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PROJECT FOR PERFORMANCE OF REMEDIAL RESPONSE ACTIVITIES AT UNCONTROLLED HAZARDOUS SUBSTANCE FACILITIES—ZONE 1

NUS CORPORATION
SUPERFUND DIVISION

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R-585-12-3-6

SITE INSPECTION OF LORD SHOPE

PREPARED UNDER

TDD NO. F3-8304-09
EPA NO. PA-290
CONTRACT NO. 68-01-6699

FOR THE

HAZARDOUS SITE CONTROL DIVISION
U.S. ENVIRONMENTAL PROTECTION AGENCY

JUNE 21, 1984

NUS CORPORATION
SUPERFUND DIVISION

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Site Name: Lord Shope
TDD No.: F3-8304-09

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SECTION I

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1.0 INTRODUCTION

1.1 Authorization

NUS Corporation performed this work under Environmental Protection Agency Contract No. 68-01-6699. This specific report was prepared in accordance with Technical Directive Document No. F3-8304-09 for the Lord Shope site located in Girard, Pennsylvania.

1.2 Scope of Work

The NUS Field Investigation Team (FIT) was tasked to conduct a site inspection and sampling at the Lord Shope site to determine if any wastes or waste residues remained on site following the recent, privately-funded remedial work.

1.3 Summary

Groundwater contamination, detected in previous tests of the Lord Shope site, was confirmed by FIT III's samples. High levels of methylene chloride (9,200 ppb) and acetone (1,030 ppb) were detected at the on-site monitor well. Ponded water and seeps at various locations around the site showed vinyl chloride (950 ppb), trans-1,2-dichloroethane (1,700 ppb), arsenic (700 ppb), and lead (850 ppb). On-site sediments contained up to 100,000 ppb 4-methyl-2-pentanol, 41,000 ppb vinyl chloride, 11,000 ppb acetone, as well as many other hydrocarbon compounds, and PCB-1254 (14 ppb). In summary, it appears that there is still extensive contamination at the site.

The Lord Shope site has caused a great public outcry among the local residents. Many homes have been tested for contamination with ambiguous results. FIT III found no contamination in the home wells east of the site along Pieper Road. One home northwest of the site showed some contamination (cadmium), but this contamination cannot be conclusively linked to the site.

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SECTION 2

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2.0 THE SITE

2.1 Location

The Lord Shope site is located in the rural farming area of Girard, Pennsylvania, in the northwest corner of the state. The site is in Girard Township, Erie County, approximately 9 miles southwest of the city of Erie. The shores of Lake Erie are 3.5 miles north of the site.

The site falls within the glaciated escarpment slope section of the Central Lowland physiographic province.[1] The topographic elevations range from approximately 790 feet to 820 feet above mean sea level (MSL). The coordinates of the site are 41° 58' 40" N latitude and 80° 21' 05" W longitude.

2.2 Site Layout

The area used as a landfill covers approximately 4.5 acres on land owned by Mr. Melvin Shope.[2] Neighbors reside on adjacent tracts of land to the north and the south.

The Shope home is at the east end of the property, off Pieper Road.

2.3 Ownership History

The property in question belonged to the Shope family during the entire period of its operation as a landfill. The property is still currently owned by the Shopes, although plans are being made to transfer ownership of that part of the property used as a landfill (the west part) from Shope to the Lord Corporation.

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2.4 Site Use History

Melvin Shope, now a retired employee of the Lord Corporation, permitted the corporation to dispose of their waste materials on his property. This dumping, which was unpermitted, occurred from roughly 1954 to 1979.[3] In 1979 the Pennsylvania Department of Environmental Resources (PA DER) sent a Notice of Violation to Melvin Shope and to the Lord Corporation informing them of the illegality of the landfill. The operators subsequently stopped using the site for waste disposal.

The Lord Corporation was the only generator to dispose of wastes at this site. (See Section 4.0 - Waste Types and Quantities.) The company processes raw rubber and bonds it to metal for use in boat engines and similar machinery. They also manufacture coatings and adhesives, as well as vibration, shock, and noise control products.[3]

2.5 Permit and Regulatory Action History

No permits were ever held for this site.

Regulatory action to date has consisted of the following:

1. Subsequent to tests showing organic contaminants in on-site monitor wells and possible contamination of nearby domestic wells, the PA DER notified the site operators that the landfill was illegal, with a Notice of Violations, June 26, 1979.

2. On July 30, 1982 a Consent Order between the PA DER, Shope, and the Lord Corporation was signed. Under the terms of this arrangement, Lord agreed to hire a consultant to perform remedial work at the site.

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2.6 Remedial Action To Date

Wehran Engineering of Middletown, New York was hired by the Lord Corporation as their remedial consultant. Wehran prepared a remedial plan which included the capping of the landfill and the installation of an upgradient slurry wall. The PA DER approved the plans on July 30, 1982.

Under the terms of the Consent Order, the cleanup of the site was to be completed within a period of 120 days. Construction work began August 16, 1982, and was essentially completed by December 10, 1982.[5]

The cleanup activities consisted of the following actions:

- 81 drums were removed from the landfill because they interfered with the grading of the site to receive the PVC liner. (An unspecified number of drums still remain buried at the site.) The drums were reportedly staged on the landfill itself, accordingly to DER observations, not on the designated drum staging area shown on Wehran's site plan.

- 20,000 gallons of leachate were collected from the perimeter of the landfill, containerized, and taken off site for treatment and/or disposal. Both the drums and the leachate were turned over under manifest to Frontier Waste Processing, Inc. of Niagara Falls, New York.

- the landfill area was graded and then capped with 12 to 18 inches of clay, compacted to permeability of 1×10^{-6} cm/sec, and to 1×10^{-7} cm/sec on the side slopes.

- a 20 mil PVC liner (manufactured by Water Saver of Denver, Colorado) was emplaced on top of the clay. A total of approximately 4 acres of PVC was used. The seams were bonded with the solvent recommended by the manufacturer (WS-70 solvent).

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- approximately 18 inches of soil was placed on top of the PVC. Surface water was reportedly diverted around the fill.

- a subsurface slurry wall, length 700 linear feet and of variable depth (18 to 22 feet, according to DER observations), was installed along the south perimeter of the fill area. The work was performed by a subcontractor, D'Appolonia Waste Isolation, Inc. of Pittsburgh, Pennsylvania. The base of the slurry wall was reportedly "keyed-in" to a relatively low permeability clayey-silt layer. The consultant tested the in-place wall, and reported that it met the design specifications, with a permeability of $1.2 - 1.9 \times 10^{-7}$ cm/sec.[5]

Due to the onset of winter weather, several miscellaneous tasks were put off until the spring of 1983. These items included the repair of several wells damaged during construction, construction of permanent drainage swales, and the reapplication of top soil and seeding to establish vegetative cover.[5]

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SECTION 3

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3.0 ENVIRONMENTAL SETTING

3.1 Surface Waters

The Lord Shope site is located 3.5 miles south of Lake Erie's shore. Elk Creek is the closest major stream to the site; Elk Park Run and several unnamed tributaries flow into Elk Creek after draining the local area around the site. These tributaries are located to the north, west, and south of the site (see Figure 2 in Appendix B) and flow in a generally northwest direction. An agricultural intake for irrigation of food crops is located approximately 4,800 feet downstream of the site.[11]

Many perennial and intermittent ponds and marshy areas are located within 1 mile of the landfill, particularly west of the site. Several areas of ponded water were observed on site by FIT III (see Section 5.0 - Field Trip Report).

3.2 Geology and Soils

The study area falls within the Central Lowland physiographic province. Located about 230 feet above the site is within the escarpment slope zone, which separates the lake plain bordering Lake Erie from the upland plateau.[1]

Bedrock in the area is Girard shale. This is a unit with low porosity and low permeability, and it is generally considered to be a poor aquifer.[7] North of Girard, Elk Creek has cut down to expose this shale in several deep valleys, but in the vicinity of the site, the shale is covered with a layer of glacial deposits.[1] Young soils have developed on top of the interfingering glacial sands, silts, and clays.

Based on exploratory borings and well logs, the remedial consultant (Wehran) reports that 20 to 30 feet of highly variable and lenticular glacial outwash deposits underlie the landfill area.[2] In general, the glacial deposits consist of an upper layer of water-bearing sands and gravels, and a lower layer of relatively low permeabilty till.[13]

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In a previous study, it had been contended that a laterally continuous layer of low permeability clay was present beneath the entire site.[8] However, the well borings and test pit logs do not support this premise.[9] In fact, the test borings and well logs show the subsurface around the site to be heterogeneous and complex.

The Soil Conservation Survey (based on 1950 aerial photography) indicates that native soils in the area are deep silty and clayey soils of the gently or moderately sloping glacial upland (Platea-Birdsall Association).[10] These soils have been disturbed by the landfilling activities.

3.3 Groundwaters

In Erie County in general, the shale underlying most of the area has a limited capacity for storing groundwater. Most of the available water is derived from the overlying glacial sediments. Groundwater in the vicinity of the Lord Shope site is known to be shallow (less than 20 feet) and derived from glacial sediments.[8,9]

The numerous ponds in the vicinity of the site suggest that the site is in or near a groundwater discharge zone. The proximity of the groundwater to the surface may mean that the water table intersects the base of the landfill.[4]

Test borings, wells and test pit data, according to the consultant, show an upper, alluvial water-bearing zone within 10 to 20 feet of the surface, underlain by a lower permeability glacial till.[4,13] Hydraulic gradients exist in both the horizontal and vertical directions, with the vertical component dominating.[4] This implies that the site is providing recharge to the shallow aquifer.

The horizontal component of groundwater flow has been examined in several studies by consultants. All studies have concluded that the principal flow is to the north-northwest.[4,8] However, the presence of organic contaminants in several wells in the "upgradient" direction (i.e. 2WT, 5WT) formerly considered background wells,[14] may indicate that some shallow groundwater may also be migrating radially away from the mound of fill.

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A total of 37 monitoring wells were installed at the site.[2] Many of these wells are presently in poor condition. The validity of some of the older wells (chiefly the WT series) has been disputed by the Lord Corporation. The corporation contends that they were constructed with solvent-based adhesive and/or electrician's tape.

Although many tests of the groundwater in monitor wells in and around the landfill have demonstrated significant contamination, no comprehensive work has yet established the lateral extent of the plume. Based on existing hydrogeological information, the consultant has indicated that the axis of the plume trends northwest, toward the adjoining Perry property.[2]

3.4 Climate and Meteorology

Erie County has a humid, continental climate, strongly influenced by the presence of Lake Erie.[1] The lake has a moderating effect on the local weather due to the relatively warm air over the lake in winter, and relatively cold air over the lake in the summer.[10] The net result is to retard both the start and the end of the growing season. This effect is strongest in the 5 mile wide band along the lake.[1]

The average annual temperature in the Erie area is 49°F, ranging from an average of 69°F in summer to 28°F in winter. Precipitation averages 40 inches annually, spread uniformly throughout the year.[1]

3.5 Land Use

Agriculture, including orchards, vineyards and nurseries, and some dairy farming are the principal land uses in the Girard region.[1]

In the immediate vicinity of the site, the Lehman property, which borders the site on the south, is a commercial orchard and vineyard. In some areas, apple trees are within 40 feet of the edge of the fill.

On the north boundary, the Perry property is chiefly residential. Mr. Perry has allowed several monitor wells to be installed on his property in order to assess the impact of the landfill on local groundwater.

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The Shope residence is located east of the landfill along Pieper Road, which is near the eastern edge of the Shope property. The land west of the Shope property is wooded and undeveloped.

3.6 Population Distribution

The Lord Shope site is situated in a sparsely populated rural area. Approximately 80 homes are located within a 1-mile radius of the site.

Girard, the closest town, is located 2 miles to the northeast and has a population of 2,613. The city of Erie, about 9 miles to the northeast, has a population of 122,500 residents.

3.7 Water Supply

Water for the area surrounding the Lord Shope site is provided entirely by groundwater, through both domestic and municipal wells. These wells are typically shallow (less than 60 feet) and derive their water from glacial materials.[1]

All of the homes close to the site (1-mile radius) have domestic wells. Many of the wells are large diameter, stone-lined dug wells. The well closest to the landfill is the Shope home well, approximately 900 feet east of the mound of fill.*

Many of the surrounding residential wells, especially those along Pieper Road, have been tested for organic contamination by the PA DER and the Erie County Department of Health (ECDH). No conclusive proof has been established to demonstrate contamination in any of these drinking water wells.

* 1982 HRS used 1,300 feet as the distance to nearest well because - not knowing where the hazardous waste was buried they measured from the center of the landfill. FIT IIIs recent sampling indicates that the soil east of and outside of the fill mound (dug hole - southeast corner) is also contaminated.

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FIT III sampled several residential wells in May, 1983 (see Appendix E for well data from homeowners). The results of these analyses are presented in Section 6.0 - Laboratory Data, and discussed in Section 7.0 - Toxicological Evaluation.

3.8 Critical Environments

No critical environments or habitats of endangered species have been identified within one mile of the site.

However, the tendency for water to pond in the area may indicate that the surrounding area should be considered a seasonal freshwater wetlands, and as such, it may also warrant being considered as a sensitive environment.

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SECTION 4

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4.0 WASTE TYPES AND QUANTITIES

Information supplied by the Lord Corporation indicates that they disposed of both liquid and drummed wastes at the site. See Appendix D for a list of the types of chemicals and materials brought to the landfill.

No official record exist to document waste quantities. PA DER reports that Mr. Melvin Shope estimated that he hauled in about 15 drums of waste per week over a ten year period (±15 drums/week for ten years = ±8,000 drums).[11]

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SECTION 5

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5.0 FIELD TRIP REPORT

5.1 Summary

On Thursday, May 26, 1983, NUS FIT III representatives Loren Lasky, Michael Cramer, Christopher Dietz, and Martin Howe visited the Lord Shope site for the purpose of conducting a site inspection/sampling. FIT III was accompanied on site by representatives of the Erie County Department of Health (ECDH), the Pennsylvania Department of Environmental Resources (PA DER), the Lord Corporation, Wehran Engineering, EPA Region III, and Mr. Shope, the property owner.

The weather at the time of the inspection was partly overcast, with temperatures in the 45° to 50°F range. TV crews from two local Erie stations entered the site during the day, interviewed some of the site and agency representatives, and filmed the FIT team at work.

5.2 Persons Contacted

5.2.1 Prior to Field Trip

Don Saurer, Manager
Corporate Communications
Lord Corporation (Headquarters)
2000 West Grandview Blvd.
P.O. Box 70038
Erie, PA 16514-0038
(814) 456-8511

Mark Fedorchak, Env. Technician
Erie County Department of Health
606 West Second Street
Erie, PA 16507
(814) 454-5811

Russ Crawford, Supervisor
PA DER
Bureau of Solid Waste Management
1012 Water Street
Meadville, PA 16335
(814) 724-8526

Mark Gorman, Solid Waste Specialist
PA DER
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5.2.2 At The Site

Melvin Shope
Landowner
Pieper Road
Girard, PA 16511

Clyde Perry
Neighbor
Pieper Road
Girard, PA 16511

Don Saurer
Bob Nipper
Mark Way, Attorney
Lord Corporation
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Paul Burroughs, Attorney
Mark Gorman, Solid Waste Specialist
Steve Socash, Reg. Soil Scientist
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Jim Daigler
Jim Woods
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Bob Wellington
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Walter Lee
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EPA Number PA-290

5.3 SAMPLE LOG

Site Name LORD SHOPE

CASE # 1761

TRAFFIC REPORTS Organic	Inorganic	High Hazard	SAMPLING LOCATION	PHASE	SAMPLE DESCRIPTION	DATE	TIME	pH	COMMENTS/OBSERVATIONS	LABORATORY
C 3144	MC 0624		Pond in northcenter	sed	Chemical smell when soil is disturbed.	5/26/83	1000		Hnu 5ppm	Organics:
C 3145	MC 0625		Slurry wall excavation	sed	Auger hole - 1' deep Composite - 7 locations	"	1015		Hnu >20ppm	NUS Lab
C 3146	MC 0626		Dug hole - SE corner	sed	Augered to 1.5' deep. Water filled bottom of hole.	"	1420		Hnu >20ppm	Pittsburgh, Pa.
C 3147	MC 0627		Seep area - NE corner	sed	Irridescent sheen	"	1335			
C 3148	MC 0628		Pond in south	sed		"	1410		Hnu 3ppm	Inorganics:
C 3149	MC 0629		Blank	sed	Distilled Water	"	1145			U. of Washington
C 3150	MC 0630		Well 18	aq	Oily sheen	"	1210	6.3	Hnu 3ppm on bailed water	Seattle, Wa.
C 3152	MC 0632		Seep area - NE corner	aq	Irridescent sheen	"	1335	6.0		
C 3153	MC 0633		Pond in south	aq	Murky brown	"	1410	6.4	Hnu 3ppm	
C 3154	MC 0634		Shope home well	aq		"	1005	6.8		
C 3155	MC 0635		Lehman home well	aq		"	1040	6.8		
C 3156	MC 0636		Barto home well	aq		"	1300	6.8		
C 3157	MC 0637		Pustelak home well	aq		"	1240	6.4		
C 3158	MC 0638		Blank	aq	Distilled water	"	1145	6.8		

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5.4 Site Observations

- The site was barren of vegetation. Soil at the surface was very soft, brown sandy loam. In many portions of the capped area, the topsoil had eroded away and the PVC liner was exposed.

- Air monitoring, performed with an HNU, indicated that background was 0 ppm along the access road. Transient readings in excess of 20 ppm were obtained when the soil was disturbed in the gully along the slurry wall and during augering in the southeast corner. A solvent-type smell was also noted.

- No drums were observed on site.

- A murky brown pond south of the capped fill bordered on the Lehman property. Apple trees (Lehman's Orchard) were located close to the other side of the pond. The pond was at least 25 feet long and appeared to be a few feet deep. Sediment and aqueous samples were taken (pond in the south).

- Off the northeastern corner of the landfill mound, an apparent leachate seep was observed. The area was swampy and had a few inches of stagnant liquid with an irridescent sheen. This seep borders on the Perry property. Sediment and aqueous samples were taken (northeast seep).

- The north central area, where intermittent ponded water had been observed on the Perry property border, was investigated (see Appendix D - Recent Background Information). There were isolated puddles of what appeared to be leachate, but no pond was present. A sediment sample was taken (pond north center). The soil in the area was saturated, had a strong chemical smell, and HNU readings of 5 ppm when disturbed.

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- It is not possible to state conclusively at the present time whether the various ponds and seeps observed on site were formed by the seepage of leachate or by a high groundwater table, or by pooled surface runoff, or by some combination thereof. However, based on FIT III's visual examination of the site and review of background information, it would seem that the south pond is surface runoff, the northeast seep is leachate, and the occasional pond in the north center is a combination of leachate plus a high water table.

- An auger sample was collected in the southeast corner of the site, off of the capped fill. This location was identified by ECDH representatives as the area where their tests had detected high levels of organic contaminants, particularly xylene (see Appendix D). A hole 1.5 feet deep was augered and a small amount of liquid filled the bottom of the hole. A solvent smell and transient HNU readings above 20 ppm were noted as a sediment sample was taken (Dug hole - southeast corner).

- Monitor well no. 1 (MW 1), located off the northwest corner of the fill, stood under water in a puddle. Both manometers on the top of the landfill were broken during remedial construction. Jim Daigler, Wehran Engineering, claimed these and other problems would be cleaned up starting in the spring of 1983.

- A large mound of soil, several hundred feet long and 20 to 30 feet high, was piled south of the landfill mound. A strong rubber smell was noted in this vicinity. Jim Daigler of Wehran Engineering identified the soil pile as the material excavated in order to put in the subsurface cut off wall. A small gully, apparently developed by surface runoff, ran in between the mound of soil and the landfill proper. This gully was probably located just outside of the slurry wall. Shovels full of soil were taken at seven spots along the soil mound and in the gully and mixed in a steel bucket (HNU readings of greater than 20 ppm were detected). The DER took a split of this composite sediment sample (slurry wall excavation) and turned it over to the Lord Corporation.

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- Monitor well no. 18, located inside the capped fill, was sampled after three volumes were purged with a stainless steel bailer. The bailed water had a slight oily sheen, and HNU readings of 3 ppm were detected.

- FIT III attempted to sample the following monitor wells but found them damaged: no. 2WT (new) - inner diameter of casing less than 1-1/2 inches, bailer would not fit; no. 2WT (old) - casing filled with pipes (possibly an air hose for pneumatic sampler); no. 15 - casing out of alignment.

- An attempt was made to sample well 12-B, which Wehran Engineering felt that well cluster no. 12 lay along the axis of the plume of contaminated groundwater.[2] Three well volumes were purged from well 12-B, which is on Clyde Perry's property, but the well never recharged sufficiently for sampling. While bailing, the water was initially black, then clear, and then green.

- The pHs of the on-site aqueous samples were generally low (6.0 - 6.4), while the pH of the blank and all the home wells (except Pustelak) was 6.8. The Pustelak's well had a pH of 6.4.

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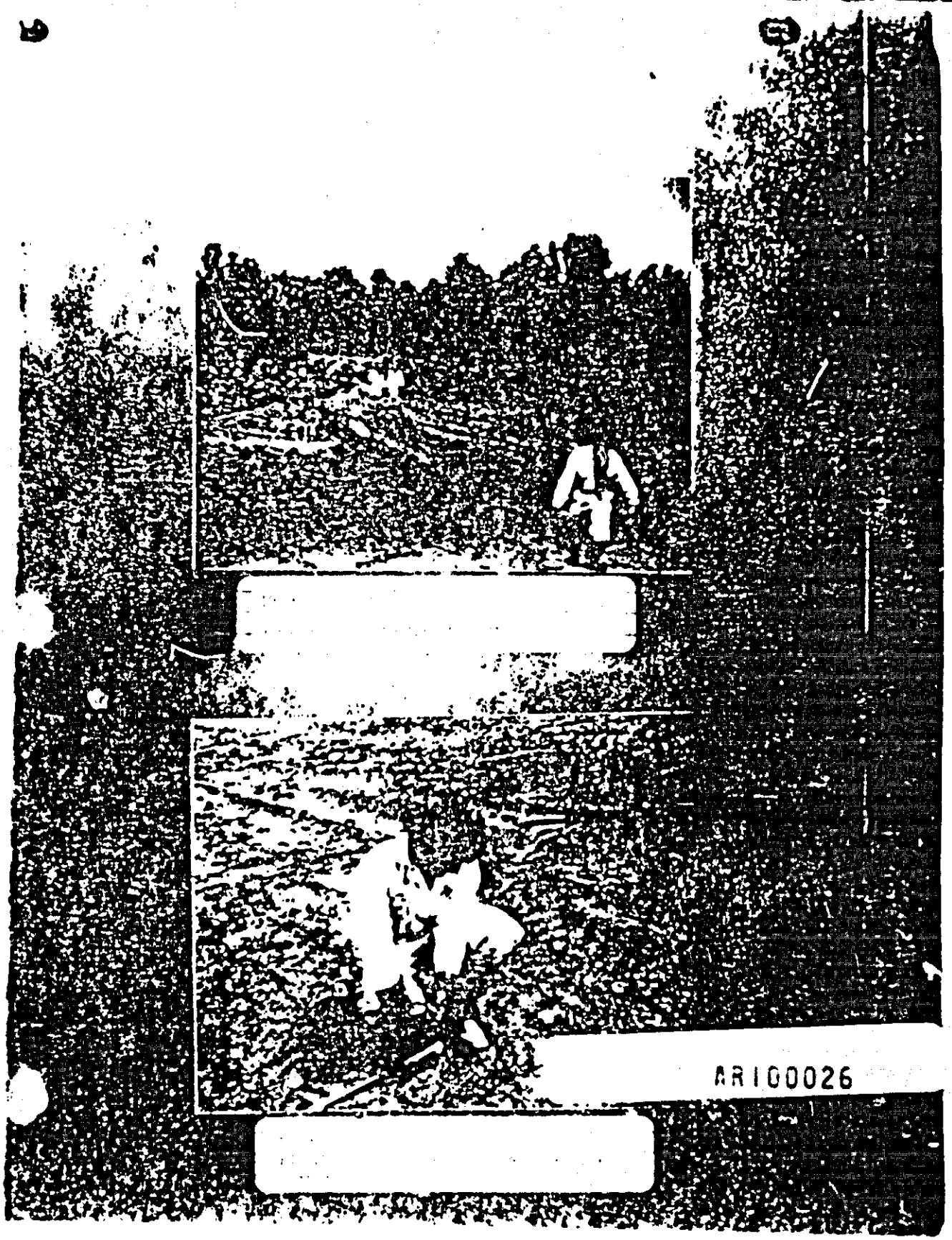

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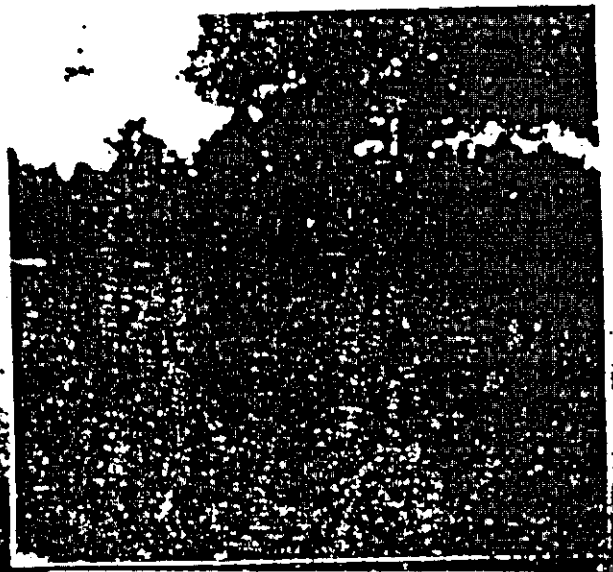

Photo 3 -
View to north.

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Photo 4 -
FIT III sampling south pond.

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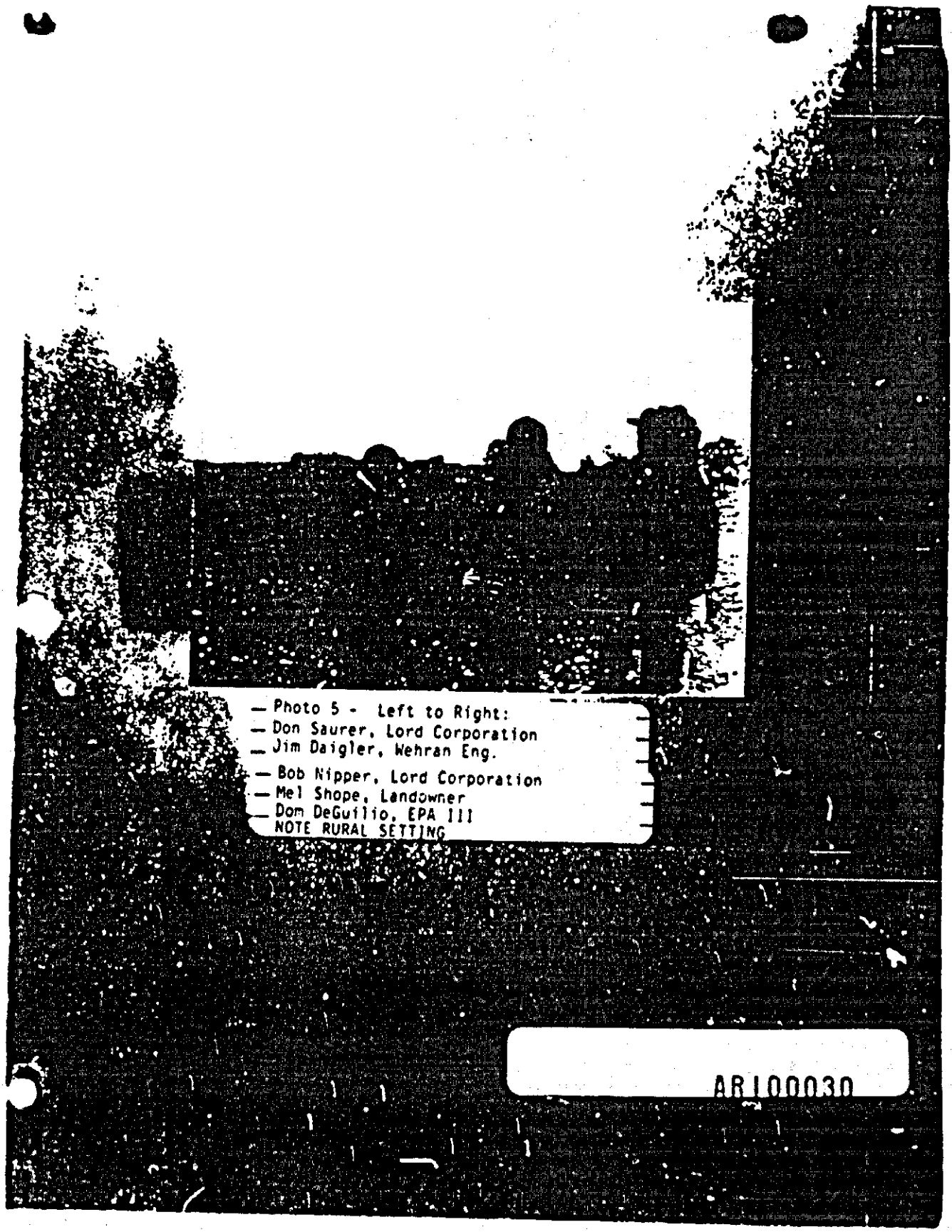

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TDD No. FJ-8304-09

EPA	POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT	REGION	SITE NUMBER (to be assigned by HQ)
		III	PA-290

GENERAL INSTRUCTIONS: Complete Sections I and III through XV of this form as completely as possible. Then use the information on this form to develop a Tentative Disposition (Section II). File this form in its entirety in the regional Hazardous Waste Log File. Be sure to include all appropriate Supplemental Reports in the file. Submit a copy of the forms to: U.S. Environmental Protection Agency; Site Tracking System; Hazardous Waste Enforcement Task Force (EN-335); 401 M St., SW; Washington, DC 20460

I. SITE IDENTIFICATION

A. SITE NAME	B. STREET (or other identifier)		
Lord Shope	Rd. #1, Pieper Rd (Property Tax Index No. 24-9-61-18		
C. CITY	D. STATE	E. ZIP CODE	F. COUNTY NAME
Girard	PA	16417	Erie

G. SITE OPERATOR INFORMATION

1. NAME		2. TELEPHONE NUMBER	
Lord Corporation (and Melvin Shope)		(814) 456-8511	
3. STREET	4. CITY	5. STATE	6. ZIP CODE
P.O. Box 10039 1635 W. 12th Street	Erie	PA	16514-0039

H. REALTY OWNER INFORMATION (if different from operator of site)

1. NAME		2. TELEPHONE NUMBER	
Melvin Shope			
3. CITY		4. STATE	5. ZIP CODE
Girard		PA	16511

I. SITE DESCRIPTION

Closed 4.5 acre industrial waste landfill in rural area, near Lake Erie, where privately funded remedial work was done in 1982.

