

SUMMARY REPORT
CONFIRMATORY ENVIRONMENTAL INVEST.

601 AMHERST STREET PROPERTY
(DRAFT)

June 1995

REPORT

WEGMANS FOOD MARKETS, INC.

PHASE I ENVIRONMENTAL SITE
INVESTIGATION
601 AMHERST STREET

PS 3 Analysis for VOC only
in Soil

Seeler Associates
ENVIRONMENTAL CONSULTANTS

March 1995

PRIVILEGED AND CONFIDENTIAL

June 95 Report

7 bore holes SS- 3, 6, 9, 10, 11, 22, 31

only 3 sampled SS- 9, 10, 31

B.7 Background samples not collected

Magavern, Magavern & Grimm, L.L.P.
1100 Rand Building
14 Lafayette Square
Buffalo, New York 14203

**Summary Report
Confirmatory Environmental Investigation
601 Amherst Street Property**

DRAFT

Soil Sampling near acetone contamination area

7 Borings → however only 3 soil samples.

*3 Soil Samples for TCK VOA
semi*

June 1995

Post./PCB's

TAL METALS Tolls 3

ACRES INTERNATIONAL CORPORATION
140 John James Audubon Parkway
Amherst, New York 14228-1180



Magavern, Magavern & Grimm, L.L.P.
1100 Rand Building
14 Lafayette Square
Buffalo, New York 14203

9:45

Summary Report
Confirmatory Environmental Investigation
601 Amherst Street Property

DRAFT

June 1995

Tim -
For your
review

M4

ACRES INTERNATIONAL CORPORATION
140 John James Audubon Parkway
Amherst, New York 14228-1180





June 15, 1995
P11276.20
T.15

McGavern, McGavern & Grimm, L.L.P.
Attorneys at Law
1100 Rand Building
14 Lafayette Square
Buffalo, NY 14203

Attention: Mr. Richard A. Moore

Summary Report
Confirmatory Environmental Investigations
601 Amherst Street Property

Dear Mr. Moore:

Please find enclosed two (2) copies of the Summary Report for Confirmatory Environmental Investigations at the 601 Amherst Street Property recently performed by Acres International Corporation. The work has been completed in accordance with the agreed upon scope as defined in Acres letter of April 26, 1995.

We will be scheduling a meeting with you to review the results. If you should have any questions in the meantime, please contact Mr. James Stachowski or me.

Very truly yours,

Kenneth F. Litfin
Project Manager

KFL/ljh
Enclosures

cc: Mr. Cole Bergan

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**Summary Report
Confirmatory Environmental Investigation
601 Amherst Street Property**

DRAFT

June 1995

ACRES INTERNATIONAL CORPORATION
140 John James Audubon Parkway
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1 Introduction

This Summary Report has been prepared for Magavern, Magavern & Grimm, L.L.P. (MM&G) by Acres International Corporation (Acres). The report presents the results of a limited confirmatory environmental investigation conducted by Acres during the period of May 1 through May 12, 1995 at the Campus Industries Building property located at 601 Amherst Street, Buffalo New York (see Figure 1).

Investigation activities were performed as recommended by Acres in a preliminary review report dated April 26, 1995, which reviewed earlier findings of Seeler Associates. These earlier findings were as reported in the Phase I - Environmental Site Investigation Report dated March 6, 1995, and the Additional Site Characterization Report dated March 27, 1995.

The work was performed in accordance with Acres proposal dated April 26, 1995 and subsequent discussions with Mr. Cole Bergan of Smith Metal Arts-McDonald Products and Mr. Richard Moore of MM&G.

The following sections summarize the objectives and scope, the results of the confirmation sampling and analysis, and the findings of the related investigation reviews.

2 Objectives and Scope

2.1 Objectives

The investigation objectives were to:

- Evaluate quality control procedures used by Seeler Associates during work performed for their Phase I Environmental Site Investigation (March 6, 1995) and Additional Site Characterization (March 27, 1995) for Wegmans Food Markets, Inc.;
- Confirm investigation results developed by Seeler Associates;
- Determine the possible presence of contamination caused by other compounds/elements not analyzed by Seeler Associates; and
- Determine the nature of contamination and delisting process for the nearby Pratt & Letchworth site.

2.2 Scope

The scope of this investigation involved:

- Review of quality control data and information on field procedures followed for the Phase I Environmental Site Investigation and Additional Site Characterization;
- Confirmatory sampling at seven (7) locations and laboratory analysis of soil/fill samples from three (3) locations (including one field duplicate) to verify previous results and determine the presence of contamination by parameters not analyzed for;
- Brief review of reports and data on file at the NYSDEC Region 9 office regarding the nearby Pratt and Letchworth Site; and
- Evaluation of results and preparation of a summary report.

The scope of this investigation was limited to sampling at selected locations where high levels of acetone were reported during the previous investigations. The presence of contamination at other portions of the site was not verified or delineated.

3 Review of Previous QC Data and Field Procedures

(This review will be completed after receipt of all requested QA/QC and field procedures information from Seeler Associates.)

4 Confirmation Sampling and Analysis

A field sampling and analysis program was implemented to provide data for two objectives:

- Verify the presence and concentrations of volatile organic compounds reported in previous investigations; and
- Develop an analytical data base for parameters not analyzed during previous investigations.

The field program involved collecting samples at select areas where acetone contamination was identified at elevated concentrations during the previous Additional Site Characterization. A field quality assurance/quality control (QA/QC) program was implemented which included rigorous equipment cleaning and collection of blank samples. Select soil/fill samples were submitted to an analytical laboratory for analyses using the following techniques:

- Purge and trap gas chromatography/mass spectrometry (GC/MS), capillary column technique (volatile and semi-volatile organics);
- Gas chromatography with electron capture detector (GC/ECD), capillary column technique (pesticides/PCBs);
- Inductively coupled plasma (ICP) - mass spectrometry (metals);
- Graphite furnace atomic absorption (GFAA) (metals);
- Cold vapor atomic absorption (CVAA) (metals); and
- Automated colorimetric (cyanide).

A discussion of sample types, locations and field and laboratory procedures are presented in the following section. The analytical results are also included.

4.1 Field Sampling and Testing

Seven (7) holes, designated SS-3(A), SS-6(A), SS-9(A), SS-10(A), SS-11(A), SS-22(A), and SS-31(A) were drilled and sampled at locations corresponding to Geoprobe sample holes from the previous Additional Site Characterization. Drilling was performed by SJB Services Inc., May 11 and 12, 1995 using conventional hollow stem auger drilling with continuous

split-barrel sampling (Standard Penetration Test, ASTM D 1586). Work performed by SJB Services was coordinated and inspected by Acres in the field. Boring logs are attached in Appendix A.

Field screening of collected samples was performed (Acres) by measuring soil gas vapors with a photoionization detector (H•Nu Systems PI 101 with 10.2 eV lamp) and flame ionization detector (Century Systems Model OVA-128). The photoionization detector (PID) was checked for calibration with a 100 ppm isobutylene in air gas mixture. The flame ionization detector (FID) was checked against a 94.9 ppm methane in air mixture. The screening process involved placing a representative portion of sample into a glass container, covering with aluminum foil, capping and raising the sample temperature by heating. Off gases were measured by inserting the tip of each instrument through the foil cover. Results are presented on test boring logs contained in Appendix A.

Soil/fill samples were taken for laboratory analysis from three boreholes, SS-9(A), SS-10(A) and SS-31(A). All samples were taken from approximately 7 ft. depth to match previously sampled intervals.

A planned groundwater sample from monitoring well MW-2 was not collected due to the presence of standing water (from surface run-off) inside the valve box cover and over the pvc well riser pipe. The well cap was not securely attached and it was believed that surface infiltration may have occurred.

QA/QC procedures implemented for field sampling included:

- Continuous oversight and inspection by Acres;
- Use of standard accepted methods and procedures;
- Rigorous cleaning of drilling and sampling equipment in the field;
- Use of specialty cleaned and prepared sample containers;
- Collection and maintenance of QC samples; and
- Sample documentation, packaging and shipping procedures which conform with guidelines outlined in current NYSDEC and USEPA documents.

The drill rig, samplers and appurtenant equipment were steam cleaned on-site prior to the onset of work. In addition, each split barrel sampler and all used down-hole equipment

were steam cleaned between boreholes. Field blank sample FB-1 was taken by pouring laboratory prepared water through a cleaned split-barrel sampler.

Samples from boreholes SS-9(A), SS-10(A) and SS-31(A) were retained for analytical testing. A duplicate soil/fill sample was taken at location SS-31(A) to measure precision for the entire collection/analytical system including sample acquisition, homogeneity, handling, shipping, storage, preparation and analysis.

All samples selected for laboratory analytical testing were packed with ice in a cooler for shipping. Specialty pre-cleaned glass or plastic containers were used. Preservatives were added to the containers in accordance with USEPA SW-846. Chain-of-custody was followed according to guidelines outlined in "NEIC Policies and Procedures," prepared by the National Enforcement Investigations Center (NEIC) of the USEPA.

A travel blank sample was maintained to check for cross contamination which may occur during the sample shipping and site holding periods.

4.2 Analytical Testing

Samples were analyzed by NovaMann International for the following parameters:

ANALYTE	METHOD ⁽¹⁾
TCL Volatiles	8260
Volatile Hydrocarbons (TVHC) ⁽²⁾	8260
TCL Semivolatiles	8270
TCL Pesticides/PCBs	8081
TAL Inorganics	6000/7000 series

⁽¹⁾ USEPA "Test Methods For Evaluating Solid Waste", SW-846, November 1986 and revisions.

⁽²⁾ NYSDEC "STARS Memo #1, Petroleum-Contaminated Soil Guidance Policy", Table 1 (Guidance Values for Petroleum Contaminated Soil), August, 1992, (less benzene, ethylbenzene, toluene and total xylenes).

The travel blank sample was analyzed for TCL Volatiles and Volatile Hydrocarbons only.

4.3 Results

4.3.1 Field Testing

Fill was encountered in each borehole at thicknesses ranging from 3 ft. [SS-3(A)] to greater than 9.5 ft. [SS-11(A)]. This zone was variable, containing slag, brick, ash, coal, glass and other material of undeterminable composition, along with clay, sand and gravel soils. Glaciolacustrine clayey sediments were encountered below the fill in boreholes SS-3(A), SS-6(A), SS-9(A), SS-10(A) and SS-22(A). Borings SS-11(A) and SS-31(A) were not drilled deep enough to encounter these sediments.

Many recovered samples exhibited a natural organic (i.e. "earthy" or "decaying") odor. An acetone odor was not detected. In most cases, soil vapor screening performed in the field resulted in higher readings from the flame ionization detector (FID). This instrument is sensitive to low molecular weight hydrocarbons, such as methane, which may be produced from natural decay processes. The photoionization detector (PID) is less sensitive or non-responsive to these compounds by virtue of their higher ionization potentials.

Acetone has a reported ionization potential of 9.69 eV, causing it to be detectable by the 10.2 eV PID. Furthermore, the FID will detect acetone. The rather large disparity in instrument readings (see Appendix A) indicates that measured soil gas vapors are (in most cases) not acetone.

4.3.2 Analytical Testing

The laboratory analytical data indicates trace levels of volatile and semi-volatile organics in the site fill. Sporadic occurrences of elevated metals were also identified. Due to the nature of the site and the surrounding urban/industrial setting, background samples were not collected. Summarized analytical data showing detected parameters are presented on Table 1 (volatile organics), Table 2 (semi-volatile organics) and Table 3 (metals). For brevity, the "A" suffix for each sample taken by Acres has been eliminated on the tables. Included on each table is a comparison with NYSDEC recommended soil cleanup criteria presented in Technical and Administrative Guidance Memorandum (TAGM) HWR-94-4046, "Determination of Soil Cleanup Objectives and Cleanup Levels", January 24, 1994 (revised). Cleanup criteria in soil for the protection of groundwater are not presented as these criteria are not considered by Acres to be appropriate for the site.

Pesticides and PCBs were not detected in the analyzed samples.

As previously noted, monitoring well MW-2 was not sampled due to the possibility of surface infiltration.

The complete laboratory analytical report is included in Appendix B for further reference.

A comparison is provided in Table 4 between analytical data from this investigation with data from the previous investigations.

Volatile Organics

Low levels of chlorinated solvents, 1,1,1 - trichloroethane (1,1,1-TCA), 1,1,2,2 - tetrachloroethane, 1,1 - dichloroethane, tetrachloroethylene (PCE), trichloroethylene (TCE) and 1,2 - dichloroethylene (total) were found at levels below current NYSDEC recommended soil cleanup objectives. These organics were principally present in samples SS-9(A) and SS-10(A), with only a trace level of 1,1 - dichloroethane (i.e. $< 10 \mu\text{g/Kg}$) found in SS-31(A) (duplicate).

Acetone was identified in samples SS-10(A) ($< 150 \mu\text{g/kg}$) and SS-31(A) ($< 150 \mu\text{g/Kg}$). These trace concentrations do not exceed current NYSDEC recommended soil cleanup criteria. Methylene chloride was identified in all samples tested, ranging from $130 \mu\text{g/Kg}$ (SS-10(A)) to $< 10 \mu\text{g/Kg}$ (SS-31(A) and SS-31(A) duplicate). It should be noted that acetone and methylene chloride are common laboratory solvents which may account for some of these levels.

Trace levels of carbon disulfide (samples SS-10(A) and SS-31(A) duplicate) and chloroform (sample SS-10(A)) were also identified.

Toluene was found in all samples tested, ranging from $26 \mu\text{g/Kg}$ (sample SS-10(A)) to $< 5 \mu\text{g/Kg}$ (all remaining samples). Benzene, ethylbenzene and xylenes were identified at trace levels in sample SS-10(A). Volatile hydrocarbons (TVHC) were not identified in the tested samples.

The above referenced volatile organics concentrations identified in this investigation are not considered to be significant.

Semi-volatile Organics

Polynuclear aromatic hydrocarbons were identified in sample SS-10(A). Included are anthracene, benzo (a) anthracene, benzo (b) fluoranthene, benzo (k) fluoranthene, chrysene, fluoranthene, phenanthrene and pyrene. The concentrations of benzo (a) anthracene, benzo (b) fluoranthene and chrysene exceed NYSDEC recommended soil cleanup standards. The NYSDEC recommended soil cleanup level for benzo (a) anthracene (224 $\mu\text{g/Kg}$) is derived from human health based levels which correspond to an excess lifetime risk associated to exposure to carcinogens. An oral intake assumption of 0.1 g/day for a 70 kg person over a 70 year exposure period is used for this derivation. Given the current site setting and use, and potential future uses, this exposure scenario is considered by Acres to be inappropriate. The NYSDEC recommended soil cleanup levels for benzo (b) fluoranthene and chrysene are derived from environmental concentrations which are protective of groundwater/drinking water quality; based on promulgated New York State Standards. Site groundwater which would be effected by these compounds is present in the fill, previously identified as limited in extent and continuity. This characterization is supported by field observations made during our investigation. In addition, public drinking water is supplied by the City of Buffalo municipal system. Therefore, these levels are also not considered by Acres to be appropriate for the site.

Di-N-butyl phthalate was identified in all samples except SS-31(A). Detected levels were above NYSDEC recommended soil cleanup levels. This compound is a common contaminant derived from protective gloves worn in the field and laboratory.

The maximum soil cleanup objectives for total semi-volatiles adopted by NYSDEC is 500 ppm (i.e. 500,000 $\mu\text{g/Kg}$). Total semi-volatile concentrations identified from this investigation are well below this level and therefore, Acres does not consider these concentrations to be significant.

Inorganics

Inorganic parameter concentrations are summarized on Table 3 and compared against eastern USA and New York State soil background values reported by NYSDEC. Zinc was present above the eastern USA background range of 9 - 50 mg/Kg. Elsewhere, sporadic occurrences of elevated metals were identified. The reported levels are representative of the fill encountered at the site, often containing slag and/or ash. Acres does not consider these concentrations to be significant.

4.3.3 Comparative Evaluation

Analytical data generated from this investigation were compared with data generated from the previous Additional Site Investigation and are summarized on Table 4. Acres findings made from the comparison between like samples are as follows:

- Widespread acetone contamination was not verified;
- TVHC contamination was not verified;
- Low level contamination by chlorinated solvents 1,1,1-TCA, PCE and TCE was verified; and
- Trace levels of benzene, ethylbenzene, toluene and xylenes (BTEX) were verified.

5 Pratt and Letchworth Site File Review

The Pratt and Letchworth site is located at 189 Tonawanda Street in the City of Buffalo. The site reportedly received landfilling of foundry sand and slag and was previously used for storage of lubricant and hydraulic oils. Several investigations performed at the site revealed contamination by PCBs, PAHs, elevated metals, and sporadic occurrences of phenolic compounds and volatile organic compounds. Of these, the PCBs were determined to be the only contaminant present at significant concentrations. Interim remedial work was started in September, 1993 and resulted in the excavation of 48.7 tons of PCB contaminated waste (> 50 ppm) and 933.65 tons of waste containing PCBs at < 50 ppm.

Three petitions to delist the site were submitted for different segments of the property:

- A 3.2+ acre portion acquired by B-Kwik Markets, Inc. (part of Tops Markets);
- A building leased by the City of Buffalo (former Plant Building #66) used for storage of impounded vehicles; and
- The remaining 22.6 acre portion of the site owned by 189 Tonawanda Street Corp.

