



TELEPHONE 683-0440 AREA CODE 716 TELEX 315078

ANALYTICAL RESULTS

ATTN: TOM HEINS

Ph.D.

Director, Environmental Laboratory

(STOMER: Goldberg	-Zoino Associ	ates of NY, Sui	ite 1000, Rar	nd Bldg., 14 Lafa	yette S
DATE COLLECTED:	7/12/85	RECEIVED:	7/12/85	Buffalo, NY 1 COMPLETED: 8	4203 /14/85
P.O. NO		ARO W.O	21,612	2W-11561	
New Buf:	falo Industri	al Park (4 Samp	ples)		
TEST	Sw-3	50-39	SW-4	50-40	
OD ₅ , mg/L	3.0	7.	13.	9.	
^il & Grease, mg/I	. <0.1	<0.1	<0.1	<0.1	
Total Suspended	18.	1160.	24.	1184.	
.otal Dissolved Solids, mg/L	592.	580.	436.	428.	_
otal Organic	<0.010	<0.010	<0.010	<0.010	
			. 1		
		<u> </u>	DI	RECEIVED	
)) 11	AUG 21 1985	
				Goldberg - Zoino Ass of New York, P.C.	į, G,
			K. I		

		Como a A A CO	7111/05
PLACE	Buffalo	COULECTED: //11/02	00/11//
A. M.		RECE I VED:	7/12/85
COUNTE	בו וב	PYAMTNPD.	8/29/85
SOURCE:	New Buffalo Industrial Park		
SENT BY:	Gary Klawinski		

SAM	TAB & SAMPLE NOS.	ARSENIC	САВМТИМ	CHROMIUM	COPPER	LEAD	MERCURY	NICKEL	SELENIUM	SILVER	ZINC
	B-1	40.02	<0.001	<0.010	90.0	0.07	0.0004	<0.05	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	<0.010	0.03
	B-11	0.04	0.004	0.090	0.09	0.52	<0.0004	0.17	<0.001	<0.010	0.37
	B-12	<0.02	<0.001	0.040	-0.02	0.73	<0.0004	0.05	<0.001	<0.010	0.65
	B-6	<0.02	0.002	0,070	0.30	0.91	<0.0004	0.13	<0.001	<0.010	0.42
	B-16	<0.02	<0.001	0.02	0.03	0.08	<0.0004	\$0:02	<0.001	<0.010	0.08
	B-18	<0.02	<0.001	<0.010	<0.02	0.029	<0.0004	<0.05	<0.00T	<0.010	0.03
1	B-9	<0.02	0.001	<0.010	<0.02	0.015	<0.0004	0.05	<0.001	<0.010	0.06-
1	SW-3	<0.02	<0.001	<0.010	<0.02	<0.010	<0.0004	<0.05	<0.001	<0.010	0.03

. 1111

Leshand Pilus

Gerhard Paluca, Sr. Sanitary Chemist

Matthew C. Lanighan, Ph.D., Asst. Director ERIE COUNTY LABORATORY Public Health Division

All results in mg/l

RECEIVED

AUG 30 1985

Goldberg—Zolno Assoc. of New York, P.C. ANALYTICAL TEST RESULTS SURFACE WASTE DEPOSITS

WA → W-F



THE ARO CORPORATION 3695 BROADWAY, BUFFALO, N.Y. 14227



TELEPHONE 683-0440 AREA CODE 716 TELEX 315078

ANALYTICAL RESULTS

ATTN: RAY KAMPF

:USTOMER: GOLDBERG	-ZOINO ASSOC.,	SUITE 1000, F	RAND BLDG., 14	LAFAYETTE SQUARE
ATE COLLECTED:			BUI	FFALO, NY 14203
P.O. NO		ARO W.O.	21,517W-11,	133-134
·				
TEST	PCB's mg/kg (ppm)			
lA - Surface Oil & Water Mix	<1.	W-A	1	CEIVE - 1-6 1985
Duplicate	∠1.	W-A Ouplicate	Goldban	= -Zoino Asc
1B - Soil Sample	<1.	<i>ω-8</i>		
. 44 <u>4 </u>				
				DI
			(7))) \(\begin{array}{c} \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\
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			[Parened 1	Lung a

Bernard J. Grucza Ph.D. Director Environmental

THE ARO CORPORATION 3695 BROADWAY, BUFFALO, N.Y. 14227



TELEPHONE 683-0440 AREA CODE 716 TELEX 315078

ANALYTICAL RESULTS

CUSTOMER: Goldberg-201no	Associates, Suite	1000, Rand Bldg	., 14 Lafayette Sq.
DA 'E COLLECTED: ?	RECEIVED:	7/26/85	Buffalo, NY 14203 COMPLETED: 9/13/85
P.O. NO	ARO W.O	21,666	W-11848
•			·
	lo Ind.		
TEST Park	W-C		
F enols-Total, mg/kg 15	.35		
I Scan No di	scernable peaks to		
ident	ify gross contamina	ation.	
<u> </u>			
· ·			
- RECEIVE	σα		
SEP 1 3 1985			
Goldberg – Zoino of New York,	P.C	-1	

Bernard J. Gricial Ph.D.

Director, Environmental Laboratory



RECRA ENVIRONMENTAL LABORATORIES

Division of Recra Research, Inc.

ANALYTICAL RESULTS (W-0 + W-E)

GOLDBERG-ZOINO ASSOCIATES OF N.Y.P.C. PRIORITY POLLUTANT ANALYSES



Prepared For:

Goldberg-Zoino Associates of N.Y.P.C. Suite 100 Rand Bldg. Buffalo, NY 14203

Prepared By:

Recra Environmental Laboratories 4248 Ridge Lea Road Amherst, NY 14226

Report Date: May 16, 1985

ANALYTICAL RESULTS

GOLDBERG-ZOINO ASSOCIATES OF N.Y.P.C. PRIORITY POLLUTANT ANALYSES

Report Date: 5/16/85

INTRODUCTION:

On April 1, 1985 samples were received at Recra Environmental

Laboratories. A request was made by Goldberg-Zoino Associates to have the
samples analyzed for selected fractions of the Environmental Protection

Agency decreed priority pollutants.

This report will address the results of those analyses.

METHODS:

Priority pollutant analyses were conducted according to Environmental Protection Agency (EPA) methodologies.

Organic priority pollutants were analyzed by Gas Chromatography/Mass Spectrometry (GC/MS). Pesticide priority pollutants were analyzed by Gas Chromatography.

RESULTS AND DISCUSSION:

Analyses were performed according to to U.S. Environmental Protection Agency methodologies where applicable.

Analyses for specific Pesticides/PCB's are based upon the matching of retention times between samples and standards on a single gas chromatographic column.

Values reported as "less than" (<) indicate the working detection limit for the particular sample and/or parameter.



RESULTS AND DISCUSSION: (cont'd.)

The values reported as "less than or equal to" (\leq) indicate the compound may be present at trace levels relative to the detection limit but not subject to accurate quantification.

Compounds reported as ND are "not detected". Compounds reported as BDL are confirmed as being present in the sample at a level "below detection limit", and are not subject to reliable quantitation.

Respectfully Submitted,

RECRA ENVIRONMENTAL LABORATORIES

John J. Jugovich Organic Coordinator

JJJ/dmf

5



GOLDBERG-ZOINO ASSOCIATES OF N.Y.P.C. GAS CHROMATOGRAPHY/MASS SPECTROMETRY PRIORITY POLLUTANT ANALYSES

Report Date: 5/16/85

ACID/PHENOLICS

		SAMPLE IDENTIFICATION	
COMPOUND 2-chlorophenol	DETECTION LIMIT (µg/g) 380	<i>W−O</i> #1 ND	
2,4-dichlorophenol	310	ND	
2,4-dimethylphenol	310	ND	
4,6-dinitro-o-cresol	2,800	ND	
2,4-dinitrophenol	4,900	· ND	
2-nitrophenol	420	ND	
4-nitrophenol	280	ND	
p-chloro-m-cresol	350	ND	
pentachlorophenol	420	ND	
phenol	170	ND	
2,4,6-trichlorophenol	310	ND	

ADDITIONAL SAMPLE INFORMATION

	ADDITIONED CHIEBS INCOMENTAL			
	Sample Date	4/1/85		
ſ	Extraction Date	5/6/85		
ſ	Analysis Date	5/6/85		
ſ	Internal Standard (IS) - Level	2,300 µg/g		
-	deuterated phenanthrene - Recovery	69%		

FOR RECRA ENVIRONMENTAL LABORATORIES

ATE 5/16/5

Ι

I.D. # 85-322

GOLDBERG-ZOINO ASSOCIATES OF N.Y.P.C. GAS CHROMATOGRAPHY/MASS SPECTROMETRY PRIORITY POLLUTANT ANALYSES

Report Date: 5/16/85

BASE/NEUTRALS

	BROB/ N	SAMPLE IDENTIFICATION
	DETECTION LIMIT	ω- ο
COMPOUND	(µg/ml)	#1
acenaphthene	220	ND
acenaphthylene	410	ND
anthracene	220	ND
benzidine	5,100	ND
benzo(a)anthracene	910	· ND
benzo(a)pyrene	290	ND
benzo(b)fluoranthene	560	ND
benzo(g,h,i)perylene	480	ND
benzo(k)fluoranthene	290	ND
bis(2-chloroethoxy)methane	620	ND
bis(2-chloroethyl)ether	660	ND
bis(2-chloroisopropyl)ether	660	ND
bis(2-ethylhexyl)phthalate	290	ND
+-bromophenylphenylether	220	ND
butylbenzylphthalate	290	ND
2-chloronaphthalene	220	ND
4-chlorophenylphenylether	490	ND
chrysene	290	ND ND
dibenzo(a,h)anthracene	290	ND
1,2-dichlorobenzene	220	ND
1,3-dichlorobenzene	220	ND ND
1,4-dichlorobenzene	510	ND
3,3'-dichlorobenzidine	1,900	ND
diethylphthalate	2,600	ND
dimethylphthalate	190	ND
di-n-butylphthalate	290	ND
2,6-dinitrotoluene	220	ND
2,4-dinitrotoluene	660	ND
di-n-octylphthalate	290	ND
1,2-diphenylhydrazine	2,900	ND
fluoranthene	260	ND
fluorene	220	580 μg/g

COPY

(Continued)



GOLDBERG-ZOINO ASSOCIATES OF N.Y.P.C. GAS CHROMATOGRAPHY/MASS SPECTROMETRY PRIORITY POLLUTANT ANALYSES

Report Date: 5/16/85

BASE/NEUTRALS

	DRSE/ NEULN	
		SAMPLE IDENTIFICATION
· 	DETECTION LIMIT	W-0
COMPOUND	(µg/g)	#1
hexachlorobenzene	220	ND
hexachlorobutadiene	100	ND
hexachlorocyclopentadiene	2,900	ND
hexachloroethane	190	ND
indeno(1,2,3-cd)pyrene	430	· ND
isophorone	260	· ND
naphthalene	190	BDL
nitrobenzene	220	ND
N-nitrosodimethylamine	2,900	ND
N-nitrosodi-n-propylamine	2,900	ND
N-nitrosodiphenylamine	220	ND
phenanthrene	630	ND
pyrene	220	ND
1,2,4-trichlorobenzene	220	ND

ADDITIONAL SAMPLE INFORMATION

ADDITIONE CHAILED IN CHAILION	
Sample Date	4/1/85
Extraction Date	5/6/85
Analysis Date	5/6/85
Internal Standard - Level	2,300 μg/g
deuterated phenanthrene - Recovery	69%

COPY

DATE 5/16/85



I.D. #85-322

GOLDBERG-ZOINO ASSOCIATES OF N.Y.P.C. GAS CHROMATOGRAPHY



Report Date: 5/16/85

VOLATILES

		SAMPLE IDENTIFICATION	
COMPOUND	UNITS OF MEASURE	ω-0 #1	ω- ε #2
bromodichloromethane	ug/g	~	<10
bromoform	μg/g	<10	<10
bromomethane	<u>μg/g</u>	<20	₹20
carbon tetrachloride	ug/g	<10	<10
chlorobenzene	μg/g	<20	<20
chloroethane	ug/g	<10	<10
2-chloroethylvinyl ether	ug/g	<10	. <10
chloroform	μg/g	<5	< 5
chloromethane	μg/g	<20	<20
dibromochloromethane cis-1,3-dichloropropene 1,1,2-trichloroethane		<10	<10
1,2-dichlorobenzene	μg/g	<40	\\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\
-1,3-dichlorobenzene	μg/g		\\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\
.,4-dichlorobenzene	μg/g		<40
1,1-dichloroethane	ug/g	<10	<10
1,1-dichloroethane	иg/g иg/g	<u> </u>	<5
1,2-dichloroethane 1,1-dichloroethene	ug/g		<20
trans-1, 2-dichloroethene	μg/g		<10
1,2-dichloropropane	μg/g		<5
trans-1,3-dichloropropene	<u>и</u> д/ g		<5
methylene chloride	ug/g	 <5	<5
1,1,2,2-tetrachloroethane			
tetrachloroethene	ug/g	<5	<5
1,1,1-trichloroethane	μg/g	<10	<10
trichloroethene	μg/g	<10	<10
vinyl chloride	μg/g	<10	<10

ADDITIONAL SAMPLE INFORMATION

ADDITIONAL SAMPLE INFORMATION		
Sample Date	4/1/85	4/1/85
Analysis Date	4/4/85	4/4/85

FOR RECRA ENVIRONMENTAL LABORATORIES

DATE 5 1 15.5

N

I.D. #85-322

GOLDBERG-ZOINO ASSOCIATES OF N.Y.P.C GAS CHROMATOGRAPHY PRIORITY POLLUTANT ANALYSES



Report Date: 5/16/85

PESTICIDES/PCB'S

	PESTICI	DES/PCB'S
		SAMPLE IDENTIFICATION
COMPOUND	UNITS OF MEASURE	₩- 0 #1
aldrin	μg/g	<5
alpha-BHC	μg/g	<4
beta-BHC	μg/g	<4
delta-BHC	μg/g	<5
gamma-BHC	μg/g	≤4.9
chlordane	μg/g	<30
4,4'-DDD	μg/g	<3
4,4'-DDE	μg/g	<5
4,4'-DDT	μg/g	<3
dieldrin	µg/g	<2
alpha-endosulfan	µg/g	<5
beta-endosulfan	μg/g	<3
endosulfan sulfate	μg/g	<3
endrin	μg/g	<7
endrin aldehyde	μg/g	<3
heptachlor	µg/g	<5
heptachlor epoxide	μg/g	< 5
PCB-1016	μg/g	<2
PCB-1221	μg/g	<4
PCB-1232	μg/g	<4
PCB-1242	μg/g	<2
PCB-1248	μg/g	<2
PCB-1254	μg/g	<2
PCB-1260	μg/g	<2
toxaphene	μg/g	<70