J. TYPE OF OWNERSHIP

☐ 1. FEDERAL ☐ 2. STATE ☐ 3. COUNTY ☐ 4. MUNICIPAL ☒ 5. PRIVATE

II. TENTATIVE DISPOSITION (complete this section last)

A. ESTIMATE DATE OF TENTATIVE DISPOSITION (mo., day, & yr.)	B. APPARENT SERIOUSNESS OF PROBLEM
January 1984	☐ 1. HIGH ☒ 2. MEDIUM ☐ 3. LOW ☐ 4. NONE

C. PREPARER INFORMATION

1. NAME	2. TELEPHONE NUMBER	3. DATE (mo., day, & yr.)
Loren Lasky, NUS FITIII	(215) 687-9510	12/14/83

III. INSPECTION INFORMATION

A. PRINCIPAL INSPECTOR INFORMATION

1. NAME	2. TITLE	
Loren Lasky	Geologist	
3. ORGANIZATION		4. TELEPHONE NO. (area code & no.)
NUS Field Investigation Team (FIT III)		(215) 687-9510

B. INSPECTION PARTICIPANTS

1. NAME	2. ORGANIZATION	3. TELEPHONE NO.
Marty Howe	NUS FIT III	(215) 687-9510
Chris Dietz	NUS FIT III	(215) 687-9510
Mike Cramer	NUS FIT III	(215) 687-9510

C. SITE REPRESENTATIVES INTERVIEWED (corporate officials, workers, residents)

1. NAME	2. TITLE & TELEPHONE NO.	3. ADDRESS
Don Saurer	Manager Corp. Com. (814) 456-8511	Lord Corp. Hqtrs., 2000 W. Grandview Blvd. P.O. Box 10038, Erie, PA 16514-0038
Jim Daigler	Staff Engineer (914) 343-0660	Wehran Engineering, 666 East Main Street Middletown, NY 10940
Melvin Shope	Resident & Owner	Pieper Road, Girard, PA 16417
Blaine Lehman	Resident	6600 Lexington Road Girard, PA 16417
Joe Barto	Resident (814) 774-9568	5580 Pieper Road Girard, PA 16417
Mrs. Postelak	Resident (814) 774-3121	10555 Ridge Road Girard, PA 16417

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III. INSPECTION INFORMATION (continued)

D. GENERATOR INFORMATION (sources of waste)

1. NAME	2. TELEPHONE NO.	3. ADDRESS	4. WASTE TYPE GENERATED
Lord Corporation	(814) 456-8511	Hqtrs.: 2000 W. Grandview Blvd. P.O. Box 100038, Erie, PA 16514-0038	See Section VII C.2

E. TRANSPORTER/HAULER INFORMATION

1. NAME	2. TELEPHONE NO.	3. ADDRESS	4. WASTE TYPE TRANSPORTED
Mel Shope		Pieper Road, Girard, PA	See Section VII C.2

F. IF WASTE IS PROCESSED ON SITE AND ALSO SHIPPED TO OTHER SITES, IDENTIFY OFF-SITE FACILITIES USED FOR DISPOSAL.

1. NAME	2. TELEPHONE NO.	3. ADDRESS
Frontier Chemical Waste Inc.		Niagra Fall, NY (Contracted by Wehran to transport, treat and/or dispose of drums and leachate taken from the site during remediation.)

G. DATE OF INSPECTION (mo., day, & yr.)	H. TIME OF INSPECTION	I. ACCESS GAINED BY: (credentials must be shown in all cases)
5/26/83	0800-1715 hrs.	[X] 1. PERMISSION [ ] 2. WARRANT

J. WEATHER (describe)
overcast and cool, temperature 45-50°F.

IV. SAMPLING INFORMATION

A. Mark 'X' for the types of samples taken and indicate where they have been sent e.g., regional lab, other EPA lab, contractor, etc. and estimate when the results will be available.

1. SAMPLE TYPE	2. SAMPLE TAKEN (mark 'X')	3. SAMPLE SENT TO:	4. DATE RESULTS AVAILABLE
a. GROUNDWATER	X	Inorganics: U. of Washington, Seattle, WA Organics: Rocky Mt. Analytical, Arvada, CO and transferred to NUS Labs, Pittsburgh, PA	CURRENTLY AVAILABLE
b. SURFACE WATER	X		
c. WASTE			
d. AIR			
e. RUNOFF	X		
f. SPILL			
g. SOIL	X		
h. VEGETATION			
i. OTHER (specify) leachate	X		

B. FIELD MEASUREMENTS TAKEN (e.g., radioactivity, explosivity, PH, etc.)

1. TYPE	2. LOCATION OF MEASUREMENTS	3. RESULTS
HNU gas/vapors	Sweep of site and all sampling locations	Transient readings in excess of 20 ppm
Radiation mini-alert	Sweep of site	No readings above background
pH	Aqueous samples	6.0-6.8
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IV. SAMPLING INFORMATION (continued)

C. PHOTOS

1. TYPE OF PHOTOS: [X] a. GROUND [ ] b. AERIAL
2. PHOTOS IN CUSTODY OF: NUS FIT III and EPA III

D. SITE MAPPED?

[X] YES, SPECIFY LOCATION OF MAPS: Wehran Engineering reports

E. COORDINATES

1. LATITUDE (deg.-min.-sec.): 41° 58' 40"N
2. LONGITUDE (deg.-min.-sec.): 80° 21' 05"W

V. SITE INFORMATION

A. SITE STATUS

[ ] 1. ACTIVE (Those industrial or municipal sites which are being used for waste treatment, storage, or disposal on a continuing basis, even if infrequently.)
[X] 2. INACTIVE (Those sites which no longer receive wastes.)
[ ] 3. OTHER (specify): ____ (Those sites that include such incidents like "midnight dumping" where no regular or continuing use of the site for waste disposal has occurred.)

B. IS GENERATOR ON SITE?

[X] 1. NO [ ] 2. YES (specify generator's four-digit SIC Code): ____

C. AREA OF SITE (in acres): 4.5 acres

D. ARE THERE BUILDINGS ON THE SITE?

[ ] 1. NO [X] 2. YES (specify): Shope residence

VI. CHARACTERIZATION OF SITE ACTIVITY

Indicate the major site activity(ies) and details relating to each activity by marking 'X' in the appropriate boxes.

'X'	A. TRANSPORTER	'X'	B. STORER	'X'	C. TREATER	'X'	D. DISPOSER
	1. RAIL		1. PILE		1. FILTRATION	X	1. LANDFILL
	2. SHIP		2. SURFACE IMPOUNDMENT		2. INCINERATION		2. LANDFARM
	3. BARGE		3. DRUMS		3. VOLUME REDUCTION		3. OPEN DUMP
	4. TRUCK		4. TANK, ABOVE GROUND		4. RECYCLING/RECOVERY		4. SURFACE IMPOUNDMENT
	5. PIPELINE		5. TANK, BELOW GROUND		5. CHEM./PHYS./TREATMENT		5. MIDNIGHT DUMPING
X	6. OTHER (specify): Mr. Shope transported the wastes to the site.		6. OTHER (specify):		6. BIOLOGICAL TREATMENT		6. INCINERATION
					7. WASTE OIL REPROCESSING		7. UNDERGROUND INJECTION
					8. SOLVENT RECOVERY		8. OTHER (specify):
					9. OTHER (specify):		

E. SUPPLEMENTAL REPORTS If the site falls within any of the categories listed below, Supplemental Reports must be completed. Indicate which Supplemental Reports you have filled out and attached to this form.

[ ] 1. STORAGE [ ] 2. INCINERATION [X] 3. LANDFILL [ ] 4. SURFACE IMPOUNDMENT [ ] 5. DEEP WELL
[ ] 6. CHEM/BIO/PHYS TREATMENT [ ] 7. LANDFARM [ ] 8. OPEN DUMP [ ] 9. TRANSPORTER [ ] 10. RECYCLOR/RECLAIMER

VII. WASTE RELATED INFORMATION

A. WASTE TYPE

[X] 1. LIQUID [X] 2. SOLID [X] 3. SLUDGE [ ] 4. GAS

B. WASTE CHARACTERISTICS

[X] 1. CORROSIVE [X] 2. IGNITABLE [ ] 3. RADIOACTIVE [X] 4. HIGHLY VOLATILE
[X] 5. TOXIC [X] 6. REACTIVE [X] 7. INERT [X] 8. FLAMMABLE
[ ] 9. OTHER (specify):

C. WASTE CATEGORIES

1. Are records of wastes available? Specify items such as manifests, inventories, etc. below.

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Only partial records available from Lord Corporation.

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VII. WASTE RELATED INFORMATION (continued)

2. Estimate the amount (specify unit of measure) of waste by category; mark 'X' to indicate which wastes are present.

a. SLUDGE	b. OIL	c. SOLVENTS	d. CHEMICALS	e. SOLIDS	f. OTHER
AMOUNT: Unknown	AMOUNT: Unknown	AMOUNT: Unknown	AMOUNT: Unknown	AMOUNT:	AMOUNT: Unknown
UNIT OF MEASURE:	UNIT OF MEASURE:	UNIT OF MEASURE:	UNIT OF MEASURE:	UNIT OF MEASURE:	UNIT OF MEASURE:
X (1) PAINT, PIGMENTS	X (1) OILY WASTES	(1) HALOGENATED SOLVENTS	X (1) Nitric Acids, Sulfuric	(1) FLYASH	(1) LABORATORY, PHARMACEUT.
(2) METALS SLUDGES	(2) OTHER (specify): coilant (emulsified oil in water)	(2) NON-HALOGNTD. SOLVENTS	(2) PICKLING LIQUORS	(2) ASBESTOS	(2) HOSPITAL
(3) POTW		X (3) OTHER (specify): MIAK, Xylene/Xylol, MIBK, alcohol, "safety clean", MEK, TCE, PCE	X (3) CAUSTICS caustic soda	(3) MILLING/MINE TAILINGS	(3) RADIOACTIVE
(4) ALUMINUM SLUDGE			(4) PESTICIDES	(4) FERROUS SMELTING WASTES	(4) MUNICIPAL
(5) OTHER (specify): Primers, Grinding sludge, Spray booth sludge			(5) DYES/INKS	(5) NON-FERROUS SMLTG. WASTES	X (5) OTHER (specify): synthetic rubber, carbon black, Grit blast dust, scrap rubber pad, paper, dirt, tin cans, rags, drums
			(6) CYANIDE	(6) OTHER (specify):	
			(7) PHENOLS		
			(8) HALOGENS		
			(9) PCB		
			(10) METALS		
			(11) OTHER (specify):		

D. LIST SUBSTANCES OF GREATEST CONCERN WHICH ARE ON THE SITE (place in descending order of hazard)

1. SUBSTANCE	2. FORM (mark 'X') a. SOLID	b. LIQ.	c. VAPOR	3. TOXICITY (mark 'X') a. HIGH	b. MED.	c. LOW	d. NONE	4. CAS NUMBER	5. AMOUNT	6. UNIT
vinyl chloride	X			X				75-01-4	$4 \times 1 \times 10^4$	ug/kg
arsenic		X		X				--	700	ug/l
chromium		X		X				--	650	ug/l
beryllium		X		X				--	168	ug/l
lead		X		X				--	850	ug/l
trans-1,2-dichloroethylene	X				X			156-60-5	8,600	ug/kg
TCE	X	X			X			79-01-6	190	ug/kg
PCE (tetrachloroethene)	X				X			127-18-4	1,100	ug/kg

VIII. HAZARD DESCRIPTION

FIELD EVALUATION HAZARD DESCRIPTION: Place an 'X' in the box to indicate that the listed hazard exists. Describe the hazard in the space provided.

X A. HUMAN HEALTH HAZARDS

Toxocological review of FIT III's sample results indicate potential health hazards via contact and air routes. The plume of contaminated groundwater may impact downgradient residential wells.

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VIII. HAZARD DESCRIPTION (continued)

☒ B. NON-WORKER INJURY/EXPOSURE

Contaminated soil and water at site boundaries, adjacent to neighbors land.

☐ C. WORKER INJURY/EXPOSURE

N/A

☒ D. CONTAMINATION OF WATER SUPPLY

Potential exists for impact on residential wells.

☒ E. CONTAMINATION OF FOOD CHAIN

Intake point for irrigation of food crops located on Elk Park Run, 4,800 feet downstream of closest surface water downstream of site (per HRS by E & E 7/82)

☒ F. CONTAMINATION OF GROUND WATER

Demonstrated in FIT III recent (5/26/83) and previous tests.

☒ G. CONTAMINATION OF SURFACE WATER

Ponded water on site shown to be contaminated by FIT III 5/26/83 samples. Contamination of off-site surface water unknown - but possible (1 point sampled by ECDH did not show contaminants (Elk Rark Run at Route 20).

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VIII. HAZARD DESCRIPTION (continued)

☒ H. DAMAGE TO FLORA/FAUNA

Before cleanup, dead vegetation noted by DER in seep area north of landfill (Phone conversation, DER 5/10/83)

☐ I. FISH KILL

None reported

☒ J. CONTAMINATION OF AIR

Transient HNU readings in excess of 20 ppm detected on disturbed soils.

☒ K. NOTICEABLE ODORS

Odors noted by FIT III on site: rubber and chemical solvents, especially on disturbed soils, and along southern part of fill area.

☒ L. CONTAMINATION OF SOIL

Soil contamination demonstrated by FIT III's 5/26/83 samples and previous samples by ECDH Erie County Health Department and PA DER.

☒ M. PROPERTY DAMAGE

Contaminated water is ponding at boundary of neighbors property of both north andsouth of the site.

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VIII. HAZARD DESCRIPTION (continued)

☒ N. FIRE OR EXPLOSION

Site had a history of fires during the early 1970's.

☐ O. SPILLS/LEAKING CONTAINERS/RUNOFF/STANDING LIQUID

N/A

☐ P. SEWER, STORM DRAIN PROBLEMS

N/A

☒ Q. EROSION PROBLEMS

Erosion of soil cover exposing PVC liner, observed by FIT III (5/26/83).
Large pile of contaminated soil (excavated for placement of slurry wall) in south part of site.

☒ R. INADEQUATE SECURITY

No security

☐ S. INCOMPATIBLE WASTES

Unknown

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VIII. HAZARD DESCRIPTION (continued)

☐ T. MIDNIGHT DUMPING

N/A

☐ U. OTHER (specify):

N/A

IX. POPULATION DIRECTLY AFFECTED BY SITE

A. LOCATION OF POPULATION	B. APPROX. NO. OF PEOPLE AFFECTED	C. APPROX. NO. OF PEOPLE AFFECTED WITHIN UNIT AREA	D. APPROX. NO. OF BUILDINGS AFFECTED	E. DISTANCE TO SITE (specify units)
1. IN RESIDENTIAL AREAS	3.5 people/home	approximately 280	approx. 80 homes	1-mi. radius
2. IN COMMERCIAL OR INDUSTRIAL AREAS	Orchard/vineyards immediately south of site			
3. IN PUBLICLY TRAVELLED AREAS				
4. PUBLIC USE AREAS (parks, schools, etc.)	Golf course within 3,000 feet of the site.			

X. WATER AND HYDROLOGICAL DATA

A. DEPTH TO GROUNDWATER (specify units)	B. DIRECTION OF FLOW	C. GROUNDWATER USE IN VICINITY
shallow ≤ 20 feet	dominantly NW	Domestic wells
D. POTENTIAL YIELD OF AQUIFER	**E. DISTANCE TO DRINKING WATER SUPPLY (specify unit of measure)**	**F. DIRECTION TO DRINKING WATER SUPPLY**
moderate	900 feet east	east, northeast, and northwest

G. TYPE OF DRINKING WATER SUPPLY

☒ 1. NON-COMMUNITY < 15 CONNECTIONS* ☒ 2. COMMUNITY (specify town): > 15 CONNECTIONS

☐ 3. SURFACE WATER ☒ 4. WELL

Continue On Page 9

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ORIGINAL

Continued From Page 8

X. WATER AND HYDROLOGICAL DATA (continued)

H. LIST ALL DRINKING WATER WELLS WITHIN A 1/4 MILE RADIUS OF SITE

1. WELL	2. DEPTH (specify unit)	3. LOCATION (proximity to population/buildings)	4. NON-COMMUNITY (mark 'X')	5. COMMUNITY (mark 'X')
Shope	28' (dug)	East of site 900-1,200'	X	
Perry, C.	58'	East of site 900-1,200'	X	
Perry, W.	25-30'	East of site 900-1,200'	X	
Sewin	65'	East of site 900-1,200'	X	
Mello	30'	East of site 900-1,200'	X	

I. RECEIVING WATER

1. NAME: Elk Run, Elk Creek

☐ 2. SEWERS ☒ 3. STREAMS/RIVERS ☐ 4. LAKES/RESERVOIRS ☐ 5. OTHER (specify):

6. SPECIFY USE AND CLASSIFICATION OF RECEIVING WATERS

Tributaries of Elk Creek are protected for CWF (Cold Water Fisheries), MF (Migratory Fishes) and AM (ammonia nitrogren not to exceed 0.5 mg/l).

XI. SOIL AND VEGITATION DATA

LOCATION OF SITE IS IN:

☐ A. KNOWN FAULT ZONE ☐ B. KARST ZONE ☐ C. 100 YEAR FLOOD PLAIN ☒ D. WETLAND possible

☐ E. A REGULATED FLOODWAY ☐ F. CRITICAL HABITAT ☐ G. RECHARGE ZONE OR SOLE SOURCE AQUIFER

XII. TYPE OF GEOLOGICAL MATERIAL OBSERVED

Mark 'X' to indicate the type(s) of geological material observed and specify where necessary, the component parts.

'X'	A. OVERBURDEN	'X'	B. BEDROCK (specify below)	'X'	C. OTHER (specify below)
	1. SAND	X	Girad Shale	X	Glacial deposits - sand, clay, silt
	2. CLAY				
	3. GRAVEL				

XIII. SOIL PERMEABILITY

☐ A. UNKNOWN ☐ B. VERY HIGH (100,000 to 1000 cm/sec.) ☐ C. HIGH (1000 to 10 cm/sec.)

☒ D. MODERATE (10 to .1 cm/sec.) ☐ E. LOW (.1 to .001 cm/sec.) ☐ F. VERY LOW (.001 to .00001 cm/sec.)

G. RECHARGE AREA

☒ 1. YES ☐ 2. NO 3. COMMENTS: (per: consultant study of vertical hydraulic gradient)

H. DISCHARGE AREA

☒ 1. YES ☐ 2. NO 3. COMMENTS: (ponds and swamps within one mile)

I. SLOPE

1. ESTIMATE % OF SLOPE: 2-5 percent

2. SPECIFY DIRECTION OF SLOPE, CONDITION OF SLOPE, ETC.: northwest

J. OTHER GEOLOGICAL DATA

Complex subsurface of interfingering sands, silts, and clays (glacial).

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XIV. PERMIT INFORMATION

List all applicable permits held by the site and provide the related information.

A. PERMIT TYPE (e.g., RCRA, State, NPDES, etc.)	B. ISSUING AGENCY	C. PERMIT NUMBER	D. DATE ISSUED (mo., day, & yr.)	E. EXPIRATION DATE (mo., day, & yr.)	F. IN COMPLIANCE (mark 'X')		
					1. YES	2. NO	3. UNKNOWN
None							

XV. PAST REGULATORY OR ENFORCEMENT ACTIONS

☐ NONE ☒ YES (summarize in this space)

Landfill closed in 1979 after Notice of Violation from PA DER.
Consent Order signed July 1982, requiring mandatory cleanup.

NOTE: Based on the information in Sections III through XV, fill out the Tentative Disposition *(Section II)* information on the first page of this form.

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SECTION 6

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6.0 LABORATORY DATA

6.1 Sample Data Summary

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TDD Number F3-8304-09
EPA Number PA-290

SAMPLE DATA SUMMARY
TARGET COMPOUNDS

☒ Organic ☐ Inorganic

Site Name LORD SHOPE
Date of Sample MAY 26, 1983

Compounds Detected

Sample Number	Sample Description and Location	Phase	Units	p-chloro-m-cresol	bis(2-ethylhexyl) phthalate	benzyl butyl phthalate	di-n-butyl phthalate	1,1-dichloro-ethane	trans-1,2-dichloroethene	ethylbenzene	methylene chloride	tetrachloro-ethene	toluene	trichloroethene	vinyl chloride		Remarks
C 3144	Pond-north center	Sed	ug/kg						8600	1400			3800		4.1×10^4		
C 3145	Slurry wall excavation	Sed	"						21 ◊	<5.9 ◊		430	<5.9 ◊	84			
C 3146	Dug hole SE corner	Sed	"						<5.9 ◊	25		1100		190			
C 3147	Seep area NE corner	Sed	"							71		17					
C 3148	Pond in South	Sed	"			420			98			<5 ◊			59		
C 3149	Blank	Sed	"								27 c		<5				
C 3150	Well 18	aq	ug/l	14	63		<10 ◊				9200 c						
C 3152	Seep area NE corner	aq	"								58 ◊						
C 3153	Pond in South	aq	"					26	1700						950		
C 3154	Shope home	aq	"														
C 3155	Lehman home	aq	"														
C 3156	Barto home	aq	"														
C 3157	Pustelak home	aq	"								<50 ◊						
C 3158	Blank	aq	"								9		<5				

NOTE: For a review of this data and non-target, tentatively identified compounds, please see the Analytical Quality Assurance section of this report.

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TDD Number F3-8304-09
EPA Number PA-290

SAMPLE DATA SUMMARY
TARGET COMPOUNDS

☒ Organic ☐ Inorganic

Site Name LORD SHOPE
Date of Sample MAY 26, 1983

Compounds Detected

Sample Number	Sample Description and Location	Phase	Units	heptachlor	lindane	PCB-1254		benzoic acid	4-methylphenol	acetone	2-butanone	4-methyl-2-pentanone	o-xylene	4-methyl-2-pentanol	tetrahydrofuran		Remarks
C 3144	Pond-north center	sed	ug/kg			14				1.1×10^4	6300	8400	4200	1×10^5 J			
C 3145	Slurry wall excavation	sed	"									77◇	11◇	50◇ J	7 J		
C 3146	Dug hole SE corner	sed	"									23◇	83				
C 3147	Seep area NE corner	sed	"		0.23◇					22◇ c			210				
C 3148	Pond in South	sed	"			2.2											
C 3149	Blank	sed	"														
C 3150	Well 18	aq	ug/l					<100	10	1030							
C 3152	Seep area NE corner	aq	"														
C 3153	Pond in South	aq	"		.007◇												
C 3154	Shope home	aq	"														
C 3155	Lehman home	aq	"	.006◇													
C 3156	Barto home	aq	"														
C 3157	Pustelak home	aq	"							210◇							
C 3158	Blank	aq	"														

NOTE: For review of this data and non-target, tentatively identified compounds, please see the Analytical Quality Assurance section of this report.

◇ Denotes results of questionable qualitative significance based upon quality assurance review of data.

AR 00040

TDD Number F3-8304-09
EPA Number PA-290

SAMPLE DATA SUMMARY
TARGET COMPOUNDS

☐ Organic ☒ Inorganic

Site Name LORD SHOPE
Date of Sample MAY 26, 1983

Compounds Detected

Sample Number	Sample Description and Location	Phase	Units	ALUMINUM	CHROMIUM	BARIUM	BERYLLIUM	COBALT	COPPER	IRON	NICKEL	MANGANESE	ZINC	BORON	VANADIUM	SILVER	Remarks
MC 0624	Pond-north center	sed	mg/kg	12800 c	18.7	120	0.9	5.92	[illegible]	14800	12.9	157	350 c	◇12 c	24.5		
MC 0625	Slurry wall excavation	sed	"	10200 c	15.6	50.3	.93	8.78	28.4	16800 c	18.6	399	88.8 c	c	18.2	[.45]	
MC 0626	Dug hole SE corner	sed	"	8250 c	11.9	21.5	.74	7.22	24.8	14100 c	15.4	277	63.1 c	c	14.6		
MC 0627	Seep area NE corner	sed	"	8210 c	11.4	71.6	.76	6.73	21.2	16000 c	13.1	550	76.1 c		14.1		
MC 0628	Pond in south	sed	"	7250 c	11.3	36.2	.74	6.78	23.4	12700 c	14.4	341	71.6 c	◇12.7 c	13.2		
MC 0629	Blank	sed	"	c	[.21]					[4.48] c			c				
MC 0630	Well 18	aq	µg/l	1626	56.6	1340	12.9	[20.9]	43.2	70600	117	917	◇[5.43]	◇2170	[17.2]		
MC 0632	Seep area NE corner	aq	"	420000 c	650	9320	168	414	1380	472000	769	73600	6700	◇987	729	50.3	
MC 0633	Pond in south	aq	"	822		[55.7]			c	2490 c		757	◇15.8 c	c			
MC 0634	Shope home	aq	"	[41.9] c		[96.9]			c	◇53.1		[2.5]	◇216	◇286			
MC 0635	Lehman home	aq	"	[27.9] c		[84.6]			◇[10]	◇70.9			◇199	◇265			
MC 0636	Barton home	aq	"	◇[83] c		[59.2]			c	838		42.9	◇170 c	◇312 c			
MC 0637	Pustelak home	aq	"	[34.8] c		[71.9]			[11.2] c	852		34.3		◇292 c			
MC 0638	Blank	aq	"	[13.4] c						58.2			157 c				

NOTE: For a review of this data and non-target, tentatively identified compounds, please see the Analytical Quality Assurance section of this report.

◇ [illegible]

ORIGINAL (Red)

AR 000043

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TDD Number F3-8304-09
EPA Number PA-290

SAMPLE DATA SUMMARY
TARGET COMPOUNDS

[ ] Organic [X] Inorganic

Site Name LORD SHOPE
Date of Sample MAY 26, 1983

Compounds Detected

Sample Number	Sample Description and Location	Phase	Units	ARSENIC	ANTIMONY	SELENIUM	THALLIUM	MERCURY	TIN	CADMIUM	LEAD	CYANIDE					Remarks
HC 0624	Pond- north center	sed	mg/kg	16.6		1.5	0.1	0.1	14.0	0.95	6.0		-				
HC 0625	Slurry wall excavation	sed	"	12.8		1.3	-		8.25	0.18	7.35		.13				
HC 0626	Dug hole SE corner	sed	"	16.5		0.1	0.1		12.8	.125	.385						
HC 0627	Seep area NE corner	sed	"	15.9		0.7	0.1	.05	5.75	.185	5.35						
HC 0628	Pond in south	sed	"	10.0		0.25		.05	8.5	.185	4.0						
HC 0629	Blank	sed	"						0.5								
HC 0630	Well 18	aq	µg/l	57					5 c	2.3							
HC 0632	Seep area NE corn.	aq	"	700		44	5	2.5		48	850						
HC 0633	Pond in south	aq	"	16.				0.1									
HC 0634	Shope home	aq	"	12													
HC 0635	Lehman home	aq	"	10	[7.0]				15 c								
HC 0636	Besto home	aq	"	[4]									10				
HC 0637	Postelak home	aq	"	[7]						81	[3.5]		10				
HC 0638	Blank	aq	"														

NOTE: F[illegible]view of this data and non-target, tentatively identified compounds, pl[illegible]e the Analytical Quality Assurance section of this report.

6.2 Quality Assurance Review

6.2.1 Organic Data: Lab Case 1761

6.2.1.1 Introduction

The findings offered in this report are based upon a general review of sample data, blank analysis, surrogate spike, matrix spike, duplicate analysis and tentatively identified compound results. 4-Methyl-2-pentanol and tetrahydrofuran were also analyzed for in this project.

6.2.1.2 Qualifiers

It is recommended that this data package be utilized only with the following qualifier statements:

- Results for methylene chloride may be questionable for samples C3152 and C3157.
- Results for acetone may be questionable for samples C3147 and C3157.
- The result for di-n-butyl phthalate for sample C3150 may be questionable.
- Results for toluene, 4-methyl-2-pentanol, ethylbenzene, and o-xylene for sample C3145, trans-1,2-dichloroethene and 4-methyl-2-pentanone for samples C3145 and C3146, and tetrachlorethene for sample C3147 may be questionable.
- All positive results for heptachlor and lindane may be questionable.
- Actual levels of PCB in sample C3144 may be slightly higher than those reported.
- Pesticide detection limits for samples C3144 and C3152 may be slightly higher than those reported.

AR100043

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6.2.1.3 Findings

- Methylene chloride, acetone, toluene, and di-n-butyl phthalate were detected in field and/or laboratory blanks at levels sufficient to question the aforementioned sample results.

- The results for toluene, 4-methyl-2-pentanol, ethylbenzene, and o-xylene for sample C3145, trans-1,2-dichloroethene and 4-methyl-2-pentanone for samples C3145 and C3146, and tetrachloroethene for sample C3148 may be artifacts of chromatographic ghosting from preceeding sample runs..

- Heptachlor and lindane results may be artifacts of random chromatographic interferences, because these compounds were identified from the retention times of their single peak responses on dual GC columns. In addition, the result for lindane in sample C3147 did not display a relative peak height ratio match between samples and standards on two columns.

- Low recoveries were reported for the pesticide fraction surrogate compound in sample C3152.

- Low recoveries were reported for the pesticide fraction matrix spike compounds in sample C3144.

- Tentatively identified compounds of confident matching quality, which are not suspected artifacts/contaminants are listed on the appropriate page in the Support Documentation Appendix to this report.

AR100044

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Site Name: Lord Shope
TDD No.: F3-8304-09

6.2.1.4 Summary

The attached Quality Assurance Review has identified blank contamination, chromatographic ghosting, inadequate pesticide confirmations, and low surrogate and matrix spike recoveries as the principal areas of concern. Please see the attached Support Documentation Appendix for specifics on this Quality Assurance Review.

Report prepared by Atwood F. Davis _____ Date: March 2, 1984

Report prepared by Russell J. Sloboda _____ Date: March 2, 1984

AR100045

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6.2.2 Inorganic Data: Lab Case 1761

6.2.2.1 Introduction

The findings offered in this report are based upon a general review of all available inorganic laboratory data. Blank analysis results, matrix spike and duplicate results, and calibration data were examined in a laboratory QC summary report.

6.2.2.2 Qualifiers

It is recommended that this data package be utilized only with the following qualifier statements:

- The results for aluminum may be questionable for samples MC0634, MC0635, MC0636, and MC0637.
- The results for copper may be questionable for samples MC0635 and MC0637.
- The results for iron may be questionable for samples MC0634 and MC0635.
- The results for zinc may be questionable for samples MC0630, MC0633, MC0634, MC0635, and MC0636.
- All positive results for boron are questionable.
- The results for tin may be questionable for samples MC0630 and MC0635.

6.2.2.3 Findings

- Field and/or lab blank analysis revealed the presence of aluminum, iron, zinc, copper, boron and tin contamination at sufficient levels to question the aforementioned sample results for these parameters.

AR100046

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6.2.2.3 Summary

The attached Quality Assurance Review has identified blank contamination as the major area of concern. However, these samples were analyzed under an older EPA contract which did not require the laboratory to supply any raw data. Consequently, this review was limited to evaluation of the data summary and laboratory QC summary report. In particular, it was not possible to examine the laboratory's raw data for possible artifacts due to carry-over effects, calculation errors, transcription errors, and unreported contaminants, nor for verification of standard linearity, interference check standards, and calibration check standards.

Report prepared by Rock J. Vitale _____ Date: March 2, 1984

Report prepared by Russell J. Sloboda _____ Date: March 2, 1984

AR100047

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SECTION 7

AR100048

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7.0 TOXICOLOGICAL EVALUATION

7.1 Summary

Analysis of on-site samples indicate significant concentrations of toxic organic and inorganic contaminants in surface waters (ponds, seeps), sediments, soils, and underlying shallow groundwater. Transient HNU readings in excess of 20 ppm also were noted over disturbed soils. Off-site residential well samples revealed eight times the recommended MCL for the nephrotoxic and cumulative metal cadmium.

7.2 Scope

7.2.1 On-site Samples

A sediment sample taken from what appeared to be an intermittent, swampy pond at the north central boundary of the site (sample number C-3144), was reported to contain numerous volatile organics. The known human carcinogen vinyl chloride was detected at 41,000 ug/kg. Other compounds identified include 1,2-trans-dichloroethylene at 8,600 ug/kg, acetone at 11,000 ug/kg, and other ketones (MIBK at 100,000 ug/kg and MEK at 6,300 ug/kg), substituted benzenes (ethylbenzene at 1,400 ug/kg and o-xylene at 4,200 ug/l), and a low level of PCB 1254 (14 ug/kg).