The Petition to Delist the 3.2+ acre Tops parcel was initiated in October, 1988. NYSDEC denied this initial petition and as a result, Tops performed supplemental site investigations and resubmitted their petition in December, 1989. The parcel was delisted on May 21, 1990. A Closure Plan was submitted by Tops on November 2, 1990 which contained the following provisions:

- All existing monitoring wells were to remain in place;
- Uncovered wastes were to be properly disposed;
- PCB contaminated fill remaining on a portion of the site were required to be covered; and
- Application and record keeping requirements were established.

The plan was approved November 9, 1990.

A Petition to Delist the remaining site owned by 189 Tonawanda Street Corp. was approved by NYSDEC on March 30, 1995, following approval and implementation of an Interim Remedial Measures Work Plan. The NYSDEC has recently (April 1995) proposed

No Further Action and delisting of the site. The public comment period for this action ended on May 25, 1995.

The delisting petition process, in particular the Tops petitioning, was based on the presence of contaminants which largely possess properties that do not favor movement in the environment. In particular, PCBs have extremely low water solubility and are readily adsorbed on soil particles. Furthermore, they do not readily enter the vapor phase. To a degree, PAHs and heavy metals behave similarly in the environment, exhibiting limited mobility and volatility.

The PCB contamination at the Pratt and Letchworth site was addressed by the use of remedial actions involving excavation and/or capping. The most likely exposure scenario at this site would involve direct contact with PCBs, resulting in either ingestion or sorption through the skin.

Sporadic occurrences of volatile organic compounds at the site were not considered significant by NYSDEC and therefore remedial actions were not taken for this group of compounds. In addition, the presence of PAH's and elevated metals were not considered by NYSDEC to require further remedial actions.

Excluding PCBs and phenolic compounds, the overall contamination profile at the Pratt and Letchworth site is similar to the 601 Amherst Street site, based on results developed from this investigation. This profile includes:

- Presence of PAH's;
- Some elevated metals; and
- Occasional low-level volatile organic compounds.

Subsequent to completion of the interim remedial measures to address the PCB contamination, NYSDEC proposed No Further Action and Delisting of the Pratt and Letchworth site as the proposed remedial action plan.

6 Conclusions and Recommendations

The following has been concluded based on the findings of the confirmatory investigation:

Conclusions with Respect to Onsite Contaminant Levels

1. The significantly elevated levels of acetone recorded during the previous investigation were not confirmed. Only trace concentrations were identified in the soil at two of the sampled locations and no contamination was detected at the other sampled location. Consequently, the widespread acetone contamination at the site was not verified.
2. There were other low levels of volatile organics recorded in the samples. However, none of the identified field concentrations are considered to be significant.
3. Total semi-volatile concentrations identified from this investigation are well below the 500 ppm maximum soil cleanup objective for total semi-volatiles adopted by NYSDEC and, therefore, do not appear to represent a significant problem.
4. Elevated levels of zinc and sporadic occurrences of other elevated metals were identified. These reported levels are representative of the type of fill materials (i.e., slag and/or ash) encountered at the site.

Conclusions Regarding the Pratt and Letchworth Site

The presence of PAH's, occasional low-level volatile organics and some elevated metals at the Pratt and Letchworth site is similar to the results developed during this investigation for the 601 Amherst Street site. However, PCBs were not detected at the 601 Amherst Street site.

NYSDEC proposed No Further Action at the Pratt and Letchworth site after completion of interim remedial measures involving excavation and disposal of PCB contaminated soil and capping of low-level PCB contaminated areas. Based on similarities with respect to PAHs, volatile organics and metals at both sites, it is reasonable to conclude NYSDEC may consider no action at the 601 Amherst Street site.

Conclusions Regarding Quality Control (QC) Procedures

Not all the requested information has been received to date from Seeler Associates for completing the review of the previous QC data and field procedures. Consequently, the review of this data was not complete at the time this draft report was submitted.

It should be noted that extra care was taken throughout the confirmatory sample collection and analytical process to avoid any possible field or laboratory contamination. This was supplemented by field screening procedures and a strict QA/QC program which included collection and maintenance of QC samples.

It is also important to note that the field investigation which was initially carried out using a Geoprobe and field GC is a good field screening method to identify potential "hot spots". However, this method is usually considered a less accurate analytical method compared with actual laboratory analysis. It also may, on occasion, be prone to various field conditions and/or contamination even when all the various QC and decontamination field procedures are adhered to.

TABLE 1
601 AMHERST STREET
CONFIRMATORY ENVIRONMENTAL INVESTIGATION

SUMMARY OF DETECTED COMPOUNDS - VOLATILE ORGANICS

Parameter	Results (ppb)					NYSDEC Rec. Soil Cleanup Objectives ⁽¹⁾⁽²⁾
	SS-9	SS-9 (dup)	SS-10	SS-31	SS-31(D)	
1,1,1-Trichloroethane	18	12	<10	ND	ND	800
1,1,2,2-Tetrachloroethane	ND	ND	<20	ND	ND	600
1,1-Dichloroethane	<10	<10	ND	ND	<10	200
1,2-Dichloroethylene (total)	ND	ND	<10	ND	ND	300
Acetone	ND	ND	<150	<150	ND	200
Benzene	ND	ND	<5	ND	ND	60
Carbon Disulfide	ND	ND	13	ND	<100	2700
Chloroform	ND	ND	<10	ND	ND	300
Methylene Chloride	12	14	130	<10	<10	100
Ethylbenzene	ND	ND	<5	ND	ND	5500
Tetrachloroethylene	ND	ND	70	ND	ND	1400
Toluene	<5	<5	26	<5	<5	1500
Xylenes (total)	ND	ND	<10	ND	ND	1200
Trichloroethylene	<10	<10	270	ND	ND	700

NOTES:

ND = Not Detected (note: detection limits vary, see appended data tables)

⁽¹⁾ NYSDEC TAGM HWR-94-4046, January 24, 1994 (revised)

⁽²⁾ Total volatiles not to exceed 10 ppm (i.e., 10,000 ppb).

TABLE 2
601 AMHERST STREET
CONFIRMATORY ENVIRONMENTAL INVESTIGATION

SUMMARY OF DETECTED COMPOUNDS - SEMI-VOLATILE ORGANICS

Parameter	Results (ppb)					NYSDEC Rec. Soil Cleanup Objectives ⁽¹⁾⁽²⁾
	SS-9	SS-10	SS-31	SS-31(D)	SS-31(D) dup	
Anthracene	ND	831	ND	ND	ND	50,000
Benzo (a) anthracene	ND	2,630	ND	ND	ND	224
Benzo (b) fluoranthene	ND	3,160	ND	ND	ND	1,100
Benzo (k) fluoranthene	ND	992	ND	ND	ND	1,100
Chrysene	ND	3,090	ND	ND	ND	400
Di-N-butyl phthalate	4,770	35,300	8,750	ND	17,900	8,100
Fluoranthene	ND	5,650	ND	ND	ND	50,000
Phenanthrene	ND	4,040	ND	ND	ND	50,000
Pyrene	ND	3,480	ND	ND	ND	50,000

NOTES:

ND = Not Detected (note: detection limits may vary, see appended data tables)

⁽¹⁾ NYSDEC TAGM HWR-94-4046, January 24, 1994 (revised)

⁽²⁾ Total semi-volatiles not to exceed 500 ppm (i.e. 500,000 ppb)

TABLE 3
601 AMHERST STREET
CONFIRMATORY ENVIRONMENTAL INVESTIGATION

SUMMARY OF DETECTED PARAMETERS - INORGANICS

Parameter	Results (ppm)					Eastern USA Background ⁽¹⁾
	SS-9	SS-10	SS-31	SS-31(D)		
Silver	<0.665	<0.665	<0.665	<0.665		N/A
Beryllium	0.957	0.823	0.831	0.805		0 - 1.75
Cadmium	0.795	1.53	7.93	0.478		0.1 - 1
Cobalt	7.69	6.36	10.7	8.85		2.5 - 60 ⁽²⁾
Copper	63.3	49.6	62.3	28.7		1 - 50
Manganese	242	179	388	444		50 - 5,000
Nickel	19.0	14.5	25.8	20.5		0.5 - 25
Lead	144	168	204	60.4		200 - 500 ⁽³⁾
Vanadium	25.1	29.2	28.7	25.7		1 - 300
Zinc	212	211	2080	106		9 - 50
Barium	121	109	173	113		15 - 600
Chromium	13.1	11.5	20.6	15.4		1.5 - 40 ⁽²⁾
Sodium	605	499	391	399		6,000 - 8,000
Potassium	994	967	2080	1660		8,500 - 43,000 ⁽²⁾
Iron	10800	15900	26700	22600		2,000 - 550,000
Magnesium	3910	659	9680	8140		100 - 5,000
Aluminum	9040	9420	12800	12300		33,000
Calcium	21300	5640	37100	28200		130 - 35,000 ⁽²⁾
Arsenic	11	33	11	4		3 - 12 ⁽²⁾

TABLE 3
601 AMHERST STREET
CONFIRMATORY ENVIRONMENTAL INVESTIGATION

SUMMARY OF DETECTED PARAMETERS - INORGANICS

Parameter	Results (ppm)				Eastern USA Background ⁽¹⁾
	SS-9	SS-10	SS-31	SS-31(D)	
Antimony	<1	<1	<1	<1	N/A
Selenium	2	6	1	2	0.1 - 3.9
Thallium	<1	2	<1	<1	N/A
Mercury	0.31	0.25	0.15	0.07	0.001 - 0.2
Cyanide (total)	0.047	0.060	0.034	<0.025	N/A

NOTES:

⁽¹⁾ NYSDEC TAGM HWR-94-4046, January 24, 1994 (revised)

⁽²⁾ New York State background

⁽³⁾ avg. reported levels for metropolitan areas

TABLE 4
601 AMHERST STREET
CONFIRMATORY ENVIRONMENTAL INVESTIGATION

COMPARATIVE ANALYSIS - LABORATORY ANALYTICAL DATA

Parameter	Results (ppb)							
	SS-9/SS-9 (dup)			SS-10			SS-31/SS-31(D)	
	Acres	Soeler	Acres	Soeler	Acres	Soeler	Acres	Soeler
Acetone	ND	ND	ND	38000	<150	35000	<150	ND
1,1,1-Trichloroethane	18	9	<10	9	<10	0.4	ND	9
Trichloroethylene	<10	<10	<10	5	270	87	ND	4
Tetrachloroethylene	ND	ND	ND	0.09	70	64	ND	0.9
Benzene	ND	ND	ND	ND	<5	ND	ND	100
Toluene	<5	<5	<5	ND	26	ND	<5	ND
Ethylbenzene	ND	ND	ND	ND	<5	ND	ND	ND
Xylenes	ND	ND	ND	ND	<10	ND	ND	ND
TVHC	ND	ND	ND	180	ND	150	ND	74

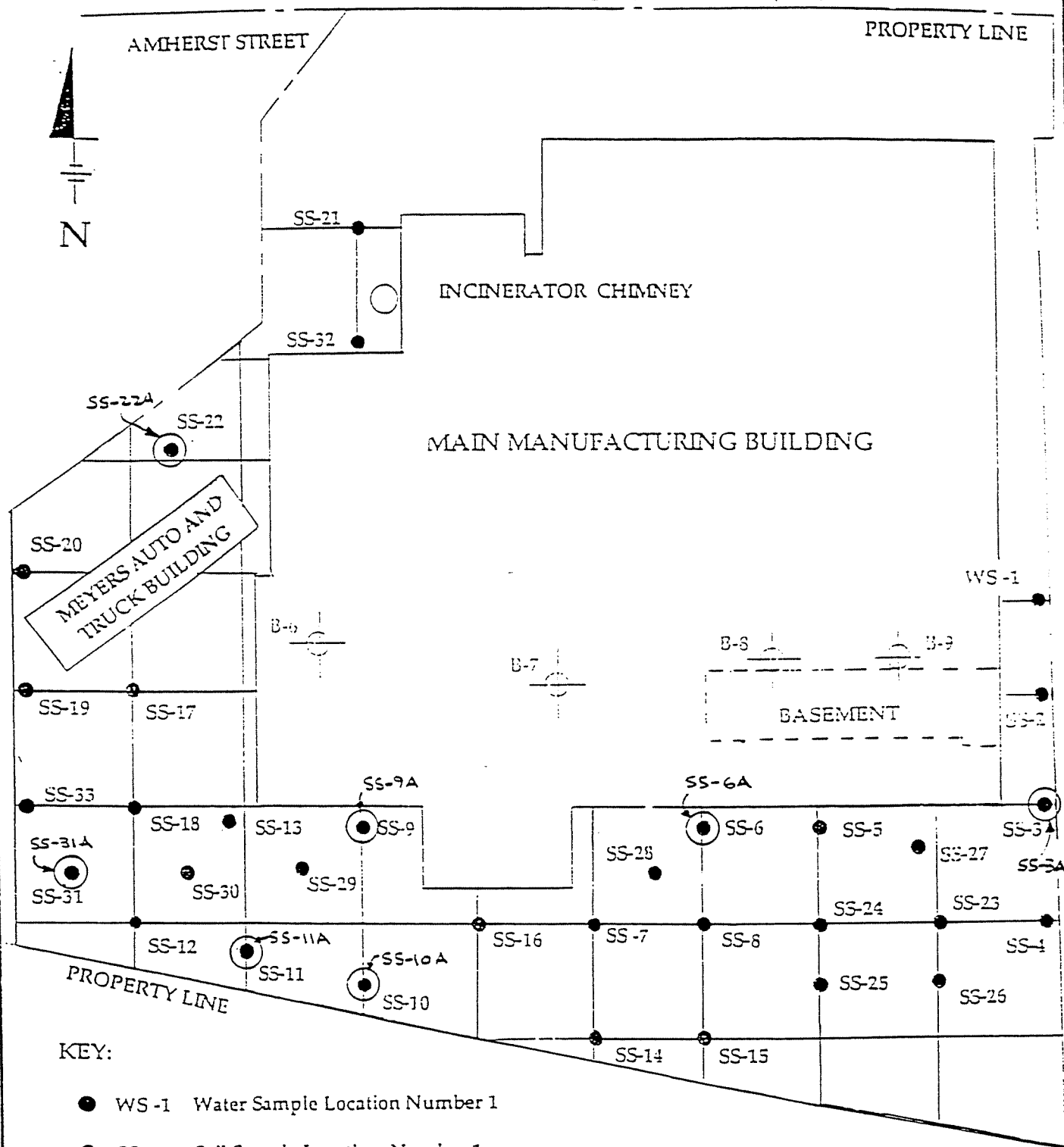
NOTES:

ND = Not Detected (note: detection limits vary, see appended data tables)

⁽¹⁾ = NYSDEC TAGM HWR-94-4046, January 24, 1994 (revised)

<# = compound confirmed present at concentration less than method detection limit

FIGURE 1
 SAMPLE LOCATION MAP
 WEGMANS FOOD MARKETS, INC.
 601 AMHERST STREET
 SHOWING ACRES SAMPLE LOCATIONS



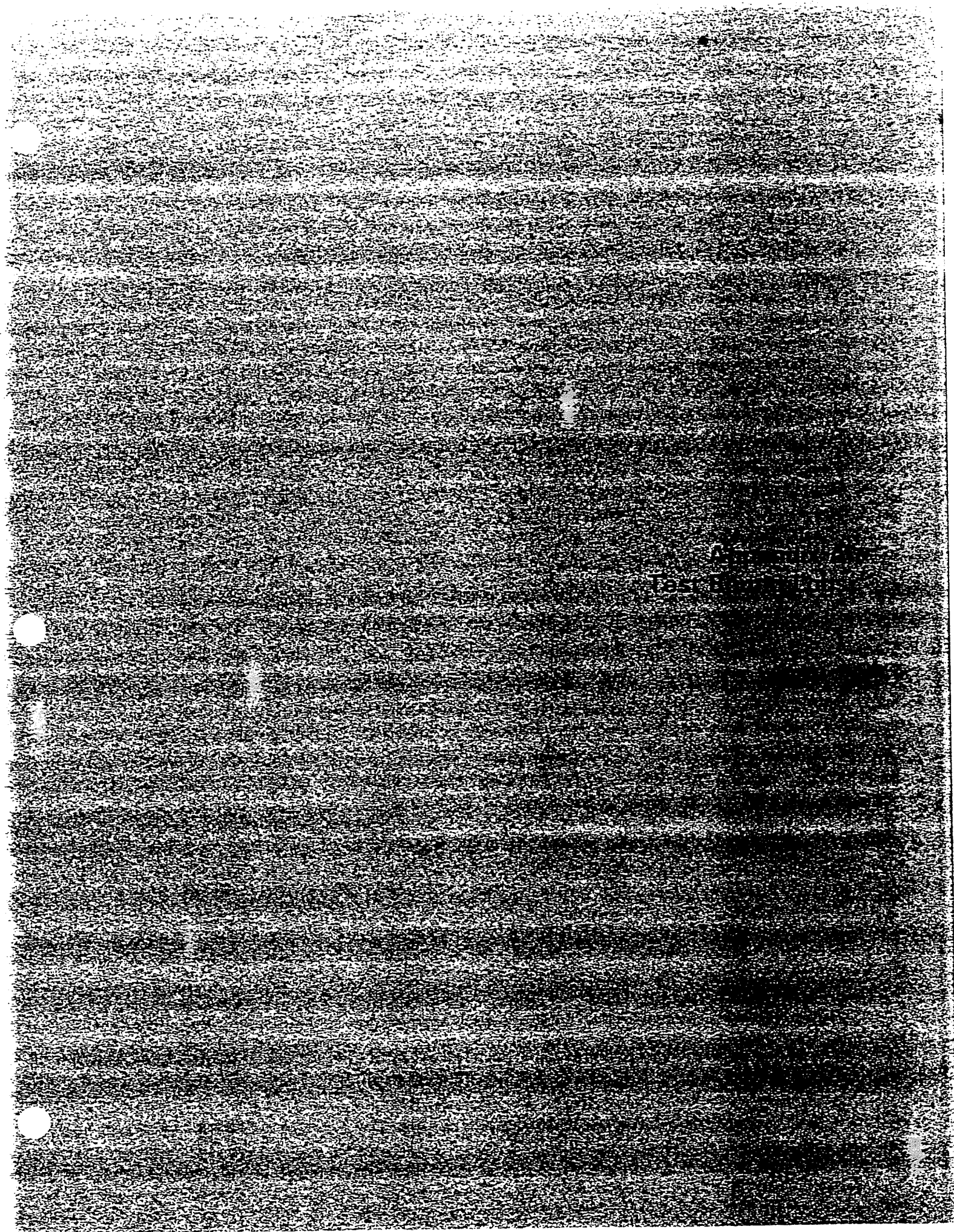
KEY:

● WS-1 Water Sample Location Number 1

● SS-1 Soil Sample Location Number 1

⊕ B-6 Borehole Location Number 6

⊙ SS-10A Borehole Location drilled by Acres





Test Boring Log

DATE STARTED 5/12/95
DATE FINISHED 5/12/95
COORDINATES
N _____ E _____
GROUND SURFACE ELEV. ft.