ADDITIONAL SAMPLE INFORMATION

HDDIII OHE DIEH ED IN OHEHITION	
Sample Date	4/1/85
Extraction Date	4/22/85
Analysis Date	4/22/85

FOR RECRA ENVIRONMENTAL LABORATORIES

DATE 5/16/85

322

I.D. #85-322

GOLDBERG-ZOINO ASSOCIATES OF N.Y.P.C. PRIORITY POLLUTANT ANALYSES

Report Date: 5/16/85

METALS

			SAMPLE IDENTIFICATION
	UNITS OF	DATE OF	ω-o
COMPOUND	MEASURE	ANALYSIS	#1
Total antimony	μg/g	4/26/85	<5
Total arsenic	μg/g	4/6/85	<5
Total beryllium	μg/g	4/8/85	<0.8
Total cadmium	μg/g	4/8/85	<0.6
Total chromium	μg/g	4/9/85	1.0
Total copper	μg/g	4/8/85	2.0
Total lead	ug/g	4/19/85	<5
Total mercury	μg/g	4/27/85	<0.07
Total nickel	μg/g	4/19/85	<3
Total selenium	μg/g	4/6/85	<u> </u>
Total silver	μg/g	4/8/85	<0.6
Total thallium	ug/g	4/26/85	<6
Total zinc	μg/g	4/8/85	<u> </u>

ADDITIONAL	CAMDIG	INFORMATION
ADDITIONAL	SAMPLE	INFORMATION

 <u> </u>	
Sample Date	4/1/85

FOR RECRA ENVIRONMENTAL LABORATORIES

DATE



I.D. #85-322

RECRA ENVIRONMENTAL LABORATORIES



TELEPHONE 683-0440 AREA CODE 716 TELEX 315078

ANALYTICAL RESULTS

ATTN: RAY LAPORT

CUSTOMER: _Goldberg-	·Zoino Associa	tes, <u>Suite l</u>	000, Rand Bldg.,	14 Lafayette Sq.	
ATE COLLECTED:	?	RECEIVED:		COMPLETED: <u>9/13/85</u>	;
P.O. NO		ARO W.O	21,666W-118	48	
•		results in			
	Buffalo Ind Park W-F	1	Buffalo Ind. Park	W-F	
TEST	,			W - 2	
Acenaphthene	0.012		Phenanthrene	0.020	
Acenaphthylene	0.017		Pyrene	0.031	
Anthracene	0.005				
Benzo(a)anthracene	<0.001				
Benzo(a)pyrene	0.039				
Benzo(b) Fluoranthene	0.021			K L	
Benzo(ghi) perylene	0.027		CUIT		
Benzo(k) . fluoranthene	0.01				
Chrysene	0.029				
Dibenzo(a,h) Anthracene	<0.001			EIVED	
Fluoranthene	0.013		Goldberg	1 3 1985 -Zaino Assac.	
Fluorene	0.009		of Nev	York, P.C.	
Indeno(1,2,3-cd) pyrene	<0.001				
Japhthalene	0.009				
			NI	<u> </u>	

fructa, Ph.D.

Director, Environmental Laborator

LIFE SUPPORT PRODUCTS DIVISION THE ARO CORPORATION

AT



TELEPHONE 683-0440 AREA CODE 716 TELEX 315078

ANALYTICAL RESULTS

ATTN: RAY LAPORT

USTOMER: Goldberg-Zoino Associates, Suite 1000, Rand Bldg., 14 Lafayette Sq.

Buffalo, NY 14203

ARO W.O. 21,666W-11848 .O. NO.

*All results in ppm

TEST	Buffalo Ind. Rark TPIII-18	Buffalo Ind. Park Composite TPIII - 2 + 8	Buffalo Ind. Park - PIII-1/2 @ 3'	Buffalo Ind Park W-F	
2-Calorophenol	<0.001	0.003	<0.001	0.003	
2, -Dichlorophenol	0.002	0.005	20.001	0.002	
2, -Dimethylphenol	<0.001	<0.001	0.002	<0.001	
1,6-Dinitro-O-Cres	0.001	0.003	0.002	<0.001	
2,4-Dinitro-phenol	<0.001	0.002	<0.001	0.005	
2-Witrophenol	<0.001	<0.001	<0.001	<0.001	
4-: itrophenol	<0.001	20.001	<0.001	<0.001	
P-Chloro-M-Cresol	0.002	0.002	0.004	0.017	
Pentachlorophenol	0.003	0.002	0.003	0.025	
?h∈nol	0.002	0.004	0.002	0.007	
2, 6-Trichloropher	101 <0,001	<0.001	<0.001	<0.001	<u></u>
lyanides, mg/kg	x	Х	5.65		17
Sulfide, mg/kg	x	Х	4.1		
RE	EIVED		0		

· SEP 1 3 1985

Goldberg - Zoino Assoc. of New York, P.C.

Environmental Laboratory

ANALYTICAL TEST RESULTS TEST PIT SAMPLES

COPY

Summary of In-Situ Water Quality Measurements Samples Collected from Test Pits Excavated 7/18 & 7/19/85

Test Pit No.	Sample Depth	pH (standard units)	Specific Conductance (µmhos/cm)	Remarks
TP-III-1	~6 ft.	7.48	1000	
TP-III-7	~7.5 ft.	7.48	600	
TP-III-9	~7.0 ft.	7.33	490	
TP-III-11	~4.0 ft.	7.84	750	Oil Floating in Water
TP-III-12	~5.0 ft.	8.11	280	Oil Floating in Water
TP-III-18	~7.0 ft.	7.61	1 300	



SUMMARY OF pH MEASUREMENTS TEST PIT SAMPLES

	pH (Standard Units)
TP III-2 Composite Samples TP III-8	2.69
TP III-9 TP III-10 TP III-12 @ 3 ft.	8.60 7.80 8.65
TP-III-21	7.42

Note: pH measurements by the ARO Corporation Buffalo Division



LIFE SUPPORT PRODUCTS DIVISION THE ARO CORPORATION 3695 BROADWAY, BUFFALO, N.Y. 14227

CUSTOMER: Goldberg-Zoino Associates



TELEPHONE 683-0440 AREA CODE 716 TELEX 315078

RECEIVED

ANALYTICAL RESULTS

AUG 2 2 1985

Bernard J. Grubza, Lah. D.

Director, Environmental Laboratory

CUSTOMER: Goldberg-	Zoino Associat	Goldberg - Zoino Assoc.						
D TE COLLECTED: 7/	18-19/85	RECEIVED: 7	of New York, P.C.					
P.O. NO. File 56	569	ARO W.O.	21,634W-11673					
	TP-III-18	TP-III - 10	TP-III- 9	TP-777-21				
TEST					<u> </u>			
R Scan (Extract)	112. mg/kg hydrocarbon	160. mg/kg hydrocarbon	455. mg/kg hydrocarbon	Х				
Other Functional roups	None	None	None	х				
% Iron	х	х	x	2.91				
nenolics Total	Х	X	х	0.68 mg/kg				
				а				
			(4	571				
			= (O)	S				
			9					
			12011	Gillo				



TELEPHONE 683-0440 AREA CODE 716 TELEX 315078

ANALYTICAL RESULTS

ATTN: RAY LAPORT

CUSTOMER: Goldberg-Zoino Associates, Suite 1000, Rand Bldg., 14 Lafayette Sq.

Buffalo, NY 14203

ATE COLLECTED: 7/18-19/85 RECEIVED: 7/23/85 COMPLETED: 9/13/85

P.O. NO. ARO W.O. 21,666W-11848

*All results in ppm

		<u></u>			_
TEST	Buffalo Ind. Park 7/27/18	Buffalo Ind. Park Composite TPM-2+8	Buffalo Ind. Park rew-12	Buffalo Ind Park W-F	
2-Chlorophenol	<0.001	0.003	<0.001	0.003	
2,4-Dichlorophenol	0.002	0.005	<0.001	0.002	
2,4-Dimethylphenol	<0.001	<0.001	0.002	<0.001	
4,6-Dinitro-O-Cres	0.001	0.003	0.002	<0.001	
2,4-Dinitro-phenol	<0.001	0.002	<0.001	0.005	
∠-Nitrophenol	<0.001	<0.001	<0.001	<0.001	_
-Nitrophenol	<0.001	<0.001	<0.001	<0.001	
Chloro-M-Cresol	0.002	0.002	0.004	0:017	
Pentachlorophenol	0.003	0.002	0.003 ~ \	10-025	
henol	0.002	0.004	0.002	0.007	
,4,6-Trichloropher	nol <0.001	<0.001	<0.001	<0.001	
Cyanides, mg/kg	х	х	5.65	х	
Sulfide, mg/kg	х	х	4.1	х	
RE(EIVED		Ω		

- SEP 1 3 1985

Goldberg - Zoino Assoc. of New York, P.C.

Sernard J. (Grucza) Ph.D.

ector, Environmental Laboratory

THE ARO CORPORATION

ARO

TELEPHONE 683-0440 AREA CODE 716 TELEX 315078

stomer

3695 BROADWAY, BUFFALO, N.Y. 14227

Goldberg-Zoino Associates

File 5669

. RO W.O. 21,634W-11673

Report Date

8/19/85

tation	COMP.	0517E 2 + 8	SAMP	LE 2	SAMP	LE 3	AVE	RAGE
	Conc	Mass	Conc	Mass	Conc	Mass	Conc	Mas
Pollutant	(ppm)	(lbs)	(ppm)	(lbs)	(ppm)	(lbs)	(ppm)	(lbs)
Phenols	1.35	_						
Oil & Grease	-	_				_		
`crolein	<0.02							
Acrylonitrile	11				ļ			
Benzene	п			·				
Bis (Chloromethyl) Ether	п							_
Bromoform	11							
Jarbon Fetrachloride	11							
lhlorobenzene	11							
Jhlorodi- bromomethane	. 11							
Chloroethane	n n							
Chloroethylvinyl lther	11				,	15	٧	
Chloroform	"				<u>\</u>			
Dichlorobromethane	"							
Dichloro- ifluoromethane	11							
1,1-Dichloro- othane	"							
, 2-Dichloro- ethane	11							
',1-Dichloro- :hylene								
1,2-Dichloro-	"							
,2-Dichloro- propylene	11							

LIFE SUPPORT PRODUCTS DIVISION THE ARO CORPORATION

ARO

TELEPHONE 683-0440 AREA CODE 716 TELEX 315078

3695 BROADWAY, BUFFALO, N.Y. 14227

omer :

File 5669

Goldberg-Zoino Associates Report Date 8/19/85

ation	TP-71-2+8		SAMP	LE 2	SAME	LE 3	AVEI	RAGE
Pollutant	Conc (ppm)	Mass (lbs)	Conc (ppm)	Mass (lbs)	Conc (ppm)	Mass (lbs)	Conc (ppm)	Mass (lbs)
Ethylbenzene	<0.02							
ethyl Bromide	"							
- "ethyl Chloride	11							
I ethylene Chloride	"							
1, 2, 2-Tetra- c. doroethane	. 11							
	11							
Toluene	11							
2-Trans- Lichloroethylene	11							
1, 1, 1-Tri- c loroethane	n							
1,1,2-Tri- chloroethane	"							
: :ichloro- erhylene	11				- · ·	7 1		
Trichloro- f ioromethane	11				الارد	_		
Vinyl Chloride	"							
Cyanide	11							
2 3,7,-8-Tetrachloro- c benzo-p-dioxin	<0.001							
2 Chlorophenol	0.06	-						
2 4-Dichloro- phenol	0.10		, •					
2 4-Dimethyl- r enol	0.22					,		
4, 6-Dinotro-O- Cresol	₹0.02							
2 4-Dinitro- phenol	<0.02							

LIFE SUPPORT PRODUCTS DIVISION THE ARO CORPORATION

TELEPHONE 683-0440 AREA CODE 716 TELEX 315078

stomer 3695 BROADWAY, BUFFALO, N.Y. 14227

Goldberg-Zoino Associates

.RO W.O. 21,634W-11673

Report Date

File R5669 8/19/85

ation				_		.'		
	COMP TP-III		SAMI		<u> </u>	PLE 3	AVE	RAGE
Pollutant	Conc (ppm)	Mass (lbs)	Conc (ppm)	Mass (lbs)	Conc (ppm)	Mass (lbs)	Conc (ppm)	Mass (lbs)
2-Nitrophenol	<0.02							_
!-Nitrophenol	<0.02							
?-Chloro-M- Cresol	0.27							
Pentachloro- phenol	0.30							
Phenol	0.11			-				
2, 4, 6-Tri- hlorophenol	0.19		_	_				
donanhthana	40.00				· 			
cenaphthene	<0.02							
cenaphtylene	<u> </u>			 	 	3 " "	<u> </u>	_
Anthracene	"				.,-			
enzidine	н			_	1	<i>11</i> 1 1		
Benzo (a) nthracene	"							
Benzo(a) nyrene				_				
								
			·.				-	
·								

LIFE SUPPORT PRODUCTS DIVISION THE ARO CORPORATION

3695 BROADWAY, BUFFALO, N.Y. 14227



TELEPHONE 683-0440 AREA CODE 716 TELEX 315078

P.O. No. File R5669 Customer Goldberg-Zoino Associates .RO W.O. 21,634W-11673 8/19/85 Report Date ition COMPOSITE Pollutant TP-III-2+8 SAMPLE 2 SAMPLE 3 AVERAGE Benzo (a) Conc Mass Mass Mass Conc Conc Conc Ma: .⊋yrene (lbs) (maga) (maga) (lbs) (magg) (lbs) (ppm) (lbs 3,4-Benzoluoranthene <0.02 `enzo (ghi) cylene 3enzo (k) Juoranthene Bis (2-Chlorothoxy) Methane Bis (2-Chlorothvl) Ether is (2-Chloroisopropyl) Ether is (2-Ethyl-..exyt) Phthalate 4-Bromonenyl Phenyl Ether Lutyl Benzyl Phthalate -Chloronaphthalene ^-Cholorophenyl henvl Ether Chrysene ipenzo(a,h) Anthracene 2-Dichloroenzene 1,3-Dichloroenzene .. 4-Dichloro-Benzene .3'-Dichlorobenzidine Diethyl <u>hthalate</u> Dimethyl Phthalate