Other soil/sediment samples taken from areas located at the periphery of the site revealed other volatiles; for example, tetrachloroethylene at 1,100 ug/kg and trichloroethylene at 190 ug/kg, in an augured soil at the site's southeast corner. Concentrations of inorganics in the soil/sediment samples taken were generally unremarkable.

Aqueous samples also revealed significant contamination and suggest a potential for off-site migration. The on-site monitoring well sample reportedly contained 9,200 ug/l methylene chloride, 1,030 ug/l acetone, low concentrations of some phenolics, dimethylhexylphthalates, and concentrations of inorganics which would render the affected water unpalatable and potentially hazardous if it [illegible] a drinking water supply. Elevated levels of the suspected carcinogenic metals or metalloids arsenic, chromium, and beryllium were also reported in this groundwater sample.

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Analysis of an aqueous sample collected from a leachate seep emanating from the northeast corner (sample number MC-0632) revealed significant concentrations of toxic metals, including lead at 850 ug/l, arsenic at 700 ug/l, chromium at 650 ug/l, beryllium of 168 ug/l, cadmium at 48 ug/l, and mercury at 2.5 ug/l.

The sample of water from a pond located at the southern boundary of the site revealed 1,700 ug/l trans-1,2-dichloroethylene, 950 ug/l vinyl chloride, and 26 ug/l 1,1-dichloroethane.

7.2.2 Residential Well Samples

All 4 of the residential well samples were reported to contain low concentrations of arsenic (less than 15 ug/l); arsenic may be indigenous to the area's shallow aquifers. The Pustalek well sample, however, appeard to be also contaminated with acetone at 210 ug/l, and cadmium at 81 ug/l. Both the Pustalek and Barto home well samples revealed cyanide at 10 ug/l. A trace concentration (0.006 ug/l) of the insecticide heptachlor was reported in the Lehman well sample, but this quantitative identification may be artifactual (see section 6.2). It may be noted in this regard that orchards are maintained adjacent to the site.

The Pustalek residence is reportedly hydraulically downgradient of the site and the identification of acetone in this one well sample is of interest in view of the acetone contamination noted in sediment and monitoring well samples taken on site. However, it may also be noted that the Pustalek well is located several thousand feet from the site, and other organics of fairly high mobility in groundwater (e.g. methylene chloride) were not identified within sensitive detection limits in this home well sample. Whether or not a connection exists between the Pustalek, or other domestic wells, and the landfill contamination cannot be evidenced from these limited data.

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7.3 Toxicological Considerations

Vinyl chloride monomer (VCM) is a well-known human and animal carcinogen. Several occupational epidemiological studies in highly exposed PVC workers have reported excess rates of a rare liver cancer (angiosarcoma) and other tumors as well as acro-osteolysis (circulatory and bone disorders) of the fingertips. Animal experiments have shown that both inhalation and oral routes of VCM exposure induce tumors.

Other volatile chlorinated aliphatic compounds identified at this site include PCE, TCE, 1,1-dichloroethane, methylene chloride, and 1,2-trans-dichloroethylene. PCE and TCE have produced excess incidences of cancer in mice but were inconsistently positive in other species; they have been classified as suspected human carcinogens. Methylene chloride does not appear to induce a significant incidence of tumors in animals, but some meager evidence of leukemogenic activity in humans warrants caution with regard to assessing potential adverse effects from exposure to this compound. There is insufficient informaion available for 1,2-trans-dichloroethylene and 1,1-dichloroethane to ascertain their potential carcinogenicity, but it may be noted that these compounds are structurally related to chloro-alkanes and alkenes which have been demonstrated to exhibit tumorigenic activity in rodents.

Other organic priority pollutants were noted on this site, but with regard to groundwater contamination, migration and potential hazards posed to potable domestic groundwater supplies, the carcinogenicity of vinyl chloride and other chlorinated hydrocarbon solvents is a major concern.

Concentrations of arsenic, lead, beryllium, cadmium, and possibly mercury in samples taken from this site are also a matter of concern.

AR100051

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Shallow groundwater underlying the site has been degraded and a plume reportedly extends several hundred feet beyond the site boundary (Mutch, Daigler, and Clarke, 1983., National Conference on Management of Hazardous Waste Sites, "Clean-up of Shope's Landfill, Girard, PA" p. 296-300). The possibility of additional degradation from contaminants still present on this site is evident.

Off-site migration of contaminants of concern into surface waters is probable. The extent of pollution and its potential adverse impacts are not apparent from this limited sampling survey.

Airborne release of volatile organic compounds from this site is suggested by transient HNU readings in excess of 20 ppm (20,000 ppb) that were obtained at some sampling points upon disturbing the soil. Under appropriate climatic conditions significant ambient air concentrations of volatile organics (particularly carcinogenic chloro-alkenes) from contaminated soils can be generated. The significance of this is difficult to assess in the absence of comprehensive air monitoring data and meteorlogical information. However, it may be noted in this regard that increased risk of liver cancer has been linked with persons living in the vicinity of vinyl chloride and PVC plants (with 17 ppb VCM as the average ambient air concentration within a five mile radius) (Juzmack and McGaughy, 1975. Qualitative Risk Assessment for Community Exposure to Vinyl Chloride. EPA Report Dec. 5).

7.4 Residential Wells

Of the contaminants noted in the four home well samples, the identification of cadmium at 81 ug/l in the Pustalek well is the most significant toxicologically. Cadmium has no known function in biological systems. It is a highly toxic element with a biological half-life in humans on the order of about 20 years. For this reason the effects of even low-level exposures from various sources are cumulative over much of the lifespan.

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The human kidney is the primary target organ for chronic health effects from continual low-level exposure with progressive accumulation of the cation in this critical organ. Effects on kidney function generally do not manifest themselves for many years until the burden of the metal in the cortical tissue reaches a critical point. Patterns of kidney dysfunction range from slight tubular damage to total atrophy and failure. The former seems to be reversible, provided exposure is terminated, but at some level of cadmium accumulation the renal damage is permanent and progressive.

The Joint Food and Agriculture Organization/World Health Organization Expert Committee on Food Additives has proposed a provisional tolerable daily intake of about 60 ug Cd/day for the average adult. It has been estimated that ingestion of about 130 ug Cd/day for 50 years could result in renal damage to the non-smoker. Normally water provides only a very small fraction of the cadmium intake in the U.S. A generally accepted average daily intake of 20-50 ug/person has been estimated, largely from food. Drinking water criteria (National Interim Primary Drinking Water Standards, and Ambient Water Quality Criteria for protection of human health) take into consideration other sources of cadmium intake, and apply a safety factor to arrive at the MCL of 10 ug Cd/l. However, if one assumes consumption of 2 liters of water per day on the average, the Cd intake from the Pustalek well water would amount to more than 160 ug Cd/day from this source alone. Heavy smokers are exposed to significant amounts of cadmium as well, and this group is at increased risk under conditions of additional excessive exposure.

Quantitative identification of cadmium in the Pustalek well should be confirmed. No acute hazards of note are probable, but at the concentration reported, the potential for a long-term health hazard is clearly evident.

The reported detection of heptachlor in the Lehman well at 0.006 ug/l is of significance in view of the potential carcinogenicity associated with this chlorinated insecticide. The concentration reported, however, is very low and risk is accordingly minimal. Utilizing risk extrapolation models, it can be estimated that the additional lifetime cancer risk from daily ingestion of the heptachlor contaminated water (6 ng/l) over a period of 70 years is about 6 cases of cancer for every 10,000,000 persons so exposed. Moreover, Quality Assurance Review has deemed that results for heptachlor and lindane are of questionable validity in this sample set.

AR100053

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Acetone was also reported in the Pustalek well sample at 210 ug/l. Exposure to this concentration of acetone is not likely to result in any adverse health effects. Acetone is considered one of the least toxic solvents used in industry. Human experience confirms the relatively low toxicity of this simplest ketone. Acetone is a normal constituent of the blood in trace amounts. Its ingestion at low concentrations is not likely to result in a sustained elevation of plasma or tissue levels. Acetone is rapidly metabolized and does not accumulate. The reported result for acetone is, moreover, of questionable validity in this sample (see section 6.2).

Also detected in the Pustalek and Barto well samples was cyanide near its detection limit of 10 ug/l. The 1962 Public Health Service Water Standard for cyanide is 200 ug/l. An Allowable Daily Intake has been estimated at 8,400 ug per day for human adults. Normally, the body is well equipped to handle small doses of cyanide ion, and no hazards are presented by this low concentration.

Kenneth G. Symms

Kenneth G. Symms, Ph.D. Toxicologist

AR100054

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APPENDIX A

AR100055

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ORIGINAL (Red)

1. COST CENTER:	REM/FIT ZONE CONTRACT TECHNICAL DIRECTIVE DOCUMENT (TDD)	2. NO.:
ACCOUNT NO.:		F3-8304-09

3. PRIORITY:	4. ESTIMATE OF TECHNICAL HOURS:	5. EPA SITE ID:	6. COMPLETION DATE.	7. REFERENCE INFO.:
☐ HIGH ☒ MEDIUM ☐ LOW	140	PA - 290	8/5/83	☒ YES ☐ NO ☐ ATTACHED ☒ PICK UP
	4A. ESTIMATE OF SUBCONTRACT COST:	5A. EPA SITE NAME: Lord Shoppe		

8. GENERAL TASK DESCRIPTION:

Conduct sampling at Lord Shoppe to determine if waste or residue still remain on-site.

9. SPECIFIC ELEMENTS:

1. Review available data regarding wastes and site layout.
2. Review available data regarding recent privately funded remedial work.
3. Develop sampling plan to determine if wastes or waste residues remain on-site and submit for approval. Implement plan
4. Follow proper chain of custody and contract lab protocol.
5. Submit formal report.

10. INTERIM DEADLINES.

11. DESIRED REPORT FORM: FORMAL REPORT ☒ LETTER REPORT ☐ FORMAL BRIEFING ☐

OTHER (SPECIFY):

12. COMMENTS:

13. AUTHORIZING RPO: Linda H. Bonnazzi (SIGNATURE)

14. DATE: 4/15/83

15. RECEIVED BY: ☒ ACCEPTED ☐ ACCEPTED WITH EXCEPTIONS ☐ REJECTED

(CONTRACTOR RPM SIGNATURE)

16. DATE: 5/17/83

AR100056

Sheet 1 White – FITL Copy
Sheet 2 Canary – DPO Copy
Sheet 3 Pink – Contracting Officer's Copy (Washington, D. C.)
Sheet 4 Goldenrod – Project Officer's Copy (Washington, D. C.)

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APPENDIX B

AR100057

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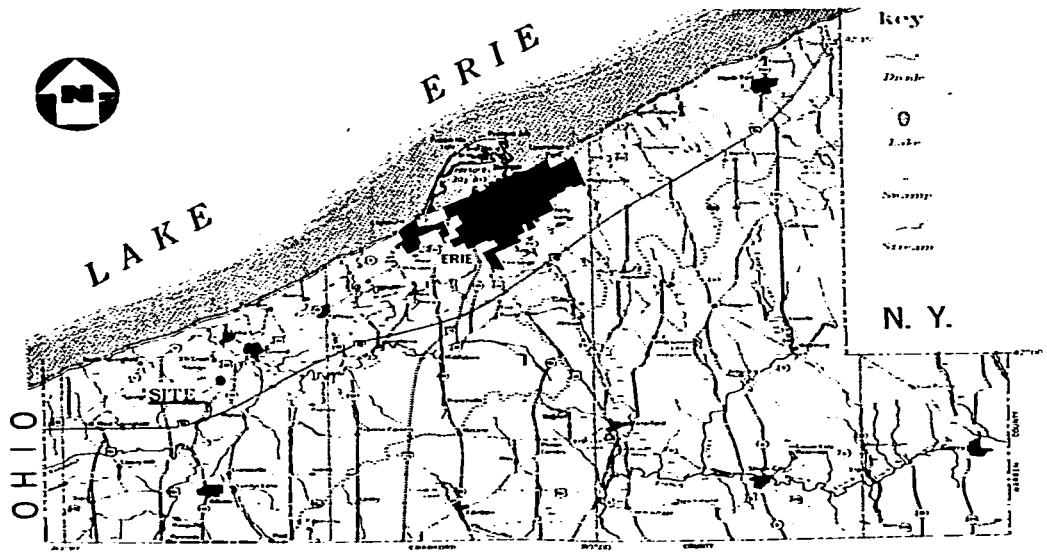

Map of the surface waters of Erie County. Hundreds of small swamps and ponds are not shown.

Source: Geology and Geography of Erie County, PA. (1)

FIGURE 1: REGIONAL LOCATION MAP
LORD SHOPE SITE
F3-2304-09 PA-290

NUS CORPORATION
A Halliburton Company

AR100058

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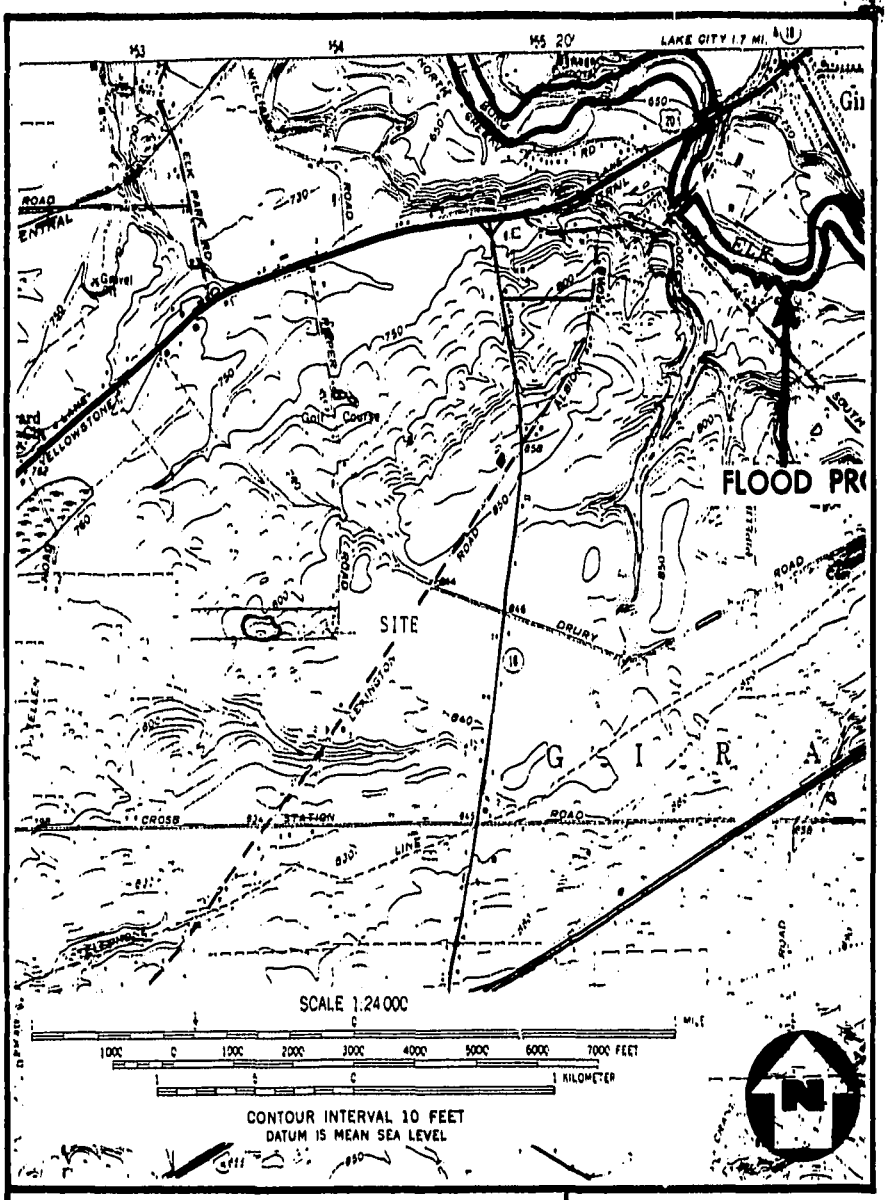

Base map is a portion of USGS Topographic Map of the Albion Quadrangle, PA.

FIGURE 2: SITE LOCATION MAP
LORD SHOPE SITE
F3-0304-09 PA-290

NUS CORPORATION
A Halliburton Company

AR100059

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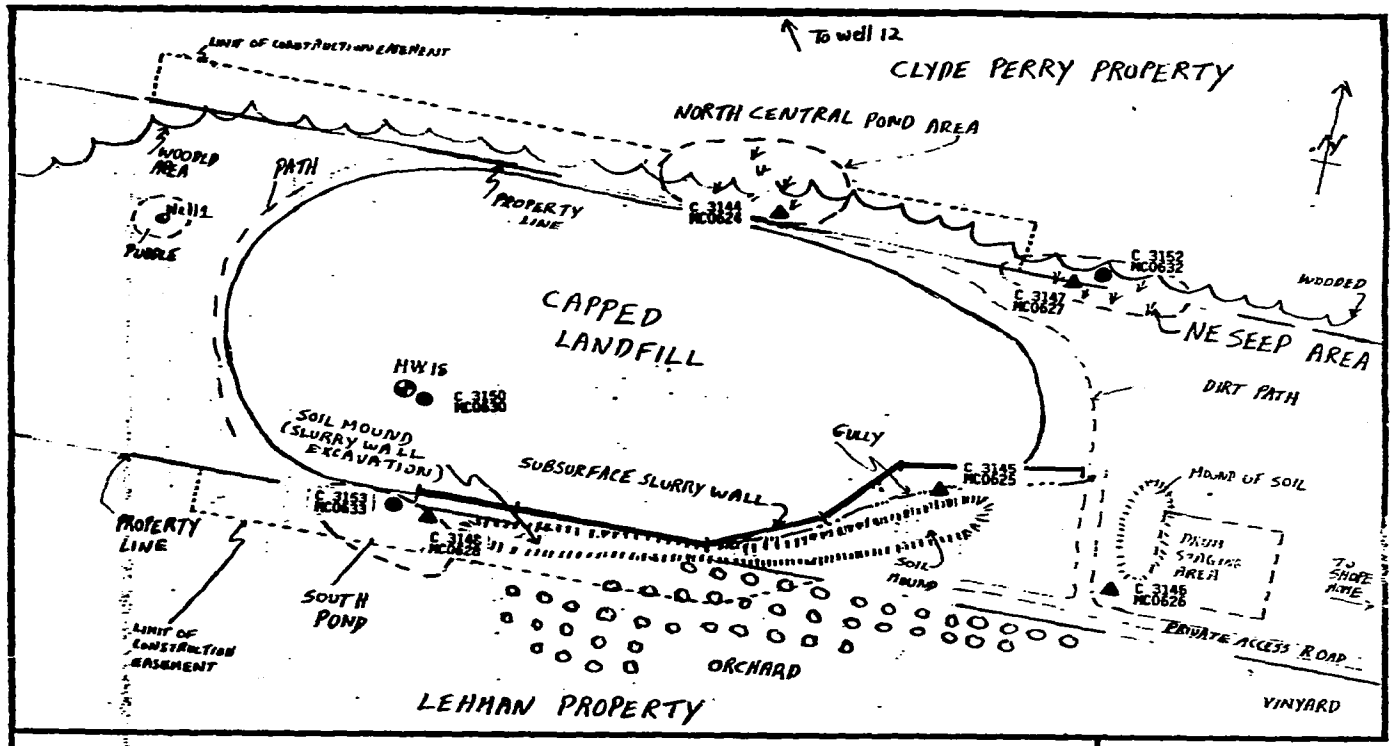

Source: Wehran Engineering maps and site observations 5/26/83.

FIGURE 4: MAP OF ONSITE SAMPLE LOCATIONS---Not to scale
LORD SHOPE SITE F3-8304-09 PA-290

● Aqueous
▲ Sediment

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A Halliburton Company

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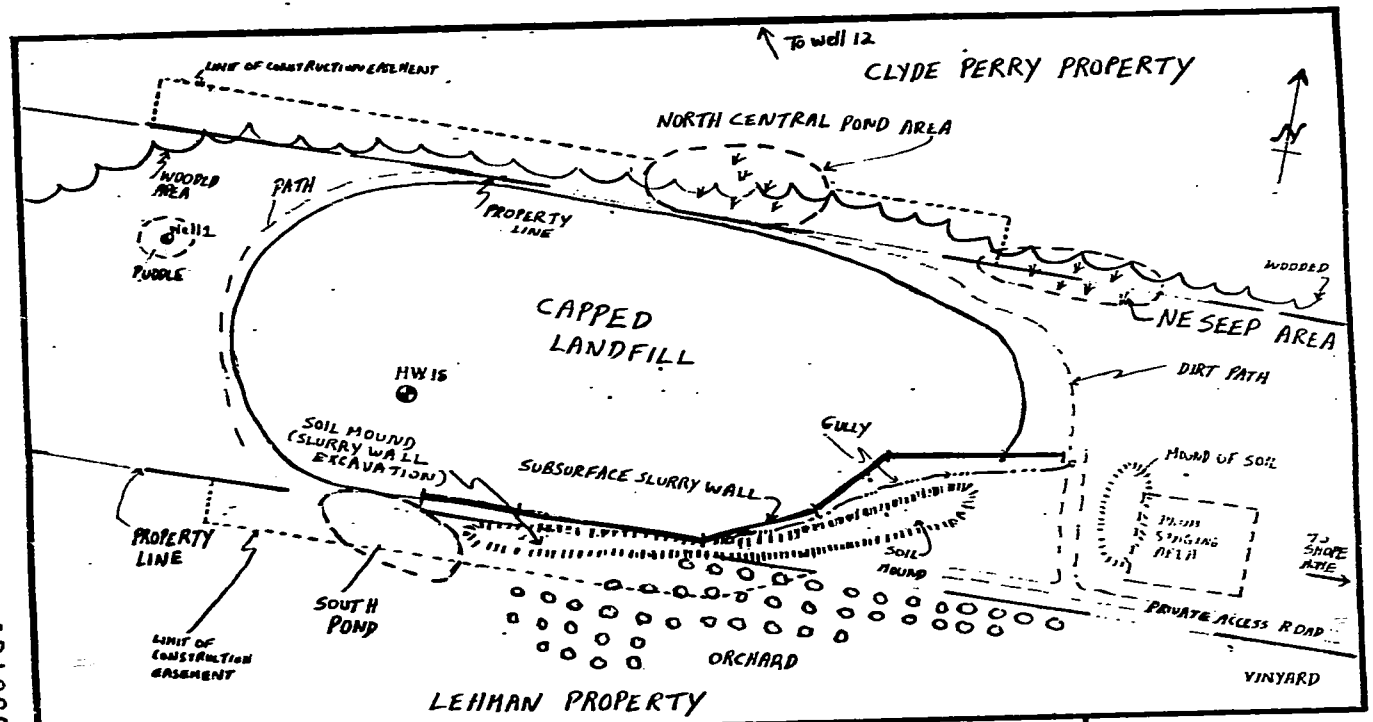

Source: Wehran Engineering maps and site observations 5/26/83.

FIGURE 3: SITE SKETCH---Not to scale
LORD SHOPE SITE
F3-8304-09 PA-290

NUS CORPORATION
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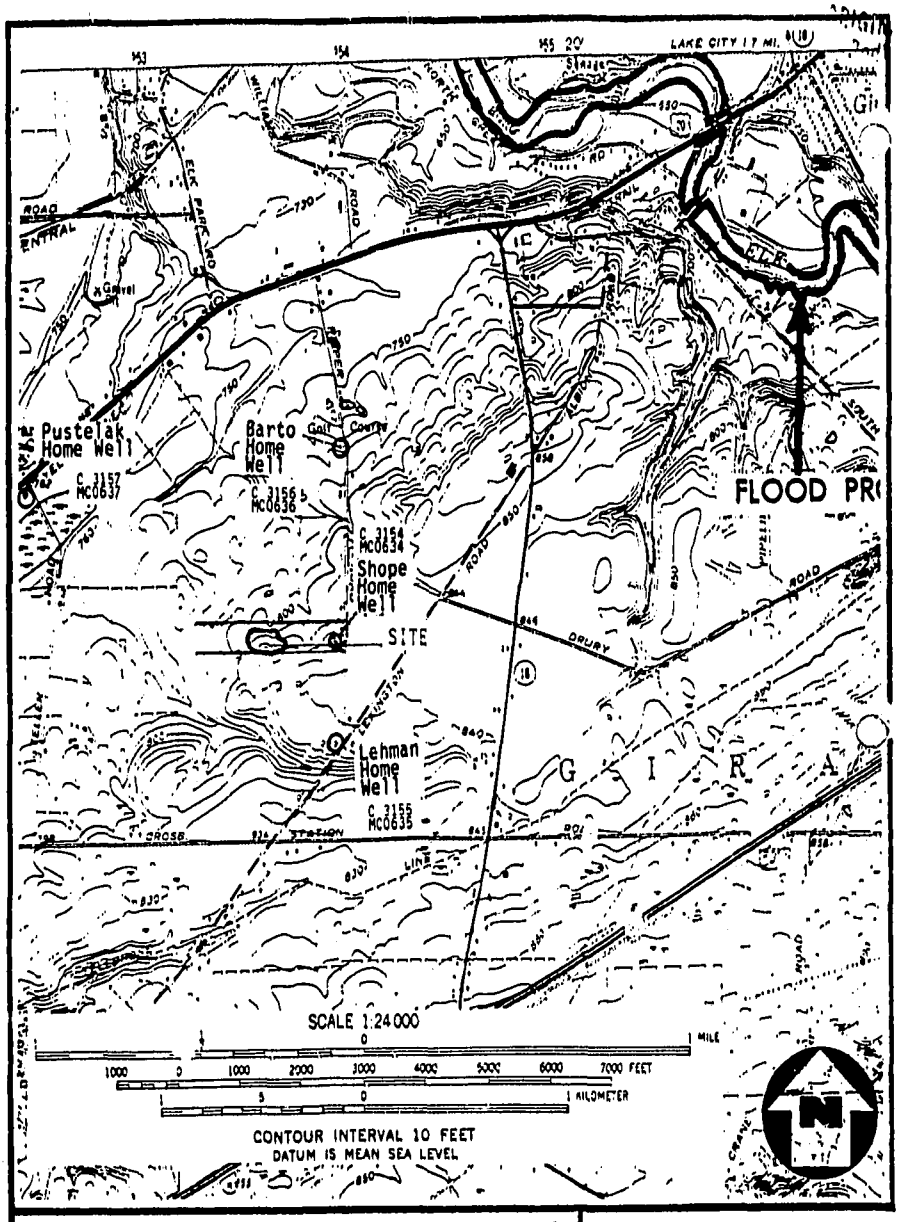

Base map is a portion of the USGS Topographic Map of the Albion Quadrangle, PA.

FIGURE 5: MAP OF RESIDENTIAL WELL SAMPLE LOCATIONS
LOPD SHOPE SITE
F3-C304-09 PA-290

NUS CORPORATION
A Halliburton Company

AR100082

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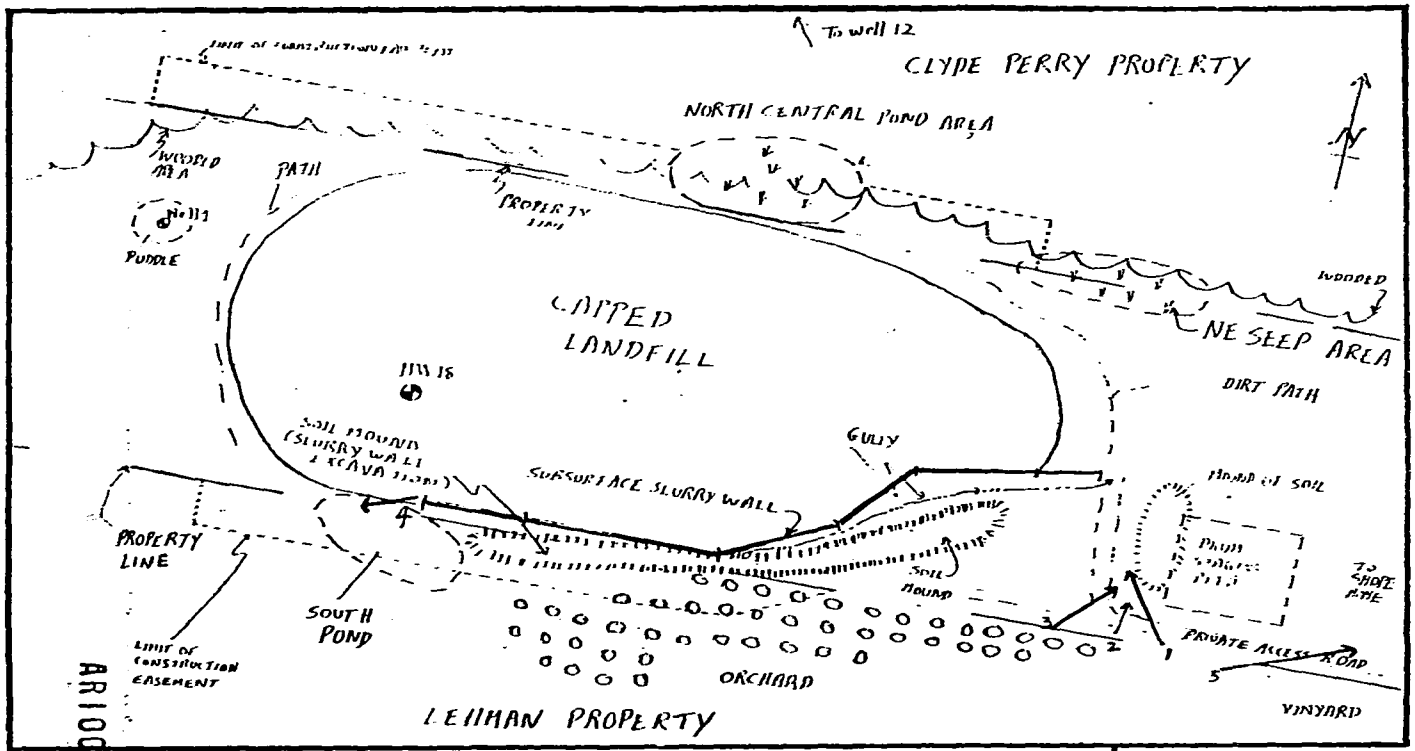

Source: Wehran Engineering maps and site observations 5/26/83.

FIGURE 6: PHOTO LOCATION MAP
LORD SHOPE SITE
F3-8304-09 PA-290

NUS CORPORATION
A Halliburton Company

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APPENDIX C

AR100064

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LIST OF REFERENCES

1. The Geography and Geology of Erie County, Pennsylvania by John C. Tomikel and Vincient C. Shepps, Pennsylvania Geological Survey, Information Circular 56, 1967.

2. Clean-Up of Shope's Landfill, Girard, Pennsylvania, by Robert Mutch, Jr. and James Daigler, Wehran Engineering, and James Clark, Ph.D., AWARE Corporation, in Proceedings of the HMCRI Conference (Management of Uncontrolled Hazardous Waste Sites, Washington, D.C., October 31 -November 2, 1983) pp. 296-300.

3. Consent Order and Agreement between PA DER and Lord Corporation and Melvin and Meryl Shope, signed and dated July 30, 1982.

4. Remedial Action Plan Shope's Landfill, Girard Township, Erie County, Pennsylvania, (Prepared for Lord Corporation) by Wehran Engineering (WE Project No. 02361137), September, 1981.