PROJECT NO. P11276
BORING NO. SS-3(A)
LOGGED BY J. Stachowski
INSPECTED BY J. Stachowski
APPROVED BY _____
SHEET 1 of 1

DRILLING METHOD Auger/SPT TOP OF ROCK DEPTH _____ CLIENT Campus Industries
HAMMER WT. 140# TOTAL ROCK DRILLED 0" SITE 601 Amherst St.
HAMMER DROP 30" STATIC WATER DEPTH None DRILLING CO. SJB Services
NO. SOIL SAMPLES 4 HOLE DIA. 6" (nom) DRILLER Don Butzer
TOTAL OVERBURDEN _____ CASING STICK UP None TOTAL DEPTH 8.5 ft.

Depth (ft.)	Vapor (ppm)		Sample			DESCRIPTION	REMARKS
	PID	FID	No. Type	Blows	Rec.		
5					22	Asphalt and gravel	0.5
	13	700	1	17	9	Fill, clayey, sandy and gravelly textured, some slag and brick, black and brown, moist	Boring advanced with 2-1/4" hollow stem augers, CME-550 drill rig
				11	11		
	0.5	210	2	5	5	silty Clay, reddish brown, moist, medium stiff to stiff	"earthy" odor from sample #1
				5	3		
	0.0	32	3	6	12		
				17	17		
	0.0	120	4	21	23		samples #2,3,&4 exhibit a slight "earthy" odor
				29			
						Boring completed @ 8.5ft.	8.5
							PID: H-Nu Systems PI 101 Photoionizer w/ 10.2 eV lamp
							FID: Foxboro OVA-128



Test Boring Log

DATE STARTED 5/12/95
DATE FINISHED 5/12/95
COORDINATES
N _____ E _____
GROUND SURFACE ELEV. ft.

PROJECT NO. P11276
BORING NO. SS-6(A)
LOGGED BY J. Stachowski
INSPECTED BY J. Stachowski
APPROVED BY _____
SHEET 1 of 1

DRILLING METHOD Auger/SPT TOP OF ROCK DEPTH _____ CLIENT Campus Industries
HAMMER WT. 140# TOTAL ROCK DRILLED 0' SITE 601 Amherst St.
HAMMER DROP 30" STATIC WATER DEPTH None DRILLING CO. SJB Services
NO. SOIL SAMPLES 4 HOLE DIA. 6" (nom) DRILLER Don Butzer
TOTAL OVERBURDEN _____ CASING STICK UP None TOTAL DEPTH 8.5 ft.

Depth (ft.)	Vapor (ppm)		Sample			DESCRIPTION	REMARKS
	PID	FID	No. Type	Blows	Rec.		
5					5	Asphalt and gravel 0.5	Boring advanced with 2-1/4" hollow stem augers, CME-550 drill rig no recovery on sample #3 all samples exhibit a slight "decaying" odor PID: H-Nu systems PI 101 Photoionizer w/ 10.2 eV lamp FID: Foxboro OVA-128
	0.0	2.2	1	7	8	0.5" Fill, variable, fine to coarse textured, some slag and coal, black, brown and tan, moist	
				8	3		
	0.0	1.2	2	1	1	1.1"	
				2	3		
			3	2	2	0.0"	
				3	3	6.5	
	0.0	70	4	7	10	1.2" clayey-Silt, some (f) sand, black and olive green, wet	
						1.2" silty-Clay, brown, moist	
				14		8.5	
						Boring completed @ 8.5ft.	



PROJECT NO. P11276
BORING NO. SS-9(A)
LOGGED BY J. Stachowski
INSPECTED BY J. Stachowski
APPROVED BY _____
SHEET 1 of 1

TOP OF ROCK DEPTH	_____
TOTAL ROCK DRILLED	0'
STATIC WATER DEPTH	None
HOLE DIA.	6" (nom)
CASING STICK UP	None

CLIENT	<u>Campus Industries</u>
SITE	<u>601 Amherst St.</u>
DRILLING CO.	<u>SJB Services</u>
DRILLER	<u>Don Butzer</u>
TOTAL DEPTH	<u>12.5 ft.</u>

Depth (ft.)	Vapor (ppm)		Sample			DESCRIPTION	REMARKS	
	PID	FID	No. Type	Blows	Rec.			
5					10	Asphalt and gravel	0.5	Boring advanced with 2-1/4" hollow stem augers, CME-550 drill rig hole located approx. 11ft. west of original SS-9 to avoid water line sample from 7ft. (approx.) retained for laboratory analysis
	0.0	0.8	1	9	7	Fill, clay and gravel, some ash, cinder and slag	1.3	
				6	6	becoming wet		
	0.0	1.2	2	2	2	Clay, reddish brown, moist, plastic	1.1	
				3	4			
	0.0	0.0	3	3	5		0.8	
				6	4	Fill, sandy and gravelly textured, some coal, black and buff colored, wet		
		1.0	4	7	5		1.0	
				3	4			
		0.0	70	5	4	3	Clay layer (0.7") @ 8.5ft.	
10				3	2			sample #6 exhibits a slight "decaying" odor
	0.0	190	6	2	4			
				4				
						Clay @ 12.4ft.	12.5	
						Boring completed @ 12.5ft.		PID: H-Nu Systems PI 101 Photoionizer w/ 10.2 eV lamp
								FID: Foxboro OVA-123



Test Boring Log

DATE STARTED 5/11/95 PROJECT NO. P11276
DATE FINISHED 5/11/95 BORING NO. SS-10(A)
COORDINATES N E LOGGED BY J. Stachowski
GROUND SURFACE ELEV. ft. INSPECTED BY J. Stachowski
APPROVED BY
SHEET 1 of 1

DRILLING METHOD Auger/SPT TOP OF ROCK DEPTH CLIENT Campus Industries
HAMMER WT. 140# TOTAL ROCK DRILLED 0' SITE 601 Amherst St.
HAMMER DROP 30" STATIC WATER DEPTH None DRILLING CO. SJB Services
NO. SOIL SAMPLES 4 HOLE DIA. 6" (nom) DRILLER Don Butzer
TOTAL OVERBURDEN CASING STICK UP None TOTAL DEPTH 9.0 ft.

Depth (ft.)	Vapor (ppm)		Sample			DESCRIPTION	REMARKS
	PID	FID	No. Type	Blows	Rec.		
						Asphalt and gravel 0.5	Boring advanced with 2-1/4" hollow stem augers, CME-550 drill rig sample from 7ft. (approx.) retained for laboratory analysis
						Fill, clay and sand, little gravel, trace asphalt, moist	
1.2	3.0	1		7	5		
				5	7	1.3"	
1.3	2.2	2		3	2		
				4	5	1.0"	
5				3	2	becoming fine to coarse textured, variable colored, some coal	sample from 7ft. (approx.) retained for laboratory analysis
	1.0	3		2	2	0.7"	
				4	5		
	0.0	4		6	9	Clay, brown, medium stiff, trace sand and gravel 7.2	
						9.0	
						Boring completed @ 9ft.	PID: H-Nu Systems PI 101 Photoionizer with 10.2 eV lamp FID: Foxboro OVA-128



Test Boring Log

DATE STARTED 5/12/95 PROJECT NO. P11276
DATE FINISHED 5/12/95 BORING NO. SS-11(A)
COORDINATES N E LOGGED BY J. Stachowski
GROUND SURFACE ELEV. ft. INSPECTED BY J. Stachowski
APPROVED BY
SHEET 1 of 1

DRILLING METHOD Auger/SPT TOP OF ROCK DEPTH CLIENT Campus Industries
HAMMER WT. 140# TOTAL ROCK DRILLED 0' SITE 601 Amherst St.
HAMMER DROP 30" STATIC WATER DEPTH None DRILLING CO. SJB Services
NO. SOIL SAMPLES 4 HOLE DIA. 6" (nom) DRILLER Don Butzer
TOTAL OVERBURDEN CASING STICK UP None TOTAL DEPTH 9.5 ft.

Depth (ft.)	Vapor (ppm)		Sample			DESCRIPTION	REMARKS
	PID	FID	No. Type	Blows	Rec.		
5						Asphalt and gravel 0.5	Boring advanced with 2-1/4" hollow stem augers, CME-550 drill rig no recovery on sample #3 all samples exhibit a slight "decaying" odor
						Fill, variable textured, and Clay, black, gray and brown	
				3			
	10	18	1	3	3	1.4"	
				5	5		
	20	23	2	4	4	0.3"	
				2	3		
			3	4	5	0.0"	
				2	4		
	4.2	3.3	4	4	4	0.3"	
				5		9.5	
Boring completed @ 9.5ft.							PID: H-Nu Systems PI 101 Photoionizer w/ 10.2 eV lamp FID: Foxboro OVA-128



Test Boring Log

DATE STARTED 5/12/95
DATE FINISHED 5/12/95
COORDINATES
N _____ E _____
GROUND SURFACE ELEV. _____ ft.

PROJECT NO. P11276
BORING NO. SS-22(A)
LOGGED BY J. Stachowski
INSPECTED BY J. Stachowski
APPROVED BY _____
SHEET 1 of 1

DRILLING METHOD Auger/SPT TOP OF ROCK DEPTH _____ CLIENT Campus Industries
HAMMER WT. 140# TOTAL ROCK DRILLED 0' SITE 601 Amherst St.
HAMMER DROP 30" STATIC WATER DEPTH None DRILLING CO. SJB Services
NO. SOIL SAMPLES 4 HOLE DIA. 6" (nom) DRILLER Don Butzer
TOTAL OVERBURDEN _____ CASING STICK UP None TOTAL DEPTH 8.0 ft.

Depth (ft.)	Vapor (ppm)		Sample			DESCRIPTION	REMARKS		
	PID	FID	No. Type	Blows	Rec.				
5	0.0	3.0	1	4	12	1.0	silty-Clay, brown, stiff	Boring advanced with 2-1/4" hollow stem augers, CME-550 drill rig unable to locate hole from original SS-22, borehole SS-22(A) was estimated from Seeler Assoc. Fig. 1 & located in grassy area immediately north of gravel driveway no recovery on sample #3 all samples exhibit an "earthy" odor	
				10	4	1.5			Fill, variable, some slag and cinder, clayey to fine sandy textured, wet
	0.0	200	2	3	4	1.5	clay and gravel Fill		
				4	4	1.5			
			3	4	3	0.0			
				3	3	0.0			
	0.0	8.0	4	5	6	7.0	silty-Clay, brown, stiff		
				6	8	1.7			8.0
	Boring completed @ 8ft.								

PID: H-Nu Systems PI 101
Photoionizer w/ 10.2 eV lamp

FID: Foxboro OVA-128



Test Boring Log

DATE STARTED 5/12/95 PROJECT NO. P11276
DATE FINISHED 5/12/95 BORING NO. SS-31(A)
COORDINATES N E LOGGED BY J. Stachowski
GROUND SURFACE ELEV. ft. INSPECTED BY J. Stachowski
APPROVED BY
SHEET 1 of 1

DRILLING METHOD Auger/SPT TOP OF ROCK DEPTH CLIENT Campus Industries
HAMMER WT. 140# TOTAL ROCK DRILLED 0' SITE 601 Amherst St.
HAMMER DROP 30" STATIC WATER DEPTH None DRILLING CO. SJB Services
NO. SOIL SAMPLES 4 HOLE DIA. 6" (nom) DRILLER Don Butzer
TOTAL OVERBURDEN CASING STICK UP None TOTAL DEPTH 8.8 ft.

Depth (ft.)	Vapor (ppm)		Sample			DESCRIPTION	REMARKS
	PID	FID	No. Type	Blows	Rec.		
					5	Asphalt and gravel	
						0.8	Boring advanced with 2-1/4" hollow stem augers, CME-550 drill rig
	0.0	3.0	1	4	3	Fill, variable textured, and Clay, some brick, brown and tan, moist	
				4	4		
				4	5		
	0.0	9.0	2	6	3	Silt and Clay, organic, black and olive gray	
						3.8	
5	0.0	1.0	3	12	7	Fill, variable, granular textured, black, brown and buff colored, wet	
				9	4		sample from 7 ft. (approx.) retained for laboratory analysis
			4	4	5		
						1.0	duplicate laboratory sample taken from adjacent hole
				4		8.8	
						Boring completed @ 8.75ft.	
							all samples exhibit a slight "earthy" odor
							PID: H-Nu Systems PI 101 Photoionizer w/ 10.2 eV lamp
							FID: Foxboro OVA-128

Appendix B
NOVAMANN International Analytical Report

RECEIVED

June 7, 1995

JUN 08 1995

ACRES INTERNATIONAL

Mr. Jim Stachowski
Acres International Corporation
140 John James Audubon Parkway
Amherst, New York
14228-1180

Re: NOVAMANN Job#: 9501806
Project #: P11276.00

Dear Jim;

As per our conversation today, we have reviewed the results for Acetone in the samples, including sample SS-10.

The value reported to you last week was much higher, for sample SS-10, than it should have been. Acetone in sample SS-10 is present and verified, but its concentration is below the 150 part per billion quantification limit (MDL). Verification data, including the reconstructed ion chromatogram showing the acetone peak at a retention time of 2.82 minutes, and the mass spectra of acetone showing the major ions 43, 58, and 151, are attached. Data for the sample matches data for the acetone standard. These data confirm the identification of acetone in the sample.

NOVAMANN's analyzes for acetone and the other volatile ketones periodically; they are not routinely requested for by most of our clients. These compounds are therefore prepared in a separate standard mixture, for spiking and instrument calibration. During the data analysis for these samples, the instrument data system identified the wrong peak as acetone in the calibration standard. Acetone peaks were correctly assigned in the samples. Upon routine data review, the analyst corrected the acetone peak assignment in the calibration standard file. This resulted in the correct data calculation for the samples, other than SS-10. For some reason the changes to the calibration file were not saved for SS-10 re-calculation, and the wrong calculated result was retained. Subsequent data validation, which included verifying the compound identification and mass spectra in the sample (but not the calibration data upon which the calculation is based), proved correct.

The corrected result is enclosed on the revised report for the organic chemical analyses.