LIFE SUPPORT PRODUCTS DIVISION THE ARO CORPORATION

TELEPHONE 683-0440 AREA CODE 716 TELEX 315078

1Ct stomer

3695 BROADWAY, BUFFALO, N.Y. 14227

Goldberg-Zoino Associates

File R5669

APO W.O. 21,634W-11673

Report Date 8/19/85

	TP-III	POSITE	SAMP	र म. १	SAME	ਹਾ ਦਾ ਹ	ATTET	2 A C E
	Conc	Mass	Conc	Mass	Conc	Mass	Conc	RAGE Mas
Pollutant	(ppm)	(lbs)	(ppm)	(lbs)	(ppm)	(lbs)	(ppm)	(lbs
DI-N-Butyl	(ppm)	(103)	(ppm)	(103)	(ppm)	(103)	<u> (þþm.)</u>	(103
Phthalate	<0.02							
2,4-Dinitro-	<u> </u>							
toluene	"							
2,6-Dinitro-								
toluene	п							
Di-N-Octyl		-	_					<u> </u>
Phthalate	"			•			,	
1,2-Diphenylhydrazine	11							
(as Azobenzene)				-				
Flouranthene	11							
Ellera man a	1,							}
Fluorene	"							
Hexa- chlorobenzene	п							
Hexa-						. 1	ļ	
nexa- chlorobutadiene	,,					37		
Hexachloro-								
cyclopentadiene	.,			· ((ۮ		
Hexachloro-	-				and the same of th			
ethane	10							
indeno								
(1,2,3-cd) Pyrene	"					_		
Isophoronn	"							
Naphthalene	"							
Nitrobenzene	"							
N-Nitro-								
30dimethylamine	19	•	<u> </u>					
N-Nitrosodi- N-Propylamine	"							
I-Nitro-								
odiphenylamine	"							
Phenanthrene	11							
Pyrene	"							
					 	 		
						•		

ARO

TELEPHONE 683-0440 AREA CODE 716 TELEX 315078

Customer

Goldberg-Zoino Associates

File R5669

.RO W.O. 21,634W-11673

Report Date

8/19/85

.RO W.O. 21,634W-	-11673			Report	Date	8/19	<u>/85</u>	
Ctation								
	COMPOSITE TP-III-2+8		SAMPLE 2		SAMPLE 3		AVERAGE	
Pollutant	Conc	Mass (lbs)	Conc (ppm)	Mass (lbs)	Conc (ppm)	Mass (lbs)	Conc (ppm)	Mas (lbs
1,2,4-Tri- chlorobenzene	(ppm) <0.02	(105)	(midd)	(103)	(ρριτή	(103)	(ppiii)	
Aldrin	"							
∠ -BHC	"							
B -BHC	"							
Y -BHC	ıı .							
δ -BHC	11							
Chlordane	"							
4,4'-DDT	ıı							
4,4'-DDE	н							
4,4'-DDD	"	·						
Dieldrin	"			0	MIT	77		
∠-Endosulfan	"							
3 -Endosulfan	"							
-Endosulfan . Sulfate	ıı							
Endrin	. 11							
Endrin Aldehyde								
Heptachlor	11					_		
Heptachlor Epoxide	"							
PCB-1242	11							
PCB-1254	11							

LIFE SUPPORT PRODUCTS DIVISION THE ARO CORPORATION

TELEPHONE 683-0440 AREA CODE 716 **TELEX 315078**

3695 BROADWAY, BUFFALO, N.Y. 14227

Goldberg-Zoino Associates File R5669 Report Date 8/19/85 Itation COMPOSITE TP-III-2+8 SAMPLE 2 SAMPLE 3 AVERAGE Conc | Mass Conc Mass Conc Mass Conc Mass (lbs) (lbs) (lbs) (ppm) (ppm) (maga) (ppm) (lbs) Pollutant PCB-1221 <0.02 'CB-1232 ~CB-1248 PCB-1260 CB-1016 oxaphene Antimony <0.20 Arsenic <0.20 Beryllium <0.10 Cadmium 0.70 3.40 Chromium opper 131. Lead 782. 0.006 Mercury 4.12 ickel Selenium 0.06 0.80 Silver <0.20 nallium 7inc 177.

THE ARO CORPORATION

3695 BROADWAY, BUFFALO, N.Y. 14227



TELEPHONE 683-0440 AREA CODE 716 TELEX 315078

ENVIRONMENTAL LABORATORY

ANALYTICAL RESULTS

<u> </u>			ATTN: RA	AY LAPORT
(istomer Goldberg-Zoino	Associates, Suite 1	000, Ran	d Bldq., 14 La:	fayette Sq.
			Buffa	lo, NY 14203
ARO Laboratory Number	21,666W-11848	(Customer P.O. #	
		2 / 2 =	_	
L_te: Collected 7/18-19/	Received	8/85	Report	ed 9/13/85
S mpling Point/Description	Buffalo Industri	al Park	COMPOSITE TE	PIII-2+ TPIII-8
			EPT	OX-METALS_
A Kalinity	220 ===================================	(Al)	Aluminum	
Anionic Detergents (MBAS)	220. mgCaCO ₃ /L	• ,	Arsenic	0.032 mga
Biochemical Oxygen		(Ba)		0.032 88m
emand (BOD ₅)		(Cd)		
Chemical Oxygen		(Cr)		0_006_pm
Demand (COD)		(Cu)		maa 010.0
C lorides		, ,	Iron	
Conductivity		•	Lead	
			Magnesium	0.027 ppm
C-anides Fiorides	<u> 1747. mg/kg</u>	, .,	<u> </u>	
Hardness			Manganese	0.0007
	280. mgCaCO ₃ /L		Mercury	0.0007 ppm
N'rogen, Ammonia			Potassium	
N rogen, Total Kjeldahl		(Se)		maa 110.0
Nitrogen, Nitrates			Silver	mag 010.0>
N rogen, Nitrites		(Na)		<u> </u>
O & Grease		(Zn)	Zinc tivity (S=,CN-	
Phenols	4.88	Sulf	ide (S=,CN	3.2 mg/L
pI	4.00	Dair	- 6011	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \
P. Jsphates (asp)				•
Sulfates	120 /7			
To al Dissolved Solids	420. mg/L	Tuibe	lomethenes (TIII	Mia
To al Suspended Solids		1 rinz	lomethanes (TH	IVI S)
Turbidity		Chlor	roform	
EnJrin			olorni nodichloromethan	
[indane			omochloromethar	
M howahlar				
M :hoxychlor Togaphene		БГОП	oform	
) 4-Ď		Total	TTTTATIO	
25-TP (Silvex)		Iotal	THM'S	
LU-IF (BIIVEX)		,	11-	
	RECEIVED	1	$\lambda_{a} / / $,

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Goldberg - Zama Assoc.

Bernard J. Gricza, Director Environmental Laboratory

Fo m G-05 81



TELEPHONE 683-0440 AREA CODE 716 TELEX 315078

ENVIRONMENTAL LABORATORY

ANALYTICAL RESULTS

ATTN:	RAY	T.A	PO	ጥସ
LI TIM	I/UI	-		1

C stomer Goldberg-Zoino Associates, Suite 10	00, Rand Bldg., 14 Lafayette Sq. Buffalo, NY 14203
ARO Laboratory Number 21,666W-11848	-
Date: Collected 7/18-19/85 Received 7/	23/85 Reported9/13/85
Sompling Point/Description Buffalo Ind. Park	<i>TPIII-9</i>
	EPTOX METALS_
Anionic Detergents (MBAS) Biochemical Oxygen emand (BOD5) Chemical Oxygen Demand (COD) C lorides Conductivity Cranides Fiorides Hardness Nifrogen, Ammonia Nifrogen, Nitrates Nifrogen, Nitrates Nifrogen, Nitrates O & Grease Phenols p**	(Al) Aluminum (As) Arsenic 0.044 (Ba) Barium 0.230 (Cd) Cadmium 0.008 (Cr) Chromium 0.012 (Cu) Copper (Fe) Iron (Pb) Lead 0.014 (Mg) Magnesium (Mn) Manganese (Hg) Mercury 0.0004 (K) Potassium (Se) Selenium 0.017 (Ag) Silver <0.010
Posphates (asp) Sulfates Total Dissolved Solids Total Suspended Solids Turbidity Edrin Lind: ne Mathoxychlor Total Caphene 2.4-D 2.1.5-TP (Silvex)	Trihalomethanes (THM's) Chloroform Bromodichloromethane Dibromochloromethane Bromoform Total THM'S

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SEP 1 3 1985

Goldberg - Zoino Assoc. of New York, P.C.

Bernard J. Grucza. Director Environmental Laboratory

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LIFE SUPPORT PRODUCTS DIVISION THE ARO CORPORATION ARD 3695 BROADWAY, BUFFALO, N.Y. 14227



CUSTOMER _Goldbe	rg-Zoind	<u>Associ</u>	ates	P.	o			
ARO W.O2	1,666W-1	1848		RE	PORT DAT	E9/1	3/85	
STATIONBuffa	lo Indus	trial E						
N.D. = Not Determined	T / D	7-9	TPIII O	5.5'	SAMP	LE 3	AVER	AGE
Pollutant	Conc (ppm)	Mass (lbs)	Conc (ppm)	Mass (lbs)	Conc (ppm)	Mass (lbs)	Conc (ppm):	Mass (lbs)
F enols	N.D.		N.D.					
Cil & Grease	"		"			_		
Acrolein	"		"					
A rylonitrile	"		"					·
Benzene	_ "		**				·	
F s (Chloromethyl) F her	11		11					_
Promoform	"		11					
(rbon 1_trachloride	11		11					
(lorobenzene	"		11					
(lorodi- bromomethane	"		11				<u>, 17</u>	
(loroethane			"				1	
Cnloroethylvinyl Ether	"		**			O_{17}		
C.:loroform	"		"			•		
Dichloro- }:omethane	11		11					
[chloro- difluoromethane	**		"					
l l-Dichloro-	н		11					
1,2-Dichloro- ethane	11		11					
.l-Dichloro- :hylene	H		11					
1,2-Dichloro-	н		**			CIVE		
.2-Dichloro- propylene	"					CEIVE		
: hylbenzene	11					P 1 0 198: m – Zoino	} I	
Methyl Bromide	11		"			ew York,		
			i		-			

ARO

CUSTOMER Goldbe	rg-Zoin	o Associ	la <u>te</u> s	P.	o		_	
ARO W.O21,	666W-11	848	_	RE	PORT DAT	E 9/13/	/85	
STATIONBuf	falo In	dustria	l Park					
	TPI	7-9	TPII	7-12	SAMP	LE 3	AVER	AGE
rollutant	Conc (ppm)	Mass (lbs)	Conc (ppm)	Mass (lbs)	Conc (ppm)	Mass (lbs)	Conc (ppm)	Mass (lbs)
ethyl Chloride	N.D.		N.D.					
ethylene Chloride	II		.,					
,1, 2,2-Tetra- hloroethane	It		11					
Tetrachloro- ethylene	11		"					_
10luene	"		11					
1,2-Trans- ichloroethylene	11		11					
,1,1-Tri- chloroethane	11		п					
',1,2-Tri hloroethane	11		11					
Trichloro- ethylene	11		"]		~/	
richloro- luoromethane	11		"			(A)F	11	
Vinyl hloride	14		"					
,3,7,8-Tetra- chlorodibenzo- dioxin	II		11					
∠-Chlorophenol	0.002		<0.001					
2,4-Dichloro- henol	0.004		0.002					
_,4-Dimethyl- phenol	<0.001		<0.001					
,6-Dinitro-O- resol	<0.001		<0.001					
2,4-Dinitro- phenol	<0.001		<0.001					
Nitrophenol	<0.001		<0.001		RE	CEIVE	D	
-Nitrophenol	<0.001		<0.001			P 1 3 1985		
'-Chloro-M- Cresol	0.008		0.003		Goldbar	g-Zoino A	esoc.	
Pentachloro-	0.010		0.007		of N	w York, P	.c.	
Phenol	0.003		0.002			_		

ARO

CUSTOMER <u>Goldbe</u>	erg-Zoino Ass	sociates	P.	o	1		
ARO W.O	21,666W-11848	3	RE	PORT DAT	E 9/	13/85	
STATION Buffal	lo Industrial	l Park					
	TPIII- 9		7-12	SAMP	LE 3	ÀVER	AGE
	Conc Ma	ss Conc	Mass	Conc	Mass	Conc	Mass
Pollutant	(ppm) (1)	(ppm)	(lbs)	(mqq)	(lbs)	(mqq)	(lbs)
⁷ ,4,6-Tri-							
hlorophenol	<0.001	<0.001					
Acenaphthene	<0.001	<0.001					
cenaphtylene	0.002	<0.001					
_`nthracene	<0.001	<0.001					
Benzidine	<0.001	<0.001					
Renzo(a)			-				
nthracene	<0.001	<0.001					
	10 11						
Pyrene	<0.001	<0.001					
,4-Benzo- luoranthene	<0.001	<0.001					
Benzo(ghi)							
Perylene	<0.001	<0.001					
enzo(k)							
rluoranthene	<0.001	<0.001				_	
Bis (2-Chloro-	40.001	40.001			200	三世	
thoxy) Methane	<0.001	<0.001				· 's	
is (2-Chloro- ethyl) Ether	<0.001	<0.001					
is (2-Chloro-	10.001	(0.001	<u>I</u>				
sopropyl)Ether	<0.001	<0.001					
Bis (2-Ethyl-							
hexyt) Phthalate	<0.001	<0.001					
-Bromophenyl			1				
rhenyl Ether	<0.001	<0.001				<u> </u>	
Butyl Benzyl	(0 003	40.003	1	1	<u> </u>	i T	
<u>nthalate</u>	<0.001	<0.001					
-Chloro- naphthalene	<0.001	<0.001					
'-Cholorophenyl							
_ nenyl Ether	<0.001	<0.001					
Changens	<0.001	<0.001		R	CEIVI	ED	
Chrysene ibenzo(a,h)		10.001) 1 0 400	<u> </u>	
Anthracene	<0.001	<0.001		ع ا	P 1 3 198	Þ	
1,2-Dichloro-				Goldba	rg — Zvino	Assoc.	
enzene	<0.001	<0.001			ew York,		
- 3-Dichloro-							
benzene	<0.001	<0.001					
						i	
						J	