5. Certification Report, Shope's Landfill Remediation, by Wehran Engineering, December, 1982.

6. Preliminary Geologic Map of Albion Quadrangle, Pennsylvania, compiled by T.M. Berg, 1977, in Atlas of Preliminary Geologic Quadrangle Maps of Pennsylvania, Pennsylvania Geological Survey, 4th Series, Harrisburg, Pennsylvania, Map 61, 1981.

7. Engineering Characteristics of the Rocks of Pennsylvania, by A.R. Geyer and J.P. Wilshusen, Pennsylvania Geological Survey, 4th Series, Harrisburg, Pennsylvania, Environmental Geology Report 1, Second Edition, revised, 1982.

8. Conclusions Regarding the Hydrogeology of the Landfill Site, by Sam S. Harrison, October, 1980.

9. Hydrogeologic Assessment, Interim Report for Shope's Landfill, by Wehran Engineering, May, 1981.

10. Soil Survey of Erie County, Pennsylvania, U.S. Department of Agriculture -Soil Conservation Service (Series 1957, No. 9), December, 1960.

11. Hazard Ranking System Model for Lord Shope, TDD No. F3-8206-10, EPA No. PA-290, by Garth Glenn, FIT III (Ecology and Environment), July 9, 1982.

12. Lord Shope Landfill, Girard Township, Pennsylvania, TDD No. F3-8105-39, EPA No. PA-290, by Ron Naman, FIT III (Ecology and Environment), June 22, 1981.

13. Flow Net Analysis of the Subsurface Cut-off Wall, Shope's Landfill, Girard Township, Erie County, Pennsylvania, (prepared for Lord Corporation), by Wehran Engineering, circa May, 1982.

14. Analysis of Initial Ground-Water Quality Data, Shope's Landfill, Girard, Pennsylvania, (Prepared for Lord Corporation) by Wehran Engineering (WE Project No. 02361137), February 1, 1983.

DRAFT

AR100065

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ORIGINAL
(Red)

APPENDIX D

AR100066

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January 22, 1980

Waste Materials from 12th Street, Erie Plant Disposed of at Landfill

During the entire time that waste materials were disposed of from the 12th Street, Erie plant at the landfill on the Snope property, such material was principally solid, not liquid, and comprised the following:

Scrap rubber pads	Concrete pieces
Spray booth sludge	Dirt
Baled paper	Scrap bonded parts
Wooden skids	Tin cans
Carbon black	Drums
Grit blast dust	Rags
Plastic cartons	Sludge from grinding
Synthetic rubber	Tree trimmings
	Floor sweepings

Machining coolant in liquid form was disposed of at the site from the 12th Street plant. The coolant was an emulsified oil in water. The oil comprised only a small percentage of the coolant.

Prior to 1971, some organic liquids were disposed of at the site from the 12th Street plant, including solvents, acids, caustics and some scrap paint materia used on products as follows:

Trichlorethylene	Nitric acid
Perchlorethylene	Xylene/xylol
Hexasol	Methyl iso-butyl ketone
Alcohol	Safety Clean (solvent)
Methyl ethyl ketone	Caustic soda
MIAK (solvent)	Sulfuric acid
Primers	
Paint	

After the 1971 instance, the above organic liquids should not have gone to the site. However, it would appear that some of these latter materials were disposed of at the site through mistaken material handling. The quantity would have been very small.

F3-8304 AR100067

(Info source: Lord Corp 1/22/80)

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ug/g ppm Wet Weight	
Acrolein	<100
Acrylonitrile	<100
Benzene	<10
Bromoform	<10
Carbon Tetrachloride	170
Chlorobenzene	<10
Chlorodibromomethane	<10
Chloroethane	<10
2 - Chloroethyl vinyl ether	<10
Chloroform	50
Dichlorobromomethane	<10
1, 1 Dichloroethane	<10
1, 2 Dichloroethane	10
1, 1 Dichloroethylene	60
1, 2 Dichloropropane	<10
1, 3 Dichloropropylene	<10
Ethylbenzene	5600
Methyl Bromide	<10
Methyl Chloride	<10
Methylene Chloride	470
Tetrachloroethane	<10
Tetrachloroethylene	3700
Toluene	470
1, 2 Transdichloroethylene	12
1, 1, 1 Trichloroethane	200
1, 1, 2 Trichloroethane	<10
Trichloroethylene	190
Vinyl Chloride	<10
Xylene	30,400

F3-8304-09
PA 290

Results of Erie Co. Dep't Health
Soil sample SE corner
depth ~ 1ft
c. October 1982

AR100068

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WEHRAN ENGINEERING
Consulting Engineers

Lord Shope
F3-8304-09

ORIGIN
(Red)

March 14, 1983

Mark J. Way, Esquire
LORD CORPORATION
2000 West Grandview Boulevard
PO Box 10038
Erie, Pennsylvania 16514

Re: Site Visit
Shopes Landfill
WE Project No. 08341001

Dear Mark:

As you know, on Friday, March 11, 1983, I arrived at the Shopes Landfill to take care of the surface water runoff situation with respect to the concerns of the DER. Following is a brief summary of my activities for the day as well as some observations I made on the site.

In a letter to you dated February 1, 1983, from the DER, paragraph number four raised the concern that "several discharge points for surface water" were occurring in the northwestern portion of the site. Although several smaller channels did exist in this area, all runoff left the Shope property in the same stream as it always had. On Friday I redistributed straw bales in two locations at the point of discharge which should reduce sedimentation beyond this area.

To decrease the impact of surface water runoff on the Perry property, as well as to provide additional settling of water-borne soil particles within the construction site, I rerouted the discharge of the northerly drainage channel to the south by a few hundred feet to the settling basin area. Additionally, some straw was placed at the discharge of this small basin.

It is probable that higher flows could exist in the rerouted section of the channel than that which was occurring on Friday. In this case, a portion of the flow will exit the site at the northern discharge point and the newly placed straw will facilitate settling of sediment from this additional (although reduced) runoff at this point. Most of the increased flow, however, will follow the rerouted channel.

Additionally, more straw was placed at the discharge of the

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southerly channel. This southerly flow seemed to be relatively clear with little water-borne sediment.

In an effort to monitor the effect of the remedial measures, water level readings were obtained in some of the wells. All wells within the landfill showed a decrease in the elevation of the water surface. A summary of the readings is attached to this letter.

Generally, the site seems to have wintered very well. The soils are still extremely wet and as such, no clean-up work is yet possible. The uppermost soil layer of the cap is saturated and some ponding of rain water has occurred. I drained some of the larger areas to permit faster drying when the weather clears up.

We are presently planning the clean-up operation for this year and we will keep you informed of our schedule. In the meantime, should you have any additional comments or questions, please call.

Yours very truly,

WEHRAN ENGINEERING, P.C.

Jim Daigler

Jim Daigler
Staff Engineer

JAD:lc
enc.
cc: R. Mutch
C. Seaman

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Chkd. by _____ Date _____ WS ENGINEERING Consulting Engineers Sheet N _____ of _____

Subject _____ ORIGINAL

SHOPES LANDFILL

GROUNDWATER TABLE ELEVATIONS:

STATION	DEPTH to WATER (ft.)			CHANGE BETWEEN LAST AND PREVIOUS READING (ft)
	7-27-81	12-15-82	3-11-83	
2 WT (new)	—	—	—	—
3 WT	*	2.23	2.88	- 0.65
4 WT	6.19	2.18	2.27	- 0.09
5 WT	*	8.70	6.85	+ 1.85
9 WT	2.79	2.51	2.50	- 0.01
10 WT	17.55	14.90	15.15	- 0.25
14	*	13.89	15.05	- 1.16
15	*	15.78	15.90	- 0.12
16	*	19.54	19.91	- 0.37
18	*	18.49	18.80	- 0.31
19	*	DRY	DRY	—

* Top of casing elevation altered during construction see certification report

AR100071

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WEHRAN ENGINEERING
Consulting Engineers

Lord Chopps TE-8304-6
ORIGINAL

RECEIVED
MAY 13 1983
NUS CORPORATION
REGION III
SENT TO _____

April 26, 1983

Mark J. Way, Esquire
Lord Corporation
2000 West Grandview Blvd.
PO Box 10038
Erie, Pennsylvania 16514

Re: Landfill Inspection
WE Project No. 02361137

Dear Mark:

As we discussed, I have prepared a synopsis of our investigation and findings on the recent ponding of contaminated waters near the contained landfill.

Briefly, an approximate 500 gallon pond of water appeared in what has become known as the north central area. Sampling and analysis of this pond by Lord personnel indicated that on the order of 25,000 ppb TVOC existed in this pond. The immediate speculation was that the landfill was leaking. Hopefully this possibility comes as no surprise to the individuals who have been involved with this project. As was stated on numerous occasions, until the mounded groundwater within the landfill dissipates to the design elevations, the final reduction in shallow groundwater contamination will not be realized. Perhaps the following explanation for the occurrence of the north central pond will satisfy the fears of both the Lord Corporation and the regulatory agencies:

What pond? Here like no NC vegetation area!

On April 15, 1983, I arrived at the site to inspect the areas in question. The north central pond was evident in the bypassed swale which cuts across the Perry property. During my inspection, I noted that the entire site (and for that matter, the entire Erie, PA area) was experiencing moderate spring runoff conditions from the previous days "heavy rain." In an attempt to estimate the depth to groundwater on the Perry property, I measured both the depth to water in the available shallow water piezometers and the stickup length of the casing. Following is a table with some of my measurements:

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ORIGINAL

Piezometer	Depth to Water (ft.)	Stick up (ft.)	Depth of Water Below Ground Surface (ft.)
3 WT	2.3	0.8	1.5
4 WT	2.0	1.6	0.4
9 WT	2.5	2.2	0.3

As you can see, the shallow water table is very near the surface.

In the bypassed swale, the ground elevation is considerably lower than the surrounding terrain and, therefore, the groundwater is much nearer the ground surface. During the periods of heavy rain, the porous soils of this area allow relatively rapid increases in the groundwater table elevations. At some low points, this increase is sufficient to create ponding of groundwater. I believe this was the case during the recent rainfall. It should be noted that the sampled pond was not the only area in which this phenomenon occurred. Further, during our subsequent investigation of April 25, 1983, the sampled pond and all other ponds in this area of the Perry property had disappeared.

Consider the other two possible explanations for the creation of this pond:

(1) The direct leakage of leachate from the landfill.

(2) The ponding of surface water runoff.

I don't think the facts support the first alternative above. My recent readings of the mounded groundwater within the landfill confirm that the construction of the clay cap and subsurface slurry wall have successfully reduced recharge to the waste to the point that the mound is declining, even during the critical spring season when adjacent groundwater surfaces are rising at significant rates. The result is that the waste is relatively isolated from direct response to rainstorm events. By this I mean that should the pond have been created by direct "pop-outs" of the landfill, that pond should still be there.

As for the second possibility, in fact, some of the water in this pond was probably the result of some surface water runoff from higher ground. However, this pond existed at the upstream end of the bypassed swale in depressions created by my equipment last summer; therefore, the area tributary to this point is very small and correspondingly little amounts of runoff would be collected at that point. This area is further isolated by the perimeter swale which was constructed to assist in redirecting the increased runoff from the capped landfill to points further west. I think, then, that the volume of water in that pond that could

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have been attributed to runoff was a very small part of the total.

What does all this mean, and what can be done about future occurrences? Simply, it means that no one should be startled or unduly disturbed by this situation, and we should all continue to observe and monitor the landfill. I don't believe additional work is required or necessary. George Marton has informed me that the shallow groundwater is showing improvement in quality. I think we can attribute that to the fact that reduced saturated volumes of waste now exist in the landfill. Construction of the remedial measures on the landfill were not meant to alleviate Clyde Perry's very shallow groundwater situation. Surface discharge of these groundwaters most likely have always and will always occur during heavy rains. However, given a reasonable time period, these waters will clean themselves as the shallow groundwater does.

I believe the responsible observation and monitoring that is being carried out by both Lord and Wehran Engineering has and will result in confirmation of a successful clean-up of the landfill. A landfill, I think it is important to add, that remained uncontrolled for so many years, is showing improvement in five short months since completion of the cap and wall.

I hope this brief statement is satisfactory to you. I look forward to a response from both the Lord Corporation and the regulatory agencies in regard to my conlcusions as to the situation at the landfill, as well as alternate suggestions on recommended courses of action.

Very truly yours,

WEHRAN ENGINEERING, P.C.

Jim Daigler

Jim Daigler
Staff Engineer

JAD:lc
cc: R. Mutch
B. Nipper

AR100074

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Appendix E

AR100075

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PROJECT NAME: Lord Shope
TDD NO: F3-8304-09

EPA SITE NO.: PA-240
REGION: III

ORIGINAL

QUALITY ASSURANCE REVIEW OF ORGANIC ANALYSIS LAB DATA PACKAGE

Case No.: 1761
Contract No.:
Contract Laboratory: NUS Pittsburg
Applicable IFB No.: Current As of 5-26-83
Reviewer: [illegible]
Review Date: 12/20/93

Applicable Sample No's.: C3144, 3145, 3146, 3147, 3148, 3149, 3150, 3152, 3153, 3154, 3155, 3156, 3157, and 3158.

The organic analytical data for this case has been reviewed. The quality assurance evaluation is summarized in the following table:

Reviewer's Evaluation*	Fraction				
	VOLATILES	ACIDS	BASE/ NEUTRALS	PCB/ PEST.	TCDD
Acceptable					✓
Acceptable with exception(s)	✓ 1	✓ 1	✓ 1	✓ 1,2,3	
Questionable					
Unacceptable					

* Definitions of the evaluation score categories are listed on next page.

This evaluation was based upon an analysis of the review items indicated below:

- ● DATA COMPLETENESS
- ● BLANK ANALYSIS RESULTS
- ● SURROGATE SPIKE RESULTS
- ● MATRIX SPIKE RESULTS
- ● DUPLICATE ANALYSIS RESULTS
- ● EVALUATION OF CONFIRMATIONS
- ● TARGET COMPOUND MATCHING QUALITY
- ● TENTATIVELY IDENTIFIED COMPOUNDS
- ○ CHROMATOGRAPHIC SENSITIVITY CHECKS
- ○ DFTPP AND BFB SPECTRUM TUNE RESULTS
- ○ STANDARDS
- ○ CALIBRATION CHECK STANDARDS
- ○ INTERNAL STANDARDS PERFORMANCE

Data review forms are attached for each of the review items indicated above.

Comments: 1 See Blank analysis results / comments
2 See Surrogate and Matrix Spike Results
3 See Evaluation of F.C. Confirmations

AR100076

All identified target compounds not suspected to be artifacts or contaminants were of acceptable matching quality.
Tentatively identified compounds of poor fit matching and/or suspected artifacts/contaminants are listed on the appropriate form.

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ORIGINAL

DATA EVALUATION SCORE CATEGORIES

ACCEPTABLE: Data is within established control limits, or the data which is outside established control limits does not affect the validity of the analytical results.

ACCEPTABLE WITH EXCEPTION(S): Data is not completely within established control limits. The deficiences are identified and specific data is still valid, given certain qualifications which are listed below.

QUESTIONABLE: Data is not within established control limits. The deficiences bring the validity of the entire data set into question. However, the data validity is neither proved nor disproved by the available information.

UNACCEPTABLE: Data is not within established control limits. The deficiences imply the results are not meaningful.

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DATA COMPLETENESS	ID #	-579	-582	-583	-584	-585	-586						
	CONC./MATRIX	Lo/Sol					→	Lo/AQ				ORIGINAL	→
FRACTION	TRAFFIC REPT. #	C3144	3145	3146	3147	3148	3149	3150	3152	3153	3154	3155	3156
	LAB I.D. #	13051 .437	.438	.439	-440	-441	-442	-443	-444	.445	-446	-447	-448
	RUN DATE/TIME	6/10 2:05	6/10 2:50	6/10 3:40	6/10 4:25	6/10 5:10	6/10 7:20	6/24 13:25	6/24 16:20	6/24 17:10	6/24 18:05	6/24 18:50	6/[illegible]
BNA	TARGET CMPD. TAB.	✓					→	✓					→
	TARGET CMPD. D.L.	L					→	L					→
	TENT. I.D. CMPD. TAB.	✓					→	✓					→
	SURR. REC.	✓					→	✓					→
	GC SCREEN TAB.	L/L/L											→
	GC/MS CHROMATOGRAMS	✓					→	✓					→
	TARGET CMPD. QUAN. LIST	✓					→	✓					→
	TARGET CMPD. SPECTRA	✓					→	✓					→
	TENT. I.D. CMPD. Q.L.	✓					→	✓					→
	TENT. CMPD. LIB. SRCH.	✓					→	✓					→
	CHRO./SENS. CHECKS	MS											→
	BFB/DFTPP TUNE DATA	✓ 49 23 [illegible]											→
	I.S. AREAS CHARTS	NA											→
	I.S. REL. RESP. FORM	✓											→
	RF and amts: CALIB. CHK.	✓											→
	RF and amts: 3-Pt. Calib.	✓											→
	Chromatograms: Calib. Chk.	✓											→
	Chromatograms: 3Pt. Calib.	✓											
	Linearity: 3Pt. Calib.	MS											→
	RF Comparison	MS											→
	SAMPLE/FIELD BLANK						✓						
	METHOD/INSTR. BLANK												
	LAB DUPLICATE					✓							
	FIELD DUP./REP.												
	MAT. SPK/M. STD.					✓							
PEST.	PEST. TAB.	-579	582	583			→	✓					→
	PEST. D.L. TAB.	✓					→	✓					→
	PEST. CHRO.	✓											→
	PEST. STD. CHRO.	✓											
	PEST. STD. I.D.	✓											
	2nd COL. CONF.	✓											
	GC/MS CONF.												
	PEST. DUP.	580 ✓	✓?									✓	
	PEST. SPK.	581 ✓										✓	
	PEST. BLK.						✓						
TCDD	TCDD TAB.	✓					→	✓					→
	TCDD D.L.	✓					→	✓					→
	TCDD CHRO./EICP												
	TCDD BLK.						✓						

AR100078

If the page filmed in this frame is not as readable or legible as this label, it is due to substandard color or condition of the original page.

DATA COMPLETENESS	CONC./MATRIX	Lo/AQ	Lo/AQ	BLANK Lo/Sil	BLANK Lo/AQ	100 BN Std	7th BNA Std	3148-D DUP	3148-S SPIKE	3157-D DUP	3157-S SPIKE	ORIG	NA
FRACTION	TRAFFIC REPT. #	3157	3158										
	LAB I.D. #	13061 -449	-450	13060 -164	13060 -165								
	RUN DATE/TIME	6/24 21:40	6/24 23:40	6/10 1:10	6/24 14:30	6/9 23:40	6/10 0:25	6/10 5:30	6/10 6:45	6/24 22:25	6/24 23:10		
	TARGET CMPD. TAB.	✓	✓	✓	✓	6/24 12:40	6/24 13:30						
	TARGET CMPD. D.L.	✓	✓	✓	✓								
	TENT. I.D. CMPD. TAB.	✓	✓	✓	✓								
	SURR. REC.	✓	✓	✓	✓								
	GC SCREEN TAB.	✓ →											
	GC/MS CHROMATOGRAMS	✓	✓	✓	✓								
	TARGET CMPD. QUAN. LIST	✓	✓	✓	✓								
	TARGET CMPD. SPECTRA	✓	✓	✓	✓								
	TENT. I.D. CMPD. Q.L.	✓	✓	✓	✓								
	TENT. CMPD. LIB. SRCH.	✓	✓	✓	✓								
	CHRO./SENS. CHECKS	MS →											
	BFB/DFTPP TUNE DATA	✓ →											
	I.S. AREAS CHARTS	NA →											
	I.S. REL. RESP. FORM	✓ →											
	RF and amts: CALIB. CHK.	✓ →											
	RF and amts: 3-Pt. Calib.	✓ →											
	Chromatograms: Calib. Chk.	✓ →											
	Chromatograms: 3Pt. Calib.	✓ →											
	Linearity: 3Pt. Calib.	MS →											
	RF Comparison	MS →											
	SAMPLE/FIELD BLANK		✓										
	METHOD/INSTR. BLANK												
	LAB DUPLICATE	✓											
	FIELD DUP./REP.												
	MAT. SPK/M. STD.	✓											
PEST.	PEST. TAB.	✓	✓	✓	✓								
	PEST. D.L. TAB.	✓	✓	✓	✓								
	PEST. CHRO.	✓ →			✓								
	PEST. STD. CHRO.	✓	✓	✓	✓								
	PEST. STD. I.D.	✓	✓	✓	✓								
	2nd COL. CONF.	✓	✓	✓	✓								
	GC/MS CONF.												
	PEST. DUP.												
	PEST. SPK.												
	PEST. BLK.		✓										
TCDD	TCDD TAB.	✓	✓	✓	✓								
	TCDD D.L.	✓	✓	✓	✓								
	TCDD CHRO./EICP	✓ →											
	TCDD BLK.		✓										

DNA

AR100079

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DATA COMPLETENESS	Conc./MATRIX	Lo/Sol					→	Lo/AQ				ORIGINA	
FRACTION	TRAFFIC REPT. #	C-3144	3145	3146	3147	3148	3149	3150	3152	3153	3154	3155	3156
	LAB I.D. #	13DG1-437	-438	-439	-440	-441	-442	-443	-444	-445	-446	-447	-44
	RUN DATE/TIME	6/4 1:45	6/4 2:20	6/4 3:10	6/4 9:15	6/4 12:50	6/4 12:05	6/2 3:45	6/2 12:40	6/2 13:25	6/2 15:00	6/2 15:50	[illegible]
VOA	TARGET CMPD. TAB.	✓					→	✓					→
	TARGET CMPD. D.L.	L					→	L					→
	TENT. I.D. CMPD. TAB.	✓					→	✓					→
	SURR. REC.	✓					→	✓					→
	GC SCREEN TAB.	Lo											→
	GC/MS CHROMATOGRAMS	✓					→	✓					→
	TARGET CMPD. QUAN. LIST	✓					→	✓					→
	TARGET CMPD. SPECTRA	✓					→	✓					→
	TENT. I.D. CMPD. Q.L.	✓					→	✓					→
	TENT. CMPD. LIB. SRCH.	✓					→	✓					→
	CHRO./SENS. CHECKS	NA											→
	BFB/DFTPP TUNE DATA	✓	6/2 17:40 6/4 4:41										→
	I.S. AREAS CHARTS	NA											→
	I.S. REL. RESP. FORM	✓											→
	RF and amts: CALIB. CHK.	✓											→
	RF and amts: 3-Pt. Calib.	✓											→
	Chromatograms: Calib. Chk.	✓											→
	Chromatograms: 3Pt. Calib.	✓											→
	Linearity: 3Pt. Calib.	MS											→
	RF Comparison	MS											→
	SAMPLE/FIELD BLANK						✓						
	METHOD/INSTR. BLANK												
	LAB DUPLICATE				✓								
	FIELD DUP./REP.												
	MAT. SPK/M. STD.				✓								
PEST.	PEST. TAB.												
	PEST. D.L. TAB.												
	PEST. CHRO.												
	PEST. STD. CHRO.												
	PEST. STD. I.D.												
	2nd COL. CONF.												
	GC/MS CONF.												
	PEST. DUP.												
	PEST. SPK.												
	PEST. BLK.												
TCDD	TCDD TAB.												
	TCDD D.L.												
	TCDD CHRO./EICP												
	TCDD BLK.												

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DATA COMPLETENESS	CONC. MATRIX	LO/AQ	LO/AQ	BLANK LO/SOL	BLANK LO/AQ	500 ng	SPIKE	DUP	Std	2-MIB KMIBX T-N-AURON	200 ng Std	DUP	Si
FRACTION	TRAFFIC REPT. #	C3157	3158										
	LAB I.D. #	12931 -449	-450	12900-164	12900-165								
	RUN DATE/TIME	6/3 0:10	6/3 2:10	6/4 1:00	6/2 11:50	6/4 0:20	6/4 11:25	6/4 10:25	6/2 0:45	6/2 1:50	6/2 20:10	6/3 0:50	6/3 8:0
	TARGET CMPD. TAB.	✓	✓	6/4 9:20	6/2 22:20	6/4 0:10			6/2 11:05				
	TARGET CMPD. D.L.	✓	✓	✓	6/3 3:00								1/2
	TENT. I.D. CMPD. TAB.	✓	✓	✓	✓								
	SURR. REC.	✓	✓	✓	✓								
	GC SCREEN TAB.	✓	→	→	→								
VOA	GC/MS CHROMATOGRAMS	✓	✓	✓	✓								
	TARGET CMPD. QUAN. LIST	✓	✓	✓	✓								
	TARGET CMPD. SPECTRA	✓	✓	✓	✓								
	TENT. I.D. CMPD. Q.L.	✓	✓	✓	✓								
	TENT. CMPD. LIB. SRCH.	✓	✓	✓	✓								
	CHRO./SENS. CHECKS	NA	→	→	→								
	BFB/DFTPP TUNE DATA	✓	→	→	→								
	I.S. AREAS CHARTS	NA	→	→	→								
	I.S. REL. RESP. FORM	✓	→	→	→								
	RF and amts: CALIB. CHK.	✓	→	→	→								
	RF and amts: 3-Pt. Calib.	✓	→	→	→								
	Chromatograms: Calib. Chk.	✓	→	→	→								
	Chromatograms: 3Pt. Calib.	✓	→	→	→								
	Linearity: 3Pt. Calib.	MS	→	→	→								
	RF Comparison	MS	→	→	→								
	SAMPLE/FIELD BLANK		✓										
	METHOD/INSTR. BLANK			✓	✓								
	LAB DUPLICATE	✓											
	FIELD DUP./REP.												
	MAT. SPK/M. STD.												
PEST.	PEST. TAB.												
	PEST. DL TAB.												
	PEST. CHRO.												
	PEST. STD. CHRO.												
	PEST. STD. I.D.												
	2nd COL. CONF.												
	GC/MS CONF.												
	PEST. DUP.												
	PEST. SPK.												
	PEST. BLK.												
TCDD	TCDD TAB.												
	TCDD D.L.												
	TCDD CHRO./EICP												
	TCDD BLK.												

AR100081

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KEY TO DATA COMPLETENESS FORM

ORIGINAL

Abbreviation Used on Form	Description of Checklist Item
CONC./MATRIX	Concentration category submited in analysis request (low, med, hi); and matrix (sd
FRACTION	Fill in acid, base/neutral, acid/base/neutral, or Volatiles analysis
RUN DATE/TIME	Instrument run date (to be used for correlating calibration)
TARGET CMPD. TAB.	Tabulated results for target compounds
TARGET CMPD. D.L.	Detection limits for target compounds (Actual/Level indicated by su
TENT. I.D. CMPD. TAB.	Tabulated results for tentatively identified compounds
SURR. REC.	Surrogate recoveries results
GC SCREEN TAB.	Tabulated GC screen results indicating required level of followup
GC/MS CHROMATOGRAMS	Chromatograms of GC/MS analysis runs
TARGET CMPD. QUAN. LIST	Target compounds quantitation list, showing areas, ret. times
TARGET CMPD. SPECTRA	Enhanced and unenhanced spectra of target compound hits
TENT. I.D. CMPD. Q.L.	Quantitation list for tentatively identified compounds.
TENT. CMPD. LIB. SRCH.	Spectra and library match spectra of tentatively identified compound.
CHRO./SENS. CHECKS	EICP's and R.R.F.'s for chromatographic sensitivity checks
BFB/DFTPP TUNE DATA	Spectra, intensity lists, and criteria comparison forms for BFB, DFTPP
I.S. AREAS CHARTS	Internal standards area control charts and description of remedial actio
I.S. REL. RESP. FORM	Internal standards relative response listings for each sample run.
RF and amts: CALIB. CHK	Tabulated response factors and amount injected for all cpds. in calibration che.
RF and amts: 3-Pt. calib.	" " " " " " " " " 3-point calibratio
Chromatograms: Calib. chk.	Chromatograms for calibration check standard
Chromatograms: 3Pt. Calib.	Chromatograms for 3-point multilevel calibration standards
Linearity: 3Pt. Calib.	Tabulated correlation coefficient or relative standard deviation f calib
RF comparison	Tabulated comparison of calibration Response Factor with check o
SAMPLE/FIELD BLANK	Equipment rinse or reagent water blank shipped with samples from fie
METHOD/INSTR. BLANK	Method or instrument blank which is prepared at lab
LAB DUPLICATE	Sample which was split by lab for duplicate analysis
FIELD DUP./REP.	Sample which was split or collected twice in the field
MAT. SPK/M. STD.	Matrix spike or method standard (blind, or done by lab.)
PEST. TAB.	Tabulated results for pesticides
PEST. D.L. TAB.	Tabulated detection limits for pesticides
PEST. CHRO.	Chromatograms for pesticide screening
2nd COL. CONF.	Confirmation of pesticide results by using a second GC column and compa
GC/MS CONF.	Confirmation of pesticide results by GC/MS analysis
PEST. DUP., SPK., BLK.	Pesticide duplicate, spike, and blank
PEST. STD. CHRO.	Chromatogram of pesticide standard
PEST. STD. I.D.	Pesticide standard identification form
TCDD	2,3,7,8-tetrachlorodibenzodioxin
TCDD TAB., D.L., EICP, BLK.	TCDD tabulated results, detection limits, extracted ion current profile, blan

KEY TO SYMBOLS USED IN DATA COMPLETENESS TABLE

SYMBOL	MEANING
✓	Data item present
NA	Data item not applicable or not required
P	Data item within established control limits
F	Data item outside established control limits
MS	Missing item
I	Incomplete data item
NC	Data item not clearly explained (units of conc., e
* or [number]	See footnote
XX/XX/XX XX:XX	Date/time of run (calibration, etc.)

AR100082

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Blank Analysis Results for Target Compounds

ORIGINAL

The contaminants in the blanks are listed below:

FRACTION	TYPE OF BLANK (Sample, field, lab, low, medium, high, solid/aqueous)	SAMPLE NO.	LOT NO. AND SOURCE OF H_2O	CONTAMINANTS (CONCENTRATION / DETECTION LIMIT)
ALL BNA VOA PEST/TCDD	FIELD Lo/SOL	C-3149	HPLC	Methylene chloride (270 ug/kg / 5 ug/kg)* Toluene (5 ug/kg / 5 ug/kg)* 4-Methyl-2-pentanone (2.5 ug/kg / 5) 1
All BNA VOA PEST/TCDD	FIELD Lo/AQ	C3158	HPLC	Methylene chloride (9 ug/L / 5 ug/L)* Toluene (5 ug/L / 5 ug/L)* 3 Di-n-butylphthalate (.8 ug/L / 10 ug/L) 1
BNA	LAB Lo/AQ	13060165 BNA 6/24/83 13060165	LAB	Di-n-butylphthalate (2.0 ug/L / 10 ug/L) 1
PEST				None found
VOA	LAB Lo/AQ	13060165 VOA 6/2 #1	LAB	Methylene chloride (4 ug/L / 5 ug/L) 2
VOA	LAB Lo/AQ	13060165 6/2 #2	LAB	Methylene chloride (3 ug/L / 5 ug/L) 2 4-Methyl-2-pentanone (9 ug/L / 5) 1 3
		6/3 #3	LAB	None found
VOA	LAB Lo/SOL	13060543 6/4 #1	Compound 1 in blank, Class 2 ⇒	Methylene chloride (.72 ug/L / 5) Tetrachloroethylene (3.5 / 4-Methyl-2-pentanone (4.5 ug/L / 5) Ethylbenzene (2.5 / 5) 3 Benzene (3.1 / 5) 3
		2	Acetone 2 ⇒	Methylene chloride (41 ug/L / 5) Tetrachloroethylene Toluene (5.1 / 5) 3 Acetone (55 ug/L) 4-Methyl-2-pentanone (12.5 ug/L / 5) 3 Ethylbenzene (1.0 / 5)
BNA	LAB Lo/SOL	13060543 6/4		None found
PEST		13060543		None found.