My apologies for any inconvenience this may have caused. If you have any questions, please call me at 1-800-563-6266, ext. 257. Sincerely,



Stephen Timmings, B.Sc., C.Chem.
Senior Manager, Business Development

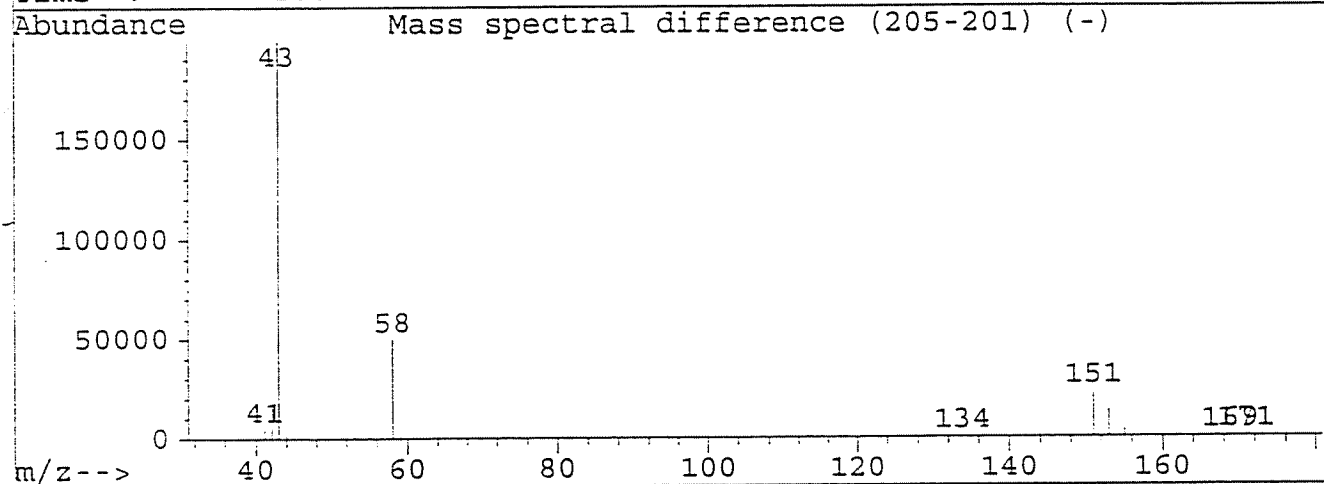
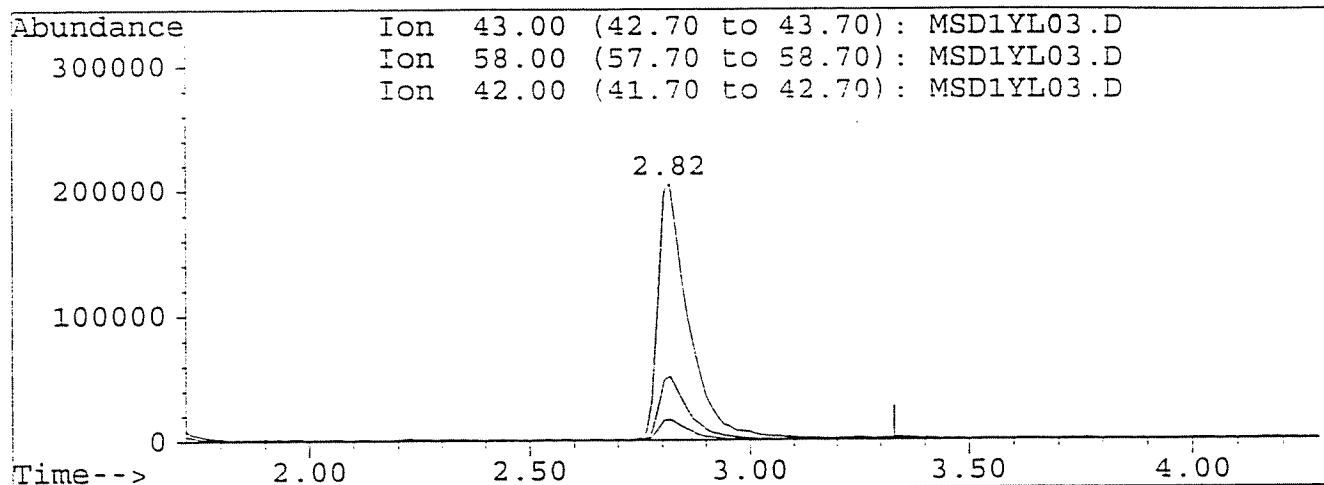
PROJECT			
FILE NO. F/11276.00			
Quality Analytical Laboratories Laboratoires Analytiques de Qualité			
ACTION	INFORM.	DISTRIB.	INITIAL
		F. H.	
PROJ. SECRETARY			

Quantitation Report

Data File : I:\DEPT65\MSD1\MSD10524\MSD1YL03.D
 Acq On : 24 May 95 9:04 pm
 Sample : emmy24 4ul +2ul ketone 041395
 Misc :
 Quant Time: May 29 14:45 1995

Vial: 3
 Operator:
 Inst : MSD 1
 Multiplr: 1.00

Method : I:\DEPT65\MSD1\MSD10524\624-16.M
 Title : VOA Standards JULY 18 1994
 Last Update : Mon May 29 12:41:55 1995
 Response via : Multiple Level Calibration



TIC: MSD1YL03.D

(10) Acetone

2.82min 33.29ug/l m

response 1031215

Ion	Exp%	Act%
43.00	100	100
58.00	0.00	25.05
42.00	52.60	8.08
0.00	0.00	0.00

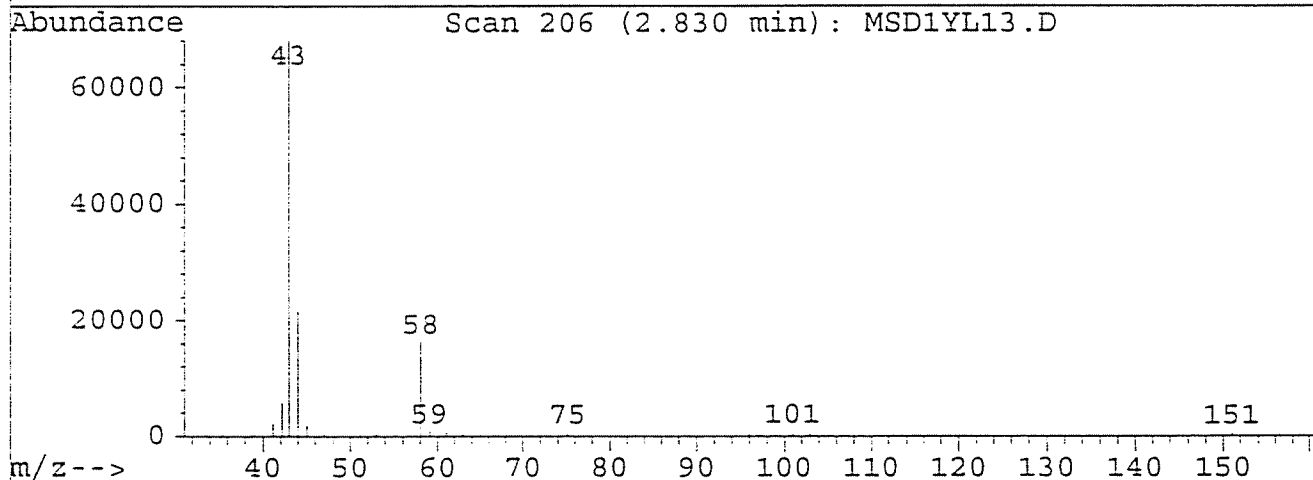
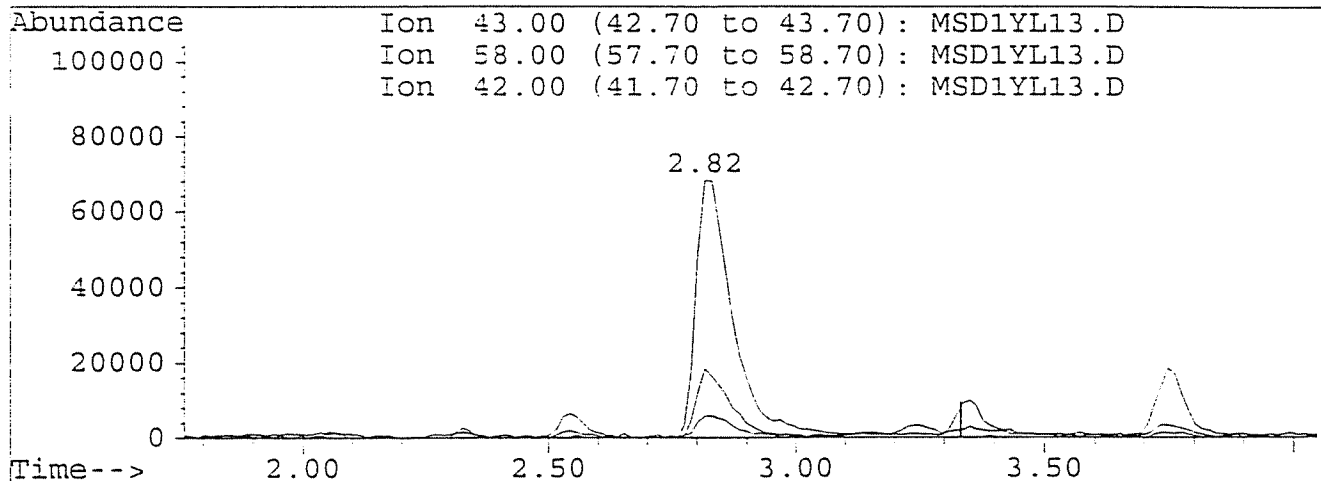
Acetone
 STANDARD

Quantitation Report

Data File : I:\DEPT65\MSD1\MSD10524\MSD1YL13.D
 Acq On : 25 May 95 2:48 am
 Sample : 984:6366-02 ss-10 0.3016g>5ml
 Misc : s,1,100,6.24
 Quant Time: May 29 12:59 1995

Vial: 13
 Operator:
 Inst : MSD 1
 Multiplr: 1.00

Method : I:\DEPT65\MSD1\MSD10524\624-16.M
 Title : VOA Standards JULY 13 1994
 Last Update : Mon May 29 12:41:55 1995
 Response via : Multiple Level Calibration



TIC: MSD1YL13.D

(10) Acetone

2.82min 2189.96ug/l m

response 349240

Ion	Exp%	Act%
43.00	100	100
58.00	0.00	26.85
42.00	52.60	8.56
0.00	0.00	0.00

Acetone
 Sample SS-10

Novamann International Corp
140 John James Audobon PKWY
Amherst, NY
USA 14228-1180

Report Date: 95/06/06
Invoice #: NO-950651

Attention: Jim Stachowski

YOUR PROJECT #: P11276.00

ANALYTICAL REPORT

NOVAMANN JOB #: 9501806, Received: 95/05/15, 08:46

Sample Matrix: LIQUID, # Samples Received: 2

<u>Analyses</u>	<u>Quantity</u>	<u>Date</u> <u>Extracted</u>	<u>Date</u> <u>Analyzed</u>	<u>Analytical Method</u>	<u>Method</u> <u>Reference</u>
EPA 8081 OC PESTICIDES & PCB	1	95/05/06	95/05/28	GC/ECD	SW846-8081
EPA 8260 VOLATILE ORGANICS	2	N/A	95/05/18	Purge & Trap GC/MS	SW846-8260
EPA 8270 ACID/BASE NEUTRAL ORGANICS	1	95/05/16	95/05/19	GC/MS	SW846-8270
TOTAL CYANIDE	1	N/A	N/A	COLOURIMETRIC	EPA9012MOD
ARSENIC	1	N/A	N/A	GRAPHITE FURNACE	EPA 7060
ANTIMONY	1	N/A	N/A	GRAPHITE FURNACE	EPA 7041
SELENIUM	1	N/A	N/A	GRAPHITE FURNACE	EPA 7740
THALLIUM	1	N/A	N/A	GRAPHITE FURNACE	EPA 7841
MERCURY	1	N/A	N/A	Cold Vapor AA	EPA 7470
ICP METALS (SELECTED)	1	N/A	N/A	ICP	EPA 6010
TVHC FOR GASOLINE CONTAMINATED SITES	2	N/A	95/05/18	Purge & Trap GC/MS	EPA 8260

Sample Matrix: SOLID, # Samples Received: 4

<u>Analyses</u>	<u>Quantity</u>	<u>Date</u> <u>Extracted</u>	<u>Date</u> <u>Analyzed</u>	<u>Analytical Method</u>	<u>Method</u> <u>Reference</u>
EPA 8081 OC PESTICIDES & PCB	4	95/05/17	95/05/28	GC/ECD	SW846-8081
EPA 8260 VOLATILE ORGANICS	4	N/A	95/05/24	Purge & Trap GC/MS	SW846-8260
EPA 8270 ACID/BASE NEUTRAL ORGANICS	4	95/05/16	95/05/19	GC/MS	SW846-8270
TOTAL CYANIDE	4	N/A	N/A	Colourimetric	
ARSENIC	4	N/A	N/A	GRAPHITE FURNACE	EPA 7060
ANTIMONY	4	N/A	N/A	GRAPHITE FURNACE	EPA 7041
SELENIUM	4	N/A	N/A	GRAPHITE FURNACE	EPA 7740
THALLIUM	4	N/A	N/A	GRAPHITE FURNACE	EPA 7841
MERCURY	4	N/A	N/A	Cold Vapor AA	EPA 7471
ICP METALS (SELECTED)	4	N/A	N/A	ICP	EPA 6010
TVHC FOR GASOLINE CONTAMINATED SITES	4	N/A	95/05/24	Purge & Trap GC/MS	EPA 8260

2..1

NOVAMANN (Ontario) Inc., 5540 McAdam Road, Mississauga, Ontario L4Z 1P1 - (905) 890-2555 - Fax (905) 890-0370

Laboratories: Montréal, Toronto, Guelph, Niagara Falls, Amherst NY, Mexico City



- 2 -

Invoice #: NO-950651

**** EPA8260 VOLATILE ORGANICS IN SOLID RESULTS ONLY. ****

NOVAMANN (ONTARIO) INC.

Ewa Pranjic

EWA PRANJIC, M.Sc., C.Chem
Senior. Supervisor, Trace Organics, Pesticides

Betty Wiens

BETTY WIENS, M.Sc., C.Chem
Supervisor, Trace Organics, GC/MS

EP/hl
encl.



CASE NARRATIVE: SEMI-VOLATILES ANALYSIS (ABNs)
Client: ACRES INTERNATIONAL CORP.
Laboratory: NOVAMANN (Ontario) Inc.
Lab Workorder #: 9501806
Client Project: P11276.00
Sample received at NOVAMANN : May 15, 1995

Comments for Analysis of Soil samples for ABNs:

Five soil samples were received by NOVAMANN for Semi-volatiles analysis. The sample analysis was based on SW846/8270.

The samples were extracted on May 16, 1995 and then analyzed on a Hewlett Packard GC/MSD system, equipped with a DB5ms capillary column. Approximately 10-15 g soil was extracted. The sample extracts were highly coloured, and all extracts were diluted 5x prior to analysis. Soil samples were not homogeneous. They contained large pieces of concrete or asphalt. as much as was possible, analysts removed large pieces of foreign material prior to weighing out the sample.

As part of the laboratory sample batch, lab spike, lab blank, matrix spike, matrix spike duplicate and sample duplicate were analyzed. The results for SS-31 and SS-31dup are similar, with one exception. The duplicate result shows a high value for Di-n-butylphthalate.

Comments for Analysis of Liquid samples for ABNs:

One liquid sample was received by NOVAMANN for Semi-volatiles analysis. The sample analysis was based on SW846/8270.

The samples were extracted on May 16, 1995 and then analyzed on a Hewlett Packard GC/MSD system, equipped with a DB5ms capillary column.

The water sample analysis batch included a lab blank and a lab spike. There was insufficient sample submitted to permit analysis of a sample duplicate or matrix spike.

Surrogate recoveries for acid surrogates in the water sample are lower than expected. We suspect that there is a matrix effect that causes these low recoveries. However, since we had insufficient sample, a matrix spike could not be extracted.

CASE NARRATIVE: VOLATILES ANALYSIS (VOCs)
Client: ACRES INTERNATIONAL CORP.
Laboratory: NOVAMANN (Ontario) Inc.
Lab Workorder #: 9501806
Client Project: P11276.00
Sample received at NOVAMANN : May 15, 1995

Comments for VOCs analysis on Soil and Water samples:

The samples were analyzed on May 24, 1995. Approximately 1g soil was analyzed. Water samples were analyzed undiluted. No major problems were encountered during analysis.