ARO

CUSTOMER <u>Goldt</u>	perg-Zoing	o Assoc	iates	P.	o			
ARO W O		0.4.0		ממ	ו דער המטטמי	E 0/10		
ARO W.O21	1,666W-11	848		KE	PORT DAT	E <u>9/13</u>	<u> 785 </u>	
STATION Buffa	alo Indus	trial P	ark					
	TPIII-		TPZZ	T- 12	L CAME	LE 3	AVED	ACE
		. /		-,5	SAMP	רבי כ	AVER	AGE
	Conc	Mass	Conc	Mass	Conc	Mass	Conc	Mass
Pollutant	(ppm)	(lbs)	(ppm)	(lbs)	(ppm)	(lbs)	(ppm)	(lbs)
1,4-Dichloro-		-						<u> </u>
benzene	<0.001		<0.001					
3,3-Dichloro-								
<u>benzidine</u>	<0.001		<0.001					
Diethyl	40 001		40 001		<u> </u>		i	
Phthalate Dimethyl	<0.001		<0.001				!	
Phthalate	<0.001	1	<0.001					
Di-N-Butyl	1		(33332			_	1	
Phthalate	<0.001		<0.001					
2,4-Dinitro-							İ	
toluene	<0.001		<0.001					
2,6-Dinitro-	1					, m		
toluene	<0.001		<0.001					-
Di-N-Octyl Phthalate	<0.001		<0.001			(D) Y(1	
1,2-Diphenyl-	70.001		70.001		$\sim (())$	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	1	
hydrazine (as	<0.001		<0.001			17	,	
azobenzene)							1	
<u> </u>							<u>† </u>	
<u>Fluoranthene</u>	<0.001		<0.001	-			<u> </u>	
	40 003							
Fluorene Hexa-	<0.001		<0.001				<u> </u>	
chlorobenzene	<0.001		<0.001				1	
Hexa-	10001		(0.001	j				
chlorobutadiene	<0.001		<0.001					
Hexachloro-				_				
<u>cyclopentadiene</u>	<0.001		<0.001				ı	
Hexachloro-	<0.001		<0.001				1	
ethane Indeno•	(0.001)		70.001			_		
(1,2,3-cd) Pyren	e<0.001		<0.001	•	Ì			
		-				RECEI	MED	
Isophorone	<0.001		<0.001				9 1= 129	
						SEP 10	285	
Naphthalene	<0.001		<0.001					
Mitwohanne	<0.001		<0.001			ತ್ತಂತಗತ್ತು — ೭೦ f New Yo	no Assoc.	
N-Nitro-			10.001			I MEM IC	17, 7.0.	
sodimethylamine	<0.001		<0.001					
N-Nitro-								
sodiphenylamine	<0.001		<0.001					
				ĺ				
		1						

LIFE SUPPORT PRODUCTS DIVISION THE ARO CORPORATION ARG



		•	·					
TUSTOMER _ Goldbe	rg-Zoino <i>P</i>	Associa	ates	P.	o			
ARO W.O2	1,666W-118	348			PORT DATE	E <u>9/13/</u>	/85	
TATION Buffalo	Industria	al Par	k					
	TPII - 9	-	7 P III	-12	SAMP	LE 3	AVERA	(GE
	Conc	Mass	Conc	Mass	Conc	Mass	Conc	Mass
rollutant N-Nitrosodi-	(ppm)	(lbs)	(ppm)	(lbs)	(mgg)	(lbs)	(ppm)	(lbs)
-Propylamine	<0.001		<0.001					
Phenanthrene	<0.001		<0.001					-
yrene	<0.001		<0.001					
yrene 1,2,4-Tri- chlorobenzene	N.D.		N.D.					
Aldrin	N.D.		N.D.					
人BHC	N.D.		N.D.					
β -BHC	N.D.		N.D.				ESV.	
γ - _{BHC}	N.D.		N.D.		į	C(0)		
<i>8</i> -внс	N.D.		N.D.		j		ļ	
Chlordane	N.D.		N.D.					
,4'-DDT	N.D.		N.D.		<u>;</u>			
4,4'-DDE_	N.D.		N.D.					
,4'-DDD	N.D.		N.D.					_
<u> Dieldrin</u>	N.D.		N.D.		i			
	N.D.		N.D.			RECE	IVED	
2 -Endosulfan	N.D.		N.D.			SEP 1		
-Endosulfan Sulfate	N.D.		N.D.		G	oldbarg – z	Jino Assa	c.
:ndrin	N.D.		N.D.			of New Y	ork, P.C.	
Endrin Aldehyde	N.D.		N.D.					
Teptachlor	N.D.		N.D.		!	`		
Heptachlor Tpoxide	N.D.		N.D.		i			
PCB-1242	N.D.		N.D.					
°CB-1254	N.D.		N.D.					

LIFE SUPPORT PRODUCTS DIVISION THE ARO CORPORATION



TELEPHONE 683-0440 AREA CODE 716 TELEX 315078

CUSTOMER Goldberg-Zoino Associates P. O. 9/13/85 21,666W-11848 ARO W.O. REPORT DATE STATION TPZI-9 TPIII-12 SAMPLE 3 AVERAGE @5.51 Conc Mass Conc Mass Conc Mass Conc Mass ?ollutant (mqq) (lbs) (ppm) (lbs) (ppm) (lbs) (ppm) (lbs) PCB-1221 N.D. N.D. N.D. N.D. °CB-1232 N.D. CB-1248 N.D. N.D. N.D. PCB-1260 CB-1016 N.D. N.D. Toxaphene N.D. N.D. intimony N.D. N.D. ^arsenic N.D. N.D. eryllium N.D. N.D. admium N.D. N.D. Chromium N.D. N.D. N.D. opper N.D. Lead N.D. N.D. ..ercury N.D. N.D. RECEIVED lckel N.D. N.D. SEP 1 3 1983 Selenium N.D. N.D. Goldbarg - Zbino Assoc. of New York, P.C. ilver N.D. N.D. Thallium N.D. N.D. inc N.D. N.D.

> Bernard J Gracza/ Ph.D. Dir., Enveronmental Laboratory

APPENDIX B

TEST PIT LOGS TP-III - TPIII-23

July 18, 1985 and July 19, 1985

COPY

		TES	T PIT	FIELD	LOG				
l	G · ZOINO & A: NICAL/GEOHYDI ANTS	ROLOGICAL [DESCRIPTION _	Park Buffalo, Ne	w York	FI		T No. <u>II</u> <u>R5669</u> /18/85	[-]
	SINEER <u>G. Kl</u> R <u>Clear & W</u>	arm OPI	EXCAVAT NTRACTOR Am PERATOR Gene KE Lase PACITY	ION EQUIPME herst Construc Ward MODEL cuyd REACH	N.T tion, Inc. 580 14 ft.	TIN		EV. TED <u>8:30</u> LETED <u>9:</u> (00
DEPTH		SOIL	DESCF	RIPTION			EXCAV. EFFORT	COUNT	REMARI No.
 ı'				Sand and Silt , roots, and w			М	6 A	
2' —				inders, sand, oncrete-like π			E		-
3, —		. frequent r	ust stained	slag			E		
4'		. occasional el size frag		rust stained	soils, some		E		
5'							E		
7'			Bottom of H	ole 6.5 Feet		,	<u>E</u>		1,2
— 10, — — 3, — — 8, —	bou of	ndary betwee	n fill and :	epresent the a soil types at al transition	the locatio				
— II' <i>—</i> — I2' —					Ç.(C		Pr		
13' 14'									
REMAR				age at 6.0 fee for pH measure		fi	eld		
TEST J NO VOLUME	PIT PLAN 10'	LEGEND: BOULDER C SIZE RANGE CLASSIFICATION 6"-18" 18"-36" 36" AND LARGER	A 1	PROPORTION: USED TRACE (TR.) 0 - 10 LITTLE (L1.) 10 - 2 SOME (SQ.) 20 - 3 AND 35 - 5	F - FINE M - MEDIU C - COAR F/M - FINE O% F/C - FINE V - VERY GR GRA	IM SE E TO E TO Y	MEDIUM COARSE	D	RT SY DERATE

		TE	ST F	PIT	FIEL	_D	LOG				
1								FIL DA	.E No.	T No. <u>I</u> <u>R5669</u> 7/18/85	II-2
		rear, warm	EXC CONTRACTOR OPERATOR MAKEC CAPACITY _	AVATI R Amh Ge ase	мо	DDEL _	580 ~ 14 ft		OUND EL E START		
DEPTH		SOIL	DES	SCR	IPTIC	N			EXCAV. EFFORT	BOULDER COUNT QTY. CLASS.	REMARK No.
 		Miscellaneous mixed bricks,							М	~ 3 A	
2'		fragments	Concrete	-, wood	ı, yrave	1 3126	Stolle		Ε		
з'									Ε		
4'									Ε		_
- '									Ε		
— 6' —		Miscellaneous intermixed wi	th dark p	urple	fiberous	s sludg	ge, occasio		Ę		2
_1		pockets of cland no petroleum		, over	all oil	y appea	arance wit	h	Ε		
7' —									E	_	1
		Во	ttom of H	lole 8.	.0 ft.						
9,											
<u> </u>	·	The stratifica boundary betwe	tion line	es repr	resent t	he appi	roximate	ŀ			·
II'		of the test pi that shown.	t. The a	ectual	transit	ion may	y vary fro	m			
12' —						,			7.57		
— I3' —						(:					
14' —							ning tagger in	1			
REMAR	KS: 1	•			for pos	sible a	analytical	tes	ting		
TEST	PIT PL	AN LEGEND		<u> </u>	ROPOR	TIONS	ABBRE	VIA	TIONS	EXCAVA	TION
1	8'	BOULDER	COUNT		USE	D	F-FINE	м	 [EFFO	
3'		SIZE RANG CLASSIFICATION	ON DESIGNA	TION! '''	ACE (TR.)		C - COARS	SE TO I	MEDIUM	_	SY DERATE FICULT
NO.	タ) RTH	6" - 18" 18" - 36"	A B	:	ME (SQ)		1 : / 0 : 1 : 1 :			GROUNDW ELAPSED	ATER
VOLUME :	_	_cu.yd. 36" AND LARG	SER C	AN	ID	35 - 50%		WN.		TIME TO ZE READING (HRS.)	₹G.W.L

.

.

	T	EST PIT	FIE	_D L	.OG				
GOLDBERG · :	ZOINO & ASSOC., INC		PROJEC	T T		TEST PI	T No. II	I-3_	
	AL/GEOHYDROLOGICAL	DESCRIPTIO	N New Buf	falo Ind	ustrial I	FILE No.	R5669		
CONSULTANT		LOCATION	Park	ıffalo. N		DATE _Z			
		EXCAVA CONTRACTOR							
GZA ENGINE	EER <u>G. Klawinski</u>	CONTRACTOR OPERATOR	Amherst Co Gene Ward	nstructi	on, Inc. '	GROUND EL	TED <u>9:30</u>		
WEATHER _	Clear & <u>Warm</u>	MAKE <u>Case</u>			<u>80 </u>	TIME COMPLETED 10:00			
		CAPACITY			4 ft_		BOULDER		
DEPTH	SOI	L DESC	RIPTIC	N		EXCAV. EFFORT	COUNT	REMARI No.	
o xxx							QTY. CLASS.		
Ⅰ . ※	Miscellaneous Miscellaneous				d Sand,	M			
<u></u> ⊢ ı' — XX	with numerous	bricks and c	inders thr	rouhout		13			
I .	Isolated pock	et of purple	waste 3"	in diame	ter	E			
<u> </u>		, ,						-	
3'						E			
	XXXI								
4' XX	*** — —					E			
	Miscellaneous	Fill, black.	intermiye	d cinder	s. Sand.	_			
5' 	and Gravel si					E			
l . 🕸	appearance	E							
— е, — XX									
l _, 🔆	XXX					√ / F			
- · · - · · · · · · · · · · · · · · · ·						ìi			
a'	XXXI			5 3	<u>-77 11</u>	E			
						_			
— ə, — 						E			
		Bottom of	Hole 9.0	ft.					
lo, —									
	The stratific	ation lines r	epresent t	he appro	ximate				
	boundary betw	een fill and	soil types	at the	location				
12' —	of the test p	it. The actu	al transit	ion may	vary from				
	Silat Silowii.								
13'									
14 —									
REMARKS	3: 1. Slight ground	d water seepa	ge at 9.0	feet					
			J						
TEST PIT	PLAN LEGEN):	PROPOR	TIONS	IABBREV	IATIONS	I EXCAVA	TION	
	BOULDER		USE		F - FINE		EFFO		
3' //////	SIZE RANG	SE LETTER	 TRACE (TR.)	0 - 10%	M- MEDIUM C - COARSE		E EAS		
T - W///	CLASSIFICAT	TON DESIGNATION A	LITTLE (L1.)		F/M -FINE 1	TO MEDIUM	D DIF	FICULT	
'		• •	SOME (SQ)		V- VERY	IU WARSE	IGROUNDW IELAPSED	ATER	
NORT	7	_	AND	35 - 50%	' GR GRAY BN BROWN	4		 ZG.₩.L	
VOLUME = 8	3.0 cu.yd.		•	_	YEL YELL	-ow	(HRS.)	f	

		TE	ST PIT	FIEL	_D L	.OG				
	NICAL/GE	ASSOC., INC		Park <u>Buffalo.</u> N	f <u>alo Ind</u> ew York		FIL	_E No.	T No. <u>II</u> <u>R5669</u> 7/18/85	
			EXCAVA CONTRACTOR GE OPERATOR CASE CAPACITY	<u> </u>	ODEL5	on, Inc. 80	GRO TIM	00		
DEPTH		SOIL	DESC	RIPTIC	N			EXCAV. EFFORT	BOULDER COUNT QTY, CLASS.	REMARK No.
ı'		Miscellaneous mixed bricks, gravel size ma	wire, pieces	Silt and of concre	Sand wit te (<6")	th inter- , and	:	M		
— 2' — — 3' —		-Layer of black	k asphalt					M		-
4' 5'	XXXXXX	Clayey <u>SILT</u> , b	orown, some f	fine Sand,	little 6	Gravel,		M M		
— 6' —								D		1
_,			Bottom o	of Hole 6.0) f t.					
7 8'			ction in bott rexcavation	om of test	: pit pre	evented				
— 10, — — a, —		The stratifica boundary betwe of the test pi from that show	en fill and t. The actua	soil types	at the	location				
— II' — — I2' —			; ; t ; s		DY					
— 13' —				**						
REMAR	KC.	1. Slight grou	nd water seep	nage enteri	ina test	pit at 6	5.0	ft.		
NEWAR	N3.	1. Strynt grou	na water seep	ouge enter	9 3237	p. 0 00 0				
4	8'	BOULDER SIZE RANG	COUNT E LETTER ON DESIGNATION A	PROPORTUSE TRACE (TR) LITTLE (LI.) SOME (SQ)	D 0 - 10% 10 - 20%	F-FINE M-MEDIUM C-COARS F/M-FINE F/C-FINE	M E TO	MEDIUM		RT SY DERATE FICULT

SOME (SQ.) 20-35% V- VERY GR.- GRAY

35 - 50% | BN. - BROWN YEL. - YELLOW

ELAPSED TIME TO READING (HRS.)