Field blank data is compared with the sample data in a tabulation form within the Sample Analytical Data Summary. Ten tatively identified compounds in blanks are listed on a separate form.

COMMENTS: (Probable source of contamination, invalid sample results, etc.)

1 Compound presence inferred from Quantitation List (EI/70eV SCAN, RRT) mass fit & fw
2 Compound reported in LAB Data Sheets
* Compound reported in Data Summary
3 Blank and after spike compound results not used to qualify positive hits
Blank Quantitation Lists were examined for the presence of target compounds in the data summary.
Artifacts of chromatographic smoothing were identified in samples C3145, C3146, C3147, C3148, C3152 after high levels of the compounds were found in preceding sample runs. (3145 then 3146 then after 3144. 3148 then after 3147 spike.)

AR100003

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Blank Analysis Results for Tentatively Identified Compounds

ORIGINAL (Red)

All tentatively identified compounds found in blank analyses are listed below:

SAMPLE NO.	FRACTION	SCAN NO.(S)	SPECTRUM MATCH INDICES				ESTIMATED CONCENTRATION	COMPOUNDNAME	COMMENTS
			TYPE	SCORE	TYPE	SCORE			
C-3149	VOA/BNA							None found	
C-3152	ALL							None found	
13000165	VOA #1	6/2						None found	
"	VOA #2							None found	
LAB	VOA 6/3							None found	
BLKS	VOA 6/4	#1.						None found	
	VOA 6/4	#2						None found	
	BNA 6/10							None found	
	BNA 6/21							None found	

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ORIGINAL

SURROGATE SPIKE RECOVERIES

* Asterisked values are outside of QC limits

Surrogate compound name:		D_6 - Benzene	D_8 - Toluene	D_5 - Nitrobenzene	2-Fluorobiphenyl	D_5 - Phenol	2-Fluorophenol		Dibutyl Chlorendate				
Analytical Fraction:		VOA	VOA	BNA	BNA	BNA	BNA		PEST				
QC LIMITS: water:		70-130	84-114	42-131	50-154	15-90	25-115		67-114				
QC LIMITS: soil:		70-130	81-120	19-120	17-120	10-100	26-120		67-114				
Matrix	Source: Sample no.	Ref. 2	Ref. 1	Ref. 1	Ref. 1	Ref. 1	Ref. 1	Ref.	Ref. 1	Ref.	Ref.	Ref.	Ref.
Soil	C3144	115	102	20	68	40	40		80				
Soil	3145	88	76*	58	76	40	38		62*				
Soil	3146	96	96	54	58	18	8*		70				
Soil	3147	118	152*	44	66	34	28		140*				
Soil	3148	100	120	58	78	34	38		144*				
Soil	3149	120	154*	58	62	38	24		117*				
AQ	3150	96	93	62	86	72	62		133*				
AQ	3152	106	111	44	52	30	36		28*				
AQ	3153	109	117	52	80	44	56		176*				
AQ	3154	106	107	60	92	26	20*		176*				
AQ	3155	103	104	56	38	44	64		173*				
AQ	3156	129	120*	60	88	32	36		(1)				
AQ	3157	106	99	60	96	40	60		48*				
AQ	3158	122	122*	60	88	48	64		(1)				

Source of QC Limits: Ref. 1: IFB WA-83-0634, Am. 1
Ref. 2: Instructional Guide for Reviewing GC/MS Data, version (11/5/82).

COMMENTS: (1) Data System error - no result reported.
Detection limits for pesticides in sample C3152 may be slightly higher than those reported.

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ORIGINAL

Matrix Spike Results

* An asterisk indicates values outside QC Limits Key to sample description: Matrix = (A,S) = aqueous, Spike Level = (L,M,H) = Low medium high concentr

Source of QC Limits: IFB WA-83-A063,64

VOLATILE FRACTION	Sample #/Spike Level/Matrix	C3147 / L / S			C3157 / L / A			/ /			/ /		
COMPOUNDS	Acceptable Range (%)	ADD	REC	%R	ADD	REC	%R	ADD	REC	%R	ADD	REC	%R	COMMENT
Chlorobenzene	67-131	41	45	110	25	22	88							
Toluene	58-132	41	48	118	25	23	92							
Benzene	56-132	41	45	110	25	25	100							
1,1-dichloroethylene	51-151	102	100	98	25	22	88							
trichloroethylene	74-128	102	120	118	25	22	88							

Acid Fraction	Sample #/Spike Level/Matrix	C3148 / L / S			C3157 / L / A			/ /			/ /		
Compounds	Acceptable Range (%)	ADD	REC	%R	ADD	REC	%R	ADD	REC	%R	ADD	REC	%R
Pentachlorophenol	19-123	1040	490	47	50	14	28						
Phenol	23- 81	1040	480	46	50	30	60						
2-chlorophenol	33-107	1040	490	47	50	46	92						
p-chloro-m-cresol	32-108	1040	700	75	50	32	64						
4-nitrophenol	15- 93	1040	360	35	50	6	12*						

Base/neutral	Sample #/Spike Level/Matrix	C-3148 / L / S			C3157 / L / A			/ /			/ /		
Fraction Compounds	Acceptable Range (%)	ADD	REC	%R	ADD	REC	%R	ADD	REC	%R	ADD	REC	%R
1,2,4-trichlorobenzene	38-108	1040	510	50	50	32	64						
Acenaphthene	57-115	1040	710	68	50	32	64						
2,4-dinitrotoluene	43-113	1040	530	51	50	14	28*						
Di-n-butylphthalate	13-113	1040	700	67	50	38	76						
Pyrene	25-137	1040	290	36	50	20	40						
N-nitrosodi-n-propylamine	34-114	1040	780	75	50	29	56						
1,4-dichlorobenzene	33-103	1040	390	38	50	34	68						

Pesticide Fraction	Sample #/Spike Level/Matrix	C3144 / L / S			C3155 / L / A			/ /			/ /		
Compounds	Acceptable Range (%)	ADD	REC	%R	ADD	REC	%R	ADD	REC	%R	ADD	REC	%R
Heptachlor	43-125	195	17.5	9*	5	3.38	68						
Aldrin	45-109	195	20.2	10*	5	3.77	75						
Dieldrin	56-122	195	41.6	28*	5	5.72	114						
dibutyl chloroendate				74									

Pos. Result for Pest. in may be slightly higher than reported

Other Compounds

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Sample #	Fraction	Compound	Matrix	ADD	REC	%R	ADD	REC	%R	ADD	REC	%R	ADD	REC	%R

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ORIGINAL

DUPLICATE ANALYSIS RESULTS

DUPLICATE TYPE (SAMPLE/SPIKE/BLANK)	Sample	Sample	Sample	Sample	Sample			
SAMPLE NO.'S	C3144	C3147	C3148	C3155	C3157			
FIELD DUPLICATE								
LAB DUPLICATE	✓	✓	✓	✓	✓			
SAMPLE TYPE (LO/MED/HI)	LO	LO	LO	LO	LO			
SAMPLE TYPE (SOL/AQ/LIQ)	SOL	SOL	SOL	AQ	AQ			
Fraction	PEST	VOA	BNA	PEST	BNA/VOA			

The relative percent difference (RPD) for each parameter group was evaluated. The duplicate analysis RPD acceptance criteria should be:

Fraction	Maximum Acceptable Percent Difference
Volatile	15%
Base/Neutral	50%
Acid	40%
Pesticides	40%

The RPDs exceeding the maximum acceptable percent difference were:

Fraction	Compound	Actual RPD	Comparison SAMPLE	CONC.	SAMPLE	CONC.	UNITS
VOA	Methylene Chloride	---[2]	C3147	ND[6]	C3147	63c	ug/kg
VOA	ethylbenzene	56[2]	C3147	71	C3147	40	ug/kg
VOA	acetone	121[2]	C3147	22c	C3147	90c	ug/kg
VOA	D6-Benzene	98[2]	C3147	120	C3147	350	ug/kg
VOA	D8-Toluene	81[2]	C3147	160	C3147	380	ug/kg
VOA	Methylene Chloride	---	C3157	50k	C3157	0	ug/L
VOA	Acetone	200	C3157	210[1]	C3157	0	ug/L

Comments: 1) LAB Contaminant diluted 10X back-calculation for dilution increased Acetone value
2) Poor RPD's in C3147 may be due to sample inhomogeniety.

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Evaluation of Confirmations of GC Analyses *

SAMPLE NO.	Compound	GC column #1				GC column #2				GC/MS DATA						Reported type of confirmation (acceptable)	Reviewer Confident (Y/N)
		Column: DV-1 3% 6'x4mm conditions: TSO 190 TUO 220 DET 310 detector: ECD AT 32 R10 other: 5.2				Column: FSCC DB-5 30m x .25mm conditions: 130 → 270 @ 8°/min detector: ECD M64 R10 other: 1.2				Column: conditions: detector: other:							
		DATA FROM COLUMN NO. 1: ☒ Ret. or ☐ Rel. Ret. Times in:		Relative Peak Area Ratios		DATA FROM COLUMN NO. 2: ☒ Ret. or ☐ Rel. Ret. Times in:		Relative Peak Area Ratios		DATA FROM GC/MS RUN(S): ☐ scan number ☐ Ret. or ☐ Rel. Ret. times in:				Relative Peak Area Ratios			
		SAMPLE	STANDARD	SAMPLE	STANDARD	SAMPLE	STANDARD	SAMPLE	STANDARD	Spectrum match? (Y/N)	Cleanup Analysis (Y/N)	Where stored	SAMPLE	STANDARD	SAMPLE	STANDARD		
C3144	Aroclor 1254	4.914	4.336	94294	39087	15.813	15.790	99954	13353			FSCC Peaks are not the same as packed peaks					2 Col.	Y 1
		5.63	5.769	164518	578353	15.937	15.968	2293	2139									
		6.791	6.712	93591	448775	16.511	16.515	4314	5375									
		7.141	7.147	237136	531077	17.101	17.063	8406	12279									
		8.552	8.545	209151	791363	17.318	17.316	25364	28227									
	QUANT. PEAK *	11.916	11.911	357390	793363	19.238	19.212	24425	21093									
C3147	Lindane γ-BHC	2.019	2.062	179625	618796	11.630	11.637	20387	22731			Rel. peak ht/area ratios do not agree			2.8 vs 9.0%		Pick	N
C3148	Aroclor 1254	6.443	6.432	30040	650311	15.789	15.790	3535	13353			FSCC peaks not exactly the same as the packed peaks					Fair	Y 1
		9.470	9.470	73683	122740	—	15.966	—	2139									
		11.217	11.128	244265	3.2465	16.519	16.515	2534	5375									
		13.144	13.177	77053	350000	17.327	17.324	5.6	28227									
	QUANT. PEAK *	15.533	15.356	40252	231421	19.212	19.212	4825	21093									
C3155	Heptachlor	3.370	3.334	42730	3.3364	13.62	13.565	4338	13508								Pick	N 2
C3153	Lindane γ-BHC	2.120	2.061	41002	623031	11.610	11.637	21288	22731								Pick	N 2

COMMENTS: Spot checking confirmation of two column non-verifications showed that compounds not reported were not confident matches or below detection limits for both matrices (AQ & Soil)

CB column packed vs FSCC caused not cross-match using peaks for relative peak ratios but great want of result.

Peaks on both columns matched in Kovats. Revised confident match.

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Tentatively Identified Compound Sample Results

ORIGINAL

All tentative identifications of confident matching quality, which aren't suspected artifacts/contaminants, are listed bel

SAMPLE NO.	FRACTION	SCAN NO. (s)	SPECTRUM MATCH INDICES PUR	FIT	REV	SCORE	ESTIMATED CONCENTRATION	COMPOUND NAME	COMMENTS
C3144	VOA	293	577	710	795		100J	UNKNOWN	
"	VOA	643	902	969	902		2000 J	a Xylene isomer	
C3145	VOA	647	900	966	927		600J	a Xylene "	
C3146	VOA	650	941	992	941		200J	" " "	
C3147							NONE	FOUND	
C3148							NONE	FOUND	
C3149							NONE	FOUND	
C3150	BNA	234	834	837	[illegible]		60J	a $C_5H_{11}ON$ such as N,N-DIETHYLFORMAMIDE	
	BNA	350	822	911	853		30J	Tetramethylurea	
	BNA	361	903	979	982		80J	N-N-Dimethylacetamide	
	BNA	440	760	930	760		40J	UNKNOWN	
	BNA	499	674	817	683		300J	UNKNOWN	
	BNA	577	913	989	913		80J	a $C_7H_6N_2S$ such as 1,2-BENZISOTHIAZOLE	
	BNA	605	588	931	597		30J	UNKNOWN Amine	
	BNA	722	643	[illegible]	671		90J	UNKNOWN	
	BNA	805	973	989	982		40J	UNKNOWN	
	BNA	836	751	924	762		90J	UNKNOWN	
	BNA	980	769	931	815		1300J	UNKNOWN	
	BNA	941	344	552	446		60J	UNKNOWN	
	BNA	[illegible]	452	[illegible]	465		40J	UNKNOWN	
	BNA	1083	730	930	730		60J	UNKNOWN	
C3152	BNA	1193	903	960	976		30J	Mol. Sulfur (S8)	
	BNA	[illegible]	[illegible]	[illegible]	[illegible]		40J	UNKNOWN	MS NO Match Time [illegible]
C3153							NONE	FOUND	
C3154							NONE	FOUND	
C3155							NONE	FOUND	
C3156							NONE	FOUND	
C3157							NONE	FOUND	

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PROJECT NAME: Lord Shope
TDD NO.: E3 8304-09
EPA NO.: PA-200
REGION: FIT III

ORIGINAL

QUALITY ASSURANCE REVIEW OF INORGANIC ANALYTICAL DATA PACKAGE

Case No.: 1761
Contract No.: 68-01-6521
Contract Laboratory: Univ of Washington LRE
Applicable IFB No.: WA 81-H065
Reviewer: Rock J Vitale
Review Date: 12-20-83

Applicable Sample No's.:
MC 0624, MC 0625, MC 0626
MC 0627, MC 0628, MC 0629
MC 0630, MC 0632, MC 0633
MC 0634, MC 0635, MC 0636
MC 0637, MC 0638

The inorganic analytical data for this case has been reviewed. The quality assurance evaluation is summarized in the following table:

Reviewer's Evaluation*	Fraction			
	TASK I ICP or AA METALS	TASK II FURNACE AA METALS	TASK III COLD VAPOR AA MERCURY	TASK III CYANIDE
Acceptable			✓	✓
Acceptable with exception(s)	✓ 1	✓ 2,1		
Questionable				
Unacceptable				

* Definitions of the evaluation score categories are listed on next page.

This evaluation was based upon an analysis of the review items indicated below:

- DATA COMPLETENESS
- BLANK ANALYSIS RESULTS
- MATRIX SPIKE RESULTS
- DUPLICATE ANALYSIS RESULTS
- STANDARD ADDITIONS RESULTS
- INITIAL CALIBRATION VERIFICATION
- CONTINUING CALIBRATION VERIFICATION
- INTERFERENCE QC RESULTS
- DETECTION LIMITS RESULTS
- INSTRUMENT SENSITIVITY REPORTS

Data review forms are attached for each of the review items indicated above.

Comments: (1) See blank analysis results
(2) See standard addition and matrix spike results.

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ORIGINAL

DATA EVALUATION SCORE CATEGORIES

ACCEPTABLE: Data is within established control limits, or the data which is outside established control limits does not affect the validity of the analytical results.

ACCEPTABLE WITH EXCEPTION(S): Data is not completely within established control limits. The deficiences are identified and specific data is still valid, given certain qualifications which are listed below.

QUESTIONABLE: Data is not within established control limits. The deficiences bring the validity of the entire data set into question. However, the data validity is neither proved nor disproved by the available information.

UNACCEPTABLE: Data is not within established control limits. The deficiences imply the results are not meaningful.

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INORGANIC DATA COMPLETENESS CHECKLIST

ORIGINAL

	TRAFFIC REPORT#	mc 0624	mc 0625	mc 0626	mc 0627	mc 0628	mc 0629	mc 0630	mc 0632	mc 0633	mc 0634	mc 0635	mc 0636
	MATRIX (SOL,AQ)	SED	SED	SED	SED	SED	SED	AQ	AQ	AQ	AQ	AQ	AQ
	(LO,MED,HI) CONC.	LO	LO	LO	LO	LO	LO	LO	LO	LO	LO	LO	LO
FIELD QC	BLANK						✓						
	DUPLICATE												
	SPIKE					✓						✓	
TASK I: ICAP or AA Metals	Run date/time	MS											
	TAB. results	✓											
	TAB. D.L.'s	✓											
	QA Form	✓											
	ICAP Interference QC	✓											
	Instr. Sens.	✓											
TASK II: Furnace AA Metals	Run date/time	MS											
	TAB. results	✓											
	TAB. D.L.'s	✓											
	QA Form	✓											
	Instr. Sens.	✓											
TASK II: Cold Vapor AA: Mercury	Run date/time	MS											
	TAB. results	✓											
	TAB. D.L.'s	✓											
	QA Form	✓											
	Instr. Sens.	✓											
TASK III: Cyanide	Run date/time	MS											
	TAB. results	✓											
	TAB. D.L.'s	✓											
	QA Form	✓											
	Instr. Sens.	N/a											
Other (Specify):	Run date/time												
	TAB. results												
	TAB. D.L.'s												
	QA Form												
	Instr. Sens.												
Other (Specify):	Run date/time												
	TAB. results												
	TAB. D.L.'s												
	QA Form												
	Instr. Sens.												

Comments: Documentation Complete, NO raw data

AR100092

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ORIGINAL (Red)

INORGANIC DATA COMPLETENESS CHECKLIST

	TRAFFIC REPORT#	MC 0637	MC 0637
	MATRIX (SOL,AQ)	AQ	AQ
	(LO,MED,HI) CONC.	LO	LO
FIELD QC	BLANK		✓
	DUPLICATE		
	SPIKE	✓	
TASK I: ICAP or AA Metals	Run date/time	MS →	
	TAB. results	✓ →	
	TAB. D.L.'s	✓ →	
	QA Form	✓ →	
	ICAP Interference QC	✓ →	
	Instr. Sens.	✓ →	
TASK II: Furnace AA Metals	Run date/time	MS →	
	TAB. results	✓ →	
	TAB. D.L.'s	✓ →	
	QA Form	✓ →	
	Instr. Sens.	✓ →	
TASK II: Cold Vapor AA: Mercury	Run date/time	MS →	
	TAB. results	✓ →	
	TAB. D.L.'s	✓ →	
	QA Form	✓ →	
	Instr. Sens.	✓ →	
TASK III: Cyanide	Run date/time	MS →	
	TAB. results	✓ →	
	TAB. D.L.'s	✓ →	
	QA Form	✓ →	
	Instr. Sens.	N/A →	
Other (Specify):	Run date/time		
	TAB. results		
	TAB. D.L.'s		
	QA Form		
	Instr. Sens.		
Other (Specify):	Run date/time		
	TAB. results		
	TAB. D.L.'s		
	QA Form		
	Instr. Sens.		

Comments:

AR100093

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Blank Analysis Results

The contaminants found in the blanks are listed below:

FRACTION	TYPE OF BLANK	SAMPLE NO.	SOURCE OF	CONTAMINANTS (concentration/DL)
All	low Sed field BLK	MC0639	NUS	Cr (0.21 / 0.20) mg/kg Fe (4.48 / 0.21) mg/kg Sn (2.50 / 0.2) mg/kg
All	low AQ field BLK	MC0638	NUS	Al (13.4 / 14) ug/L Fe (58.2 / 4.2) ug/L Zn (15.7 / 4.7) ug/L
TASK I	Lab Prep BLK (1) Low AQ	QC Report #26	Lab	Al (30 / 14) ug/L Cu (8.5 / 2.2) ug/L Fe (19.7 / 4.2) Zn (11 / 4.7) B (78.8 / 58)
TASK I	Lab Prep BLK (2) Low Solid	QC Report #26	Lab	Al (45 / 14) ug/L Fe (39.4 / 4.2) Zn (10.5 / [illegible] B (89.6 / 58)
TASK II	Lab Prep BLK Low AQ	QC Report #26	Lab	Sn (5 / 4) ug/L
Task I	Initial Calibration Blank	"	Lab	

COMMENTS:

AR100094

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ORIGINAL

MATRIX SPIKE RECOVERIES

Sample No.	MC0628	MC0635	MC0637			
Field Spike						
Lab Spike	✓	✓	✓			
Matrix	S	AQ	AQ			
Conc. Level	LO	LO	LO			
Method Std.						
Fraction	I, IIII,	I, II	III			

All matrix spike recoveries were within the established control ranges specified in; IFB WA82-A072, Exhibit E, Table 2. ✓ Yes ___ No

Exception(s):

Parameter	Accepted Range (%)	Actual % Rec.	Sample Number	Org. Result	Spike Added	Spike Result	Units
Sn	75-125%	24	MC0635	15	50	27	µg/L
Be	80-120%	77.2	MC0628	0.74	2.5	1.93	mg/kg

Comments: No RAW DATA

AR100095

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Duplicate Analysis Results

The applicable duplicate pairs are:

sample no.	MC.0624	MC.0632				
Field duplicate						
Lab duplicate	✓	✓				
sample level	LO	LO				
sample matrix	S	S				
Fraction	I, II, III	I, II, III				

The relative percent difference (RPD) for each parameter group was evaluated. The duplicate analysis RPD acceptance criteria should be:

Fraction	maximum acceptable Percent Difference
I, II, III	-20%

The RPD's exceeding the maximum acceptable percent difference were:

Fraction	Compound	Actual RPD	Sample	Comparison conc.	conc.
TASK I	Ba [illegible]	21	MC.0632	9320	7540
TASK I	B [illegible]	43	MC.0624	12	18.1

AR100096

Comments: _____

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ORIGINAL

STANDARD ADDITION RESULTS

Documentation indicates a standard addition correction was performed on all spiked samples for parameters having recoveries outside of control limits: Yes ✓ No____

For the parameters having poor recoveries in the spiked sample(s), standard additions were also performed on all other samples where the following conditions were met:

(1) The sample matrix was similar to the matrix of the sample which was spiked; and

(2) The parameters in question were detected with postive results.

Yes ✓ No____

The parameters with poor spike recoveries are listed below, along with the type of standard addition performed(none, 1, 2, or 3 point). The results for these parameters in other samples which have a similar matrix are also listed below:

sample	description of matrix	parameter	recovery	type of std. add.
MC[illegible]30	Well water-oily	SN	40%	Information Not supplied.
MC[illegible]32	Seep Area - Sheen	SN	70%	
MC[illegible]33	Pond Water - Murky	SN	40%	
MC[illegible]34	Home well water	SN	40%	
MC[illegible]36	" " "	SN	34%	
MC[illegible]37	" " "	SN	34%	

Comments: Tin recoveries are inadequate on [illegible] samples. Type of STD. addition information not supplied.

AR100097

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ORIGINAL

Initial Calibration Verification and Continuing Calibration Verification

Documentation indicates calibrations were performed and checked every ten samples: Yes ✓ No__

Exceptions: Can't verify calibrations were done every ten samples SINCE there is NO sample log in data pack.

Calibrations and verifications were all within the control limits specified in IFB WA82-A073 Exhibit E Table 1 Yes ✓ No__

Outliers are listed below:

Parameter	Acceptable Range (%)	Calibration Identifier	% of True Value	Comments

Interference QC Results

Documentation indicates interference QC samples were run before and after every ten samples: Yes ✓ No__

Exceptions: see above exception

Interference QC results were all within the control limits specified in 85-115% used. : Yes__ No ✓

Exceptions:

Parameter	Acceptable Range (%)	Calibration Identifier	% of True Value	Comments
Ba	85-115%	initial	142%	Lab was contacted and
Ba	85-115%	final	178%	claims appropriate interference
Be	85-115%	final	169%	corrections were performed
Cr	85-115%	final	122%	(These [illegible]
Mn	85-115	final	177%	lab spike into inter-5 analyte/interferent
Ni	85-115%	final	[illegible]	mixture, and the calculated percentage
Zn	85-115%	final	120%	appears to be (amt. in inter-5 amt spiked) ÷
				amt spiked, so when inter-5 amt is
				subtracted, recoveries tend toward 100%.

AR100098

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ORIGINAL

Detection Limits Results

Detection limits were reported for all samples analyzed: Yes ✓ No ___

Exceptions: _____

Detection limits were less than or equal to the required detection limits specified in IFB WA82-4073. Yes ✓ No ___

Exceptions: _____

Instrument Sensitivity Reports

Instrument sensitivity reports were documented for all parameters:

Yes ✓ No ___

Comments: _____

Other Remarks Concerning this Case:

Hard to verify anything without raw data.

AR100099

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Appendix F

AR100100

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NUS CORPORATION

LABORATORY SERVICES DIVISION

5350 CAMPBELLS RUN ROAD • PITTSBURGH, PA 15205
412-788-1080

ORIGINAL

Lord Shope
8304-09

July 21, 1983

Mr. Russ Sloboda
NUS Corporation
992 Old Eagle School Road, Suite 916
Wayne, Pennsylvania 19087

Dear Mr. Sloboda:

The organic results of Case 1761 are enclosed. The results of soil samples are calculated on dry weight basis. The total solvent extractable content (TSEC) of soil sample C-3147 is 0.0002 mg/g, and is negligible for all the other soil samples.

If you have any questions, please feel free to call me.

Sincerely,

Jong Pyng Hsu, Ph.D
Supervisor, Organic Laboratory

Enclosure

LPH;ks

AR100101

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C-3144

ORGANICS ANALYSIS DATA SHEET
Low Level Soil

Laboratory Name: NUS Case No: 1761
Lab Sample I.D. No: 13051437 QC Report No:

Multiply Detection Limits by 1 ☐ or 10 ☒ (Check Box for Appropriate Factor)

ACID COMPOUNDS
1. VOA: x10.7 (dry wieght correction and dilution factor)
2. BNA: x5.35 (dry wieght correction and dilution factor)

PP #	CAS #		ug/kg
(21A)	88-06-2	2,4,6-trichlorophenol	200 U
(22A)	59-50-7	p-chloro-m-cresol	200 U
(24A)	95-57-8	2-chlorophenol	200 U
(31A)	120-83-2	2,4-dichlorophenol	200 U
(34A)	105-67-9	2,4-dimethylphenol	200 U
(57A)	88-75-5	2-nitrophenol	400 U
(58A)	100-02-7	4-nitrophenol	1000 U
(59A)	51-28-5	2,4-dinitrophenol	1000 U
(60A)	534-52-1	4,6-dinitro-2-methylphenol	400 U
(64A)	87-86-5	pentachlorophenol	200 U
(65A)	108-95-2	phenol	200 U

BASE/NEUTRAL COMPOUNDS

PP #	CAS #		ug/kg
(1B)	83-32-9	acenaphthene	200 U
(5B)	92-87-5	benzidine	800 U
(8B)	120-82-1	1,2,4-trichlorobenzene	200 U
(9B)	118-74-1	hexachlorobenzene	200 U
(12B)	67-72-1	hexachloroethane	200 U
(18B)	111-44-4	bis(2-chloroethyl)ether	200 U
(20B)	91-58-7	2-chloronaphthalene	200 U
(25B)	95-50-1	1,2-dichlorobenzene	200 U
(26B)	541-73-1	1,3-dichlorobenzene	200 U
(27B)	106-46-7	1,4-dichlorobenzene	200 U
(28B)	91-94-1	3,3'-dichlorobenzidine	400 U
(35B)	121-14-2	2,4-dinitrotoluene	400 U
(36B)	606-20-2	2,6-dinitrotoluene	400 U
(37B)	122-66-7	1,2-diphenylhydrazine	400 U
(39B)	206-44-0	fluoranthene	200 U
(40B)	7005-72-3	4-chlorophenyl phenyl ether	200 U
(41B)	101-55-3	4-bromophenyl phenyl ether	200 U
(42B)	39638-32-9	bis (2-chloroisopropyl) ether	400 U
(43B)	111-91-1	bis (2-chloroethoxy) methane	400 U
(52B)	87-68-3	hexachlorobutadiene	200 U
(53B)	77-47-4	hexachlorocyclopentadiene	200 U
(54B)	78-59-1	isophorone	200 U
(55B)	91-20-3	naphthalene	200 U
(56B)	98-95-3	nitrobenzene	200 U
(62B)	86-30-6	N-nitrosodiphenylamine	200 U
(63B)	621-64-7	N-nitrosodipropylamine	200 U
(66B)	117-81-7	bis (2-ethylhexyl) phthalate	200 U
(67B)	85-68-7	benzyl butyl phthalate	200 U
(68B)	84-74-2	di-n-butyl phthalate	200 U
(69B)	117-84-0	di-n-octyl phthalate	200 U
(70B)	84-66-2	diethyl phthalate	200 U
(71B)	131-11-3	dimethyl phthalate	200 U
(72B)	56-55-3	benzo(a)anthracene	200 U
(73B)	50-32-8	benzo(a)pyrene	400 U
(74B)	205-99-2	benzo(b)fluoranthene	400 U
(75B)	207-08-9	benzo(k)fluoranthene	400 U
(76B)	218-01-9	chrysene	400 U
(77B)	208-96-8	acenaphthylene	200 U
(78B)	120-12-7	anthracene	200 U
(79B)	191-24-2	benzo(ghi)perylene	400 U
(80B)	86-73-7	fluorene	200 U
(81B)	85-01-8	phenanthrene	200 U
(82B)	53-70-3	dibenzo(a,h)anthracene	400 U
(83B)	193-39-5	indeno(1,2,3-cd)pyrene	400 U
(84B)	129-00-0	pyrene	200 U

VOLATILES

PP #	CAS #		ug/kg
(2V)	107-02-8	acrolein	100 U
(3V)	107-13-1	acrylonitrile	100 U
(4V)	71-43-2	benzene	5 U
(6V)	56-23-5	carbon tetrachloride	5 U
(7V)	108-90-7	chlorobenzene	5 U
(10V)	107-06-2	1,2-dichloroethane	1 U
(11V)	71-55-6	1,1,1-trichloroethane	5 U
(13V)	75-34-3	1,1-dichloroethane	5 U
(14V)	79-00-5	1,1,2-trichloroethane	5 U
(15V)	79-34-5	1,1,2,2-tetrachloroethane	10 U
(16V)	75-00-3	chloroethane	10 U
(19V)	110-75-8	2-chloroethylvinyl ether	10 U
(23V)	67-66-3	chloroform	5 U
(29V)	75-35-4	1,1-dichloroethene	5 U
(30V)	156-60-5	trans-1,2-dichloroethene	8600
(32V)	78-87-5	1,2-dichloropropane	10 U
(33V)	10061-02-6	trans-1,3-dichloropropene	5 U
	10061-01-05	cis-1,3-dichloropropene	5 U
(38V)	100-41-4	ethylbenzene	1400
(44V)	75-09-2	methylene chloride	ND(B)
(45V)	74-87-3	chloromethane	10 U
(46V)	74-83-9	bromomethane	10 U
(47V)	75-25-2	bromoform	10 U
(48V)	75-27-4	bromodichloromethane	5 U
(49V)	75-69-4	fluorotrichloromethane	NA
(50V)	75-71-8	dichlorodifluoromethane	NA
(51V)	124-48-1	chlorodibromomethane	5 U
(85V)	127-18-4	tetrachloroethene	5 U
(86V)	108-88-3	toluene	3800
(87V)	79-01-6	trichloroethene	5 U
(88V)	75-01-4	vinyl chloride	4.1×10^4

AR100102

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Low Level Soil
ORGANICS ANALYSIS DATA SHEET

Sample Number
c-3144

Laboratory Name: NUS Corporation Case No: 1761

Lab Sample I.D.NO: 13051437 QC Report No:

Multiply Detection Limits by 1 [ ] or 10 [x] (Check box for appropriate factor)
1. VOA: x10.7 (dry wieght correction and dilution facto
2. BNA: x5.35 (dry wieght correction and dilution facto

Non-Priority Pollutant Hazardous Substances List Compounds

ACID COMPOUNDS

CAS #		ug/l or ug/kg (circle one)
65-85-0	benzoic acid	2000 u
95-48-7	2-methylphenol	100 u
108-39-4	4-methylphenol	100 u
95-95-4	2,4,5-trichlorophenol	2000 u

BASE/NEUTRAL COMPOUNDS

CAS #		ug/l or ug/kg (circle one)
62-53-3	aniline	100 u
100-51-6	benzyl alcohol	400 u
106-47-8	4-chloroaniline	1000 u
132-64-9	dibenzofuran	200 u
91-57-6	2-methylnaphthalene	400 u
88-74-4	2-nitroaniline	2000 u
99-09-2	3-nitroaniline	2000 u
100-01-6	4-nitroaniline	2000 u

VOLATILES

CAS #		ug/l or ug/kg (circle one)
67-64-1	acetone	1.1x1
78-93-3	2-butanone	6300
75-15-0	carbondisulfide	1 u
519-78-6	2-hexanone	5 u
108-10-1	4-methyl-2-pentanone	8400
100-42-5	styrene	5 u
108-05-4	vinyl acetate	5 u
95-47-6	o-xylene	4200
	4-methyl-2-pentanol	$1x10^5$ J*
	tetrahydrofuran	ND

ND=Not detected

* Amount was estimated by using the response factor two days ago.