PORT DATE: 30/11/95

PROJECT #: P11275.09
NOVAMANN JOB #: 9501806

EPA 8270 ACID/BASE NEUTRAL ORGANICS IN LIQUID

Novamann ID		6365				
Sampling Date		11/05/95				
Parameter	Units	FB-1	SPIKE %REC	LIMITS	BLANK	MDL
1,2,4-Trichlorobenzene	ug/L	ND	84	44 - 142	ND	2
1,2-Dichlorobenzene	ug/L	ND	74	32 - 129	ND	2
1,3-Dichlorobenzene	ug/L	ND	73	10 - 141	ND	2
1,4-Dichlorobenzene	ug/L	ND	74	20 - 124	ND	2
2,4,5-Trichlorophenol	ug/L	ND	95	33 - 140	ND	2
2,4,6-Trichlorophenol	ug/L	ND	91	38 - 133	ND	2
2,4-Dichlorophenol	ug/L	ND	87	39 - 135	ND	2
2,4-Dimethylphenol	ug/L	ND	74	32 - 119	ND	2
2,4-Dinitrophenol	ug/L	ND	70	1 - 191	ND	5
2,4-Dinitrotoluene	ug/L	ND	92	39 - 139	ND	2
2,6-Dinitrotoluene	ug/L	ND	93	50 - 158	ND	2
2-Chloronaphthalene	ug/L	ND	86	60 - 118	ND	2
2-Chlorophenol	ug/L	ND	73	23 - 115	ND	2
2-Methylnaphthalene	ug/L	ND	93	40 - 130	ND	2
2-Methylphenol	ug/L	ND	76	40 - 130	ND	2
2-Nitroaniline	ug/L	ND	N/A	40 - 130	ND	5
2-Nitrophenol	ug/L	ND	79	19 - 152	ND	2
3,3'-Dichlorobenzidine	ug/L	ND	103	1 - 262	ND	20
3-Nitroaniline	ug/L	ND	N/A	40 - 130	ND	5
4,6-Dinitro-2-methylphenol	ug/L	ND	84	47 - 139	ND	5
4-Bromophenyl phenyl ether	ug/L	ND	99	53 - 127	ND	2
4-Chlorophenyl phenyl ether	ug/L	ND	101	59 - 124	ND	2
4-Chloroaniline	ug/L	ND	87	40 - 130	ND	2
4-Methylphenol	ug/L	ND	85	40 - 130	ND	2
4-Nitroaniline	ug/L	ND	N/A	40 - 130	ND	5
4-Nitrophenol	ug/L	ND	77	1 - 132	ND	5
Acenaphthene	ug/L	ND	101	47 - 145	ND	1
Acenaphthylene	ug/L	ND	96	33 - 145	ND	1
Anthracene	ug/L	ND	108	66 - 128	ND	1
Benzidine	ug/L	ND	85	40 - 130	ND	20
Benzo(a)anthracene	ug/L	ND	102	33 - 143	ND	1
Benzo(a)pyrene	ug/L	ND	100	17 - 163	ND	1
Benzo(b)fluoranthene	ug/L	ND	105	24 - 159	ND	1
Benzo(ghi)perylene	ug/L	ND	96	49 - 195	ND	2
Benzo(k)fluoranthene	ug/L	ND	110	10 - 150	ND	1
Benzoic Acid	ug/L	ND	N/A	40 - 130	ND	5
Bis(2-chloroethoxy)methane	ug/L	ND	84	27 - 136	ND	2
Bis(2-chloroethyl)ether	ug/L	ND	76	28 - 110	ND	2
Bis(2-chloroisopropyl)ether	ug/L	ND	96	36 - 166	ND	2
Bis(2-ethylhexyl)phthalate	ug/L	ND	74	20 - 140	ND	2
Benzyl butyl phthalate	ug/L	ND	72	1 - 140	ND	2
Chrysene	ug/L	ND	99	15 - 158	ND	1
Di-N-butyl phthalate	ug/L	ND	111	8 - 124	ND	2
Di-N-octyl phthalate	ug/L	ND	81	4 - 146	ND	2



EPA 8270 ACID/BASE NEUTRAL ORGANICS IN LIQUID

Novamann ID		6365				
Sampling Date		11/05/95				
Parameter	Units	FB-1	SPIKE %REC	LIMITS	BLANK	MDL
Dibenzo(a,h)anthracene	ug/L	ND	95	1 - 142	ND	2
Dibenzofuran	ug/L	ND	N/A	40 - 130	ND	2
Diethyl phthalate	ug/L	ND	100	1 - 114	ND	2
Dimethyl phthalate	ug/L	ND	94	1 - 112	ND	2
Fluoranthene	ug/L	ND	116	26 - 137	ND	1
Fluorene	ug/L	ND	104	59 - 121	ND	1
Hexachlorobenzene	ug/L	ND	100	31 - 133	ND	2
Hexachlorobutadiene	ug/L	ND	97	24 - 116	ND	2
Hexachlorocyclopentadiene	ug/L	ND	25	1 - 77	ND	2
Hexachloroethane	ug/L	ND	81	40 - 113	ND	2
Indeno(1,2,3-cd)pyrene	ug/L	ND	92	11 - 151	ND	2
Isophorone	ug/L	ND	80	21 - 196	ND	2
N-Nitroso-di-n-propylamine	ug/L	ND	72	21 - 149	ND	5
Naphthalene	ug/L	ND	89	21 - 133	ND	1
Nitrobenzene	ug/L	ND	80	35 - 180	ND	2
Nitrosodiphenylamine/Diphenylamine	ug/L	ND	82	6 - 191	ND	5
4-Chloro-3-Methylphenol	ug/L	ND	87	29 - 144	ND	5
Pentachlorophenol	ug/L	ND	92	4 - 154	ND	2
Phenanthrene	ug/L	ND	110	54 - 120	ND	1
Phenol	ug/L	ND	59	1 - 72	ND	2
Pyrene	ug/L	ND	97	52 - 115	ND	1

Recovery of Surrogates
(%)

Parameter	FB-1	SPIKE %REC	LIMITS	BLANK
2-Fluorobiphenyl	79	74	43 - 116	70
2-Fluorophenol	115	64	21 - 100	33
2,4,6-Tribromophenol	119	91	10 - 123	81
D14-Terphenyl	104	108	33 - 141	85
D5-Nitrobenzene	84	84	13 - 130	30
D5-Phenol	14	54	10 - 94	19

ND = Not detected
N/A = Not Applicable
MDL = Method Detection Limit
Limits = Control Limits



EPA 8270 ACID/BASE NEUTRAL ORGANICS IN SOLID

Novamann ID		6366	6367	6368	6369	6369			
Sampling Date		11/05/95	11/05/95	12/05/95	12/05/95	12/05/95			
Parameter	Units	SS-10	SS-9	SS-31	SS-31D	SS-31D CUP	MDL	SPIKE REC	MDL
1,2,4-Trichlorobenzene	ug/Kg	ND	ND	ND	ND	ND	1000	101	200
1,2-Dichlorobenzene	ug/Kg	ND	ND	ND	ND	ND	1000	90	200
1,3-Dichlorobenzene	ug/Kg	ND	ND	ND	ND	ND	1000	90	200
1,4-Dichlorobenzene	ug/Kg	ND	ND	ND	ND	ND	1000	92	200
2,4,5-Trichlorophenol	ug/Kg	ND	ND	ND	ND	ND	1000	99	200
2,4,6-Trichlorophenol	ug/Kg	ND	ND	ND	ND	ND	1000	103	200
2,4-Dichlorophenol	ug/Kg	ND	ND	ND	ND	ND	1000	96	200
2,4-Dimethylphenol	ug/Kg	ND	ND	ND	ND	ND	1000	76	200
2,4-Dinitrophenol	ug/Kg	ND	ND	ND	ND	ND	2500	35	500
2,4-Dinitrotoluene	ug/Kg	ND	ND	ND	ND	ND	1000	38	200
2,6-Dinitrotoluene	ug/Kg	ND	ND	ND	ND	ND	1000	37	200
2-Chloronapthalene	ug/Kg	ND	ND	ND	ND	ND	1000	107	200
2-Chlorophenol	ug/Kg	ND	ND	ND	ND	ND	1000	90	200
2-Methylnapthalene	ug/Kg	ND	ND	ND	ND	ND	1000	105	200
2-Methylphenol	ug/Kg	ND	ND	ND	ND	ND	1000	37	200
2-Nitroaniline	ug/Kg	ND	ND	ND	ND	ND	2500	N/A	500
2-Nitrophenol	ug/Kg	ND	ND	ND	ND	ND	1000	39	200
3,3'-Dichlorobenzidine	ug/Kg	ND	ND	ND	ND	ND	10000	121	2000
3-Nitroaniline	ug/Kg	ND	ND	ND	ND	ND	2500	N/A	500
4,6-Dinitro-2-methylphenol	ug/Kg	ND	ND	ND	ND	ND	2500	66	500
4-Bromophenyl phenyl ether	ug/Kg	ND	ND	ND	ND	ND	1000	112	200
4-Chlorophenyl phenyl ether	ug/Kg	ND	ND	ND	ND	ND	1000	109	200
4-Chloroaniline	ug/Kg	ND	ND	ND	ND	ND	1000	104	200
4-Methylphenol	ug/Kg	ND	ND	ND	ND	ND	1000	35	200
4-Nitroaniline	ug/Kg	ND	ND	ND	ND	ND	2500	N/A	500
4-Nitrophenol	ug/Kg	ND	ND	ND	ND	ND	2500	79	500
Acenaphthene	ug/Kg	ND	ND	ND	ND	ND	500	110	100
Acenaphthylene	ug/Kg	ND	ND	ND	ND	ND	500	105	100
Anthracene	ug/Kg	331	ND	ND	ND	ND	500	118	100
Benzidine	ug/Kg	ND	ND	ND	ND	ND	10000	101	2000
Benzo(a)anthracene	ug/Kg	2630	ND	ND	ND	ND	500	119	100
Benzo(a)pyrene	ug/Kg	ND	ND	ND	ND	ND	500	109	100
Benzo(b)fluoranthene	ug/Kg	3160	ND	ND	ND	ND	500	110	100
Benzo(ghi)perylene	ug/Kg	ND	ND	ND	ND	ND	1000	107	200
Benzo(k)fluoranthene	ug/Kg	992	ND	ND	ND	ND	500	128	100
Benzoic Acid	ug/Kg	ND	ND	ND	ND	ND	2500	N/A	500
Bis(2-chloroethoxy)methane	ug/Kg	ND	ND	ND	ND	ND	1000	100	200
Bis(2-chloroethyl)ether	ug/Kg	ND	ND	ND	ND	ND	1000	93	200
Bis(2-chloroisopropyl)ether	ug/Kg	ND	ND	ND	ND	ND	1000	94	200
Bis(2-ethylhexyl)phthalate	ug/Kg	ND	ND	ND	ND	ND	1000	94	200
Benzyl butyl phthalate	ug/Kg	ND	ND	ND	ND	ND	1000	92	200
Chrysene	ug/Kg	3090	ND	ND	ND	ND	500	116	100
Di-N-butyl phthalate	ug/Kg	35300	4770	8750	ND	17900	1000	131	200



EPA 8270 ACID/BASE NEUTRAL ORGANICS IN SOLID

Novamann ID		6366	6367	6368	6369	6369			
Sampling Date		11/05/95	11/05/95	12/05/95	12/05/95	12/05/95			
Parameter	Units	SS-10	SS-9	SS-31	SS-31D	SS-31D DUP	MDL	SPIKE %REC	MDL
Di-N-octyl phthalate	ug/Kg	ND	ND	ND	ND	ND	1000	90	200
Dibenzo(a,h)anthracene	ug/Kg	ND	ND	ND	ND	ND	1000	103	200
Dibenzofuran	ug/Kg	ND	ND	ND	ND	ND	1000	N/A	200
Diethyl phthalate	ug/Kg	ND	ND	ND	ND	ND	1000	102	200
Dimethyl phthalate	ug/Kg	ND	ND	ND	ND	ND	1000	101	200
Fluoranthene	ug/Kg	5650	ND	ND	ND	ND	500	122	100
Fluorene	ug/Kg	ND	ND	ND	ND	ND	500	111	100
Hexachlorobenzene	ug/Kg	ND	ND	ND	ND	ND	1000	113	200
Hexachlorocyclopentadiene	ug/Kg	ND	ND	ND	ND	ND	1000	114	200
Hexachlorocyclopentadiene	ug/Kg	ND	ND	ND	ND	ND	1000	59	200
Hexachloroethane	ug/Kg	ND	ND	ND	ND	ND	2000	92	200
Indeno(1,2,3-cd)pyrene	ug/Kg	ND	ND	ND	ND	ND	1000	101	200
Isopnorne	ug/Kg	ND	ND	ND	ND	ND	1000	94	200
N-Nitroso-di-n-propylamine	ug/Kg	ND	ND	ND	ND	ND	2500	99	500
Naphthalene	ug/Kg	ND	ND	ND	ND	ND	500	106	100
Nitrobenzene	ug/Kg	ND	ND	ND	ND	ND	1000	94	200
Nitrosodiphenylamine/Diphenylamine	ug/Kg	ND	ND	ND	ND	ND	2500	145	500
4-Chloro-3-Methylphenol	ug/Kg	ND	ND	ND	ND	ND	2500	100	500
Pentachloropneol	ug/Kg	ND	ND	ND	ND	ND	1000	93	200
Phenanthrene	ug/Kg	4040	ND	ND	ND	ND	500	119	100
Phenol	ug/Kg	ND	ND	ND	ND	ND	1000	94	200
Pyrene	ug/Kg	3480	ND	ND	ND	ND	500	108	100

Recovery of Surrogates
(%)

Parameter	SS-10	SS-9	SS-31	SS-31D	SS-31D DUP	SPIKE %REC
2-Fluorobiphenyl	90	88	88	88	85	87
2-Fluorophenol	92	81	88	85	80	89
2,4,6-Tribromophenol	73	78	81	80	87	90
D14-Terphenyl	91	99	94	114	124	94
D5-Nitrobenzene	99	90	96	99	94	90
D5-Phenol	92	92	96	91	78	93

ND = Not detected
N/A = Not Applicable
MDL = Method Detection Limit



EPA 8270 ACID/BASE NEUTRAL ORGANICS IN SOLID

Novamann ID							
Sampling Date							
Parameter	Units	BLANK	MDL	MATRIX SPIKE %REC	MATRIX SPIKE DUP %REC	LIMITS	MDL
1,2,4-Trichlorobenzene	ug/Kg	ND	200	97	101	57 - 130	200
1,2-Dichlorobenzene	ug/Kg	ND	200	97	92	48 - 112	200
1,3-Dichlorobenzene	ug/Kg	ND	200	96	90	16 - 154	200
1,4-Dichlorobenzene	ug/Kg	ND	200	99	92	37 - 106	200
2,4,5-Trichlorophenol	ug/Kg	ND	200	104	104	40 - 130	200
2,4,6-Trichlorophenol	ug/Kg	ND	200	102	102	52 - 130	200
2,4-Dichlorophenol	ug/Kg	ND	200	97	97	52 - 122	200
2,4-Dimethylphenol	ug/Kg	ND	200	92	78	41 - 109	200
2,4-Dinitrophenol	ug/Kg	ND	500	22	34	1 - 173	500
2,4-Dinitrotoluene	ug/Kg	ND	200	98	94	47 - 127	200
2,6-Dinitrotoluene	ug/Kg	ND	200	97	97	58 - 137	200
2-Chloronaphthalene	ug/Kg	ND	200	101	104	54 - 114	200
2-Chlorophenol	ug/Kg	ND	200	99	92	36 - 121	200
2-Methylnaphthalene	ug/Kg	ND	200	107	106	40 - 130	200
2-Methylphenol	ug/Kg	ND	200	93	93	31 - 123	200
2-Nitroaniline	ug/Kg	ND	500	N/A	N/A	40 - 130	500
2-Nitrophenol	ug/Kg	ND	200	97	91	45 - 167	200
3,3'-Dichlorobenzidine	ug/Kg	ND	2000	96	126	9 - 213	2000
3-Nitroaniline	ug/Kg	ND	500	N/A	N/A	40 - 130	500
4,6-Dinitro-2-methylphenol	ug/Kg	ND	500	54	65	53 - 100	500
4-Bromophenyl phenyl ether	ug/Kg	ND	200	114	116	53 - 127	200
4-Chlorophenyl phenyl ether	ug/Kg	ND	200	108	108	38 - 145	200
4-Chloroaniline	ug/Kg	ND	200	100	105	40 - 130	200
4-Methylphenol	ug/Kg	ND	200	101	103	33 - 120	200
4-Nitroaniline	ug/Kg	ND	500	N/A	N/A	40 - 130	500
4-Nitrophenol	ug/Kg	ND	500	74	N/A	13 - 107	500
Acenaphthene	ug/Kg	ND	100	106	109	60 - 133	100
Acenaphthylene	ug/Kg	ND	100	103	107	53 - 126	100
Anthracene	ug/Kg	ND	100	118	119	27 - 133	100
Benzidine	ug/Kg	ND	2000	111	115	40 - 130	2000
Benzo(a)anthracene	ug/Kg	ND	100	114	118	41 - 133	100
Benzo(a)pyrene	ug/Kg	ND	100	108	110	31 - 148	100
Benzo(b)fluoranthene	ug/Kg	ND	100	115	109	25 - 146	100
Benzo(ghi)perylene	ug/Kg	ND	200	99	111	40 - 195	200
Benzo(k)fluoranthene	ug/Kg	ND	100	123	123	25 - 146	100
Benzoic Acid	ug/Kg	ND	500	N/A	N/A	40 - 130	500
Bis(2-chloroethoxy)methane	ug/Kg	ND	200	97	101	49 - 165	200
Bis(2-chloroethyl)ether	ug/Kg	ND	200	99	94	42 - 126	200
Bis(2-chloroisopropyl)ether	ug/Kg	ND	200	95	96	62 - 139	200
Bis(2-ethylhexyl)phthalate	ug/Kg	ND	200	98	113	28 - 137	200
Benzyl butyl phthalate	ug/Kg	ND	200	109	105	1 - 140	200
Chrysene	ug/Kg	ND	100	109	117	44 - 140	100
Di-N-butyl phthalate	ug/Kg	ND	200	124	124	1 - 140	200



EPA 8270 ACID/BASE NEUTRAL ORGANICS IN SOLID

Novamann ID								
Sampling Date								
Parameter	Units	BLANK	MDL	MATRIX SPIKE %REC	MATRIX SPIKE DUP %REC	LIMITS	MDL	
Di-N-octyl phthalate	ug/Kg	ND	200	115	108	18 - 132	200	
Dibenzo(a,n)anthracene	ug/Kg	ND	200	92	108	1 - 200	200	
Dibenzofuran	ug/Kg	ND	200	N/A	N/A	40 - 130	200	
Diethyl phthalate	ug/Kg	ND	200	103	99	1 - 114	200	
Dimethyl phthalate	ug/Kg	ND	200	101	102	1 - 112	200	
Fluoranthene	ug/Kg	ND	100	113	119	26 - 137	100	
Fluorene	ug/Kg	ND	100	109	110	59 - 121	100	
Hexachlorobenzene	ug/Kg	ND	200	113	115	7 - 142	200	
Hexachlorobutadiene	ug/Kg	ND	200	109	115	24 - 116	200	
Hexachlorocyclopentadiene	ug/Kg	ND	200	32	71	1 - 77	200	
Hexachloroethane	ug/Kg	ND	200	37	34	55 - 100	200	
Indeno(1,2,3-cd)pyrene	ug/Kg	ND	200	93	107	1 - 151	200	
Isopnorone	ug/Kg	ND	200	92	97	46 - 180	200	
N-Nitroso-di-n-propylamine	ug/Kg	ND	500	71	93	13 - 198	500	
Napthalene	ug/Kg	ND	100	103	107	35 - 120	100	
Nitrobenzene	ug/Kg	ND	200	91	96	54 - 158	200	
Nitrosodiphenylamine/Diphenylamine	ug/Kg	ND	500	150	145	40 - 130	500	
4-Chloro-3-Methylphenol	ug/Kg	ND	500	105	102	40 - 128	500	
Pentachlorophenol	ug/Kg	ND	200	35	93	18 - 152	200	
Phenanthrene	ug/Kg	ND	100	121	123	54 - 120	100	
Phenol	ug/Kg	ND	200	94	98	17 - 100	200	
Pyrene	ug/Kg	ND	100	143	112	52 - 115	100	