<u>₹</u> G.W.L

18"-36"

36" AND LARGER

8

AND

NORTH

VOLUME = 7.1 cu.yd.

	TE	ST PIT	FIEL	.D L	.OG			
GOLDBERG · ZOINO GEOTECHNICAL/GE CONSULTANTS	•	DESCRIPTIO LOCATION	Park		ustrial F	ILE No.	T No. <u>II</u> <u>R5669</u> 7/18/85	I-5
GZA ENGINEER _		EXCAVA CONTRACTOR GE OPERATOR GE MAKE Case CAPACITY		DEL 580	т	ROUND EL IME START IME COMP	7.0.0	
DEPTH	SOIL	DESC	RIPTIO	N		EXCAV. EFFORT	BOULDER COUNT QTY. CLASS.	REMARK No.
1, —	Miscellaneous intermixed bri fragments							
2' —						E		_
4'-	overall					E		
5'-	metal, occasionaterial	onal slag, po	ckets of b	lack aspi	halt	<u>Е</u> Е		
7'						E		1
8'		Bottom of	Hole 7.0 fe	eet				
9'	The stratification boundary between of the test properties from that show	en fill and t. The actu	soil types	at the	location			
11' —				Y				
12' 13'				لمة				
<u>14'</u>								
REMARKS:	1. Rust stair	ed ground wa	ter seepage	e at 7.0	feet.			
TEST PIT PL 8' 3' NORTH VOLUME = 6.2	BOULDER SIZE RANG	COUNT E LETTER ION DESIGNATION A B	PROPORT USE TRACE (TR.) LITTLE (LI.) SOME (SQ.) AND	D 0 - 10% 10 - 20%	ABBREVI F - FINE M - MEDIUM C - COARSE F/M - FINE TO F/C - FINE TO V - VERY GR GRAY BN BROWN YEL YELLO	D MEDIUM D COARSE	EFFO E — EA: M — MO D DIF GROUNDY ELAPSED	RT SY DERATE

		TEST	PIT	FIELD	LOG				
	G ZOINO & ASSOC., NICAL/GEOHYDROLOG NTS	CAL DESC	PROJECT DESCRIPTION New Buffalo Industrial Park Buffalo, NY			FI	TEST PIT No. <u>III-6</u> FILE No. <u>R5669</u> DATE <u>7/18/85</u>		
EXCAVATION EQUIPMENT GZA ENGINEER G. Klawinski contractor Amherst Construction OPERATOR Gene Ward WEATHER clear, warm MAKE Case MODEL 580 CAPACITY cuyd REACH1					ruction, Inc				
DEPTH	S	SOIL DE	ESCR	IPTION			EXCAV. EFFORT	LUUUNI	REMARK No.
		Miscellaneous Fill, gray, Silt and Sand, some Gravel; intermixed with frequent pieces of slag, concrete, bricks and asphalt							
2'									
3'							M		<u> </u>
4' —							М		
5'							M		
— e' —	****						М		1
		Bottom	of Hole	6.0 ft.					
· .	Note: Bo	oulders prev	ented fu	rther excava	ation				
10, 8,	The stratification lines represent the approximate boundary between fill and soil types at the location of the test pit. The actual transition may vary from that shown.								
12'	COPY								
<u> </u>									
<u> </u>									
REMAR	KS: 1. Slight	ground wate	r seepag	e at 5.5 fo	eet				
3	BOUL SIZE CLASS 6'	END: DER COUNT RANGE LE IFICATION DESIGN -18" -36" ID LARGER	TTER TREMETER	TTLE (LI.) 10 -	F - FINI M - MED C - COA F/M - FI 20% F/C - FI	E NUM RSE NE TO NE TO Y AY	MEDIUM COARSE	GROUNDY ELAPSED _	RT SY DERATE

.

		TE	ST F	PIT	FIE	_D	LOG				
		& ASSOC., INC			ROJE					T No. II	
GEOTECHI		OHYDROLOGICAL	LOCATIO		New But Park		<u>ndustria</u> l falo, NY		LE No.	<u>R5669</u> 7/18/85	
				-	ON EQU		T tion, Inc				
			OPERATOR C	Ge	<u>ne Ward</u>			TI		EV TED <u>11:</u>	30
WEATHE	R <u>clea</u> n	r, warm	MAKEU CAPACITY _	ase		ODEL EACH	580 ~14 ft	- TII	ME COMP	LETED _12:	00
DEPTH — 0 —		SOIL	DE:	SCR	IPTIC	N			EXCAV. EFFORT	COUNT QTY. CLASS.	REMARK No.
i'		Miscellaneous frequent inter			wn, Sil	t and S	and with		м		
2'									М		
3'		Miscellaneous brick fragment		rown, C	layey S	ilt wit	h intermi	xed	E		
a'			-						E		
5'									Е		
اء ا									E		
6 7'		Clayey <u>SILT</u> , b	rown, so	ome San	d, litt	le Grav	vel, moist	;	E		1
— 8' —			Bott	om of l	Hole 7.5	 5 ft.			E		2
— 10, — — a, —		The stratifica boundary betwe of the test pi from that show	en fill t. The	and so	il types	s at the	e locatio	n			
— 12' —					5.4F	P	Y				
— 13' —					· \ <u>-</u>	لأس	1				
14' —											
REMAR	KS: 1.	Ground water	50003.70	at 7 (\						
INC.WAT	2.					ft. for	in-situ	рН п	neasure	ment	
TEST	PIT PL	AN LEGEND	<u>:</u>	<u> </u>	ROPOR		1	EVIA	ATIONS	EXCAVA	
3'	6' 	BOULDER SIZE RANG CLASSIFICATIO 6"-18"		ER TION TR	<u>USE</u> ACE (TR.) TTLE (LI.)	0 - 109	F - FINE M - MEDI C - COAF F/M - FIN F/C - FIN	RSE IE TO	COARCE		SY DERATE FICULT
	RTH	18" - 36" 36" AND LARG	B SER C	so an	ME (SQ)	20 - 35 % 35 - 50%	GRGRA	Y WN		ELAPSED TIME TO READING	2 G.W.L
VOLUME:	<u></u> (cu.yd.		•			YEL YI	LLLO	w	(HRS.)	

	TEST P	IT FIELD	LOG					
GOLDBER	G - ZOINO & ASSOC., INC	PROJECT		TEST PI	T No. <u>II</u>	I-8		
1	,	TION New Buffalo	<u>Industria</u> l 1	FILE No.	ILE No. <u>R5669</u>			
CONSULTA	INTS	Park Buff	alo, NY I	DATE	ATE7/18/85			
CTA ENC	EXCAINEER G. Klawinski contractor	AVATION EQUIPMEN Amherst Construc	NT Inc	GROUND EL	EV			
	OPERATOR -	Gene Ward	580	TIME STAR	TED 12:00			
WEATHE	R <u>clear, warm</u> make <u>Ca</u> CAPACITY <u></u>	SE MODEL - cuyd. REACH	~14 ft_	TIME COMP	LETED12	: 30		
DEPTH	SOIL DES	CRIPTION		EXCAV. EFFORT	BOULDER COUNT QTY. CLASS.	REMARI No.		
— ı, —	Miscellaneous Fill, gra with frequent pieces of			1; _M				
2'	asphalt			Ε				
3¹				Ε				
4'	Possible <u>Industrial</u> <u>Fi</u> material		ıs sludge	Ε		2		
5'	Miscellaneous Fill, gr		ing. Silt	<u>E</u>		3		
— 6' —	and Sand, little Gravel			E				
7' —				Е		1		
8,	Bottom	of Hole 7.0 ft.						
9'								
10'			D.C. 17					
			2					
12'		and the second of the second o	_					
— 13 ¹ —								
— 14' —								
REMAR	KS: 1. No ground water seepa	ge observed						
	2. Sample collected from 3. Sample collected from	i 3.5 ft. for possi						
TEST	PIT PLAN LEGEND: 10 BOULDER COUNT	PROPORTIONS USED	F - FINE	IATIONS	EXCAVA EFFO			
3.5	SIZE RANGE LETTER		F/M -FINE T	O MEDIUM	D	DERATE FICULT		
) ""	SOME (SQ) 20-35	V- VERY		GROUNDW ELAPSED	ATER		
VOLUME :	7 1 7	AND 35 - 50	% BN BROWN			<u>Z</u> G.₩.L		
AOLOWE :	= 9.1 cu.yd.		YEL YELL	.OW	(HRS.)	•		

	TE	ST PIT	FIELD	LOG					
GOLDBERG · ZOING	B ASSOC., INC		PROJECT				T No. <u>II</u>	[-9	
GEOTECHNICAL/GI	EOHYDROLOGICAL	DESCRIPTION	Park	<u>Industrial</u>			<u>R5669</u>		
CONSOLIANTS		LOCATION _		lo, NY	DA	TE _7/	/18/85		
GZA ENGINEER .			TION EQUIPME merst Construc ne Ward	tion, Inc.		ROUND ELEV			
WEATHERC	lear & Warm	MAKE Case	MODEL	580			LETED 14:		
		CAPACITY	- cu.yd. REACH	14 <u>ft.</u>			BOULDER		
DEPTH	SOIL	_ DESCI	RIPTION			EXCAV. EFFORT	COUNT QTY. CLASS.	REMARI No.	
0	Asphalt								
ı' 	Miscellaneous	Fill, gray, S	Silt and Sand,	little Grav	el:	М			
.	intermixed wit	h occasional	asphalt and ro	oots		M			
2' — 💥									
	black, o		t stained pock	cets		E		3	
	1	·			. '	-			
4' —	Miscellaneous intermixed rus				h	E			
5'XXXX	material		,, eg, ee g. e			<u>E</u>			
I						_			
— е' — ЖЖЖ						<u> </u>			
						E		1,2	
		Bottom of	Hole 7.0 feet						
— 8' —									
9' —	The stratifica boundary betwe								
	of the test pi	t. The actua						-	
10'	from that show	n.							
L_ 11' _				7/7/2					
1				7) Y			ļ		
- 12'				:					
13'									
REMARKS:	1. Ground water	seepage at 7.	0 feet						
	2. Ground water 3. Sample collec						-		
	- Tampie correc				.α ι	<u></u>			
TEST PIT PI	LAN LEGEND	<u>:</u>	PROPORTION		VIA	TIONS	EXCAVA		
10'	BOULDER	COUNT	<u>USED</u>	I F - FINE			l <u>EFFO</u>		
3.		ON DESIGNATION	TRACE (TR) 0 - I	F/M-FINE	E TO		MMO	DERATE FICULT	
T O	6"-18" 18"-36"	- :	SOME (SQ) 20-3	5% V- VERY			GROUNDY	<u>/ATER</u>	
NORTH VOLUME = 7.8	_cu.yd. 36" AND LAR			GR GRA 60% BN BRO YEL YE	WN		TIME TO TEADING	 G. W .L	
				122 12		··	(HRS.)		