AR100103

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ORGANICS ANALYSIS DATA SHEET

Low Level Soil

Sample Number: c-3144

Laboratory Name: NUS Corporation Case No: 1761

Lab Sample I.D.No: 13060579 QC Report No:

Multiply Detection Limits by 1 [ ] or 10 [X] (Check box for appropriate factor)
2.13-dry weight correction factor

PESTICIDES

PP #	CAS #		ug/l or ug/kg (circle one)	
(89P)	309-00-2	aldrin	0.1	u
(90P)	60-57-1	dieldrin	0.1	u
(91P)	57-74-9	chlordane	1	u
(92P)	50-29-3	4,4'-DDT	0.2	u
(93P)	72-55-9	4,4'-DDE	0.1	u
(94P)	72-54-8	4,4'-DDD	0.2	u
(95P)	115-29-7	α-endosulfan	0.1	u
(96P)	115-29-7	β-endosulfan	0.1	u
(97P)	1031-07-8	endosulfan sulfate	0.2	u
(98P)	72-20-8	endrin	0.1	u
(99P)	7421-93-4	endrin aldehyde	0.2	u
(100P)	76-44-8	heptachlor	0.1	u
(101P)	1024-57-3	heptachlor epoxide	0.1	u
(102P)	319-84-6	α-BHC	0.1	u

PESTICIDES

PP #	CAS #		ug/l or ug/kg (circle one)	
(103P)	319-85-7	β-BHC	0.1	u
(104P)	319-86-8	δ-BHC	0.1	u
(105P)	58-89-9	γ-BHC(lindane)	0.1	u
(106P)	53469-21-9	PCB-1242	1	u
(107P)	11097-69-1	PCB-1254	14	
(108P)	11104-28-2	PCB-1221	2	u
(109P)	11141-16-5	PCB-1232	2	u
(110P)	12672-29-6	PCB-1248	2	u
(111P)	11096-82-5	PCB-1260	4	u
(112P)	12674-11-2	PCB-1016	1	u
(113P)	8001-35-2	toxaphene	1	u

DIOXINS

(129B)	1746-01-6	2,3,7,8-tetrachlorodibenzo-p-dioxin	0.1	u

Surrogate Spike Results

Compound Name	Concentration (ug/l) or ✓amount (ug)	Spike Added ug/l or ug	Percent Recovery
Dibutyl Chlorendate, Pesticide	4.0	5.0	80

AR100104

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Low Level Water

Sample Number: c-3158

Laboratory Name: NUS Corporation Case No: 1761

Lab Sample I.D.No: 13051450 QC Report No:

Multiply Detection Limits by 1 [X] or 10 [ ] (Check box for appropriate factor)

PESTICIDES

PP #	CAS #		ug/l or ug/kg (circle one)
(89P)	309-00-2	aldrin	0.005 u
(90P)	60-57-1	dieldrin	0.005 u
(91P)	57-74-9	chlordane	0.050 u
(92P)	50-29-3	4,4'-DDT	0.010 u
(93P)	72-55-9	4,4'-DDE	0.005 u
(94P)	72-54-8	4,4'-DDD	0.010 u
(95P)	115-29-7	α-endosulfan	0.005 u
(96P)	115-29-7	β-endosulfan	0.005 u
(97P)	1031-07-8	endosulfan sulfate	0.010 u
(98P)	72-20-8	endrin	0.005 u
(99P)	7421-93-4	endrin aldehyde	0.010 u
(100P)	76-44-8	heptachlor	0.005 u
(101P)	1024-57-3	heptachlor epoxide	0.005 u
(102P)	319-84-6	α-BHC	0.005 u

PESTICIDES

PP #	CAS #		ug/l or ug/l (circle one)
(103P)	319-85-7	β-BHC	0.005 u
(104P)	319-86-8	δ-BHC	0.005 u
(105P)	58-89-9	γ-BHC(lindane)	0.005 u
(106P)	53469-21-9	PCB-1242	0.050 u
(107P)	11097-69-1	PCB-1254	0.100 u
(108P)	11104-28-2	PCB-1221	0.100 u
(109P)	11141-16-5	PCB-1232	0.100 u
(110P)	12672-29-6	PCB-1248	0.100 u
(111P)	11096-82-5	PCB-1260	0.200 u
(112P)	12674-11-2	PCB-1016	0.050 u
(113P)	8001-35-2	toxaphene	0.050 u

DIOXINS

(129B)	1746-01-6	2,3,7,8-tetrachlorodibenzo-p-dioxin	0.005 u

Surrogate Spike Results

Compound Name	✓ Concentration (ug/l) or amount (ug)	Spike Added ug/l or ug	Percent Recovery
Dibutyl Chlorendate, Pesticide	*	5.0	--

* Data system error-the data system did not take the strong peak of dibutyl chlorendate shown on chromatogram.

AR100105

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ORGANICS ANALYSIS DATA SHEET - Page 3

Sample Number
C-3158

Laboratory Name: NUS Corp. Laboratories Services Div.

QC Report No: _____

A. Surrogate Spike Results

Compound Name	Fraction	Concentration (ug/l)	Surrogates Only	
			Spike Added (ug/l)	Perc Reco
D_6 - Benzene	VOA	122	100	122
D_8 - Toluene	VOA	122	100	122
D_5 - Nitrobenzene	BN	30	50	60
2 - Fluorobiphenyl	BN	44	50	88
D_5 - Phenol	Acid	24	50	48
2 - Fluorophenol	Acid	32	50	64

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining results are encoura
Definition of such flags must be explicit however.

Value - If the result is a value greater than or equal to the detection limit, report the value.

U - Indicates compound was analyzed for but not detected. Report the minimum detection limit value with the U, e.g., 10U. The footnote should read: U - Compound was analyzed for but not detected. The number is the minimum detection limit.

K - If the mass spectral data indicate the presence of a compound that meets the identification criteria but the quantitative result is less than the specified detection limit but greater than zero, report the detection limit as K, e.g., 10K. The footnote should read: K - Actual value, within the limitations of this method, is less than the value given.

FS - This flag applies to analysis performed by Fused Silica Capillary Column.

J - Indicates an estimated value which is used when estima a concentration for tentatively identified compounds; e 12000J. The footnote should read: J - Estimated value.

Other - Other specific flags and footnotes may be required properly define the results. If used, they must be f described in a page attached to the data summary report.

** - This flag applies to pesticides parameters where the ide fication has been performed using two column confirma (as specified in Method 608) but the level is too low verification of the compound by mass spectrometry.

CX - This flag is used to indicate those compounds which w concentrated by a factor of 10 times.

AR100106

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ORGANICS ANALYSIS DATA SHEET - Page 4 -

Sample Number
C-3158

Laboratory Name: NUS Case No: 1761
QC Report No:

B. Tentatively Identified Compounds

	CAS #	Compound Name	Fraction	Scan No. or Retention Time	% Maximum Score Attained Mass Matching Routine: (Specify:_____)	Estimated Concentration (ug/L or ug/kg)
1.						
2.						
3.						
4.						
5.						
6.						
7.						
8.						
9.						
10.						
11.						
12.						
13.						
14.						
15.						
16.						
17.						
18.						
19.						
20.						
21.						
22.						
23.						
24.						
25.						
26.						
27.						
28.						
29.						
30.						

4/8:

AR100107

Form I (continued)

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LORD Shape
8304-09

UNIVERSITY OF WASHINGTON
SEATTLE, WASHINGTON 98195

College of Fisheries
Laboratory of Radiation Ecology

Date: 6-24-83

RECEIVED EEB
JUN 28 1983

U.S. Environmental Protection Agency
Sample Management Office
P.O. Box 818
Alexandria, Virginia 22313

Subject: Report for Case 1761

Gentlemen:

Enclosed please find data package for the above case(s). We would also like to bring the following to your attention.

1. Duplicate water sample. The RPD% not within the limit:

Sample # MC0624 (soil) Item B
~~[illegible]~~ J.L. MC0632 (water) Ba

Reason:

2. Matrix spike results. Ten times EPA (Task 1) LRE (Task 2) detection limits or approximately twice the sample content was spiked. The spike recoveries were not within the required limits for the following:

Sample # MC0628 (soil) Item Be
MC0635 (water) Sm

Standard addition is performed on sample # all for _____.

Standard addition is not performed on sample # _____ for _____ because the content in other samples is less than D.L. or very low.

Sincerely,

John Sung
for A.E. Nevissi
Research Associate Professor

AR100108

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US ENVIRONMENTAL PROTECTION AGENCY
HWI Sample Management Office
P.O. Box 818 — Alexandria, Virginia 22313
703/557-2490 FTS 8-557-2490

Sample No.
MC 0624

INORGANICS ANALYSIS DATA SHEET

LAB NAME Univ. of Washington LRE CASE NO. 1761
LAB SAMPLE ID. NO. _____ QC REPORT NO. 26

TASK 1 (Elements to be Identified and Measured)

ug/l or mg/kg (circle one)

1.	Aluminum	12800[c]	10.	Zinc	350[c]
2.	Chromium	18.7	11.	Boron	12[c]
3.	Barium	120	12.	Vanadium	24.5
4.	Beryllium	.9	13.	Silver	< D.L.
5.	Cobalt	5.92			
6.	Copper	13.4			
7.	Iron	14800			
8.	Nickel	12.9			
9.	Manganese	157			

TASK 2 (Elements to be Identified and Measured)

ug/l or mg/kg (circle one)

1.	Arsenic	16.6 ~~1.66~~	5.	Mercury	0.1
2.	Antimony	< D.L.	6.	Tin	14.0
3.	Selenium	1.5	7.	Cadmium	~~1.9~~ 0.95
4.	Thallium	0.1	8.	Lead	6.0

TASK 3 (Elements to be Identified and Measured)

ug/l or mg/kg (circle one)

1.	Ammonia	NR
2.	Cyanide	≤ D.L.
3.	Sulfide	NR

COMMENTS: Total metal analysis

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Sample No.
MC0625

INORGANICS ANALYSIS DATA SHEET

LAB NAME Univ. of Washington CRE CASE NO. 1761
LAB SAMPLE ID. NO. _____ QC REPORT NO. 26

TASK 1 (Elements to be Identified and Measured)

		ug/l or mg/kg (circle one)			ug/l or mg/kg (circle one)
1.	Aluminum	10200 c	10.	Zinc	88.8 c
2.	Chromium	15.6	11.	Boron	< D.L. c
3.	Barium	50.3	12.	Vanadium	18.2
4.	Beryllium	.93	13.	Silver	[.45]
5.	Cobalt	8.78			
6.	Copper	28.4			
7.	Iron	16800 c			
8.	Nickel	18.6			
9.	Manganese	399			

TASK 2 (Elements to be Identified and Measured)

		ug/l or mg/kg (circle one)			ug/l or mg/kg (circle one)
1.	Arsenic	12.8 ~~[illegible]~~ 31.	5.	Mercury	< D.L.
2.	Antimony	< D.L.	6.	Tin	8.25
3.	Selenium	1.3	7.	Cadmium	~~3.63~~ 0.180
4.	Thallium	< D.L.	8.	Lead	7.35

TASK 3 (Elements to be Identified and Measured)

		ug/l or mg/kg (circle one)
1.	Ammonia	NR
2.	Cyanide	0.13
3.	Sulfide	N.R

COMMENTS: Total metal analysis

AR100110

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Sample No.
MC0626

INORGANICS ANALYSIS DATA SHEET

LAB NAME Univ. of Washington LRG CASE NO. 1761
LAB SAMPLE ID. NO. _____ QC REPORT NO. 26

TASK 1 (Elements to be Identified and Measured)

ug/l or mg/kg (circle one)

1.	Aluminum	8250[c]	10.	Zinc	63.1[c]
2.	Chromium	11.9	11.	Boron	< D.L.[c]
3.	Barium	21.5	12.	Vanadium	14.6
4.	Beryllium	.74	13.	Silver	< D.L.
5.	Cobalt	7.22			
6.	Copper	24.8			
7.	Iron	14100[c]			
8.	Nickel	15.4			
9.	Manganese	277			

TASK 2 (Elements to be Identified and Measured)

ug/l or mg/kg (circle one)

1.	Arsenic	16.5 ~~1.65~~	5.	Mercury	< D.L.
2.	Antimony	< D.L.	6.	Tin	12.8
3.	Selenium	0.1	7.	Cadmium	~~2.5~~ 0.125
4.	Thallium	0.1	8.	Lead	0.385

TASK 3 (Elements to be Identified and Measured)

ug/l or mg/kg (circle one)

1.	Ammonia	NR
2.	Cyanide	< D.L.
3.	Sulfide	NR

COMMENTS: Total metal analysis

AR100111

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Sample No.
MC0627

INORGANICS ANALYSIS DATA SHEET

LAB NAME Univ. of Washington LRE
LAB SAMPLE ID. NO.
CASE NO. 1761
QC REPORT NO. 3b

TASK 1 (Elements to be Identified and Measured)

ug/l or mg/kg (circle one)

			ug/l or mg/kg (circle one)
1. Aluminum	8210 c	10. Zinc	76.1 c
2. Chromium	11.4	11. Boron	<D.L.
3. Barium	71.6	12. Vanadium	14.1
4. Beryllium	.76	13. Silver	<D.L.
5. Cobalt	6.73		
6. Copper	21.2		
7. Iron	16000 c		
8. Nickel	13.1		
9. Manganese	550		

TASK 2 (Elements to be Identified and Measured)

ug/l or mg/kg (circle one)

			ug/l or mg/kg (circle one)
1. Arsenic	15.9 ~~1.59~~	5. Mercury	0.05
2. Antimony	<D.L.	6. Tin	5.75
3. Selenium	0.7	7. Cadmium	~~1.7~~ 0.185
4. Thallium	0.1	8. Lead	5.35

TASK 3 (Elements to be Identified and Measured)

ug/l or mg/kg (circle one)

1. Ammonia	NR
2. Cyanide	<D.L.
3. Sulfide	NR

COMMENTS: Total metal analysis

AR100112

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Sample No.
MC 0628

INORGANICS ANALYSIS DATA SHEET

LAB NAME Univ. of Washington LRE CASE NO. 1761
LAB SAMPLE ID. NO. _____ QC REPORT NO. 26

TASK 1 (Elements to be Identified and Measured)

ug/l or mg/kg (circle one)

1.	Aluminum	7250 c	10.	Zinc	71.6 c
2.	Chromium	11.3	11.	Boron	12.7 c
3.	Barium	36.2	12.	Vanadium	13.2
4.	Beryllium	.74	13.	Silver	< D.L.
5.	Cobalt	6.78			
6.	Copper	23.4			
7.	Iron	12700 c			
8.	Nickel	14.4			
9.	Manganese	341			

TASK 2 (Elements to be Identified and Measured)

ug/l or mg/kg (circle one)

1.	Arsenic	10.0	5.	Mercury	0.05
2.	Antimony	< D.L.	6.	Tin	8.5
3.	Selenium	0.25	7.	Cadmium	~~3.7~~ 0.185
4.	Thallium	< D.L.	8.	Lead	4.0

TASK 3 (Elements to be Identified and Measured)

ug/l or mg/kg (circle one)

1.	Ammonia	NR
2.	Cyanide	< D.L.
3.	Sulfide	NR

COMMENTS: Total metal analysis

AR100113

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Sample No.
MC 0629

INORGANICS ANALYSIS DATA SHEET

LAB NAME Univ. of Washington LRE CASE NO. 1761
LAB SAMPLE ID. NO. _____ QC REPORT NO. 37

TASK 1 (Elements to be Identified and Measured)

		ug/l or mg/kg (circle one)			ug/l or mg/kg (circle one)
1.	Aluminum	< D.L.[c]	10.	Zinc	< D.L.[c]
2.	Chromium	[.2]	11.	Boron	< D.L.[c]
3.	Barium	< D.L.[c]	12.	Vanadium	< D.L.
4.	Beryllium	< D.L.	13.	Silver	< D.L.
5.	Cobalt	< D.L.			
6.	Copper	< D.L.			
7.	Iron	[4.48[c]]			
8.	Nickel	< D.L.			
9.	Manganese	< D.L.			

TASK 2 (Elements to be Identified and Measured)

		ug/l or mg/kg (circle one)			ug/l or mg/kg (circle one)
1.	Arsenic	< D.L.	5.	Mercury	< D.L.
2.	Antimony	< D.L.	6.	Tin	0.5
3.	Selenium	< D.L.	7.	Cadmium	~~[illegible]~~ < D.L.
4.	Thallium	< D.L.	8.	Lead	< D.L.

TASK 3 (Elements to be Identified and Measured)

		ug/l or mg/kg (circle one)
1.	Ammonia	NR
2.	Cyanide	< D.L.
3.	Sulfide	NR

COMMENTS: Total metal analysis

AR100114

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Sample No.
MC0630

INORGANICS ANALYSIS DATA SHEET

LAB NAME Univ. of Washington LRE CASE NO. 1761
LAB SAMPLE ID. NO. _____ QC REPORT NO. 26

TASK 1 (Elements to be Identified and Measured)

		ug/l or mg/kg (circle one)			ug/l or mg/kg (circle one)
1.	Aluminum	1626	10.	Zinc	[5.43]
2.	Chromium	56.6	11.	Boron	2170
3.	Barium	1340	12.	Vanadium	[17.2]
4.	Beryllium	129	13.	Silver	<D.L.
5.	Cobalt	[20.9]			
6.	Copper	38 BM [43.2]			
7.	Iron	70600			
8.	Nickel	117			
9.	Manganese	917			

TASK 2 (Elements to be Identified and Measured)

		ug/l or mg/kg (circle one)			ug/l or mg/kg (circle one)
1.	Arsenic	57	5.	Mercury	<D.L.
2.	Antimony	<D.L.	6.	Tin	5[illegible]
3.	Selenium	<D.L.	7.	Cadmium	2.3
4.	Thallium	<D.L.	8.	Lead	<D.L.

TASK 3 (Elements to be Identified and Measured)

		ug/l or mg/kg (circle one)
1.	Ammonia	NR
2.	Cyanide	<D.L.
3.	Sulfide	NR

COMMENTS: Total metal analysis

AR100115

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Sample No.
MC0632

INORGANICS ANALYSIS DATA SHEET

LAB NAME Univ. of Washington LRE CASE NO. 1761
LAB SAMPLE ID. NO. _____ QC REPORT NO. 28

TASK 1 (Elements to be Identified and Measured)

		ug/l or mg/kg (circle one)			ug/l or mg/kg (circle one)
1.	Aluminum	420000E	10.	Zinc	6700
2.	Chromium	650	11.	Boron	987
3.	Barium	9320	12.	Vanadium	729
4.	Beryllium	168	13.	Silver	50.3
5.	Cobalt	414			
6.	Copper	1380			
7.	Iron	492000			
8.	Nickel	769			
9.	Manganese	73600			

TASK 2 (Elements to be Identified and Measured)

		ug/l or mg/kg (circle one)			ug/l or mg/kg (circle one)
1.	Arsenic	700	5.	Mercury	2.5
2.	Antimony	< D.L.	6.	Tin	≤ D.L.
3.	Selenium	44	7.	Cadmium	48
4.	Thallium	5	8.	Lead	850

TASK 3 (Elements to be Identified and Measured)

		ug/l or mg/kg (circle one)
1.	Ammonia	NR
2.	Cyanide	≤ D.L.
3.	Sulfide	NR

COMMENTS: Total metal analysis

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Sample No.
MC 0633

INORGANICS ANALYSIS DATA SHEET

LAB NAME Univ. of Washington LRE CASE NO. 1761
LAB SAMPLE ID. NO. _____ QC REPORT NO. 26

TASK 1 (Elements to be Identified and Measured)

		ug/l or mg/kg (circle one)			ug/l or mg/kg (circle one)
1.	Aluminum	~~8~~ BW 820	10.	Zinc	15.8 c
2.	Chromium	<D.L.	11.	Boron	11.9 c <D.L. c
3.	Barium	[55.7]	12.	Vanadium	<D.L.
4.	Beryllium	<D.L.	13.	Silver	<D.L.
5.	Cobalt	<D.L.			
6.	Copper	BW ~~8~~. <D.L. c			
7.	Iron	2940 c			
8.	Nickel	<D.L.			
9.	Manganese	757			

TASK 2 (Elements to be Identified and Measured)

		ug/l or mg/kg (circle one)			ug/l or mg/kg (circle one)
1.	Arsenic	16	5.	Mercury	0.1
2.	Antimony	<D.L.	6.	Tin	<D.L.
3.	Selenium	<D.L.	7.	Cadmium	<D.L.
4.	Thallium	<D.L.	8.	Lead	<D.L. ~~<D.L.~~, ~~<D.L.~~,

TASK 3 (Elements to be Identified and Measured)

		ug/l or mg/kg (circle one)
1.	Ammonia	NR
2.	Cyanide	<D.L.
3.	Sulfide	NR

COMMENTS: Total metal analysis

AR100117

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Sample No.
MC 0634

INORGANICS ANALYSIS DATA SHEET

LAB NAME Univ. of Washington LRE CASE NO. 1761
LAB SAMPLE ID. NO. _____ QC REPORT NO. 26

TASK 1 (Elements to be Identified and Measured)

ug/l or mg/kg (circle one)

1.	Aluminum	[41.9 c]	10.	Zinc	21b
2.	Chromium	< D.L.	11.	Boron	28b
3.	Barium	[96.4]	12.	Vanadium	< D.L.
4.	Beryllium	< D.L.	13.	Silver	< D.L.
5.	Cobalt	< D.L.			
6.	Copper	< D.L. c			
7.	Iron	53.1			
8.	Nickel	< D.L.			
9.	Manganese	[2.5]			

TASK 2 (Elements to be Identified and Measured)

ug/l or mg/kg (circle one)

1.	Arsenic	12	5.	Mercury	< D.L.
2.	Antimony	< D.L.	6.	Tin	≤ D.L.
3.	Selenium	≤ D.L.	7.	Cadmium	< D.L.
4.	Thallium	< D.L.	8.	Lead	< D.L.

TASK 3 (Elements to be Identified and Measured)

ug/l or mg/kg (circle one)

1.	Ammonia	NR
2.	Cyanide	< D.L.
3.	Sulfide	NR

COMMENTS: Total metal analysis

AR100118

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ORIGINAL

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703/557-2490 FTS 8-557-2490

Sample No.
MC0635

INORGANICS ANALYSIS DATA SHEET

LAB NAME Univ. of Washington LRE CASE NO. 1761
LAB SAMPLE ID. NO. _____ QC REPORT NO. 26

TASK 1 (Elements to be Identified and Measured)

ug/l or mg/kg (circle one)

1.	Aluminum	[27.9]	10.	Zinc	199
2.	Chromium	<D.L.	11.	Boron	265
3.	Barium	[89.6]	12.	Vanadium	<D.L.
4.	Beryllium	<D.L.	13.	Silver	<D.L.
5.	Cobalt	<D.L.			
6.	Copper	[10]			
7.	Iron	70.9			
8.	Nickel	<D.L.			
9.	Manganese	<D.L.			

TASK 2 (Elements to be Identified and Measured)

ug/l or mg/kg (circle one)

1.	Arsenic	10	5.	Mercury	<D.L.
2.	Antimony	~~<D.L.~~ [7.0]	6.	Tin	15
3.	Selenium	<D.L.	7.	Cadmium	<D.L.
4.	Thallium	<D.L.	8.	Lead	<D.L.

TASK 3 (Elements to be Identified and Measured)

ug/l or mg/kg (circle one)

1.	Ammonia	NR
2.	Cyanide	<D.L.
3.	Sulfide	NR

COMMENTS: Total metal analysis

AR100119

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Sample No.
MC0636

INORGANICS ANALYSIS DATA SHEET

LAB NAME Univ. of Washington LRE CASE NO. 1761
LAB SAMPLE ID. NO. _____ QC REPORT NO. 26

TASK 1 (Elements to be Identified and Measured)

		ug/l or mg/kg (circle one)			ug/l or mg/kg (circle one)
1.	Aluminum	[832]	10.	Zinc	170[c]
2.	Chromium	<D.L.	11.	Boron	312[c]
3.	Barium	[59.2]	12.	Vanadium	<D.L.
4.	Beryllium	<D.L.	13.	Silver	<D.L.
5.	Cobalt	<D.L.			
6.	Copper	<D.L.[c]			
7.	Iron	838			
8.	Nickel	<D.L.			
9.	Manganese	42.9			

TASK 2 (Elements to be Identified and Measured)

		ug/l or mg/kg (circle one)			ug/l or mg/kg (circle one)
1.	Arsenic	[8]	5.	Mercury	<D.L.
2.	Antimony	<D.L.	6.	Tin	<D.L.[c]
3.	Selenium	<D.L.	7.	Cadmium	<D.L.
4.	Thallium	<D.L.	8.	Lead	<D.L.

TASK 3 (Elements to be Identified and Measured)

			ug/l or mg/kg (circle one)
1.	Ammonia	NR	
2.	Cyanide	Not Det.	10
3.	Sulfide	NR	

COMMENTS: Total metal analysis

AR100120

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Sample No.
MC0637

INORGANICS ANALYSIS DATA SHEET

LAB NAME Univ. of Washington LRE CASE NO. 1761
LAB SAMPLE ID. NO. QC REPORT NO. 26

TASK 1 (Elements to be Identified and Measured)

ug/l or mg/kg (circle one)

1.	Aluminum	[34.8c]	10.	Zinc	292c BW <D.L.
2.	Chromium	<D.L.	11.	Boron	~~<D.L.~~ BW 292c
3.	Barium	[71.9]	12.	Vanadium	<D.L.
4.	Beryllium	<D.L.	13.	Silver	<D.L.
5.	Cobalt	<D.L.			
6.	Copper	[11.2c]			
7.	Iron	852			
8.	Nickel	<D.L.			
9.	Manganese	34.3			

TASK 2 (Elements to be Identified and Measured)

ug/l or mg/kg (circle one)

1.	Arsenic	(7)	5.	Mercury	<D.L.
2.	Antimony	<D.L.	6.	Tin	≤D.L.
3.	Selenium	≤D.L.	7.	Cadmium	P1
4.	Thallium	<D.L.	8.	Lead	(3.5)

TASK 3 (Elements to be Identified and Measured)

ug/l or mg/kg (circle one)

1.	Ammonia	NR
2.	Cyanide	10
3.	Sulfide	NR

COMMENTS: Total metal analysis

AR100122

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US ENVIRONMENTAL PROTECTION AGENCY
HWI Sample Management Office
P.O. Box 818 – Alexandria, Virginia 22313
703/557-2090 FTS 8-557-2090

Sample No.
MC 0638

INORGANICS ANALYSIS DATA SHEET

LAB NAME Univ. of Washington LRE CASE NO. 1761
LAB SAMPLE ID. NO. _____ QC REPORT NO. 26

TASK 1 (Elements to be Identified and Measured)

ug/l or mg/kg (circle one)

1.	Aluminum	(13.4 c)	10.	Zinc	157 c
2.	Chromium	< D.L.	11.	Boron	< D.L. c
3.	Barium	< D.L.	12.	Vanadium	< D.L.
4.	Beryllium	< D.L.	13.	Silver	< D.L.
5.	Cobalt	< D.L.			
6.	Copper	< D.L. c			
7.	Iron	58.2			
8.	Nickel	< D.L.			
9.	Manganese	< D.L.			

TASK 2 (Elements to be Identified and Measured)

ug/l or mg/kg (circle one)

1.	Arsenic	< D.L.	5.	Mercury	< D.L.
2.	Antimony	< D.L.	6.	Tin	< D.L.
3.	Selenium	< D.L.	7.	Cadmium	< D.L.
4.	Thallium	< D.L.	8.	Lead	< D.L.

TASK 3 (Elements to be Identified and Measured)

ug/l or mg/kg (circle one)

1.	Ammonia	NR
2.	Cyanide	< D.L.
3.	Sulfide	NR

COMMENTS: Total metal analysis
This sample is pale green in color.

AR100123

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ENVIRONMENTAL PROTECTION AGENCY
Division of Enforcement

REGION 3
Curtis Bldg., 6th & Walnut Sts.
Philadelphia, Pennsylvania 19106

CHAIN OF CUSTODY RECORD

PROJ. NO. PA 296
PROJECT NAME Lower Darby
SAMPLERS (SIGNATURE) Lewis R. [illegible] Mobile Home
STA. NO. | DATE | TIME | COMP. | GRAB | STATION LOCATION | NO. OF CONTAINERS | Fe3+ 100 | Lead Poly-HNO3 | Lead Poly-NaOH | REMARKS: Tape | Grab #

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	Fe3+ 100	Lead Poly-HNO3	Lead Poly-NaOH	REMARKS: Tape	Grab #
MC 0631	[illegible]	[illegible]			[illegible]	1	1			3-16030	3144
MC 0632	[illegible]	[illegible]			[illegible]	1	1			32	3145
MC 0633	[illegible]	[illegible]			[illegible]	1	1			34	3146
MC 0634	[illegible]	[illegible]			[illegible]	1	1			36	3147
MC 0635	[illegible]	[illegible]			[illegible]	1	1			38	3148
MC 0636	[illegible]	[illegible]			[illegible]	1	1			40	3149
MC 0630	[illegible]	[illegible]			[illegible]	2		1	1	3-16104, 5	3150
MC 0632	[illegible]	[illegible]			[illegible]	2		1	1	14, 15	3152
MC 0633	[illegible]	[illegible]			[illegible]	2		1	1	14, 20	3153
MC 0634	[illegible]	[illegible]			[illegible]	2		1	1	24, 25	3154
MC 0635	[illegible]	[illegible]			[illegible]	2		1	1	29, 30	3155
MC 0636	[illegible]	[illegible]			[illegible]	2		1	1	34, 35	3156
MC 0637	[illegible]	[illegible]			[illegible]	2		1	1	34, 40	3157
MC 0638	[illegible]	[illegible]			[illegible]	2		1	1	44, 45	3158

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
AR Lewis Rudolph	3/26	1726			
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks: Shipped via Fed Ex # 147201670	

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

ORIGINAL (Red)

3-10837

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ENVIRONMENTAL PROTECTION AGENCY
Office of Enforcement

REGION 3
Curtis Bldg., 6th & Walnut Sts.
Philadelphia, Pennsylvania 19106

CHAIN OF CUSTODY RECORD

PROJ. NO.: PA 2-10 F3 8304 [illegible]
PROJECT NAME: Lovil Shope
SAMPLERS: (Signature) Loren R Lasky, C. J. DeB, Martin R. Howe

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	8 oz jar	1/2 gallon amber	40 ml VOA				REMARKS Tag	Imag #
C 3144	5/26/83	10:00		✓	[illegible] north [illegible]	1	1						3-16029	MC 0634
C 3145	"	10:15	✓		[illegible]	1	1						31	MC 0625
C 3146	"	2:20			[illegible]	1	1						33	MC 0626
C 3147	"	1:35			[illegible]	1	1						35	MC 0637
C 3148	"	2:40			[illegible]	1	1						37	MC 0628
C 3149	"	11:45			[illegible]	1	1						39	MC 0629
C 3150	"	12:00		✓	[illegible]	4		2	2				3-16101, 2, 3	MC 0630
C 3152	"	1:35		✓	Seepage [illegible]	4		2	2				11, 12, 13	MC 0632
C 3153	"	2:10		✓	Road in south	4		2	2				16, 17, 18	MC 0633
C 3154	"	10:05		✓	Shope home	4		2	2				21, 22, 23	MC 0634
C 3155	"	10:40		✓	Fehman home	4		2	2				26, 27, 28	MC 0635
C 3156	"	1:00		✓	Basto home	4		2	2				31, 32, 33	MC 0636
C 3157	"	12:40		✓	Pustelak home	4		2	2				36, 37, 38	MC 0637
C 3158	"	11:45		✓	Blank	4		2	2				41, 42, 43	MC 0638

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Loren R Lasky	5/26/83 17:30				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks: Shipped via Fed Exp. # 147201666	ORIGINAL (Red)

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

3-19838

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FEDERAL EXPRESS

(pink)

201

FROM (Your Name)

COMPANY CORPORATION

DEPARTMENT/FLOOR NO.