Recovery of Surrogates
(%)

Parameter	BLANK	MATRIX SPIKE %REC	MATRIX SPIKE DUP %REC	LIMITS
2-Fluorobiphenyl	34	32	38	30 - 115
2-Fluorophenol	31	35	90	25 - 121
2,4,6-Tribromophenol	70	91	96	19 - 122
D14-Terphenyl	108	119	100	18 - 137
D5-Nitrobenzene	33	36	38	23 - 120
D5-Phenol	79	32	38	10 - 94

ND = Not detected
N/A = Not Applicable
MDL = Method Detection Limit
Limits = Control Limits



EPA 8260 VOLATILE ORGANICS IN LIQUID

Novamann ID		6364	6365	6365					
Sampling Date			11/05/95	11/05/95					
Parameter	Units	TRAVEL BLANK	FB-1	FB-1 DUP	SPIKE %REC	SPIKE DUP %REC	BLANK	MATRIX SPIKE %REC	MDL
1,1,1-Trichloroethane	ug/L	ND	ND	ND	107	92	ND	98	1
1,1,2,2-Tetrachloroethane	ug/L	ND	ND	ND	93	86	ND	96	2
1,1,2-Trichloroethane	ug/L	ND	ND	ND	95	83	ND	101	2
1,1-Dichloroethane	ug/L	ND	ND	ND	95	90	ND	103	1
1,1-Dichloroethylene	ug/L	ND	ND	ND	100	104	ND	101	1
1,2-Dichloroethane	ug/L	ND	ND	ND	97	95	ND	103	1
Total 1,2-Dichloroethylene	ug/L	ND	ND	ND	99	96	ND	95	1
1,2-Dichloropropane	ug/L	ND	ND	ND	99	82	ND	103	1
trans-1,3-Dichloropropene	ug/L	ND	ND	ND	90	84	ND	101	1
cis-1,3-Dichloropropene	ug/L	ND	ND	ND	91	87	ND	102	1
2-Butanone	ug/L	ND	ND	ND	92	N/A	ND	N/A	15
2-Hexanone	ug/L	ND	ND	ND	N/A	N/A	ND	N/A	10
4-Methyl-2-Pentanone	ug/L	ND	ND	ND	97	N/A	ND	N/A	10
Acetone	ug/L	ND	ND	ND	89	N/A	ND	N/A	15
Benzene	ug/L	ND	ND	ND	98	91	ND	98	0.5
Bromodichloromethane	ug/L	ND	ND	ND	99	91	ND	101	2
Bromoform	ug/L	ND	ND	ND	98	110	ND	94	1
Bromomethane	ug/L	ND	ND	ND	104	105	ND	101	2
Carbon Disulfide	ug/L	ND	ND	ND	N/A	N/A	ND	N/A	10
Carbon Tetrachloride	ug/L	ND	ND	ND	105	92	ND	101	1
Chlorobenzene	ug/L	ND	ND	ND	98	89	ND	97	0.5
Chloroethane	ug/L	ND	ND	ND	97	94	ND	100	2
Chloroform	ug/L	ND	ND	ND	99	99	ND	100	1
Chloromethane	ug/L	ND	ND	ND	99	90	ND	100	2
Dibromochloromethane	ug/L	ND	ND	ND	97	98	ND	102	1
Dichloromethane (Methylene chloride)	ug/L	ND	ND	ND	100	93	ND	102	1
Ethylbenzene	ug/L	ND	ND	ND	100	93	ND	97	0.5
Styrene	ug/L	ND	ND	ND	N/A	N/A	ND	N/A	10
Tetrachloroethylene	ug/L	ND	ND	ND	101	98	ND	95	1
Toluene	ug/L	ND	ND	ND	99	88	ND	99	0.5
Total Xylenes	ug/L	ND	ND	ND	101	99	ND	101	1
Trichloroethylene	ug/L	ND	ND	ND	100	86	ND	100	1
Vinyl Acetate	ug/L	ND	ND	ND	N/A	N/A	ND	N/A	2
Vinyl chloride	ug/L	ND	ND	ND	99	90	ND	97	2



REPORT DATE: 22/05/95

Quality Analytical Laboratories
Laboratoires Analytiques de Qualité

PROJECT #: P11276.00

NOVAMANN JOB #: 9501806

Recovery of Surrogates
(%)

Parameter	TRAVEL BLANK	FB-1	FB-1 DUP	SPIKE %REC	SPIKE DUP %REC	BLANK	MATRIX SPIKE %REC
4-Bromofluorobenzene	97	95	93	108	93	91	98
D4-1,2-Dichloroethane	102	104	100	97	94	102	100
D8-Toluene	101	104	100	99	94	100	99

ND = Not detected

N/A = Not Applicable

MDL = Method Detection Limit



EPA 8260 VOLATILE ORGANICS IN LIQUID

Novamann ID			
Sampling Date			
Parameter	Units	LIMITS	MDL
1,1,1-Trichloroethane	ug/L	30 - 120	1
1,1,2,2-Tetrachloroethane	ug/L	38 - 114	2
1,1,2-Trichloroethane	ug/L	30 - 115	2
1,1-Dichloroethane	ug/L	34 - 117	1
1,1-Dichloroethylene	ug/L	30 - 116	1
1,2-Dichloroethane	ug/L	31 - 115	1
Total 1,2-Dichloroethylene	ug/L	40 - 130	1
1,2-Dichloropropane	ug/L	37 - 112	1
trans-1,3-Dichloropropene	ug/L	78 - 116	1
cis-1,3-Dichloropropene	ug/L	69 - 112	1
2-Butanone	ug/L	40 - 130	15
2-Hexanone	ug/L	40 - 130	10
4-Methyl-2-Pentanone	ug/L	40 - 130	10
Acetone	ug/L	40 - 130	15
Benzene	ug/L	34 - 112	0.5
Bromodichloromethane	ug/L	30 - 120	2
Bromoform	ug/L	30 - 117	2
Bromomethane	ug/L	33 - 115	2
Carbon Disulfide	ug/L	40 - 130	10
Carbon Tetrachloride	ug/L	32 - 110	1
Chlorobenzene	ug/L	35 - 114	0.5
Chloroethane	ug/L	38 - 113	2
Chloroform	ug/L	70 - 115	1
Chloromethane	ug/L	60 - 130	2
Dibromochloromethane	ug/L	34 - 115	1
Dichloromethane (Methylene chloride)	ug/L	38 - 113	1
Ethylbenzene	ug/L	35 - 117	0.5
Styrene	ug/L	40 - 130	10
Tetrachloroethylene	ug/L	33 - 115	1
Toluene	ug/L	35 - 115	0.5
Total Xylenes	ug/L	40 - 130	1
Trichloroethylene	ug/L	35 - 115	1
Vinyl Acetate	ug/L	40 - 130	2
Vinyl chloride	ug/L	30 - 121	2



REPORT DATE: 23/05/95

Quality Analytical Laboratories
Laboratoires Analytiques de Qualité
PROJECT #: P11276.00
NOVAMANN JOB #: 9501806

Recovery of Surrogates
(8)

Parameter	LIMITS
4-Bromofluorobenzene	30 - 115
D4-1,2-Dichloroethane	75 - 115
D8-Toluene	35 - 115

MDL = Method Detection Limit
Limits = Control Limits



REPORT DATE: 29/05/95

PROJECT #: P11275.00
NOVAMANN JOB #: 3501306

EPA 8260 VOLATILE ORGANICS IN SOLID

Novamann ID		5366	5367	5367	5368	5369			
Sampling Date		11/05/95	11/05/95	11/05/95	12/05/95	12/05/95			
Parameter	Units	SS-10	SS-9	SS-9 DUP	SS-31	SS-31D	SPIKE %REC	SPIKE DUP %REC	MDL
1,1,1-Trichloroethane	ug/Kg	TR	13	12	ND	ND	107	92	10
1,1,2,2-Tetrachloroethane	ug/Kg	TR	ND	ND	ND	ND	93	86	20
1,1,2-Trichloroethane	ug/Kg	ND	ND	ND	ND	ND	95	83	20
1,1-Dichloroethane	ug/Kg	ND	TR	TR	ND	TR	95	90	10
1,1-Dichloroethylene	ug/Kg	ND	ND	ND	ND	ND	100	104	10
1,2-Dichloroethane	ug/Kg	ND	ND	ND	ND	ND	97	95	10
Total 1,2-Dichloroethylene	ug/Kg	TR	ND	ND	ND	ND	99	95	10
1,2-Dichloropropane	ug/Kg	ND	ND	ND	ND	ND	99	82	10
trans-1,3-Dichloropropene	ug/Kg	ND	ND	ND	ND	ND	90	84	10
cis-1,3-Dichloropropene	ug/Kg	ND	ND	ND	ND	ND	91	87	10
2-Butanone	ug/Kg	ND	ND	ND	ND	ND	92	N/A	150
2-Hexanone	ug/Kg	ND	ND	ND	ND	ND	N/A	N/A	100
4-Methyl-2-Pentanone	ug/Kg	ND	ND	ND	ND	ND	97	N/A	100
Acetone	ug/Kg	TR	ND	ND	TR	ND	99	N/A	150
Benzene	ug/Kg	TR	ND	ND	ND	ND	98	91	5
Bromodichloromethane	ug/Kg	ND	ND	ND	ND	ND	99	91	20
Bromoform	ug/Kg	ND	ND	ND	ND	ND	98	110	20
Bromomethane	ug/Kg	ND	ND	ND	ND	ND	104	105	20
Carbon Disulfide	ug/Kg	13	ND	ND	ND	TR	N/A	N/A	100
Carbon Tetrachloride	ug/Kg	ND	ND	ND	ND	ND	105	92	10
Chlorobenzene	ug/Kg	ND	ND	ND	ND	ND	98	99	5
Chloroethane	ug/Kg	ND	ND	ND	ND	ND	97	94	20
Chloroform	ug/Kg	TR	ND	ND	ND	ND	99	99	10
Chloromethane	ug/Kg	ND	ND	ND	ND	ND	99	90	20
Dibromochloromethane	ug/Kg	ND	ND	ND	ND	ND	97	98	10
Dichloromethane (Methylene chloride)	ug/Kg	130	12	14	TR	TR	100	93	10
Ethylbenzene	ug/Kg	TR	ND	ND	ND	ND	100	93	5
Styrene	ug/Kg	ND	ND	ND	ND	ND	N/A	N/A	100
Tetrachloroethylene	ug/Kg	70	ND	ND	ND	ND	101	98	10
Toluene	ug/Kg	26	TR	TR	TR	TR	99	88	5
Total Xylenes	ug/Kg	TR	ND	ND	ND	ND	101	99	10
Trichloroethylene	ug/Kg	270	TR	TR	ND	ND	100	95	10
Vinyl Acetate	ug/Kg	ND	ND	ND	ND	ND	N/A	N/A	20
Vinyl chloride	ug/Kg	ND	ND	ND	ND	ND	99	90	20



REPORT DATE: 29/05/95

Quality Analytical Laboratories
Laboratoires Analytiques de Qualité

PROJECT #: P11276.00
NOVAMANN JOB #: 9501306

Recovery of Surrogates
(%)

Parameter	SS-10	SS-9	SS-9 DUP	SS-31	SS-31D	SPIKE %REC	SPIKE DUP %REC
4-Bromofluorobenzene	81	74	84	92	95	108	93
D4-1,2-Dichloroethane	111	104	109	110	110	97	94
D8-Toluene	93	111	107	101	97	99	94

ND = Not detected

N/A = Not Applicable

MDL = Method Detection Limit

TR = Trace amount detected (MDL > TR > 1/5 MDL)



EPA 8260 VOLATILE ORGANICS IN SOLID

Novamann ID					
Sampling Date					
Parameter	Units	BLANK	MATRIX SPIKE %REC	LIMITS	MDL
1,1,1-Trichloroethane	ug/Kg	ND	102	30 - 120	10
1,1,2,2-Tetrachloroethane	ug/Kg	ND	98	64 - 136	20
1,1,2-Trichloroethane	ug/Kg	ND	109	30 - 115	20
1,1-Dichloroethane	ug/Kg	ND	113	34 - 117	10
1,1-Dichloroethylene	ug/Kg	ND	112	30 - 116	10
1,2-Dichloroethane	ug/Kg	ND	108	31 - 115	10
Total 1,2-Dichloroethylene	ug/Kg	ND	103	40 - 130	10
1,2-Dichloropropane	ug/Kg	ND	120	73 - 114	10
trans-1,3-Dichloropropene	ug/Kg	ND	104	73 - 116	10
cis-1,3-Dichloropropene	ug/Kg	ND	103	69 - 112	10
2-Butanone	ug/Kg	ND	116	40 - 130	150
2-Hexanone	ug/Kg	ND	95	40 - 130	100
4-Methyl-2-Pentanone	ug/Kg	ND	96	40 - 130	100
Acetone	ug/Kg	ND	95	40 - 130	150
Benzene	ug/Kg	ND	110	34 - 112	5
Bromodichloromethane	ug/Kg	ND	101	30 - 120	20
Bromoform	ug/Kg	ND	39	30 - 117	20
Bromomethane	ug/Kg	ND	120	73 - 120	20
Carbon Disulfide	ug/Kg	ND	N/A	40 - 130	100
Carbon Tetrachloride	ug/Kg	ND	97	32 - 106	10
Chlorobenzene	ug/Kg	ND	105	35 - 114	5
Chloroethane	ug/Kg	ND	112	38 - 113	20
Chloroform	ug/Kg	ND	110	30 - 115	10
Chloromethane	ug/Kg	ND	110	50 - 130	20
Dibromochloromethane	ug/Kg	ND	106	34 - 115	10
Dichloromethane (Methylene chloride)	ug/Kg	ND	121	58 - 136	10
Ethylbenzene	ug/Kg	ND	106	35 - 117	5
Styrene	ug/Kg	ND	N/A	40 - 130	100
Tetrachloroethylene	ug/Kg	ND	102	33 - 115	10
Toluene	ug/Kg	ND	109	35 - 115	5
Total Xylenes	ug/Kg	ND	103	40 - 130	10
Trichloroethylene	ug/Kg	ND	108	35 - 115	10
Vinyl Acetate	ug/Kg	ND	N/A	40 - 130	20
Vinyl chloride	ug/Kg	ND	107	30 - 121	20



REPORT DATE: 29/05/95

Quality Analytical Laboratories
Laboratoires Analytiques de Qualité

PROJECT #: P11276.00
NOVAMANN JOB #: 9501806

Recovery of Surrogates
(%)

Parameter	BLANK	MATRIX SPIKE %REC	LIMITS
4-Bromofluorobenzene	94	92	74 - 121
D4-1,2-Dichloroethane	107	100	80 - 120
D8-Toluene	97	97	81 - 117

ND = Not detected
N/A = Not Applicable
MDL = Method Detection Limit
Limits = Control Limits



REPORT DATE: 29/05/95

Quality Analytical Laboratories
Laboratoires Analytiques de Qualité

PROJECT #: P11276.00
NOVAMANN JCB #: 9501306

TWOC FOR GASOLINE CONTAMINATED SITES IN LIQUID

Novamann ID		6364	6365	6365					
Sampling Date			11/05/95	11/05/95					
Parameter	Units	TRAVEL BLANK	FB-1	FB-1 DUP	SPIKE %REC	SPIKE DUP %REC	BLANK	MATRIX SPIKE %REC	MDL
Isopropylbenzene	ug/L	ND	ND	ND	N/A	N/A	ND	N/A	1
n-Propylbenzene	ug/L	ND	ND	ND	N/A	N/A	ND	N/A	1
p-Isopropyltoluene	ug/L	ND	ND	ND	N/A	N/A	ND	N/A	1
1,2,4-Trimethylbenzene	ug/L	ND	ND	ND	N/A	N/A	ND	N/A	1
1,3,5-Trimethylbenzene	ug/L	ND	ND	ND	N/A	N/A	ND	N/A	1
n-Butylbenzene	ug/L	ND	ND	ND	N/A	N/A	ND	N/A	1
sec-butylbenzene	ug/L	ND	ND	ND	N/A	N/A	ND	N/A	1
Napthalene	ug/L	ND	ND	ND	N/A	N/A	ND	N/A	1
Methyl t-butyl ether (MTBE)	ug/L	ND	ND	ND	N/A	N/A	ND	N/A	1

Recovery of Surrogates
(%)