		TE	ST PI	T FIE	LD L	.OG				
	NICAL/GEOH	ASSOC., INC	DESCRIPTION	PROJE ON <u>New Bu</u> Park	ffalo Ind		FIL	E No.	T No. <u>II</u> <u>R5669</u> 7/18/85	
	INEER <u>G. k</u> R <u>clear.</u>	warm	EXCAV CONTRACTOR _ OPERATOR _ MAKECas CAPACITY	Gene Ward	ONSTRUCTI	on, Inc.			EV	
DEPTH		SOIL	DESC	CRIPTION	NC			EXCAV. EFFORT	BOULDER COUNT QTY. CLASS.	REMARI No.
ı' 2'	Mi ir	iscellaneous iscellaneous ntermixed wit ents	Fill brown-	gray Claye	y Silt an	ıd Sand;	g-	D M E		
3' 4' 5'		uspected <u>Indu</u> ittle Silt; i						E E		2
7' 8'			Pottom 6	of Hole 7.5				E E		1
— 10' — — 9' —	bo of	ne stratifica Dundary betwe f the test pi rom that show	tion lines en fill and t. The act	represent	the appro	location				
— 13, — — 15, —						√ √ 2				
REMAR	RKS: 1.	Ground wate Sample coll			or possibl	e analyt	ica	l test	s.	
3' NO	PIT PLAN 10'	BOULDER SIZE RANG CLASSIFICATI 6"-18" 18"-36"	COUNT E LETTER ON DESIGNATIO A B	LITTLE (LI.	ED) 0-10%	F - FINE M - MEDIUI C - COARS F/M - FINE F/C - FINE V - VERY GR GRAY	M SE TO TO	MEDIUM COARSE	D	RT SY DERATE FICULT

		TE	ST	PIT	FIEL	D L	OG				
l	NICAL/GE	& ASSOC., INC	LOCATI	IPTION ON <u>Buf</u>	PROJECT New Buff Park falo, New	alo Indu v York	ustria]	FILE	E No.	No. <u>II</u> <u>R5669</u> 7/18/85	
GZA ENG WEATHER		ır, warm	CONTRACT OPERATOR	one Ami	ON EQUIF herst Con ne Ward MOD cuyd REA	Struction 58	on, Inc. 80 14 ft	TIME		EV TED14:4 _ETED15	
DEPTH		SOIL	_ DE	SCR	IPTIOI	N			EXCAV. FFORT	BOULDER COUNT QTY. CLASS.	REMAR No.
ı' —		Miscellaneous with frequent	cobbles	and bo	ulders, o				D		
2'		pockets of bro	wn Clay	ey Silt					D	3-A	
з'								-	D D		1, 2
4'	XXXXXXI		Botte	om of H	ole 4.0 f	t.					1, 2
— 5' — — 6' — — 7' —		The stratification boundary between of the test pifrom that show	en fill t. The	and so	il types	at the	location				
10, 8,				Q(()P	Y					
 									_		
<u> </u>											
14'											
REMAR		 Ground wate Ground water 	r seepag Seepag	e conta e sampl	ining oil e collect	at 4.0 ed for	ft. in-situ	pH m	easur	ements.	
5'	PIT PL 10'→ → RTH = 7.4	BOULDER SIZE RANG CLASSIFICATI 6"-18" 18"-36" 36" AND LAR	COUNT E LET ON DESIGN A	TER TRAITION LI'	PROPORT USED ACE (TR.) TTLE (LI.) DME (SQ.) ND	0 - 10% 0 - 20%	F - FINE M - MEDIU! C - COARS F/M - FINE F/C - FINE V - VERY GR GRAY BN BROW YEL YEL	M E TO M TO C	MEDIUM COARSE	D DIF GROUNDY ELAPSED	RT SY DERATE FICULT

	TEST PIT FIELD LOG			
1	IICAL/GEOHYDROLOGICAL DESCRIPTION New Buffalo Industria FII		T NoII R5669 	
	NEER G. Klawinski contractor Amherst Construction, Inc. GROUPERATOR Gene Ward	ME STAR	EV. TED 15:1	
DEPTH	SOIL DESCRIPTION	EXCAV. EFFORT	LUUNI	REMAR No.
	Miscellaneous Fill; intermixed bricks, sand, and Gravel	М		
2'	Miscellaneous Fill, black, foundry (?) sand, cinders, ash, and gravel size material with random pockets of apparent tar	E		
3'		Ε		3
١		E		1
	Clayey <u>SILT</u> , brown, some Sand, little Gravel, moist	E		
5 —	grading to gray-green with possible oil staining	E		2,
6, —	Bottom of Hole 5.5 ft.		,	
8' — 9' —	The stratification lines represent the approximate boundary between fill and soil types at the location of the test pit. The actual transition may vary from that shown.			
10' 11'				
— 12' —				
— 13' —				
14' 	•			
REMAR	 KS: 1. Slight ground water seepage containing oil at 3.5 ft. 2. Water sample collected at ~5' for in-situ pH measures 3. Sample collected from ~3.0 ft. for possible analytica 4. Sample collected from ~5.5 ft. for possible analytica 	al test	ing.	
1 7 7 -	DIT PLAN LEGEND: BOULDER COUNT SIZE RANGE LETTER CLASSIFICATION DESIGNATION TRACE (TR.) 0 - 10% C - COARSE F/M - FINE TO F/C	MEDIUM COARSE	EXCAVA EFFO E — EAS M — MO D DIF GROUNDW ELAPSED	RT SY DERATE

	TE	ST PIT	FIELD	LOG				
		LOCATION _		York	FILE NO	7/18/85	II-13	
l	clear, warm	EXCAVA CONTRACTOR OPERATOR MAKECase CAPACITY	TION EQUIPME Amherst Const Gene Ward MODEL cuyd REACH		TIME STA	LEV. RTED <u>15:</u> PLETED <u>16</u>		
DEPTH	SOIL	DESC	RIPTION		EXCA\ EFFOR	· I CODINI I	REMARK No.	
	Miscellaneous mixed wire and	Fill, gray, S I frequent bri	Silt and Sand, icks	with inter-	E			
3'					E			
4' —	Miscellaneous	Miscellaneous Fill, black, Sand and Gravel; with						
e, —	Y Y Y Y .	apparent bottom ash and cinders						
8'					E			
10, a,		Bottom of	Hole 9.0 ft.		E		1	
— II' — — I2' —	The stratification boundary between of the test properties from that show	en fill and sit. The actua		the location				
— 13' — — 14' —								
REMARKS	: 1. No ground wa	ter seepage ol	oserved.					
TEST PIT - 11' - 4'	6" - 18" 18" - 36"	COUNT E LETTER ON DESIGNATION A B	PROPORTION USED TRACE (TR.) 0 - 10 LITTLE (LI.) 10 - 2 SOME (SQ.) 20 - 3 AND 35 - 5	F - FINE M - FINE M - FINE C - COARS F/M - FINE F/C - FINE V - VERY GR GRAY	M SE TO MEDIUM TO COARSE	GROUNDW ELAPSED	RT SY DERATE FICULT	

	TE	ST PI	T FIE	LD L	.OG				
	O & ASSOC., INC	DESCRIPTI LOCATION	PROJE ON <u>New Buf</u> Park Buffalo,	falo Indu	ustrial	FIL	ST PI E No. TE	T NoI R5669 7/19/85	II-14
GZA ENGINEER WEATHER		EXCAV CONTRACTOR OPERATOR GE MAKE Case CAPACITY	N	ODEL	ion, Inc. 580 -14 <u>ft</u>	TIM	E STAR	0.00	
DEPTH 0	SOIL	DESC	CRIPTIO	N			EXCAV. EFFORT	BOULDER COUNT QTY. CLASS.	REMARK No.
1'-	Topsoil and Ro Miscellaneous with occasion	Fill, brown	n, clayey S				E E		
2' —	X X						E		,
4'	0.2' layer of	black oily	sand				E		
5'	Clayey <u>SILT</u> , moist	brown, litt	le fine Sar	id, trace	Gravel,		E	_	2
— e'—							<u>Е</u> Е	_	
7' —							E		1
9'	The short of		Hole 7.5 f						
10'	The stratifica boundary betwee of the test pi from that show	en fill and t. The act		s at the	location				
12'			$\bigcirc \bigcirc$		7				
13' 									
4'									<u> </u>
REMARKS:	1. Slight gro 2. Sample col	und water s lected from	eepage from 4.2 ft. fo	n 7.5 ft. or possib	le analyt	ica	l test	ing.	
TEST PIT P H 8'	6" - 18" 18" - 36"	COUNT E LETTER ON DESIGNATIO A B	PROPOF USI USI TRACE (TR) LITTLE (LI.) SOME (SQ) AND	0 - 10% 10 - 20%	F - FINE M - MEDIUI C - COARS F/M - FINE F/C - FINE V - VERY GR - GRAY	M SE TO TO	MEDIUM COARSE	D — DIF GROUNDY ELAPSED	RT SY DERATE FICULT

		TE	ST PI	T FIE	LD L	-OG				
	G · ZOINO & A NICAL/GEOHYD ANTS	- 1	DESCRIPTION	PROJE ON <u>New Bu</u> Buffalo,	iffalo Inc	dustrial	FILE	No.	No. <u>I</u> <u>R5669</u> 7/19/85	
	INEER <u>G. Kl</u> R <u>clear</u> ,	warm (EXCAV CONTRACTOR D DPERATOR CASE MAKE CAPACITY	Gene Ward	MODEL			START	ED 8:3	
DEPTH		SOIL	DESC	CRIPTION	NC			CAV.	BOULDER COUNT QTY, CLASS.	REMAR!
(' 		cellaneous ed pi <u>eces c</u>				th inter-	1	E		
2'		cellaneous ed bottom a			d Gravel;	with inte		E		_
— з' —							-	E		
4'								E		
5'								E		
6 7'	Cla	yey <u>SILT</u> , b	rown, littl	e Sand, tr	ace Grave	el, moist		E		1
8'			_ Bottom.o	f Hole 7.0	ft.					
— 9' —	bou	stratifica ndary betwee the test pi n that show	en fill and t. The act	l soil type	s at the	location				
10' 11'										
— 12' — — 13' —										
14'										
REMAR	KS: I. N	ground wa	ter seepage	observed.				İ		
4 4	PIT PLAN 9'	SIZE RANGE	N DESIGNATION A B	PROPOF USI TRACE (TR.) LITTLE (L1.) SOME (SQ.) AND	ED 0 - 10% 10 - 20%	ABBREN F - FINE M - MEDIUM C - COARSE F/M - FINE F/C - FINE V - VERY GR - GRAY BN - BROWN YEL - YELI	TO MEI	I DIUM I RSE (D —— DIF GROUNDW ELAPSED	RT SY ERATE FICULT

	TE	ST PIT	r FIEI	D_L	.OG			
GOLDBERG · ZOINO GEOTECHNICAL/GEOCONSULTANTS GZA ENGINEER cle	a ASSOC., INC OHYDROLOGICAL G. Klawinski ar, warm	DESCRIPTIO LOCATION EXCAVA CONTRACTOR OPERATOR MAKE CASE	PROJEC N New Burn Park Buffalo, TION EQU Amnerst Co Gene Ward	Tfalo Ind New York IPMENTi ODEL	ustrial FI DA on, Inc. GR	LE No.	7/19/85 EV	00
DEPTH		DESC			~14 ft. 11	EXCAV. EFFORT	BOULDER COUNT QTY, CLASS.	REMAR No.
ı' —	Miscellaneous wood, metal, h	<u>Fill</u> , Sand a pricks, pipes	and Silt; s	vith inte	rmixed on debris)	D		
2'			Tسر	PIII - 16		D		
3 - 4'		14//	→			D		
5'			////	Form Founda		D		
e'						D		1
7'		.Bottom of	Hole 6.0	rt.				
8' —	Note: Obstru	ction prevent	ted furthe	r excavat	ion			
— 10, — — a, —	The stratification boundary between of the test profession that show	en fill and t. The actu		at the	location			
— 11' — — 12' —				P	Ø.			
13'			97.5	A				
REMARKS:	1. No ground w	ater seepage	observed.					
TEST PIT PL	AN LEGEND	<u>:</u>	PROPOR	TIONS	ABBREVIA	TIONS	EXCAVA	TION
5 NORTH	6" - 18" 18" - 36"	E LETTER ON DESIGNATION A B	LITTLE (LI.) SOME (SQ)	0 - 10% 10 - 20% 20 - 35%	F - FINE M - MEDIUM C - COARSE F/M - FINE TO F/C - FINE TO V - VERY GR - GRAY	COARSE	D OF GROUNDY ELAPSED	SY DERATE FICULT VATER
VOLUME = 11.0	.cu.yd. 36" AND LAR	GER C	AND	35 - 50%	BN BROWN YEL YELLO	w	TIME TO PERENTE TO THE PERENTE TO TH	<u>2∕</u> G.W.L

	TES	T PIT	FIELD	LOG			
	LO	SCRIPTION _ CATION _Buf	ROJECT New Buffalo Park falo, New Yo	r <u>k</u>	FILE N	o. R5669 7/19/85	
GZA ENGINEER	G. Klawinski CONT	^	N EQUIPMEN herst Constr ie Ward MODEL - cuyd REACH	viction, Inc 580 ~14 ft	GROUND E TIME STA	RTED 9:	30
DEPTH	SOIL	DESCRI	PTION		EXCA EFFOR		HE MARK
	Miscellaneous Fil		and silt,	, some grave	el, E		
2' —	Y requerie britaks,	p1pc3, 11ccc			M D		
3, —							
4'					D		
5'					D		
7'-	<u> </u>	ack <u>and</u> oily			М		2
8,	Clayey <u>SILT</u> , brow overall slightly	m, little Sa plastic	and, trace Gr	ravel, moist	t, <u>E</u>		1
— a, —		Bottom of Ho					
10'	The stratification boundary between of the test pit. from that shown.	fill and soi		he location			
12'		\approx 1	a Py	7			
13' —				<u>ٿ</u>	ļ -		
14'					_		
REMARKS:	 Slight, black, Sample collecte 	water seepa ed from ~6.5	ge at 7.0 ft ft. for poss	sible analyn	tical te	sting.	
TEST PIT W 9' - 3' NORTH VOLUME = 8.	BOULDER CO SIZE RANGE CLASSIFICATION D 6"-18" 18"-36" 36" AND LARGER	UNT LETTER TRA	USED (CE (TR.) 0 - 10 TLE (L1.) 10 - 20 ME (SQ.) 20 - 35 D 35 - 50	F - FINE M - MEDIU C - COARS F/M - FINE F/C - FINE V - VERY GR GRAY	M SE TO MEDIUI TO COARS	GROUNDY GROUNDY	RT SY ODERATE FFICULT

TEST PIT FIELD LOG

GOLDBER	G . ZOINO & ASSOC.,	INC	PROJECT		TEST PI	T NoI	II-18		
	NICAL/GEOHYDROLOGIC	AL DESCRIPTION	New Buffalo	Industrial	FILE No.	LE No. <u>R5669</u>			
CONSULTA	NTS	LOCATION _	Buff	falo, NY	DATE	7/19/85			
GZA ENG	INEER G. Klawinsk	EXCAVA	TION EQUIPME Amherst Constru	NT uction, Inc.	GROUND EL	EV			
		OPERATOR	<u>iene Ward</u>		TIME STAR				
WEATHER	clear, warm	MAKE Case CAPACITY	MODEL cuyd. REACH	580 ~14 ft	TIME COMP	LETED <u>10:</u>	30		
DEPTH		OIL DESCR	DIDTION		EXCAV.	BOULDER COUNT	REMARK		
	3	JIL DESCI	THION		EFFORT	QTY. CLASS.	No.		
_ o _	XXXXXX								
ı'		ous Fill, brown,			M	_			
·		ntermixed with fr	requent timber	and pieces	of M		1		
— 2' —	wood wood				14		-		
	$\otimes \otimes \otimes$ timb	er contaminated v	with oil below	2.5 feet	М				
— 3' —	******						-		
ام	*******				M		2		
4									
5'					M	_			
, i					l M				
— 6' —	XXXXX	,			- 11		-		
_					М		1		
— 7 ⁻ —									
— в' —	XXXXX				М				
		Datta a	U-1- 0 0 6t						
— 9' —		BOTTOM OT	Hole 8.0 ft.				 		
.		fication lines re							
— 10' —		etween fill and s it pit. The actua							
ıı' -	from that	•							
			- am	> /					
— 12' —		(<u> </u>		
,_,		,							
13									
14'									
REMAR	KS: 1 614-b4		320		0 5+				
IVE WAI	1. 3119110	ground water seep collected from 4				ing.			
	,		•	•					
TEST	PIT PLAN LEG		PROPORTIONS	s labor	VIATIONS	EXCAVA	TION		
L			PROPORTION: USED	F-FINE	TIATIONS	EFF0			
17//	12'— BOUL!		TRACE (TR) 0 - 10	M - MEDIU		EEAS			
4.	CLASSII	CATION DESIGNATION	LITTLE (LI.) 10 - 20	F/M -FINE	TO MEDIUM		DERATE FICULT		
1 (10	SOME (SO) 30 3	1 17 0 11112	TO COARSE	GROUNDW	<u>/ATER</u>		

| SOME (SQ.) 20-35% | V- VERY | GR.- GRAY | AND | 35-50% | BN.- BROWN | YEL.- YELLOW

18"-36"

36" AND LARGER

NORTH

VOLUME = 14.2 cu.yd.