STREET ADDRESS EAGLE SCHOOL RD #916

CITY

STATE

TO (Recipient's Name)

If Held For Pick Up or Saturday Delivery, Recipient's Phone Number

COMPANY

DEPARTMENT/FLOOR NO.

STREET ADDRESS (P.O. BOX NUMBERS ARE NOT DELIVERABLE)

CITY

STATE

AIRBILL NO. 147201666

ZIP

YOUR NOTES/REFERENCE NUMBERS (FIRST 12 CHARACTERS WILL ALSO APPEAR ON INVOICE)

IN TENDERING THIS SHIPMENT SHIPPER AGREES THAT F.E.C. SHALL NOT BE LIABLE FOR SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING FROM CARRIAGE HEREOF. F.E.C. DISCLAIMS ALL WARRANTIES, EXPRESS OR IMPLIED, WITH RESPECT TO THIS SHIPMENT. THIS IS A NON-NEGOTIABLE AIRBILL SUBJECT TO CONDITIONS OF CONTRACT SET FORTH ON REVERSE OF SHIPPER'S COPY. UNLESS YOU DECLARE A HIGHER VALUE, THE LIABILITY OF FEDERAL EXPRESS CORPORATION IS LIMITED TO $100.00. FEDERAL EXPRESS DOES NOT CARRY CARGO LIABILITY INSURANCE.

FEDERAL EXPRESS USE

FREIGHT CHARGES

DECLARED VALUE CHARGE

PAYMENT: Bill Shipper; Bill Recipient's F.E.C. Acct.; Bill 3rd Party F.E.C. Acct.; Bill Credit Card; Cash in Advance

Account Number/Credit Card Number

SERVICES CHECK ONLY ONE BOX

PRIORITY 1 OVERNIGHT LETTER

COURIER PAK

STANDARD AIR

DELIVERY AND SPECIAL HANDLING CHECK SERVICES REQUIRED

HOLD FOR PICK-UP AT FOLLOWING FEDERAL EXPRESS LOCATION SHOWN IN SERVICE GUIDE. RECIPIENT'S PHONE NUMBER IS REQUIRED

SATURDAY SERVICE REQUIRED

RESTRICTED ARTICLES SUBJECT TO ... Regulations for Packaging and Shipping

SAS Signature Security Service

Other special handling

AMOUNTS | WEIGHT | DECLARED VALUE | O/D

TOTAL

OVERNIGHT-DOOR

REGULAR STOP

ON-CALL/PICK UP

F.E.C. LOC.

Federal Express Corporation Employee No.

DATE/TIME For Federal Express Use

AGT/PRO

ADVANCE ORIGIN

AGT/PRO

ADVANCE DESTINATION

OTHER

TOTAL CHARGES

SHIPPER'S COPY

PART #2041730751 FEC-S-0751 0 0/B REVISION DATE 7-82 B PRINTED U.S.A.

FEDERAL EXPRESS

(pink)

201

FROM (Your Name)

COMPANY CORPORATION

STREET ADDRESS EAGLE SCHOOL

CITY

TO (Recipient's Name)

COMPANY

STREET ADDRESS (P.O. BOX NUMBERS ARE NOT DELIVERABLE)

AIRBILL NO. 147201678

YOUR NOTES/REFERENCE NUMBERS (FIRST 12 CHARACTERS WILL ...)

IN TENDERING THIS SHIPMENT SHIPPER AGREES THAT F.E.C. SHALL NOT BE LIABLE FOR SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING FROM ...

PAYMENT: Bill Shipper; Bill Recipient's F.E.C. Acct.; Bill 3rd Party F.E.C. Acct.; Bill Credit Card; Cash in Advance

SERVICES CHECK ONLY ONE BOX

PRIORITY 1 OVERNIGHT LETTER

COURIER PAK

STANDARD AIR

DELIVERY AND SPECIAL HANDLING CHECK SERVICES REQUIRED

HOLD FOR PICK-UP AT FOLLOWING FEDERAL EXPRESS LOCATION SHOWN IN SERVICE GUIDE. RECIPIENT'S PHONE NUMBER IS REQUIRED

SATURDAY SERVICE REQUIRED

RESTRICTED ARTICLES SUBJECT TO ... Regulations for Packaging and Shipping

SAS Signature Security Service

Other special handling

TOTAL

OVERNIGHT-DOOR

REGULAR STOP

ON-CALL/PICK UP

F.E.C. LOC.

Federal Express Corporation Employee No.

DATE/TIME For Federal Express Use

TOTAL CHARGES

SHIPPER'S COPY

PART #2041730751 FEC-S-0751 0 0/B REVISION DATE 7-82 B PRINTED U.S.A.

AR100126

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NUS CORPORATION
992 OLD EAGLE SCHOOL ROAD
SUITE 916
WAYNE, PENNSYLVANIA 19087
(215) 687-9510

On 26 May, 1983, NUS Corp. representative MICHAEL P. CRAMER received permission from BRIAN LEHMAN (site owner/operator), to remove the following materials from his/her property in the following containers: 2 ½ gallon amber containers, 2 40 ml VOA containers, 2 one quart polyethylene containers, and 0 eight-ounce glass jars.

Michael P. Cramer 26 May 83
NUS Corp. Representative Date

Brian Lehman
Site owner/operator Representative Date

LORD - SHAPE
Site Name

TDD Number

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NUS CORPORATION
992 OLD EAGLE SCHOOL ROAD
SUITE 916
WAYNE, PENNSYLVANIA 19087
(215) 687-2510

On 26 MAY, 1983 NUS Corp. representative MICHAEL P. CRAMER received permission from MR. MELVIN SHOPE (site owner/operator), to remove the following materials from his/her property in the following containers: 2 ½ gallon amber containers, 2 40 ml VOA containers, 2 one quart polyethylene containers, and 2 eight-ounce glass jars.

Michael P. Cramer 26 May 1983
NUS Corp. Representative Date

Melvin Shope 26 May 1983
Site Owner/operator/Representative Date

LORD-SHOPE
Site Name

F3-8309-09
TDD Number

AR100128

A Halliburton Company

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NUS CORPORATION
992 OLD EAGLE SCHOOL ROAD
SUITE 916
WAYNE, PENNSYLVANIA 19087
(215) 687-2510

On 26 MAY 83, 198_, NUS Corp. representative MICHAEL P. CRAME received permission from MRS. BARTO (site owner/operator), to remove the following materials from his/her property in the following containers: 2 ½ gallon amber containers, 2 40 ml VOA containers, 2 one quart polyethylene containers, and 0 eight-ounce glass jars.

Michael P. Crame 26 May 83
NUS Corp. Representative Date

Marlene J. Barto
Site owner/operator Representative Date

Site Name

AR100129

TDD Number

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NUS CORPORATION
[illegible]2 OLD EAGLE SCHOOL ROAD
[illegible]ITE 216
[illegible]AYNE, PENNSYLVANIA 19087
215)687-9510

On 26 MAY, 1983, NUS Corp. representative MICHAEL P. CRAMER received permission from MRS. AUDREY PUSTELAK (site owner/operator), to remove the following materials from his/her property in the following containers: 2 ½ gallon amber containers, 2 40 ml VOA containers, 2 one quart polyethylene containers, and 0 eight-ounce glass jars.

Michael P. Cramer — 26 MAY 1983
NUS Corp. Representative — Date

Audrey Pustelak — 5/26/83
Site owner/operator Representative — Date

Site Name

AR100130

TDD Number

A Halliburton Company

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INVENTORY OF WELLS

TDD No. 8304-09
EPA No. PA-290
SITE Lord Thope
DATE 5/26/83 BY M. Cramer (FIT III)

OWNER BLAINE LEHMAN TELEPHONE
ADDRESS 16000 LEXINGTON RD 16417

A. WELL

Type: Dug ✓ Drilled ___
Date of Construction: 80 years ago
Driller: ___
Uses: HOMEWATER (How many people use 2)
Ground Surface Elevation: ___
Diameter of Well: ~3 feet
Casing Material (length): Stone
Depth to Groundwater: ___
Fluctuation of Water Level: ___ WELL DEPTH ~50'

B. PUMP

Type: JET PUMP
Setting: ___
Capacity (GPM): 1/2 horse
Operating Hours Per Day: DAILY Pressure demand

C. WATER QUALITY

Treatment: NO
Odor: NO (Date first noticed)
Taste: NO
Color: NO
Field pH: ___
Most recent date water was tested: March 1983
Who tested water: COUNTY BOARD OF HEALTH
Copy of results

CBH SAYS WATER EXTREMELY HARD

D. SKETCH OF LOCATION AND REMARKS

TAP NEXT TO HOUSE
NEW TAP INSTALLED
AFTER MARCH 83

AR100131

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INVENTORY OF WELLS

TDD No. F3-8309-09
EPA No. PA-290
SITE LORD-SHOPE
DATE 26 May 83 BY Mike CRANEL

OWNER MR. Melvin Shope TELEPHONE 814-774-9704
ADDRESS

A. WELL

Type: Dug X Drilled ___
Date of Construction: 1953
Driller: Mr. SHOPE
Uses: Home well (How many people use 2)
Ground Surface Elevation: ___
Diameter of Well: 2 FEET
Casing Material (length): TILED CLAZED 12 6 feet from bottom then cement
Depth to Groundwater: 22'
Fluctuation of Water Level: ___
well depth 28' supply always good

B. PUMP

Type: ___
Setting: ___
Capacity (GPM): 1 house jet pump
Operating Hours Per Day: DAILY

C. WATER QUALITY

Treatment: NO
Odor: NO (Date first noticed)
Taste: NO
Color: CLEAR
Field pH: ___
Most recent date water was tested: March 1983
Who tested water: ERIE COUNTY HEALTH
Copy of results

D. SKETCH OF LOCATION AND REMARKS

from outside spigot

AR100132

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INVENTORY OF WELLS

TDD No. _____
EPA No. _____
SITE _____
DATE ____ BY _____

OWNER JOE BARTO TELEPHONE 774-9568
ADDRESS 5580 PIPPER RD GIRARD

A. WELL

Type: Dug ___ Drilled ___
Date of Construction: _____
Driller: _____
Uses: HOME USE (How many people use 4)
Ground Surface Elevation: _____
Diameter of Well: _____
Casing Material (length): _____
Depth to Groundwater: _____
Fluctuation of Water Level: _____

B. PUMP

Type: JET
Setting: _____
Capacity (GPM): _____
Operating Hours Per Day: DAILY

C. WATER QUALITY

Treatment: NO
Odor: _____ (Date first noticed)
Taste: _____
Color: RUSTY SOMETIME
Field pH: _____
Most recent date water was tested: MARCH
Who tested water: ERIE CO. HEALTH
Copy of results

D. SKETCH OF LOCATION AND REMARKS

TAP AT REAR
OF HOUSE

AR100133

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ORIGINAL

INVENTORY OF WELLS

TDD No. F3-8304-09
EPA No. PA-293
SITE LORD SHOPE
DATE 26 MAY 1985 BY MPCRAWER

OWNER PUSTELAK MRS. PUSTELAK TELEPHONE 814-774-3121
ADDRESS 10555 RIDGERD

A. WELL

Type: Dug ___ Drilled X
Date of Construction: 1971
Driller: A.L. BURCH
Uses: HOME USE (How many people use 4)
Ground Surface Elevation: ___
Diameter of Well: 8 1/4"
Casing Material (length): 8 1/4"
Depth to Groundwater: 22'
Fluctuation of Water Level: ___

well depth - 22'?

BL-CL-GR 1-3'
BR-GR-CL 3-8'
BR-GR 8-18'
BL-GR 18-22'

B. PUMP

Type: JET
Setting: ___
Capacity (GPM): ___
Operating Hours Per Day: DAILY

7'5" AWL
20 gal/min recovery
W.B. 16

C. WATER QUALITY

Treatment: NO
Odor: NO (Date first noticed)
Taste: NO
Color: CLEAR
Field pH: —
Most recent date water was tested: 1977
Who tested water: ERIE TESTING LAB 833-4790
Copy of results

D. SKETCH OF LOCATION AND REMARKS

SAMPLE TAKEN FROM KITCHEN TAP COLD WATER ONLY

AR100134

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Low Level Water
ORGANICS ANALYSIS DATA SHEET

Sample Number
C-3158

Laboratory Name: NUS Corporation
Case No: 1761
Lab Sample I.D.NO: 13051450
QC Report No:
Multiply Detection Limits by 1 [X] or 10 [ ] (Check box for appropriate factor)

Non-Priority Pollutant Hazardous Substances List Compounds

ACID COMPOUNDS

CAS #		ug/l or ug/kg (circle one)
65-85-0	benzoic acid	100 u
95-48-7	2-methylphenol	5 u
108-39-4	4-methylphenol	10 u
95-95-4	2,4,5-trichlorophenol	100 u

BASE/NEUTRAL COMPOUNDS

62-53-3	aniline	5 u
100-51-6	benzyl alcohol	20 u
106-47-8	4-chloroaniline	50 u
132-64-9	dibenzofuran	10 u
91-57-6	2-methylnaphthalene	20 u
88-74-4	2-nitroaniline	100 u
99-09-2	3-nitroaniline	100 u
100-01-6	4-nitroaniline	100 u

VOLATILES

CAS #		ug/l or ug/k (circle one)
67-64-1	acetone	5 u
78-93-3	2-butanone	5 u
75-15-0	carbondisulfide	1 u
519-78-6	2-hexanone	5 u
108-10-1	4-methyl-2-pentanone	5 u
100-42-5	styrene	5 u
108-05-4	vinyl acetate	5 u
95-47-6	o-xylene	5 u
	4-methyl-2-pentanol	ND
	tetrahydrofuran	ND

ND=Not detected

AR100135

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ORGANICS ANALYSIS DATA SHEET - Page 3

Sample Number
C-3144

Laboratory Name: NUS

QC Report No:

A. Surrogate Spike Results

Compound Name	Fraction	Amount ,ug	Surrogates Only	
			Spike Added ug	Perce Recov
D_6 - Benzene	VOA	0.576	0.50	115
D_8 - Toluene	VOA	0.511	0.50	102
D_5 - Nitrobenzene	BN	10	50	20
2 - Fluorobiphenyl	BN	34	50	68
D_5 - Phenol	Acid	20	50	40
2 - Fluorophenol	Acid	20	50	40

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining results are encourag Definition of such flags must be explicit however.

Value - If the result is a value greater than or equal to the detection limit, report the value.

U - Indicates compound was analyzed for but not detected. Report the minimum detection limit value with the U, e.g., 10U. The footnote should read: U - Compound was analyzed for but not detected. The number is the minimum detection limit.

K - If the mass spectral data indicate the presence of a compound that meets the identification criteria but the quantitative result is less than the specified detection limit but greater than zero, report the detection limit as K, e.g., 10K. The footnote should read: K - Actual value, within the limitations of this method, is less than the value given.

FS - This flag applies to analysis performed by Fused Silica Capillary Column.

J - Indicates an estimated value which is used when estimati a concentration for tentatively identified compounds; e.g. 12003. The footnote should read: J - Estimated value.

Other - Other specific flags and footnotes may be required properly define the results. If used, they must be fu. described in a page attached to the data summary report.

** - This flag applies to pesticides parameters where the iden fication has been performed using two column confirmati (as specified in Method 608) but the level is too low f. verification of the compound by mass spectrometry.

CX - This flag is used to indicate those compounds which we concentrated by a factor of 10 times.

AR100136

Form I (continued)

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ORGANICS ANALYSIS DATA SHEET - Page 4 -

Sample Number
C-3144

Laboratory Name: NUS Case No: 1761

QC Report No:

B. Tentatively Identified Compounds

	CAS #	Compound Name	Fraction	Scan No. or Retention Time	% Maximum Score Attained Mass Matching Routine: (Specify: FT)	Estimated Concentration (ug/L or ug/kg)
1.	79-43-6	Aceticacid, Dichloro-	VOA	293	71	100 J
2.	106-42-3	Benzene, 1, 4-Dimethyl-	VOA	643	96	20000 J
3.						
4.						
5.						
6.						
7.						
8.						
9.						
10.						
11.						
12.						
13.						
14.						
15.						
16.						
17.						
18.						
19.						
20.						
21.						
22.						
23.						
24.						
25.						
26.						
27.						
28.						
29.						
30.						

4/83

AR100137

Form I (continued)

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P.O. Box 818, Alexandria, Virginia 22313 - 703/557-2490

ORIGINAL

ORGANICS ANALYSIS DATA SHEET
Low Level Soil

Laboratory Name: NUS Case No: 1761
Lab Sample I.D. No: 13051438 QC Report No:

Multiply Detection Limits by 1 ☒ or 10 ☐ (Check Box for Appropriate Factor)
1.17-dry wieght correction factor

ACID COMPOUNDS

PP #	CAS #		ug/kg
(21A)	88-06-2	2,4,6-trichlorophenol	200 u
(22A)	59-50-7	p-chloro-m-cresol	200 u
(24A)	95-57-8	2-chlorophenol	200 u
(31A)	120-83-2	2,4-dichlorophenol	200 u
(34A)	105-67-9	2,4-dimethylphenol	200 u
(57A)	88-75-5	2-nitrophenol	400 u
(58A)	100-02-7	4-nitrophenol	1000 u
(59A)	51-28-5	2,4-dinitrophenol	1000 u
(60A)	534-52-1	4,6-dinitro-2-methylphenol	400 u
(64A)	87-86-5	pentachlorophenol	200 u
(65A)	108-95-2	phenol	200 u

BASE/NEUTRAL COMPOUNDS

PP #	CAS #		ug/kg
(1B)	83-32-9	acenaphthene	200 u
(5B)	92-87-5	benzidine	800 u
(8B)	120-82-1	1,2,4-trichlorobenzene	200 u
(9B)	118-74-1	hexachlorobenzene	200 u
(12B)	67-72-1	hexachloroethane	200 u
(18B)	111-44-4	bis(2-chloroethyl)ether	200 u
(20B)	91-58-7	2-chloronaphthalene	200 u
(25B)	95-50-1	1,2-dichlorobenzene	200 u
(26B)	541-73-1	1,3-dichlorobenzene	200 u
(27B)	106-46-7	1,4-dichlorobenzene	200 u
(28B)	91-94-1	3,3'-dichlorobenzidine	400 u
(35B)	121-14-2	2,4-dinitrotoluene	400 u
(36B)	606-20-2	2,6-dinitrotoluene	400 u
(37B)	122-66-7	1,2-diphenylhydrazine	400 u
(39B)	206-44-0	fluoranthene	200 u
(40B)	7005-72-3	4-chlorophenyl phenyl ether	200 u
(41B)	101-55-3	4-bromophenyl phenyl ether	200 u
(42B)	39638-32-9	bis (2-chloroisopropyl) ether	400 u
(43B)	111-91-1	bis (2-chloroethoxy) methane	400 u
(52B)	87-68-3	hexachlorobutadiene	200 u
(53B)	77-47-4	hexachlorocyclopentadiene	200 u
(54B)	78-59-1	isophorone	200 u
(55B)	91-20-3	naphthalene	200 u
(56B)	98-95-3	nitrobenzene	200 u
(62B)	86-30-6	N-nitrosodiphenylamine	200 u
(63B)	621-64-7	N-nitrosodipropylamine	200 u
(66B)	117-81-7	bis (2-ethylhexyl) phthalate	200 u
(67B)	85-68-7	benzyl butyl phthalate	200 u
(68B)	84-74-2	di-n-butyl phthalate	200 u
(69B)	117-84-0	di-n-octyl phthalate	200 u
(70B)	84-66-2	diethyl phthalate	200 u
(71B)	131-11-3	dimethyl phthalate	200 u
(72B)	56-55-3	benzo(a)anthracene	200 u
(73B)	50-32-8	benzo(a)pyrene	400 u
(74B)	205-99-2	benzo(b)fluoranthene	400 u
(75B)	207-08-9	benzo(k)fluoranthene	400 u
(76B)	218-01-9	chrysene	400 u
(77B)	208-96-8	acenaphthylene	200 u
(78B)	120-12-7	anthracene	200 u
(79B)	191-24-2	benzo(ghi)perylene	400 u
(80B)	86-73-7	fluorene	200 u
(81B)	85-01-8	phenanthrene	200 u
(82B)	53-70-3	dibenzo(a,h)anthracene	400 u
(83B)	193-39-5	indeno(1,2,3-cd)pyrene	400 u
(84B)	129-00-0	pyrene	200 u

VOLATILES

PP #	CAS #		ug/kg
(2V)	107-02-8	acrolein	100 u
(3V)	107-13-1	acrylonitrile	100 u
(4V)	71-43-2	benzene	5 u
(5V)	56-23-5	carbon tetrachloride	5 u
(7V)	108-90-7	chlorobenzene	5 u
(10V)	107-06-2	1,2-dichloroethane	1 u
(11V)	71-55-6	1,1,1-trichloroethane	5 u
(13V)	75-34-3	1,1-dichloroethane	5 u
(14V)	79-00-5	1,1,2-trichloroethane	5 u
(15V)	79-34-5	1,1,2,2-tetrachloroethane	10 u
(16V)	75-00-3	chloroethane	10 u
(19V)	110-75-8	2-chloroethylvinyl ether	10 u
(23V)	67-66-3	chloroform	5 u
(29V)	75-35-4	1,1-dichloroethene	5 u
(30V)	156-60-5	trans-1,2-dichloroethene	21
(32V)	78-87-5	1,2-dichloropropane	10 u
(33V)	10061-02-6	trans-1,3-dichloropropene	5 u
	10061-01-05	cis-1,3-dichloropropene	5 u
(38V)	100-41-4	ethylbenzene	5 k
(44V)	75-09-2	methylene chloride	ND(B)
(45V)	74-87-3	chloromethane	10 u
(46V)	74-83-9	bromomethane	10 u
(47V)	75-25-2	bromoform	10 u
(48V)	75-27-4	bromodichloromethane	5 u
(49V)	75-69-4	fluorotrichloromethane	NA
(50V)	75-71-8	dichlorodifluoromethane	NA
(51V)	124-48-1	chlorodibromomethane	5 u
(85V)	127-18-4	tetrachloroethene	430
(86V)	108-88-3	toluene	5 k
(87V)	79-01-6	trichloroethene	84
(88V)	75-01-4	vinyl chloride	10 u

AR100138

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Low Level Soil
ORGANICS ANALYSIS DATA SHEET

Sample Number
CM3146

Laboratory Name: NUS Corporation Case No: 1761

Lab Sample I.D.NO: 13051438 QC Report No:

Multiply Detection Limits by 1 [x] or 10 [ ] (Check box for appropriate factor)
1.17-dry wieght correction factor

Non-Priority Pollutant Hazardous Substances List Compounds

ACID COMPOUNDS

CAS #		ug/l or ug/kg (circle one)
65-85-0	benzoic acid	2000 u
95-48-7	2-methylphenol	100 u
108-39-4	4-methylphenol	100 u
95-95-4	2,4,5-trichlorophenol	2000 u

BASE/NEUTRAL COMPOUNDS

CAS #		ug/l or ug/kg (circle one)
62-53-3	aniline	100 u
100-51-6	benzyl alcohol	400 u
106-47-8	4-chloroaniline	1000 u
132-64-9	dibenzofuran	200 u
91-57-6	2-methylnephthalene	400 u
88-74-4	2-nitroaniline	2000 u
99-09-2	3-nitroaniline	2000 u
100-01-6	4-nitroaniline	2000 u

VOLATILES

CAS #		ug/l or ug/kg (circle one)
67-64-1	acetone	5 u
78-93-3	2-butanone	5 u
75-15-0	carbondisulfide	1 u
519-78-6	2-hexanone	5 u
108-10-1	4-methyl-2-pentanone	77
100-42-5	styrene	5 u
108-05-4	vinyl acetate	5 u
95-47-6	o-xylene	11
	4-methyl-2-pentanol	50J*
	tetrahydrofuran	7J*

* Amount was estimated by using the response factor two days ago.

AR100139

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Low Level Soil

C-3145

Laboratory Name: NUS Corporation

Case No: 1761

Lab Sample I.D.No: 13060582

QC Report No:

Multiply Detection Limits by 1 ☐ or ~~10~~ ☒ (Check box for appropriate factor)

1.17=Dry weight correction factor

PESTICIDES

PP #	CAS #		ug/l or ug/kg (circle one)	
(89P)	309-00-2	aldrin	0.1	u
(90P)	60-57-1	dieldrin	0.1	u
(91P)	57-74-9	chlordane	1	u
(92P)	50-29-3	4,4'-DDT	0.2	u
(93P)	72-55-9	4,4'-DDE	0.1	u
(94P)	72-54-8	4,4'-DDD	0.2	u
(95P)	115-29-7	α-endosulfan	0.1	u
(96P)	115-29-7	β-endosulfan	0.1	u
(97P)	1031-07-8	endosulfan sulfate	0.2	u
(98P)	72-20-8	endrin	0.1	u
(99P)	7421-93-4	endrin aldehyde	0.2	u
(100P)	76-44-8	heptachlor	0.1	u
(101P)	1024-57-3	heptachlor epoxide	0.1	u
(102P)	319-84-6	α-BHC	0.1	u

PESTICIDES

PP #	CAS #		ug/l or ug/kg (circle one)	
(103P)	319-85-7	β-BHC	0.1	u
(104P)	319-86-8	δ-BHC	0.1	u
(105P)	58-89-9	γ-BHC (lindane)	0.1	u
(106P)	53469-21-9	PCB-1242	1	u
(107P)	11097-69-1	PCB-1254	2	u
(108P)	11104-28-2	PCB-1221	2	u
(109P)	11141-16-5	PCB-1232	2	u
(110P)	12672-29-6	PCB-1248	2	u
(111P)	11096-82-5	PCB-1260	4	u
(112P)	12674-11-2	PCB-1016	1	u
(113P)	8001-35-2	toxaphene	1	u

DIOXINS

(129B)	1746-01-6	2,3,7,8-tetrachlorodibenzo-p-dioxin	0.1	u

Surrogate Spike Results

Compound Name	Concentration (ug/l) or ✓amount (ug)	Spike Added ug/l or ug	Percent Recovery
Dibutyl Chlorendate, Pesticide	3.1	5.0	62

AR100140

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ORGANICS ANALYSIS DATA SHEET - Page 3

Sample C-31

Laboratory Name: NUS

QC Report No:

A. Surrogate Spike Results

Compound Name	Fraction	Amount ug	Surrogates Only	
			Spike Added ug	Perc Reco
D_6 - Benzene	VOA	0.44	0.50	8E
D_8 - Toluene	VOA	0.38	0.50	7E
D_5 - Nitrobenzene	BN	29	50	5E
2 - Fluorobiphenyl	BN	38	50	76
D_5 - Phenol	Acid	20	50	4C
2 - Fluorophenol	Acid	19	50	3E

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining results are encoura Definition of such flags must be explicit however.

Value - If the result is a value greater than or equal to the detection limit, report the value.

U - Indicates compound was analyzed for but not detected. Report the minimum detection limit value with the U, e.g., 10U. The footnote should read: U - Compound was analyzed for but not detected. The number is the minimum detection limit.

K - If the mass spectral data indicate the presence of a compound that meets the identification criteria but the quantitative result is less than the specified detection limit but greater than zero, report the detection limit as K, e.g., 10K. The footnote should read: K - Actual value, within the limitations of this method, is less than the value given.

FS - This flag applies to analysis performed by Fused Silica Capillary Column.

J - Indicates an estimated value which is used when estima a concentration for tentatively identified compounds; 12000J. The footnote should read: J - Estimated value.

Other - Other specific flags and footnotes may be require properly define the results. If used, they must be described in a page attached to the data summary report

** - This flag applies to pesticides parameters where the ide fication has been performed using two column confirma (as specified in Method 608) but the level is too low verification of the compound by mass spectrometry.

CX - This flag is used to indicate those compounds which concentrated by a factor of 10 times.

AR100141

Form I (continued)

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Sample Number
C-3145

ORGANICS ANALYSIS DATA SHEET - Page 4

Laboratory Name: NUS Corporation

QC Report No:

Case No: 1761

B. Tentatively Identified Compounds

	CAS #	Compound Name	Fraction	Scan No. or Retention Time	% Maximum Score Attained Mass Matching Routine (Specify: FIT)	Estimated Concentration ug
1.	106-42-3	Benzene, p-and m-xylenes	VOA	646	96	600
2.	108-38-3					
3.						
4.						
5.						
6.						
7.						
8.						
9.						
10.						
11.						
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30.						