Parameter		TRAVEL BLANK	FB-1	FB-1 DUP	SPIKE %REC	SPIKE DUP %REC	BLANK	MATRIX SPIKE %REC
4-Bromofluorobenzene		97	95	93	108	93	91	98
D4-1,2-Dichloroethane		102	104	100	97	94	102	100
D8-Toluene		101	104	100	99	94	100	99

ND = Not detected
N/A = Not Applicable
MDL = Method Detection Limit



THC FOR GASOLINE CONTAMINATED SITES IN LIQUID

Novamann ID			
Sampling Date			
Parameter	Units	LIMITS	MDL
Isopropylbenzene	ug/L	40 - 130	1
n-Propylbenzene	ug/L	40 - 130	1
p-isopropyltoluene	ug/L	40 - 130	1
1,2,4-Trimethylbenzene	ug/L	40 - 130	1
1,3,5-Trimethylbenzene	ug/L	40 - 130	1
n-Butylbenzene	ug/L	40 - 130	1
sec-butylbenzene	ug/L	40 - 130	1
Napthalene	ug/L	40 - 130	1
Methyl t-butyl ether (MTBE)	ug/L	40 - 130	1

Recovery of Surrogates
(%)

Parameter	LIMITS
4-Bromofluorobenzene	80 - 115
D4-1,2-Dichloroethane	75 - 115
D8-Toluene	85 - 115

MDL = Method Detection Limit
Limits = Control Limits



REPORT DATE: 10/05/95

Quality Analytical Laboratories
Laboratoires Analytiques de Qualité

PROJECT #: P11276.00
NOVAMANN JOB #: 9501806

T/MC FOR GASOLINE CONTAMINATED SITES IN SOLID

Novamann ID		5366	5367	5367	5368	5369			
Sampling Date		11/05/95	11/05/95	11/05/95	12/05/95	12/05/95			
Parameter	Units	SS-10	SS-9	SS-9 DUP	SS-31	SS-31D	SPIKE %REC	SPIKE DUP %REC	MDL
Isopropylbenzene	ug/Kg	ND	ND	ND	ND	ND	N/A	N/A	1
n-Propylbenzene	ug/Kg	ND	ND	ND	ND	ND	N/A	N/A	1
p-Isopropyltoluene	ug/Kg	ND	ND	ND	ND	ND	N/A	N/A	1
1,2,4-Trimethylbenzene	ug/Kg	ND	ND	ND	ND	ND	N/A	N/A	1
1,3,5-Trimethylbenzene	ug/Kg	ND	ND	ND	ND	ND	N/A	N/A	1
n-Butylbenzene	ug/Kg	ND	ND	ND	ND	ND	N/A	N/A	1
sec-butylbenzene	ug/Kg	ND	ND	ND	ND	ND	N/A	N/A	1
Napthalene	ug/Kg	ND	ND	ND	ND	ND	N/A	N/A	1
Methyl t-butyl ether (MTBE)	ug/Kg	ND	ND	ND	ND	ND	N/A	N/A	1

Recovery of Surrogates
(%)

Parameter		SS-10	SS-9	SS-9 DUP	SS-31	SS-31D	SPIKE %REC	SPIKE DUP %REC
4-Bromofluorobenzene		81	74	84	92	95	108	93
D4-1,2-Dichloroethane		111	104	109	110	110	97	94
D8-Toluene		93	111	107	101	97	99	94

ND = Not detected
N/A = Not Applicable
MDL = Method Detection Limit



THC FOR GASOLINE CONTAMINATED SITES IN SOLID

Novamann ID	Sampling Date	Units	BLANK	MATRIX SPIKE RECOVERY	LIMITS	MDL
Parameter						
Isopropylbenzene		ug/Kg	ND	N/A	40 - 130	1
n-Propylbenzene		ug/Kg	ND	N/A	40 - 130	1
p-isopropyltoluene		ug/Kg	ND	N/A	40 - 130	1
1,2,4-Trimethylbenzene		ug/Kg	ND	N/A	40 - 130	1
1,3,5-Trimethylbenzene		ug/Kg	ND	N/A	40 - 130	1
n-Butylbenzene		ug/Kg	ND	N/A	40 - 130	1
sec-butylbenzene		ug/Kg	ND	N/A	40 - 130	1
Naphthalene		ug/Kg	ND	N/A	40 - 130	1
Methyl t-butyl ether (MTBE)		ug/Kg	ND	N/A	40 - 130	1
			ND	N/A	40 - 130	1

Recovery of Surrogates (%)

Parameter	BLANK	MATRIX SPIKE RECOVERY	LIMITS
4-Bromofluorobenzene	91	92	74 - 121
D4-1,2-Dichloroethane	102	100	90 - 120
D8-Toluene	100	97	91 - 117

ND = Not detected
N/A = Not Applicable
MDL = Method Detection Limit
Limits = Control Limits



CASE NARRATIVE: PESTICIDE & PCB ANALYSIS
Client: ACRES INTERNATIONAL CORP.
Laboratory: NOVAMANN (Ontario) INC.
Lab Workorder #: 9501806
Client Project: P11276.00
Sample received at NOVAMANN : May 15, 1995

Comments for Analysis of Soil samples for Pesticide & PCB:

Four soil samples were received by NOVAMANN for pesticides/PCB & toxaphene analysis. The sample analysis was based on SW846/8081 method.

The samples were extracted on May 16, 1995 and then analyzed by GC/dual ECD system on May 28, 1995. The samples weight varied from 18g to 30g dry weight. The sample extracts were diluted to 2x prior to analysis except for sample 6369 which was analyzed at 10x dilution. Soil samples were not homogeneous. They contained large pieces of concrete or asphalt. The technician removed pieces of foreign material prior to weighing out the sample.

The laboratory quality control included lab blank and lab spike. The duplicate analysis, matrix spike and matrix spike duplicate were performed on SS-31 sample.

Comments for Analysis of Liquid samples for Pesticides & PCB:

One liquid sample was received by NOVAMANN for pesticides/PCB & toxaphene analysis. The sample analysis was based on SW846/8081 method.

The samples were extracted on May 16, 1995 and then analyzed by GC/dual ECD system on May 28, 1995.

The laboratory quality control included a lab blank and two lab spikes. There was insufficient sample submitted to permit analysis of a sample duplicate or matrix spike.



REPORT DATE: 10/05/95

PROJECT #: P11276.00
NOVAMANN JOB #: 9501806

EPA 8081 GC PESTICIDES & PCB IN LIQUID

Novamann ID		5365					
Sampling Date		11/05/95					
Parameter	Units	FB-1	SPIKE %REC	LIMITS	SPIKE DUP %REC	BLANK	MDL
Aldrin	ug/L	ND	34	42 - 122	71	ND	0.006
a-BHC	ug/L	ND	77	37 - 134	32	ND	0.006
a-Chlordane	ug/L	ND	67	45 - 119	79	ND	0.006
b-BHC	ug/L	ND	78	17 - 147	32	ND	0.006
d-BHC	ug/L	ND	85	19 - 140	34	ND	0.006
Dieldrin	ug/L	ND	80	36 - 146	31	ND	0.006
Endosulfan I	ug/L	ND	91	45 - 153	73	ND	0.006
Endosulfan II	ug/L	ND	91	10 - 202	39	ND	0.006
Endosulfan sulfate	ug/L	ND	94	26 - 144	31	ND	0.006
Endrin	ug/L	ND	37	30 - 147	32	ND	0.006
Endrin aldehyde	ug/L	ND	95	40 - 130	72	ND	0.006
Endrin Ketone	ug/L	ND	95	40 - 130	34	ND	0.006
g-BHC (Lindane)	ug/L	ND	65	21 - 127	70	ND	0.006
g-Chlordane	ug/L	ND	71	45 - 119	79	ND	0.006
Heptachlor	ug/L	ND	50	34 - 111	76	ND	0.006
Heptachlor epoxide	ug/L	ND	73	37 - 142	30	ND	0.006
Methoxychlor	ug/L	ND	98	40 - 130	36	ND	0.02
Aroclor 1016	ug/L	ND	63	50 - 114	31	ND	0.05
Aroclor 1221	ug/L	ND	NA	15 - 178	NA	ND	0.1
Aroclor 1232	ug/L	ND	NA	10 - 215	NA	ND	0.05
Aroclor 1242	ug/L	ND	NA	39 - 150	NA	ND	0.05
Aroclor 1248	ug/L	ND	NA	38 - 153	NA	ND	0.05
Aroclor 1254	ug/L	ND	NA	29 - 131	NA	ND	0.05
Aroclor 1260	ug/L	ND	95	3 - 127	105	ND	0.05
p,p'-DDD	ug/L	ND	37	31 - 141	37	ND	0.006
p,p'-DDE	ug/L	ND	72	30 - 145	35	ND	0.006
p,p'-DDT	ug/L	ND	87	25 - 160	31	ND	0.006
Toxaphene	ug/L	ND	33	41 - 126	111	ND	0.2

Recovery of Surrogates
(%)

Parameter	FB-1	SPIKE %REC	LIMITS	SPIKE DUP %REC	BLANK
Decachlorobiphenyl	52	73	N/A	33	72
2,4,5,6-Tetrachloro-m-xylene	NA	N/A	N/A	N/A	N/A

ND = Not detected
N/A = Not Applicable
MDL = Method Detection Limit
Limits = Control Limits



REPORT DATE: 11/05/95

PROJECT #: P11276.00
NOVAMANN JOB #: 9501306

EPA 8081 GC PESTICIDES & PCB IN SOLID

Novamann ID		6366	6367	6368	6368		6369				
Sampling Date		11/05/95	11/05/95	11/05/95	11/05/95		11/05/95				
Parameter	Units	SS-10	SS-9	SS-31	SS-31 DUP	MDL	SS-31D	MDL	SPIKE %REC	LIMITS	MDL
Aldrin	ug/Kg	ND	ND	ND	ND	2	ND	20	74	40 - 130	2
a-BHC	ug/Kg	ND	ND	ND	ND	2	ND	20	71	40 - 130	2
a-Chlordane	ug/Kg	ND	ND	ND	ND	2	ND	20	30	40 - 130	2
b-BHC	ug/Kg	ND	ND	ND	ND	2	ND	20	90	40 - 130	2
d-BHC	ug/Kg	ND	ND	ND	ND	2	ND	20	36	40 - 130	2
Dieldrin	ug/Kg	ND	ND	ND	ND	2	ND	20	37	40 - 130	2
Endosulfan I	ug/Kg	ND	ND	ND	ND	2	ND	20	34	40 - 130	2
Endosulfan II	ug/Kg	ND	ND	ND	ND	2	ND	20	32	40 - 130	2
Endosulfan sulfate	ug/Kg	ND	ND	ND	ND	2	ND	20	36	40 - 130	2
Endrin	ug/Kg	ND	ND	ND	ND	2	ND	20	98	40 - 130	2
Endrin aldehyde	ug/Kg	ND	ND	ND	ND	2	ND	20	74	40 - 130	2
Endrin Ketone	ug/Kg	ND	ND	ND	ND	2	ND	20	102	40 - 130	2
g-BHC (Lindane)	ug/Kg	ND	ND	ND	ND	2	ND	20	78	40 - 130	2
g-Chlordane	ug/Kg	ND	ND	ND	ND	2	ND	20	32	40 - 130	2
Heptachlor	ug/Kg	ND	ND	ND	ND	2	ND	20	31	40 - 130	2
Heptachlor epoxide	ug/Kg	ND	ND	ND	ND	2	ND	20	33	40 - 130	2
Methoxychlor	ug/Kg	ND	ND	ND	ND	3	ND	30	101	40 - 130	3
Aroclor 1016	ug/Kg	ND	ND	ND	ND	20	ND	200	37	40 - 130	20
Aroclor 1221	ug/Kg	ND	ND	ND	ND	30	ND	300	NA	40 - 130	30
Aroclor 1232	ug/Kg	ND	ND	ND	ND	20	ND	200	NA	40 - 130	20
Aroclor 1242	ug/Kg	ND	ND	ND	ND	20	ND	200	NA	40 - 130	20
Aroclor 1248	ug/Kg	ND	ND	ND	ND	20	ND	200	NA	40 - 130	20
Aroclor 1254	ug/Kg	ND	ND	ND	ND	20	ND	200	NA	40 - 130	20
Aroclor 1260	ug/Kg	ND	ND	ND	ND	20	ND	200	36	40 - 130	20
p,p'-DDD	ug/Kg	ND	ND	ND	ND	2	ND	20	95	40 - 130	2
p,p'-DDE	ug/Kg	ND	ND	ND	ND	2	ND	20	90	40 - 130	2
p,p'-DDT	ug/Kg	ND	ND	ND	ND	2	ND	20	98	40 - 130	2
Toxaphene	ug/Kg	ND	ND	ND	ND	30	ND	300	114	40 - 130	30

Recovery of Surrogates
(%)

Parameter		SS-10	SS-9	SS-31	SS-31 DUP		SS-31D		SPIKE %REC	LIMITS
Decachlorobiphenyl		39	***	49	28		**		76	N/A

ND = Not detected
N/A = Not Applicable
MDL = Method Detection Limit
Limits = Control Limits

REPORT DATE: 10/05/95

PROJECT #: P11276.00
NOVAMANN JOB #: 9501306

EPA 8081 CC PESTICIDES & PCB IN SOLID

Novamann ID							
Sampling Date							
Parameter	Units	BLANK	MATRIX SPIKE %REC	LIMITS	MATRIX SPIKE DUP %REC	LIMITS	MDL
Aldrin	ug/Kg	ND	74	40 - 130	73	40 - 130	2
α-BHC	ug/Kg	ND	71	40 - 130	71	40 - 130	2
α-Chlordane	ug/Kg	ND	79	40 - 130	39	40 - 130	2
β-BHC	ug/Kg	ND	95	40 - 130	93	40 - 130	2
δ-BHC	ug/Kg	ND	34	40 - 130	95	40 - 130	2
Dieldrin	ug/Kg	ND	32	40 - 130	93	40 - 130	2
Endosulfan I	ug/Kg	ND	38	40 - 130	97	40 - 130	2
Endosulfan II	ug/Kg	ND	37	40 - 130	98	40 - 130	2
Endosulfan sulfate	ug/Kg	ND	32	40 - 130	96	40 - 130	2
Endrin	ug/Kg	ND	39	40 - 130	98	40 - 130	2
Endrin aldehyde	ug/Kg	ND	53	40 - 130	59	40 - 130	2
Endrin Ketone	ug/Kg	ND	35	40 - 130	93	40 - 130	2
γ-BHC (Lindane)	ug/Kg	ND	73	40 - 130	79	40 - 130	2
γ-Chlordane	ug/Kg	ND	36	40 - 130	92	40 - 130	2
Heptachlor	ug/Kg	ND	71	40 - 130	73	40 - 130	2
Heptachlor epoxide	ug/Kg	ND	111	40 - 130	105	40 - 130	2
Methoxychlor	ug/Kg	ND	77	40 - 130	104	40 - 130	3
Aroclor 1016	ug/Kg	ND	NA	40 - 130	NA	40 - 130	20
Aroclor 1221	ug/Kg	ND	NA	40 - 130	NA	40 - 130	30
Aroclor 1232	ug/Kg	ND	NA	40 - 130	NA	40 - 130	20
Aroclor 1242	ug/Kg	ND	NA	40 - 130	NA	40 - 130	20
Aroclor 1248	ug/Kg	ND	NA	40 - 130	NA	40 - 130	20
Aroclor 1254	ug/Kg	ND	NA	40 - 130	NA	40 - 130	20
Aroclor 1260	ug/Kg	ND	NA	40 - 130	NA	40 - 130	20
p,p'-DDD	ug/Kg	ND	36	40 - 130	97	40 - 130	2
p,p'-DDE	ug/Kg	ND	92	40 - 130	100	40 - 130	2
p,p'-DDT	ug/Kg	ND	78	40 - 130	91	40 - 130	2
Toxaphene	ug/Kg	ND	NA	40 - 130	NA	40 - 130	30

Recovery of Surrogates
(%)

Parameter	BLANK	MATRIX SPIKE %REC	LIMITS	MATRIX SPIKE DUP %REC	LIMITS
Decachlorobiphenyl	75	71	N/A	90	40 - 130

ND = Not detected
N/A = Not Applicable
MDL = Method Detection Limit
Limits = Control Limits

** - Cannot be calculated due to sample dilution
due to matrix or solvent interferences

*** - Cannot be calculated



CUSTOMER: ACRES INTERNATIONAL CORP.
140 JOHN JAMES AUDUBON P.
AMHERST N.Y. U.S.A.
14228

REPORT #: 951806

PROJECT # P11276.00
PROJECT NAME:

ATTN: J.STACHOWSKI

DATE SUBMITTED: 1995-05-15

ANALYTICAL REPORT

Sample Description: WATER

Preparation: Samples were prepared as recommended in APHA
Standard methods for the examination of water and
wastewater, 18th Edition, 1992 or MOE Handbook of
analytical methods for environmental samples,
1983

Note: Additional information is available on request.