В

ELAPSED
TIME TO
READING

(HRS.)

						_					
_		TE	ST PIT	FIELD	LOG						
GEOTECHNICAL/GEOHYDROLOGICAL DESCRIPTION New Buffalo Industrial FIL			EST PIT No ILE No ATE								
CZA ENC	EXCAVATION EQUIPMENT GZA ENGINEER G. Klawinski contractor Amherst Construction, Inc. GROUND ELEV.										
OPERATOR Gene Ward							ME STARTED10:30				
WEATHER clear, warm MAKE Case MODEL 580 CAPACITY CU.Yd. REACH ~14 ft. TIME COMPLETED 11:00											
DEPTH	<u> </u>	SOIL	DESCR	IPTION			EXCAV. EFFORT	BOULDER COUNT QTY. CLASS.	REMARK No.		
		Topsoil, root Miscellaneous F cement and plec	s ill, gray, int es of concrete	ermixed brid	cks, wire,		М				
2¹	Miscellaneous Fill, black, Silt and Sand, little gravel; with intermixed cinders and bottom ash				Е						
3'							E				
4'		Clayey <u>SILT</u> ,		nd, trace Gr	avel, moist.	,	E				
5'		overall slightly plastic					E				
6'							E		1		
7' 		•	Bottom of	Hole 6.0 ft.							
٥'		The stratific	ation lines re	present the	approximate						
8 9'		boundary betw of the test p from that sho	it. The actua	1 transition	may vary	on [
10'					.77						
!i'				OP'	Ĭ						
— 12' —											
13'											
4' -	1										
DEMAG		1 No spanned .		ah aa waad				_			
REMAR		1. No ground w	ater seepage	observed 							
TEST .	PIT PL	AN LEGEND		PROPORTION	S ABBRE	VIA	TIONS !	EXCAVA	TION		
<u> </u>	8'	BOULDER	COUNT	USED	F - FINE		!	<u>EFF01</u>	<u>२ T</u>		
3'		SIZE RANGE	LETTER TE	ACE (TR.) O -		SE	.	E EAS	Y XERATE		
1	3	6" - 18"		TTLE (LI.) 10 - 2	F/M - FINE		coance I	DDIF	FICULT		
NO	RTH	18"-36"	8 SC	ME (SQ) 20-3	`		į	GROUNDW ELAPSED			
VOLUME :		cu.yd. 36" AND LARG	ER C A	ND 35-5		₩N	j	TIME TO 2	7 G.W.L.		
		,			122. 15			(HRS.)			

TE	ST PIT	FIELD	LOG			
GOLDBERG · ZOINO & ASSOC., INC GEOTECHNICAL/GEOHYDROLOGICAL CONSULTANTS	DESCRIPTION	PROJECT New Buffalo I Park Buffa	ndustrial	TEST PI FILE No. DATE		I-20
GZA ENGINEER G. Klawinski WEATHER _clear, warm_	EXCAVAT	ION EQUIPMEN mherst constru ene Ward model cuydREACH	580 ~14 ft	GROUND EL		
1	DESCF			EXCAV. EFFORT	BOULDER COUNT QTY. CLASS.	REMAR No.
	ts <u>s Fill</u> , brown, ri <u>ck</u> f <u>ragme</u> nt <u>s</u>	Silt and Sand	, intermixed	d E		
2'	Fill, dark b	-/ rown-black, Cla ckets of brown		E	1	
	morse wren po	ckets of brown	3,10, 014,	E		2
4' —				E		
6'			•	E		
7'.	Bottom of	Hole 6.5 ft.		E.		1
boundary bet	ween fill and oit. The actu	epresent the a soil types at al transition	the locatio	n		
— IO' —	·····	~∩P°	~			
12'	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \			-		
13' —						
	ater seepage	observed O ft. for poss	ible analvt	ical test	ing	
2. Sumpre corr						
TEST PIT PLAN BOULDER SIZE RANG CLASSIFICAT 6"-18" NORTH VOLUME = 5.8 cu.yd.	COUNT E LETTER ION DESIGNATION A B	PROPORTIONS <u>USED</u> RACE (TR.) 0 - 10 ITTLE (L1.) 10 - 20 SOME (SQ.) 20-35 AND 35-50	F - FINE M - MEDIUI C - COARS F/M - FINE W - FINE V - VERY GR GRAY	M EE TO MEDIUM TO COARSE	GROUNDY ELAPSED	RT SY DERATE

_		TE	ST PI	FIE	_D L	.OG			
	G · ZOINO 8. A NICAL/GEOHYD ANTS	DROLOGICAL	DESCRIPTION LOCATION	Park	falo Indu Buf <u>falo,</u>	NY		T No. <u>II</u> <u>R5669</u> 7/19/85	
l	INEER <u>G.</u> R <u>clear</u> ,	warm	EXCAVA CONTRACTOR COPERATOR MAKECase CAPACITY	Gene Ward	ODEL 5		GROUND EL TIME STAR TIME COMP	1.0	
DEPTH			DESC	RIPTIC)N		EXCAV. EFFORT	BOULDER COUNT QTY. CLASS.	REMARK No.
ı'			Fill, gray	-black, ci	nders, wi	re, botto	om E		
2'		. Silt and	Sand, slag				E		
3'	0.	2' layer of	white chal	ky materia	l with ru	ıst staini	ng E		2
4'		ayey <u>SILT</u> ,	gray-green,	little Sa	nd, trace	Gravel,	E	_	
5'	<u> </u>	<u></u>	Bottom o	f Hole 4.5	ft.		E·		1
6' —	boun of t	dary betwee	ion lines ren n fill and s . The actua	soil types	at the 1	ocation			
9' —		.`			PY				
10' —	-			Page 36	•			T -	
— 12' —									
13' —									
— 14' —							_		
REMAR	2. 3	Sample of wh	ter seepage ite chalky lytical tes	material fi	rom ~2.0	ft. colle	cted for		L
3' NO	PIT PLAN 7'	BOULDER SIZE RANGE CLASSIFICATIO 6"-18" 18"-36" 36" AND LARGE	COUNT E LETTER ON DESIGNATION A B	PROPOR USE TRACE (TR.) LITTLE (LI.) SOME (SQ.)	D 0 - 10% 10 - 20%	F - FINE M - MEDIUM C - COARSE F/M - FINE F/C - FINE V - VERY GR GRAY BN BROWN YEL YELI	TO MEDIUM TO COARSE	D - DIF GROUND W ELAPSED -	RT SY DERATE FICULT

	TE	ST PI	r FIELD	LOG		_		-
GOLDBERG · ZOINO GEOTECHNICAL/GE CONSULTANTS	COHYDROLOGICAL	LOCATION		fa <u>lo, NY</u>	FII DA	LE No.	T No. <u>II</u> <u>R5669</u> 7/19/85	
GZA ENGINEERC	ear, warm	EXCAVA CONTRACTOR OPERATOR MAKECase CAPACITY	ATION EQUIPME Amherst Constr Gene Ward MODEL cuyd. REACH	580 14 tt	TIN	ME STAR	EV. TED <u>13:</u> _ETED <u>14:</u>	30
DEPTH	SOIL	DESC	RIPTION			EXCAV. EFFORT	BOULDER COUNT QTY. CLASS.	REMARK No.
0	Misc. Fill, ხla	ck. intermix	ked Sand, cinde	rs and roots	3	Е		
2'	occasiona	l coal fragm	ments, gravel s	ize material	,	E		
3'						E		
4'-						E		
5'		Rottom of h	Hole 5.0 ft.			E		1
6' —	Note: Concrete		•	cavation				
	The stratificat boundary betwee of the test pit from that shown	n fill and s . The actua	soil types at t	he location				
— 10' — — 11' —		C		7				
— I2' —								-
13'								
REMARKS:	1. No ground v	water seepag	e observed.					
TEST PIT PL 10'	BOULDER SIZE RANG CLASSIFICATIO 6" - 18" 18" - 36" CLLYd.	COUNT E LETTER ON DESIGNATION A B	PROPORTION USED TRACE (TR.) 0 - 1	F - FINE M - MEDIU 0% C - COARS 0% F/M - FINE 10% F/C - FINE 10% V - VERY 10 GR GRAY	M SE TO TO	MEDIUM COARSE	D ——DIF GROUND W ELAPSED _	RT SY DERATE FIGULT

TEST PIT FIELD LOG

	G ZOINO & ASSOC., INC NICAL/GEOHYDROLOGICAL	PROJECT DESCRIPTION New Buffalo Industrial Park	FILE No.		
	INEER _G. Klawinski	EXCAVATION EQUIPMENT CONTRACTOR Amherst Construction, Inc. OPERATOR Gene Ward MAKE Case MODEL 580 CAPACITY CUYD. REACH ~14 ft.	TIME STAR	_	
DEPTH	SOI	DESCRIPTION	EXCAV. EFFORT	BOULDER COUNT QTY, CLASS.	REMARK No.
— u'—		Fill, black, intermixed Sand, cinders,	E		
2' -	coal fragment	s, and roots	E		_
3'	XXXI		E		
— 4' —		Fill, black-brown, Clayey Silt with oders and slag, damp	М		
. [— м		
— 5' — — 6' —	Clayey SILT, Overall sligh	prown-green, little fine Sand, moist	М		
7'			М		
— 8' —		Bottom of Hole 7.5 ft.	М		1
— 10' —	boundary betw	ation lines represent the approximate een fill and soil types at the location it. The actual transition may vary wn.			
_ ii' _					
— 12' —		COIL I			
— I3' —					
— 14' —					
REMAR	KS: 1. No ground	water seepage observed.			
NEWAN					
	6"-18" 18"-36"	COUNT USED F - FINE M - MEDIUM C - COARS F/M - FINE M - MEDIUM C - COARS F/M - FINE F/C - F	M E TO MEDIUM TO COARSE	D — DIF GROUNDW JELAPSED	RT SY DERATE FICULT