Instrumentation:

Metals - Jarrell Ash 61E ICAP emission
Perkin Elmer 3030 Zeeman graphite furnace
Perkin Elmer 2380 cold vapour AA

Anions - Dionex 2000i ion chromatograph

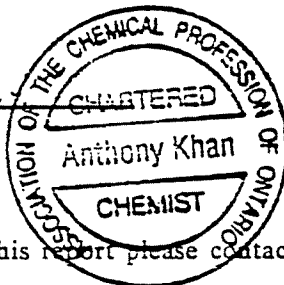
Conventionals - Skalar SA5 Segmented flow analyzer

Chemical Results: See attached tables
Quality control data: See attached tables

DATE: 05-30-1995

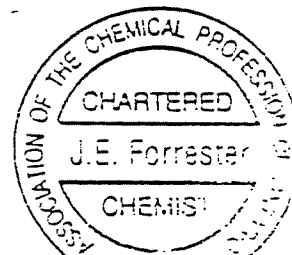
REPORTED BY:

Anthony Khan, B.Sc., C.Chem
Supervisor Inorganics



WITNESSED BY:

Jim Forrester, C.Chem
Manager Inorganics.



For any questions concerning this report please contact Judy Moses (Technical Service) at ext 235.

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NOVAMANN (Ontario) Inc., 5540 McAdam Road, Mississauga, Ontario L4Z 1P1 - (905) 890-2555 - Fax (905) 890-0370



SAMPLE I.D. **FB-1**
CUSTOMER: **ACRES INTERNATIONAL CORP.**
PROJECT # **P11276.00**

REPORT #: **951806**
PROJECT NAME:
DATE SAMPLE COLLECTED: **1995-05-11**

PARAMETERS	SAMPLE RESULTS	DETECTION LIMIT	PREP'N DATE	ANALYSIS DATE
Silver	<.007 mg/L	.007 mg/L	18/ 5/95	19/ 5/95
Beryllium	<.003 mg/L	.003 mg/L	18/ 5/95	19/ 5/95
Cadmium	<.003 mg/L	.003 mg/L	18/ 5/95	19/ 5/95
Cobalt	<.005 mg/L	.005 mg/L	18/ 5/95	19/ 5/95
Copper	<.003 mg/L	.003 mg/L	18/ 5/95	19/ 5/95
Manganese	<.001 mg/L	.001 mg/L	18/ 5/95	19/ 5/95
Nickel	<.01 mg/L	.01 mg/L	18/ 5/95	19/ 5/95
Lead	<.025 mg/L	.025 mg/L	18/ 5/95	19/ 5/95
Vanadium	<.003 mg/L	.003 mg/L	18/ 5/95	19/ 5/95
Zinc	<.003 mg/L	.003 mg/L	18/ 5/95	19/ 5/95
Barium	<.003 mg/L	.003 mg/L	18/ 5/95	19/ 5/95
Chromium	<.005 mg/L	.005 mg/L	18/ 5/95	19/ 5/95
Sodium	1.43 mg/L	.06 mg/L	18/ 5/95	19/ 5/95
Potassium	<1 mg/L	1 mg/L	18/ 5/95	19/ 5/95
Iron	0.149 mg/L	.005 mg/L	18/ 5/95	19/ 5/95
Magnesium	0.216 mg/L	.1 mg/L	18/ 5/95	19/ 5/95
Aluminum	0.051 mg/L	.025 mg/L	18/ 5/95	19/ 5/95
Calcium	0.575 mg/L	.1 mg/L	18/ 5/95	19/ 5/95
Arsenic	<0.002 mg/L	0.002 mg/L	18/ 5/95	23/ 5/95
Antimony	<0.002 mg/L	0.002 mg/L	18/ 5/95	23/ 5/95
Selenium	0.002 mg/L	0.002 mg/L	18/ 5/95	24/ 5/95
Thallium	<0.002 mg/L	0.002 mg/L	18/ 5/95	26/ 5/95
Mercury	<0.001 mg/L	0.001 mg/L	18/ 5/95	18/ 5/95
Total Cyanide	<0.005 mg/L	0.005 mg/L	17/ 5/95	17/ 5/95

QUALITY CONTROL INFORMATION

CUSTOMER: ACRES INTERNATIONAL CORP.

REPORT #: 951806

PARAMETERS	UNITS	CONTROL % RECOVERY	BLANK	SPIKE % REC	ANALYTICAL METHOD
Silver	mg/L	102	<.007	79	EPA 6010 (ICP)
Beryllium	mg/L	99	<.003	98	EPA 6010 (ICP)
Cadmium	mg/L	101	<.003	91	EPA 6010 (ICP)
Cobalt	mg/L	101	<.005	88	EPA 6010 (ICP)
Copper	mg/L	102	<.003	81	EPA 6010 (ICP)
Manganese	mg/L	101	<.001	90	EPA 6010 (ICP)
Nickel	mg/L	102	<.01	87	EPA 6010 (ICP)
Lead	mg/L	102	<.025	89	EPA 6010 (ICP)
Vanadium	mg/L	101	<.003	88	EPA 6010 (ICP)
Zinc	mg/L	101	<.003	88	EPA 6010 (ICP)
Barium	mg/L	99	<.003	81	EPA 6010 (ICP)
Chromium	mg/L	101	<.005	86	EPA 6010 (ICP)
Sodium	mg/L	96	0.088		EPA 6010 (ICP)
Potassium	mg/L	96	<1		EPA 6010 (ICP)
Iron	mg/L	99	<.005	92	EPA 6010 (ICP)
Magnesium	mg/L	100	<1		EPA 6010 (ICP)
Aluminum	mg/L	99	<.025	90	EPA 6010 (ICP)
Calcium	mg/L	98	<1		EPA 6010 (ICP)
Arsenic	mg/L	96	<0.002	92	EPA 7060 (GFAA-mod)
Antimony	mg/L	96	<0.002	104	EPA 7041 (GFAA-mod)
Selenium	mg/L	108	<0.002	92	EPA 7740 (GFAA-mod)
Thallium	mg/L	100	<0.002	100	EPA 7841 (GFAA-mod)
Mercury	mg/L	102	<0.001	87	EPA 7470 (CVAA-HG)
Total Cyanide	mg/L	89	<0.005	104	EPA 9012 (MOD)

CUSTOMER: ACRES INTERNATIONAL CORP.
140 JOHN JAMES AUDUBON P.
AMHERST N.Y. U.S.A.
14228

REPORT #: 951806

PROJECT # P11276.00
PROJECT NAME:

ATTN: J.STACHOWSKI

DATE SUBMITTED: 1995-05-15

ANALYTICAL REPORT

Sample Description: SOIL

Preparation:
Samples were prepared by acid digestion

Note: Additional information is available on request.

Methodology:

Metals - Jarrell Ash 61E ICAP emission
Perkin Elmer 3030 Zeeman graphite furnace
Perkin Elmer 2380 cold vapour AA

Anions - Dionex 2000i ion chromatograph

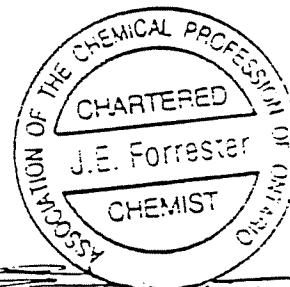
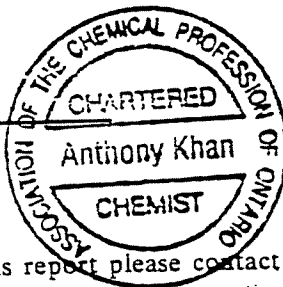
Conventionals - Skalar SA5 Segmented flow analyzer

Chemical Results: See attached tables
Quality control data: See attached tables

DATE: 05-30-1995

REPORTED BY:

Anthony Khan, B.Sc., C.Chem
Supervisor Inorganics



WITNESSED BY:

Jim Forrester, C.Chem
Manager Inorganics.

For any questions concerning this report please contact Judy Moses (Technical Service) at ext 235.

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NOVAMANN (Ontario) Inc., 5540 McAdam Road, Mississauga, Ontario L4Z 1P1 - (905) 890-2555 - Fax (905) 890-0370

Laboratories: Montréal, Toronto, Guelph, Niagara Falls, Amherst NY, Mexico City



SAMPLE I.D. **SS-10**
CUSTOMER: **ACRES INTERNATIONAL CORP.**
PROJECT # **P11276.00**

REPORT #: **951806**
PROJECT NAME:
DATE SAMPLE COLLECTED: **1995-05-11**

PARAMETERS	SAMPLE RESULTS	DETECTION LIMIT	PREP'N DATE	ANALYSIS DATE
Silver	<.665 ug/g	.665 ug/g	18/ 5/95	19/ 5/95
Beryllium	0.823 ug/g	.285 ug/g	18/ 5/95	19/ 5/95
Cadmium	1.53 ug/g	.285 ug/g	18/ 5/95	19/ 5/95
Cobalt	6.36 ug/g	.475 ug/g	18/ 5/95	19/ 5/95
Copper	49.6 ug/g	.285 ug/g	18/ 5/95	19/ 5/95
Manganese	179 ug/g	.095 ug/g	18/ 5/95	19/ 5/95
Nickel	14.5 ug/g	.95 ug/g	18/ 5/95	19/ 5/95
Lead	168 ug/g	2.375 ug/g	18/ 5/95	19/ 5/95
Vanadium	29.2 ug/g	.285 ug/g	18/ 5/95	19/ 5/95
Zinc	211 ug/g	.285 ug/g	18/ 5/95	19/ 5/95
Barium	109 ug/g	.285 ug/g	18/ 5/95	19/ 5/95
Chromium	11.5 ug/g	.475 ug/g	18/ 5/95	19/ 5/95
Sodium	499 ug/g	5.7 ug/g	18/ 5/95	19/ 5/95
Potassium	967 ug/g	.95 ug/g	18/ 5/95	19/ 5/95
Iron	15900 ug/g	.475 ug/g	18/ 5/95	19/ 5/95
Magnesium	659 ug/g	9.5 ug/g	18/ 5/95	19/ 5/95
Aluminum	9420 ug/g	2.375 ug/g	18/ 5/95	19/ 5/95
Calcium	5640 ug/g	9.5 ug/g	18/ 5/95	19/ 5/95
Arsenic	33 ug/g	1 ug/g	18/ 5/95	23/ 5/95
Antimony	<1 ug/g	1 ug/g	18/ 5/95	23/ 5/95
Selenium	6 ug/g	1 ug/g	18/ 5/95	24/ 5/95
Thallium	2 ug/g	1 ug/g	18/ 5/95	26/ 5/95
Mercury	0.25 ug/g	0.05 ug/g	18/ 5/95	18/ 5/95
Total Cyanide	0.060 ug/g	0.025 ug/g	29/ 5/95	29/ 5/95

SAMPLE I.D. **SS-31**
CUSTOMER: ACRES INTERNATIONAL CORP.
PROJECT # P11276.00

REPORT #: **951806**
PROJECT NAME:
DATE SAMPLE COLLECTED: 1995-05-11

PARAMETERS	SAMPLE RESULTS	DETECTION LIMIT	PREP'N DATE	ANALYSIS DATE
Silver	<.665 ug/g	.665 ug/g	18/ 5/95	19/ 5/95
Beryllium	0.831 ug/g	.285 ug/g	18/ 5/95	19/ 5/95
Cadmium	7.93 ug/g	.285 ug/g	18/ 5/95	19/ 5/95
Cobalt	18.7 ug/g	.475 ug/g	18/ 5/95	19/ 5/95
Copper	62.3 ug/g	.285 ug/g	18/ 5/95	19/ 5/95
Manganese	388 ug/g	.095 ug/g	18/ 5/95	19/ 5/95
Nickel	25.8 ug/g	.95 ug/g	18/ 5/95	19/ 5/95
Lead	204 ug/g	2.375 ug/g	18/ 5/95	19/ 5/95
Vanadium	28.7 ug/g	.285 ug/g	18/ 5/95	19/ 5/95
Zinc	2888 ug/g	.285 ug/g	18/ 5/95	19/ 5/95
Barium	173 ug/g	.285 ug/g	18/ 5/95	19/ 5/95
Chromium	28.6 ug/g	.475 ug/g	18/ 5/95	19/ 5/95
Sodium	391 ug/g	5.7 ug/g	18/ 5/95	19/ 5/95
Potassium	2888 ug/g	.95 ug/g	18/ 5/95	19/ 5/95
Iron	26700 ug/g	.475 ug/g	18/ 5/95	19/ 5/95
Magnesium	9688 ug/g	9.5 ug/g	18/ 5/95	23/ 5/95
Aluminum	12800 ug/g	2.375 ug/g	18/ 5/95	19/ 5/95
Calcium	37100 ug/g	9.5 ug/g	18/ 5/95	19/ 5/95
Arsenic	11 ug/g	1 ug/g	18/ 5/95	23/ 5/95
Antimony	<1 ug/g	1 ug/g	18/ 5/95	23/ 5/95
Selenium	1 ug/g	1 ug/g	18/ 5/95	24/ 5/95
Thallium	<1 ug/g	1 ug/g	18/ 5/95	26/ 5/95
Mercury	0.15 ug/g	0.05 ug/g	18/ 5/95	18/ 5/95
Total Cyanide	0.034 ug/g	0.025 ug/g	29/ 5/95	29/ 5/95

SAMPLE I.D.
CUSTOMER:
PROJECT #

SS-31D
ACRES INTERNATIONAL CORP.
P11276.00

REPORT #: **951806**
PROJECT NAME:
DATE SAMPLE COLLECTED: 1995-05-11

PARAMETERS	SAMPLE RESULTS	DETECTION LIMIT	PREP'N DATE	ANALYSIS DATE
Silver	<.665 ug/g	.665 ug/g	18/ 5/95	19/ 5/95
Beryllium	0.805 ug/g	.285 ug/g	18/ 5/95	19/ 5/95
Cadmium	0.478 ug/g	.285 ug/g	18/ 5/95	19/ 5/95
Cobalt	8.85 ug/g	.475 ug/g	18/ 5/95	19/ 5/95
Copper	28.7 ug/g	.285 ug/g	18/ 5/95	19/ 5/95
Manganese	444 ug/g	.095 ug/g	18/ 5/95	19/ 5/95
Nickel	20.5 ug/g	.95 ug/g	18/ 5/95	19/ 5/95
Lead	68.4 ug/g	2.375 ug/g	18/ 5/95	19/ 5/95
Vanadium	25.7 ug/g	.285 ug/g	18/ 5/95	19/ 5/95
Zinc	106 ug/g	.285 ug/g	18/ 5/95	19/ 5/95
Barium	113 ug/g	.285 ug/g	18/ 5/95	19/ 5/95
Chromium	15.4 ug/g	.475 ug/g	18/ 5/95	19/ 5/95
Sodium	399 ug/g	5.7 ug/g	18/ 5/95	19/ 5/95
Potassium	1668 ug/g	95 ug/g	18/ 5/95	19/ 5/95
Iron	22600 ug/g	.475 ug/g	18/ 5/95	19/ 5/95
Magnesium	8148 ug/g	9.5 ug/g	18/ 5/95	19/ 5/95
Aluminum	12300 ug/g	2.375 ug/g	18/ 5/95	19/ 5/95
Calcium	28200 ug/g	9.5 ug/g	18/ 5/95	19/ 5/95
Arsenic	4 ug/g	1 ug/g	18/ 5/95	23/ 5/95
Antimony	<1 ug/g	1 ug/g	18/ 5/95	23/ 5/95
Selenium	2 ug/g	1 ug/g	18/ 5/95	24/ 5/95
Thallium	<1 ug/g	1 ug/g	18/ 5/95	26/ 5/95
Mercury	0.07 ug/g	0.05 ug/g	18/ 5/95	18/ 5/95
Total Cyanide	<0.025 ug/g	0.025 ug/g	29/ 5/95	29/ 5/95

Client information

Company Name: Acres International Corp.
 Address: 140 John James Audubon
Amherst, NY 14228-1180
 Phone: (716) 689-3737
 Fax: (716) 689-3749
 Report to: Jim Stachowski

Submitted by: Jim Stachowski
 Project Name/Number: 601 Amherst St.
P11276.00
 Quotation # 950158
 P.O. # —
 Invoice to: J. Stachowski

Sample ID	Sample Location	Sample Type	Date/Time Collected	# of Cont.	EPA 8260 - VOC	EPA 8270 - SVOC	Chloride - Test/PCB	Mercury	Metals	TAL Inorganics	EPA 8270/Se81 - Test/PCB/PAH	Health/chemical hazard?	Sheet #
1	Travel Blank	Water	—	1	1	1	1	1	1	1	1	1	8546
2	FB-1	" "	5-11-95/15:00	7	1	1	1	1	1	1	1	1	
3	SS-10	Soil	5-11-95/15:45	3	1	1	1	1	1	1	1	1	
4	SS-9	" "	5-11-95/17:00	3	1	1	1	1	1	1	1	1	
5	SS-31	" "	5-12-95/11:05	3	1	1	1	1	1	1	1	1	
6	SS-31 D	" "	5-12-95/11:35	3	1	1	1	1	1	1	1	1	
7													
8													
9													
10													
11													
12													
13													
14													
15													

To be initiated by sample collector & completed as necessary thereafter

Relinquished by: (Signature/Print)	Received by: (Signature/Print)	Date/Time	Purpose of Change/Remarks
1. <u>Jim R Stachowski / James R Stachowski</u>	<u>Jim R Stachowski (FDR)</u>	<u>5-12-95 16:45</u>	
2.			
3.			

For internal use only Novamann Job # 7327806 Scheduled completion date May 29 95 Laboratory contact person J. Stachowski Extension # 35

White: NOVAMANN (Ontario) Inc Canary: Sample receiving (returned to client with report) Pink: Client