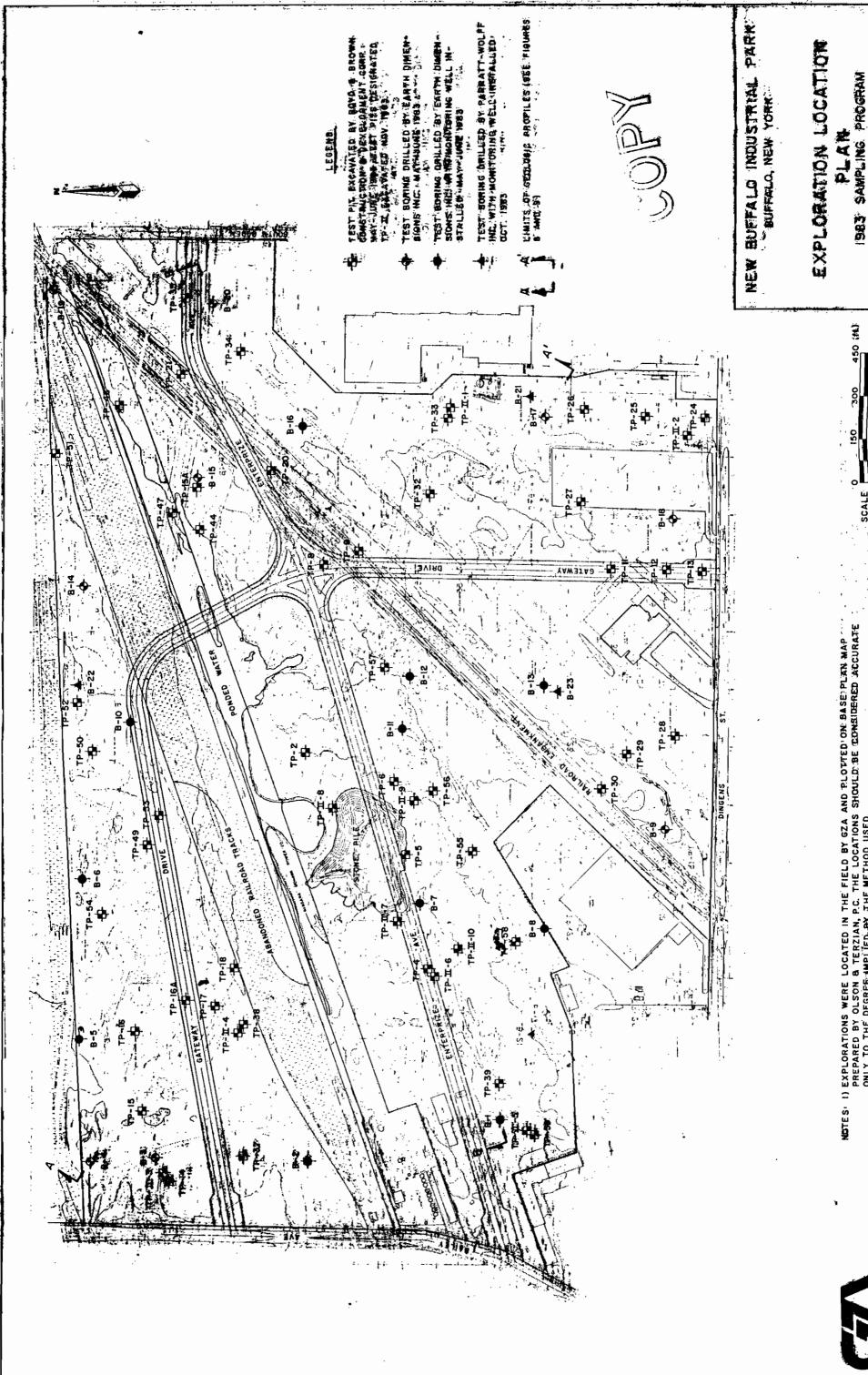


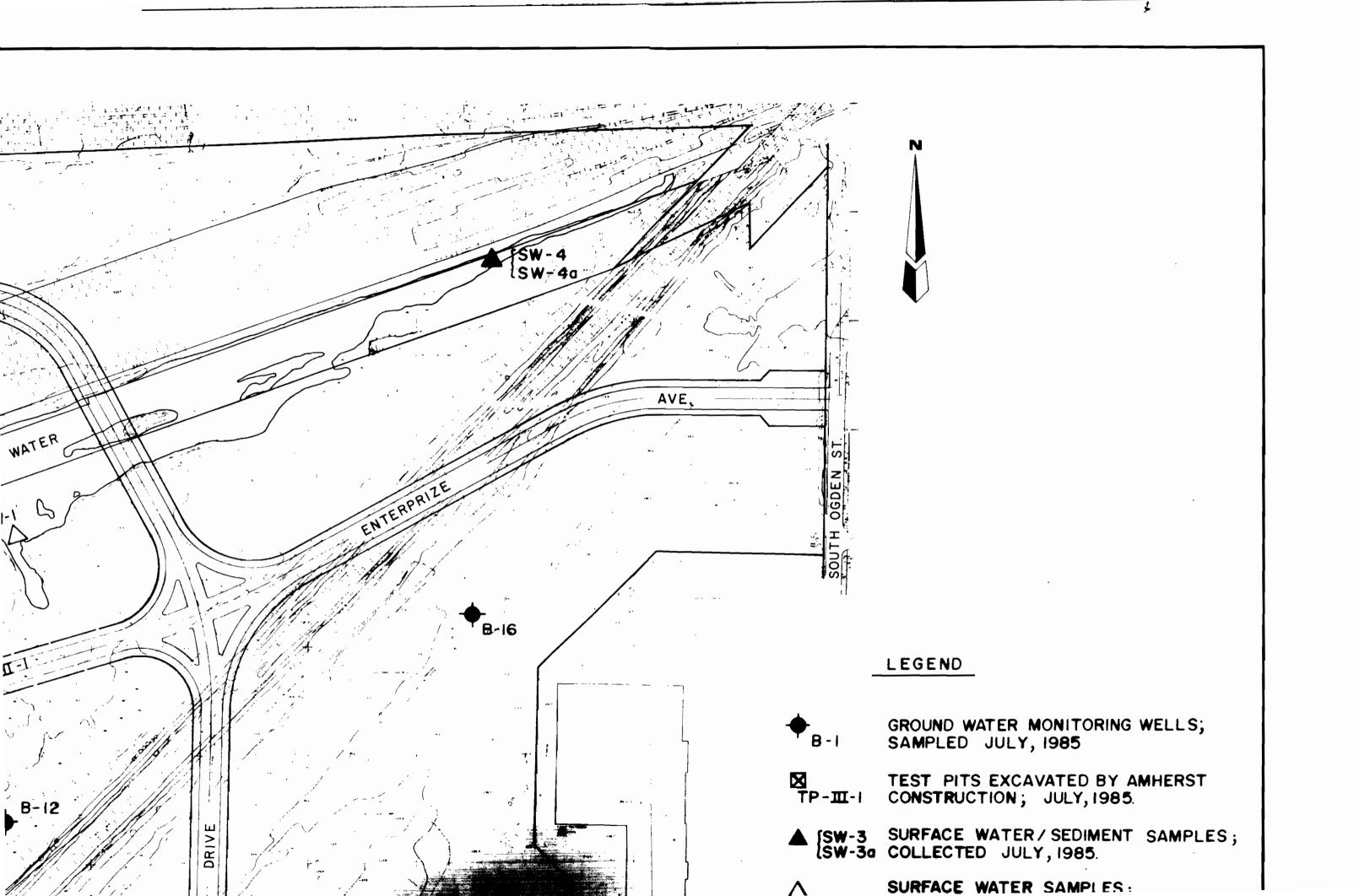
FIGURE No. 3

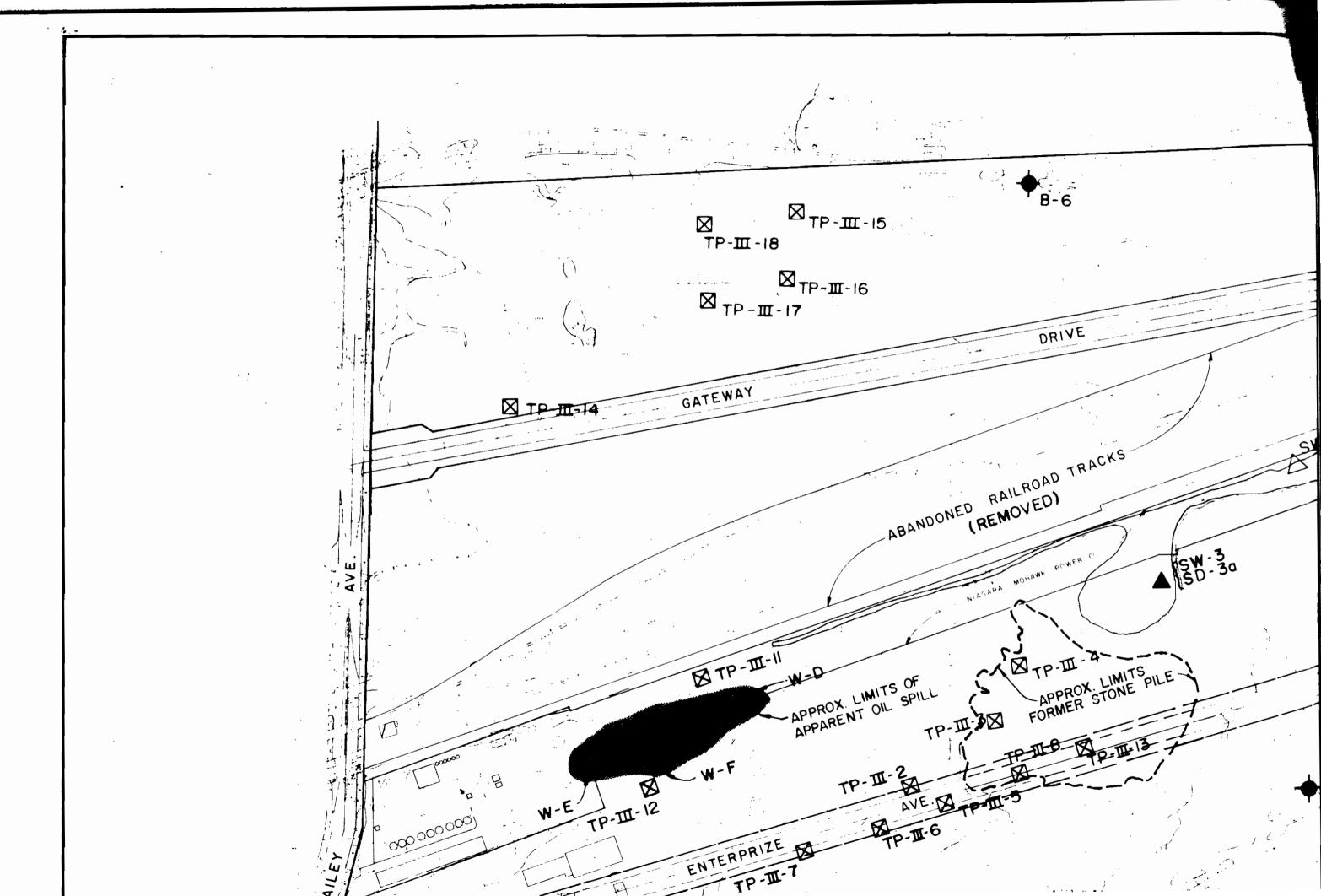
JANUARY 1984

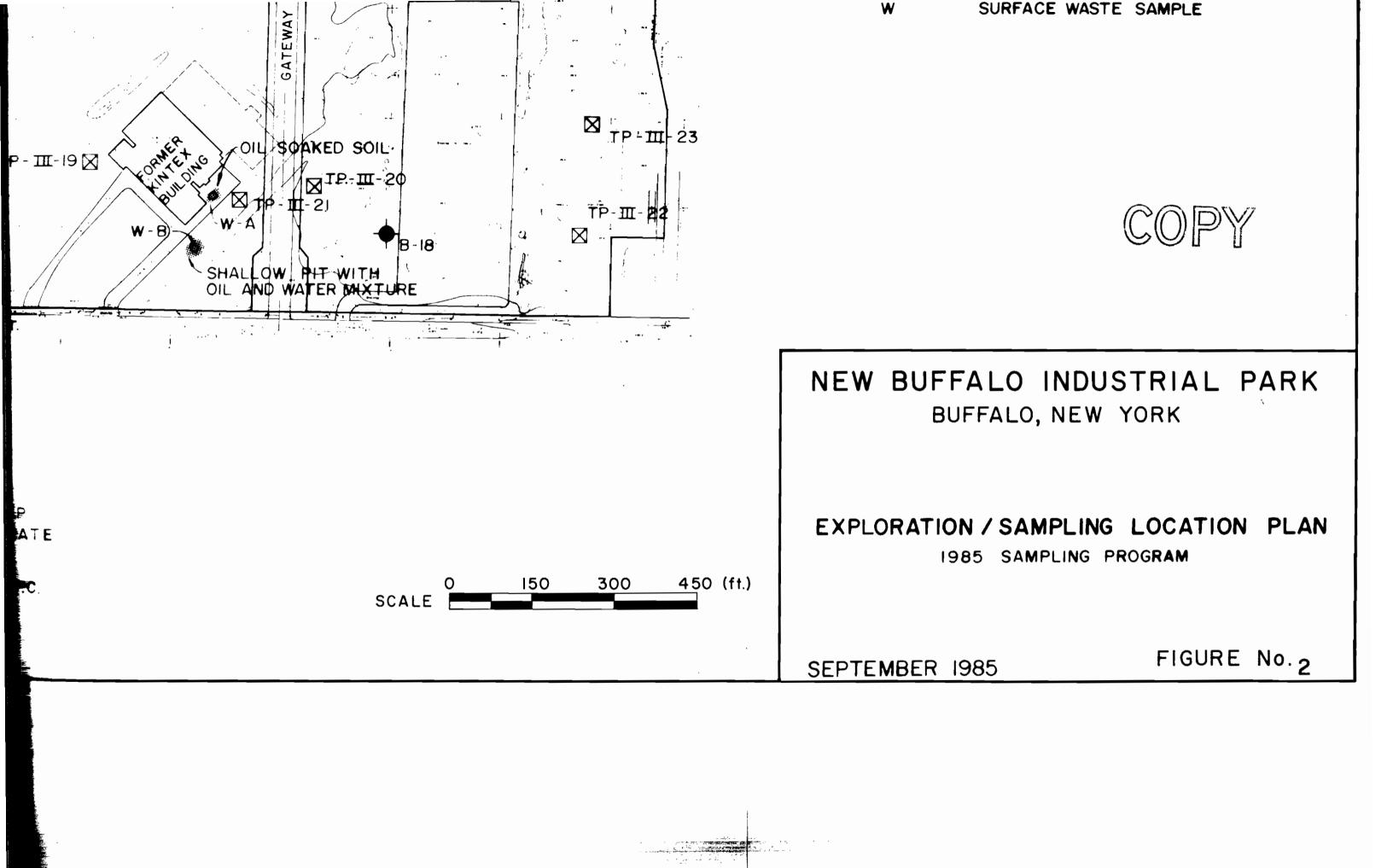
NOTES: 1) EXPLORATIONS WERE LOCATED IN THE FIELD BY GZA AND PLOTFED: ON BASE: PLAN MAP ...
PREPARED BY OLSON & TERZIAN, P.C. THE LOCATIONS SHOULD BE GONSIDERED ACCURATE ONLY TO THE DEGREE MPLIED BY THE METHOD USED.

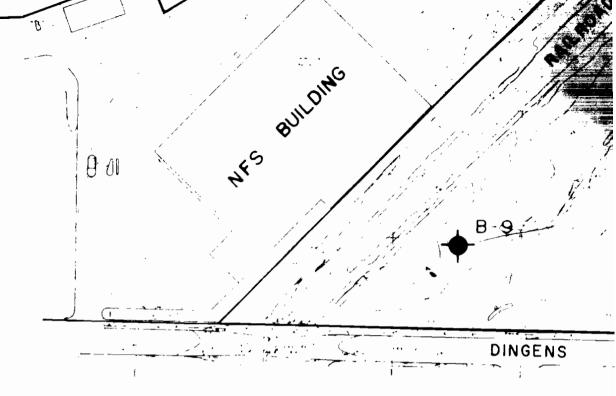
2) THIS DRAWING WAS ADAPTED FROM BASE PLAN MAP PREPARED, BYB DESON OR TERZIAN, P.C.E.

TAWING WAS ADAPTED FROM BASE PLAN MAP PREPARED, BYBOLSON BETERZIAN, POLIZEN









NOTES:

- I) EXPLORATIONS WERE LOCATED IN THE FIELD BY GZA AND PLOTTED ON BASE PREPARED BY OLSON & TERZIAN, P.C. THE LOCATIONS SHOULD BE CONSIDERED ONLY TO THE DEGREE IMPLIED BY THE METHOD USED.
- 2) THIS DRAWING WAS ADAPTED FROM BASE PLAN MAP PREPARED BY OLSON &