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P.O. Box 818, Alexandria, Virginia 22313 - 703/557-2490

Sample Number C-3146

ORGANICS ANALYSIS DATA SHEET
Low Level Soil

Laboratory Name: NUS Case No: 1761

Lab Sample I.D. No: 13051439 QC Report No:

Multiply Detection Limits by 1 ☒ or 10 ☐ (Check Box for Appropriate Factor)

1.18-dry wieght correction factor

ACID COMPOUNDS

PP #	CAS #		ug/kg
(21A)	88-06-2	2,4,6-trichlorophenol	200 u
(22A)	59-50-7	p-chloro-m-cresol	200 u
(24A)	95-57-8	2-chlorophenol	200 u
(31A)	120-83-2	2,4-dichlorophenol	200 u
(34A)	105-67-9	2,4-dimethylphenol	200 u
(57A)	88-75-5	2-nitrophenol	400 u
(58A)	100-02-7	4-nitrophenol	1000 u
(59A)	51-28-5	2,4-dinitrophenol	1000 u
(60A)	534-52-1	4,6-dinitro-2-methylphenol	400 u
(64A)	87-86-5	pentachlorophenol	200 u
(65A)	108-95-2	phenol	200 u

BASE/NEUTRAL COMPOUNDS

PP #	CAS #		ug/kg
(1B)	83-32-9	acenaphthene	200 u
(5B)	92-87-5	benzidine	800 u
(8B)	120-82-1	1,2,4-trichlorobenzene	200 u
(9B)	118-74-1	hexachlorobenzene	200 u
(12B)	67-72-1	hexachloroethane	200 u
(18B)	111-44-4	bis(2-chloroethyl)ether	200 u
(20B)	91-58-7	2-chloronaphthalene	200 u
(25B)	95-50-1	1,2-dichlorobenzene	200 u
(26B)	541-73-1	1,3-dichlorobenzene	200 u
(27B)	106-46-7	1,4-dichlorobenzene	200 u
(28B)	91-94-1	3,3'-dichlorobenzidine	400 u
(35B)	121-14-2	2,4-dinitrotoluene	400 u
(36B)	606-20-2	2,6-dinitrotoluene	400 u
(37B)	122-66-7	1,2-diphenylhydrazine	400 u
(39B)	206-44-0	fluoranthene	200 u
(40B)	7005-72-3	4-chlorophenyl phenyl ether	200 u
(41B)	101-55-3	4-bromophenyl phenyl ether	200 u
(42B)	39638-32-9	bis (2-chloroisopropyl) ether	400 u
(43B)	111-91-1	bis (2-chloroethoxy) methane	400 u
(52B)	87-68-3	hexachlorobutadiene	200 u
(53B)	77-47-4	hexachlorocyclopentadiene	200 u
(54B)	78-59-1	isophorone	200 u
(55B)	91-20-3	naphthalene	200 u
(56B)	98-95-3	nitrobenzene	200 u
(62B)	86-30-6	N-nitrosodiphenylamine	200 u
(63B)	621-64-7	N-nitrosodipropylamine	200 u
(66B)	117-81-7	bis (2-ethylhexyl) phthalate	200 u
(67B)	85-68-7	benzyl butyl phthalate	200 u
(68B)	84-74-2	di-n-butyl phthalate	200 u
(69B)	117-84-0	di-n-octyl phthalate	200 u
(70B)	84-66-2	diethyl phthalate	200 u
(71B)	131-11-3	dimethyl phthalate	200 u
(72B)	56-55-3	benzo(a)anthracene	200 u

PP #	CAS #		ug/kg
(73B)	50-32-8	benzo(a)pyrene	400
(74B)	205-99-2	benzo(b)fluoranthene	400
(75B)	207-08-9	benzo(k)fluoranthene	400
(76B)	218-01-9	chrysene	400
(77B)	208-96-8	acenaphthylene	200
(78B)	120-12-7	anthracene	200
(79B)	191-24-2	benzo(ghi)perylene	400
(80B)	86-73-7	fluorene	200
(81B)	85-01-8	phenanthrene	200
(82B)	53-70-3	dibenzo(a,h)anthracene	400
(83B)	193-39-5	indeno(1,2,3-cd)pyrene	400
(84B)	129-00-0	pyrene	200

VOLATILES

PP #	CAS #		ug/kg
(2V)	107-02-8	acrolein	100
(3V)	107-13-1	acrylonitrile	100
(4V)	71-43-2	benzene	5
(6V)	56-23-5	carbon tetrachloride	5
(7V)	108-90-7	chlorobenzene	5
(10V)	107-06-2	1,2-dichloroethane	5
(11V)	71-55-6	1,1,1-trichloroethane	5
(13V)	75-34-3	1,1-dichloroethane	5
(14V)	79-00-5	1,1,2-trichloroethane	5
(15V)	79-34-5	1,1,2,2-tetrachloroethane	10
(16V)	75-00-3	chloroethane	10
(19V)	110-75-8	2-chloroethylvinyl ether	10
(23V)	67-66-3	chloroform	5
(29V)	75-35-4	1,1-dichloroethene	5
(30V)	156-60-5	trans-1,2-dichloroethene	5
(32V)	78-87-5	1,2-dichloropropane	10
(33V)	10061-02-6	trans-1,3-dichloropropene	5
	10061-01-05	cis-1,3-dichloropropene	5
(38V)	100-41-4	ethylbenzene	25
(44V)	75-09-2	methylene chloride	ND(B)
(45V)	74-87-3	chloromethane	10
(46V)	74-83-9	bromomethane	10
(47V)	75-25-2	bromoform	10
(48V)	75-27-4	bromodichloromethane	5
(49V)	75-69-4	fluorotrichloromethane	NA
(50V)	75-71-8	dichlorodifluoromethane	NA
(51V)	124-48-1	chlorodibromomethane	5
(85V)	127-18-4	tetrachloroethene	5
(86V)	108-88-3	toluene	5
(87V)	79-01-6	trichloroethene	100
(88V)	75-01-4	vinyl chloride	10

AR700143

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Low Level Soil
ORGANICS ANALYSIS DATA SHEET

Sample Number
c-3146

Laboratory Name: NUS Corporation Case No: 1761

Lab Sample I.D.NO: 13051439 QC Report No:

Multiply Detection Limits by 1 [x] or 10 [ ] (Check box for appropriate factor)
1.18-dry wieght correction factor

Non-Priority Pollutant Hazardous Substances List Compounds

ACID COMPOUNDS

CAS #		ug/l or ug/kg (circle one)
65-85-0	benzoic acid	2000 u
95-48-7	2-methylphenol	100 u
108-39-4	4-methylphenol	100 u
95-95-4	2,4,5-trichlorophenol	2000 u

BASE/NEUTRAL COMPOUNDS

62-53-3	aniline	100 u
100-51-6	benzyl alcohol	400 u
106-47-8	4-chloroaniline	1000 u
132-64-9	dibenzofuran	200 u
91-57-6	2-methylnaphthalene	400 u
88-74-4	2-nitroaniline	2000 u
99-09-2	3-nitroaniline	2000 u
100-01-6	4-nitroaniline	2000 u

VOLATILES

CAS #		ug/l or ug/kg (circle one)
67-64-1	acetone	5 u
78-93-3	2-butanone	5 u
75-15-0	carbondisulfide	1 u
519-78-6	2-hexanone	5 u
108-10-1	4-methyl-2-pentanone	23
100-42-5	styrene	5 u
108-05-4	vinyl acetate	5 u
95-47-6	o-xylene	83
	4-methyl-2-pentanol	ND
	tetrahydrofuran	ND

ND=Not detected

AR100144

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Low Level Soil

C-3146

Laboratory Name: NUS Corporation

Case No: 1761

Lab Sample I.D.No: 13060583

QC Report No:

Multiply Detection Limits by 1 [ ] or 10 [X] (Check box for appropriate factor)

1.18-dry weight correction factor

PP #	CAS #	PESTICIDES	ug/l or ug/kg (circle one)	
(89P)	309-00-2	aldrin	0.1	u
(90P)	60-57-1	dieldrin	0.1	u
(91P)	57-74-9	chlordane	1	u
(92P)	50-29-3	4,4'-DDT	0.2	u
(93P)	72-55-9	4,4'-DDE	0.1	u
(94P)	72-54-8	4,4'-DDD	0.2	u
(95P)	115-29-7	α-endosulfan	0.1	u
(96P)	115-29-7	β-endosulfan	0.1	u
(97P)	1031-07-8	endosulfan sulfate	0.2	u
(98P)	72-20-8	endrin	0.1	u
(99P)	7421-93-4	endrin aldehyde	0.2	u
(100P)	76-44-8	heptachlor	0.1	u
(101P)	1024-57-3	heptachlor epoxide	0.1	u
(102P)	319-84-6	α-BHC	0.1	u

PP #	CAS #	PESTICIDES	ug/l or ug/kg (circle one)	
(103P)	319-85-7	β-BHC	0.1	u
(104P)	319-86-8	δ-BHC	0.1	u
(105P)	58-89-9	γ-BHC(lindane)	0.1	u
(106P)	53469-21-9	PCB-1242	1	u
(107P)	11097-69-1	PCB-1254	2	u
(108P)	11104-28-2	PCB-1221	2	u
(109P)	11141-16-5	PCB-1232	2	u
(110P)	12672-29-6	PCB-1248	2	u
(111P)	11096-82-5	PCB-1260	4	u
(112P)	12674-11-2	PCB-1016	1	u
(113P)	8001-35-2	toxaphene	1	u
		DIOXINS		
(129B)	1746-01-6	2,3,7,8-tetrachlorodibenzo-p-dioxin	0.1	u

Surrogate Spike Results

Compound Name	Concentration (ug/l) or ✓amount (ug)	Spike Added ug/l or ug	Percent Recovery
Dibutyl Chlorendate, Pesticide	35	5.0	70

AR100145

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ORGANICS ANALYSIS DATA SHEET - Page 3

Sample Number
C-3146

Laboratory Name: NUS

QC Report No:

A. Surrogate Spike Results

Compound Name	Fraction	Amount ug	Surrogates Only	
			Spike Added ug	Percen Recover
D_6 - Benzene	VOA	0.48	0.5	96
D_8 - Toluene	VOA	0.48	0.5	96
D_5 - Nitrobenzene	BN	27	50	54
2 - Fluorobiphenyl	BN	29	50	58
D_5 - Phenol	Acid	9	50	18
2 - Fluorophenol	Acid	4	50	8

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining results are encourage Definition of such flags must be explicit however.

Value - If the result is a value greater than or equal to the detection limit, report the value.

U - Indicates compound was analyzed for but not detected. Report the minimum detection limit value with the U, e.g., 10U. The footnote should read: U - Compound was analyzed for but not detected. The number is the minimum detection limit.

K - If the mass spectral data indicate the presence of a compound that meets the identification criteria but the quantitative result is less than the specified detection limit but greater than zero, report the detection limit as K, e.g., 10K. The footnote should read: K - Actual value, within the limitations of this method, is less than the value given.

FS - This flag applies to analysis performed by Fused Silica Capillary Column.

J - Indicates an estimated value which is used when estimatif a concentration for tentatively identified compounds; e.g 12000J. The footnote should read: J - Estimated value.

Other - Other specific flags and footnotes may be required properly define the results. If used, they must be ful described in a page attached to the data summary report.

** - This flag applies to pesticides parameters where the ident fication has been performed using two column confirmatic (as specified in Method 608) but the level is too low f verification of the compound by mass spectrometry.

CX - This flag is used to indicate those compounds which wer concentrated by a factor of 10 times.

Form I (continued) AR100146

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Sample Number
C-3146

ORGANICS ANALYSIS DATA SHEET - Page 4 -

Laboratory Name: NUS Corporation Case No: 1761

QC Report No:

B. Tentatively Identified Compounds

	CAS #	Compound Name	Fraction	Scan No. or Retention Time	% Maximum Score Attained Mass Matching Routine: (Specify: FIT)	Estimated Concentration- ug/kg
1.	108-38-3	Banzene, 1, 3-Dimethyl	VOA	650	99	200 J
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P.O. Box 818, Alexandria, Virginia 22313 - 703/557-2490

Sample Number
C-3147

ORGANICS ANALYSIS DATA SHEET
Low Level Soil

Laboratory Name: NUS Case No: 1761
Lab Sample I.D. No: 13061440 QC Report No:

Multiply Detection Limits by 1 [X] or 10 [ ] (Check Box for Appropriate Factor)
1. VOA: x2.04 (dry wieght correction factor)
2. BNA: x2.55 (dry wieght and dilution factor correction)

ACID COMPOUNDS

PP #	CAS #		ug/kg
(21A)	88-06-2	2,4,6-trichlorophenol	200 u
(23A)	59-50-7	p-chloro-m-cresol	200 u
(24A)	95-57-8	2-chlorophenol	200 u
(31A)	120-83-2	2,4-dichlorophenol	200 u
(34A)	105-67-9	2,4-dimethylphenol	200 u
(57A)	88-75-5	2-nitrophenol	400 u
(58A)	100-02-7	4-nitrophenol	1000 u
(59A)	51-28-5	2,4-dinitrophenol	1000 u
(60A)	534-52-1	4,6-dinitro-2-methylphenol	400 u
(64A)	87-86-5	pentachlorophenol	200 u
(65A)	108-95-2	phenol	200 u

BASE/NEUTRAL COMPOUNDS

PP #	CAS #		ug/kg
(1B)	83-32-9	acenaphthene	200 u
(5B)	92-87-5	benzidine	800 u
(8B)	120-82-1	1,2,4-trichlorobenzene	200 u
(9B)	118-74-1	hexachlorobenzene	200 u
(12B)	67-72-1	hexachloroethane	200 u
(18B)	111-44-4	bis(2-chloroethyl)ether	200 u
(20B)	91-58-7	2-chloronaphthalene	200 u
(25B)	95-50-1	1,2-dichlorobenzene	200 u
(26B)	541-73-1	1,3-dichlorobenzene	200 u
(27B)	106-46-7	1,4-dichlorobenzene	200 u
(28B)	91-94-1	3,3'-dichlorobenzidine	400 u
(35B)	121-14-2	2,4-dinitrotoluene	400 u
(36B)	606-20-2	2,6-dinitrotoluene	400 u
(37B)	122-66-7	1,2-diphenylhydrazine	400 u
(39B)	206-44-0	fluoranthene	200 u
(40B)	7005-72-3	4-chlorophenyl phenyl ether	200 u
(41B)	101-55-3	4-bromophenyl phenyl ether	200 u
(42B)	39638-32-9	bis (2-chloroisopropyl) ether	400 u
(43B)	111-91-1	bis (2-chloroethoxy) methane	400 u
(52B)	87-68-3	hexachlorobutadiene	200 u
(53B)	77-47-4	hexachlorocyclopentadiene	200 u
(54B)	78-59-1	isophorone	200 u
(55B)	91-20-3	naphthalene	200 u
(56B)	98-95-3	nitrobenzene	200 u
(62B)	86-30-6	N-nitrosodiphenylamine	200 u
(63B)	621-64-7	N-nitrosodipropylamine	200 u
(66B)	117-81-7	bis (2-ethylhexyl) phthalate	200 u
(67B)	85-68-7	benzyl butyl phthalate	200 u
(68B)	84-74-2	di-n-butyl phthalate	200 u
(69B)	117-84-0	di-n-octyl phthalate	200 u
(70B)	84-66-2	diethyl phthalate	200 u
(71B)	131-11-3	dimethyl phthalate	200 u
(72B)	56-55-3	benzo(a)anthracene	200 u
(73B)	50-32-8	benzo(a)pyrene	400 u
(74B)	205-99-2	benzo(b)fluoranthene	400 u
(75B)	207-08-9	benzo(k)fluoranthene	400 u
(76B)	218-01-9	chrysene	400 u
(77B)	208-96-8	acenaphthylene	200 u
(78B)	120-12-7	anthracene	200 u
(79B)	191-24-2	benzo(ghi)perylene	400 u
(80B)	86-73-7	fluorene	200 u
(81B)	85-01-8	phenanthrene	200 u
(82B)	53-70-3	dibenzo(a,h)anthracene	400 u
(83B)	193-39-5	indeno(1,2,3-cd)pyrene	400 u
(84B)	129-00-0	pyrene	200 u

VOLATILES

PP #	CAS #		ug/kg
(2V)	107-02-8	acrolein	100 u
(3V)	107-13-1	acrylonitrile	100 u
(4V)	71-43-2	benzene	5 u
(6V)	56-23-5	carbon tetrachloride	5 u
(7V)	108-90-7	chlorobenzene	5 u
(10V)	107-06-2	1,2-dichloroethane	1 u
(11V)	71-55-6	1,1,1-trichloroethane	5 u
(13V)	75-34-3	1,1-dichloroethane	5 u
(14V)	79-00-5	1,1,2-trichloroethane	5 u
(15V)	79-34-5	1,1,2,2-tetrachloroethane	10 u
(16V)	75-00-3	chloroethane	10 u
(19V)	110-75-8	2-chloroethylvinyl ether	10 u
(23V)	67-66-3	chloroform	5 u
(29V)	75-35-4	1,1-dichloroethene	5 u
(30V)	156-60-5	trans-1,2-dichloroethene	5 u
(32V)	78-87-5	1,2-dichloropropane	10 u
(33V)	10061-02-6	trans-1,3-dichloropropene	5 u
	10061-01-05	cis-1,3-dichloropropene	5 u
(38V)	100-41-4	ethylbenzene	71
(44V)	75-09-2	methylene chloride	ND(B)
(45V)	74-87-3	chloromethane	10 u
(46V)	74-83-9	bromomethane	10 u
(47V)	75-25-2	bromoform	10 u
(48V)	75-27-4	bromodichloromethane	5 u
(49V)	75-69-4	fluorotrichloromethane	NA
(50V)	75-71-8	dichlorodifluoromethane	NA
(51V)	124-48-1	chlorodibromomethane	5 u
(55V)	127-18-4	tetrachloroethene	17
(56V)	108-88-3	toluene	5 u
(57V)	79-01-6	trichloroethene	5 u
(58V)	75-01-4	vinyl chloride	10 u

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Low Level Soil
ORGANICS ANALYSIS DATA SHEET

Sample Number
c-3147

Laboratory Name: NUS Corporation

Case No: 1761

Lab Sample I.D.NO: 13051440

QC Report No:

Multiply Detection Limits by 1 [x] or 10 [ ] (Check box for appropriate factor)
1. VOA: x2.04 (dry wieght correction factor)
2. BNA: x2.55 (dry wieght and dilution factor correction)

Non-Priority Pollutant Hazardous Substances List Compounds

ACID COMPOUNDS

CAS #		ug/l or ug/kg (circle one)
65-85-0	benzoic acid	2000 u
95-48-7	2-methylphenol	100 u
108-39-4	4-methylphenol	100 u
95-95-4	2,4,5-trichlorophenol	2000 u

BASE/NEUTRAL COMPOUNDS

62-53-3	aniline	100 u
100-51-6	benzyl alcohol	400 u
106-47-8	4-chloroaniline	1000 u
132-64-9	dibenzofuran	200 u
91-57-6	2-methylnaphthalene	400 u
88-74-4	2-nitroaniline	2000 u
99-09-2	3-nitroaniline	2000 u
100-01-6	4-nitroaniline	2000 u

VOLATILES

CAS #		ug/l or ug/kg (circle one)
67-64-1	acetone	22 c
78-93-3	2-butanone	5 u
75-15-0	carbondisulfide	1 u
519-78-6	2-hexanone	5 u
108-10-1	4-methyl-2-pentanone	5 u
100-42-5	styrene	5 u
108-05-4	vinyl acetate	5 u
95-47-6	o-xylene	210
	4-methyl-2-pentanol	ND
	tetrahydrofuran	ND

ND=Not detected

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ORGANICS ANALYSIS DATA SHEET
Low Level Soil

Sample Number
c-3147

Laboratory Name: NUS Corporation Case No: 1761

Lab Sample I.D.No: 13060584 QC Report No:

Multiply Detection Limits by 1 [ ] or ~~10~~ [X] (Check box for appropriate factor)
2.03-dry weight correction factor

PESTICIDES

PP #	CAS #		ug/l or ug/kg (circle one)	
(89P)	309-00-2	aldrin	0.1	u
(90P)	60-57-1	dieldrin	0.1	u
(91P)	57-74-9	chlordane	1	u
(92P)	50-29-3	4,4'-DDT	0.2	u
(93P)	72-55-9	4,4'-DDE	0.1	u
(94P)	72-54-8	4,4'-DDD	0.2	u
(95P)	115-29-7	α-endosulfan	0.1	u
(96P)	115-29-7	β-endosulfan	0.1	u
(97P)	1031-07-8	endosulfan sulfate	0.2	u
(98P)	72-20-8	endrin	0.1	u
(99P)	7421-93-4	endrin aldehyde	0.2	u
(100P)	76-44-8	heptachlor	0.1	u
(101P)	1024-57-3	heptachlor epoxide	0.1	u
(102P)	319-84-6	α-BHC	0.1	u

PESTICIDES

PP #	CAS #		ug/l or ug/kg (circle one)	
(103P)	319-85-7	β-BHC	0.1	u
(104P)	319-86-8	δ-BHC	0.1	u
(105P)	58-89-9	γ-BHC(lindane)	0.23	
(106P)	53469-21-9	PCB-1242	1	u
(107P)	11097-69-1	PCB-1254	2	u
(108P)	11104-28-2	PCB-1221	2	u
(109P)	11141-16-5	PCB-1232	2	u
(110P)	12672-29-6	PCB-1248	2	u
(111P)	11096-82-5	PCB-1260	4	u
(112P)	12674-11-2	PCB-1016	1	u
(113P)	8001-35-2	toxaphene	1	u

DIOXINS

(129B)	1746-01-6	2,3,7,8-tetrachlorodibenzo-p-dioxin	0.1	u

Surrogate Spike Results

Compound Name	Concentration (ug/l) or ✓amount (ug)	Spike Added ug/l or ug	Percent Recovery
Dibutyl Chlorendate, Pesticide	7.0	5.0	140

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ORGANICS ANALYSIS DATA SHEET - Page 3

Sample N[illegible]r
C-314[illegible]

Laboratory Name: NUS

QC Report No: _____

A. Surrogate Spike Results

Compound Name	Fraction	Amount ug	Surrogates Only	
			Spike Added ug	Percent Recove
D_6 - Benzene	VOA	0.59	0.50	118
D_8 - Toluene	VOA	0.76	0.50	152
D_5 - Nitrobenzene	BN	22	50	44
2 - Fluorobiphenyl	BN	33	50	66
D_5 - Phenol	Acid	17	50	34
2 - Fluorophenol	Acid	14	50	28

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining results are encourag
Definition of such flags must be explicit however.

Value - If the result is a value greater than or equal to the detection limit, report the value.

U - Indicates compound was analyzed for but not detected. Report the minimum detection limit value with the U, e.g., 10U. The footnote should read: U - Compound was analyzed for but not detected. The number is the minimum detection limit.

K - If the mass spectral data indicate the presence of a compound that meets the identification criteria but the quantitative result is less than the specified detection limit but greater than zero, report the detection limit as K, e.g., 10K. The footnote should read: K - Actual value, within the limitations of this method, is less than the value given.

FS - This flag applies to analysis performed by Fused Silica Capillary Column.

J - Indicates an estimated value which is used when estimat: a concentration for tentatively identified compounds; e., 12000. The footnote should read: J - Estimated value.

Other - Other specific flags and footnotes may be required properly define the results. If used, they must be ful described in a page attached to the data summary report.

** - This flag applies to pesticides parameters where the ident fication has been performed using two column confirmatic (as specified in Method 608) but the level is too low f verification of the compound by mass spectrometry.

CX - This flag is used to indicate those compounds which wer concentrated by a factor of 10 times.

Form I (continued)

AR100151

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ORGANICS ANALYSIS DATA SHEET - Page 4

Sample Number
C-3147

Laboratory Name: NUS Corporation
QC Report No: 13051440
Case No: 1761

B. Tentatively Identified Compounds

CAS #	Compound Name	Fraction	Scan No. or Retention Time	% Maximum Score Attained Mass Matching Routines (Specify: FIT)	Estimated Concentration ug/k
1.					
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P.O. Box 818, Alexandria, Virginia 22313 - 703/557-2490

Sample number
C-3148

ORGANICS ANALYSIS DATA SHEET
Low Level Soil

Laboratory Name: NUS Case No: 1761
Lab Sample I.D. No: 13051441 QC Report No:

Multiply Detection Limits by 1 [X] or 10 [ ] (Check Box for Appropriate Factor)
1.20-dry wieght correction factor

ACID COMPOUNDS

PP #	CAS #		ug/kg
(21A)	88-06-2	2,4,6-trichlorophenol	200 u
(27A)	59-50-7	p-chloro-m-cresol	200 u
(24A)	95-57-8	2-chlorophenol	200 u
(31A)	120-83-2	2,4-dichlorophenol	200 u
(34A)	105-67-9	2,4-dimethylphenol	200 u
(57A)	88-75-5	2-nitrophenol	400 u
(58A)	100-02-7	4-nitrophenol	1000 u
(59A)	51-28-5	2,4-dinitrophenol	1000 u
(60A)	534-52-1	4,6-dinitro-2-methylphenol	400 u
(64A)	87-86-5	pentachlorophenol	200 u
(65A)	108-95-2	phenol	200 u

BASE/NEUTRAL COMPOUNDS

PP #	CAS #		ug/kg
(1B)	83-32-9	acenaphthene	200 u
(5B)	92-87-5	benzidine	800 u
(8B)	120-82-1	1,2,4-trichlorobenzene	200 u
(9B)	118-74-1	hexachlorobenzene	200 u
(12B)	67-72-1	hexachloroethane	200 u
(18B)	111-44-4	bis(2-chloroethyl)ether	200 u
(20B)	91-58-7	2-chloronaphthalene	200 u
(22B)	95-50-1	1,2-dichlorobenzene	200 u
(23B)	541-73-1	1,3-dichlorobenzene	200 u
(27B)	106-46-7	1,4-dichlorobenzene	200 u
(28B)	91-94-1	3,3'-dichlorobenzidine	400 u
(35B)	121-14-2	2,4-dinitrotoluene	400 u
(36B)	606-20-2	2,6-dinitrotoluene	400 u
(37B)	122-66-7	1,2-diphenylhydrazine	400 u
(39B)	206-44-0	fluoranthene	200 u
(40B)	7005-72-3	4-chlorophenyl phenyl ether	200 u
(41B)	101-55-3	4-bromophenyl phenyl ether	200 u
(42B)	39638-32-9	bis (2-chloroisopropyl) ether	400 u
(43B)	111-91-1	bis (2-chloroethoxy) methane	400 u
(52B)	87-68-3	hexachlorobutadiene	200 u
(53B)	77-47-4	hexachlorocyclopentadiene	200 u
(54B)	78-59-1	isophorone	200 u
(55B)	91-20-3	naphthalene	200 u
(56B)	98-95-3	nitrobenzene	200 u
(62B)	86-30-6	N-nitrosodiphenylamine	200 u
(63B)	621-64-7	N-nitrosodipropylamine	200 u
(66B)	117-81-7	bis (2-ethylhexyl) phthalate	200 u
(67B)	85-68-7	benzyl butyl phthalate	420
(68B)	84-74-2	di-n-butyl phthalate	200 u
(69B)	117-84-0	di-n-octyl phthalate	200 u
(70B)	84-66-2	diethyl phthalate	200 u
(71B)	131-11-3	dimethyl phthalate	200 u
(72B)	56-55-3	benzo(a)anthracene	200 u

PP #	CAS #		ug/kg
(73B)	50-32-8	benzo(a)pyrene	400 u
(74B)	205-99-2	benzo(b)fluoranthene	400 u
(75B)	207-08-9	benzo(k)fluoranthene	400 u
(76B)	218-01-9	chrysene	400 u
(77B)	208-96-8	acenaphthylene	200 u
(78B)	120-12-7	anthracene	200 u
(79B)	191-24-2	benzo(ghi)perylene	400 u
(80B)	86-73-7	fluorene	200 u
(81B)	85-01-8	phenanthrene	200 u
(82B)	53-70-3	dibenzo(a,h)anthracene	400 u
(83B)	193-39-5	indeno(1,2,3-cd)pyrene	400 u
(84B)	129-00-0	pyrene	200 u

VOLATILES

PP #	CAS #		ug/kg
(2V)	107-02-8	acrolein	100 u
(3V)	107-13-1	acrylonitrile	100 u
(4V)	71-43-2	benzene	5 u
(6V)	56-23-5	carbon tetrachloride	5 u
(7V)	108-90-7	chlorobenzene	[illegible]
(10V)	107-06-2	1,2-dichloroethane	[illegible] u
(11V)	71-55-6	1,1,1-trichloroethane	5 u
(13V)	75-34-3	1,1-dichloroethane	5 u
(14V)	79-00-5	1,1,2-trichloroethane	5 u
(15V)	79-34-5	1,1,2,2-tetrachloroethane	10 u
(16V)	75-00-3	chloroethane	10 u
(19V)	110-75-8	2-chloroethylvinyl ether	10 u
(23V)	67-66-3	chloroform	5 u
(29V)	75-35-4	1,1-dichloroethene	5 u
(30V)	156-60-5	trans-1,2-dichloroethene	98
(32V)	78-87-5	1,2-dichloropropane	10 u
(33V)	10061-02-6	trans-1,3-dichloropropene	5 u
	10061-01-05	cis-1,3-dichloropropene	5 u
(38V)	100-41-4	ethylbenzene	5 u
(44V)	75-09-2	methylene chloride	ND(B)
(45V)	74-87-3	chloromethane	10 u
(46V)	74-83-9	bromomethane	10 u
(47V)	75-25-2	bromoform	10 u
(48V)	75-27-4	bromodichloromethane	5 u
(49V)	75-69-4	fluorotrichloromethane	NA
(50V)	75-71-8	dichlorodifluoromethane	NA
(51V)	124-48-1	chlorodibromomethane	[illegible]
(85V)	127-18-4	tetrachloroethene	[illegible]
(86V)	108-88-3	toluene	5
(87V)	79-01-6	trichloroethene	5
(88V)	75-01-4	vinyl chloride	59

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Low Level Soil
ORGANICS ANALYSIS DATA SHEET

Sample Number
e-3148

Laboratory Name: NUS Corporation Case No: 1761

Lab Sample I.D.NO: 13051441 QC Report No:

Multiply Detection Limits by 1 [x] or 10 [ ] (Check box for appropriate factor)
1.20-dry wieght correction factor

Non-Priority Pollutant Hazardous Substances List Compounds

ACID COMPOUNDS

CAS #		ug/l or ug/kg (circle one)
65-85-0	benzoic acid	2000 u
95-48-7	2-methylphenol	100 u
108-39-4	4-methylphenol	100 u
95-95-4	2,4,5-trichlorophenol	2000 u

BASE/NEUTRAL COMPOUNDS

CAS #		ug/l or ug/kg (circle one)
62-53-3	aniline	100 u
100-51-6	benzyl alcohol	400 u
106-47-8	4-chloroaniline	1000 u
132-64-9	dibenzofuran	200 u
91-57-6	2-methylnaphthalene	400 u
88-74-4	2-nitroaniline	2000 u
99-09-2	3-nitroaniline	2000 u
100-01-6	4-nitroaniline	2000 u

VOLATILES

CAS #		ug/l or ug/kg (circle one)
67-64-1	acetone	5 u
78-93-3	2-butanone	5 u
75-15-0	carbondisulfide	1 u
519-78-6	2-hexanone	5 u
108-10-1	4-methyl-2-pentanone	5 u
100-42-5	styrene	5 u
108-05-4	vinyl acetate	5 u
95-47-6	o-xylene	5 u
	4-methyl-2-pentanol	ND
	tetrahydrofuran	ND

ND=Not detected

AR100154

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ORGANICS ANALYSIS DATA SHEET
Low Level Soil

Sample Number
c-3148

Laboratory Name: NUS Corporation Case No: 1761

Lab Sample I.D.No: 13060585 QC Report No:

Multiply Detection Limits by 1 [ ] or 20 [X] (Check box for appropriate factor)

1.20-dry wieght correction factor

PESTICIDES

PP #	CAS #		ug/l or ug/kg (circle one)	
(89P)	309-00-2	aldrin	0.1	u
(90P)	60-57-1	dieldrin	0.1	u
(91P)	57-74-9	chlordane	1	u
(92P)	50-29-3	4,4'-DDT	0.2	u
(93P)	72-55-9	4,4'-DDE	0.1	u
(94P)	72-54-8	4,4'-DDD	0.2	u
(95P)	115-29-7	α-endosulfan	0.1	u
(96P)	115-29-7	β-endosulfan	0.1	u
(97P)	1031-07-8	endosulfan sulfate	0.2	u
(98P)	72-20-8	endrin	0.1	u
(99P)	7421-93-4	endrin aldehyde	0.2	u
(100P)	76-44-8	heptachlor	0.1	u
(101P)	1024-57-3	heptachlor epoxide	0.1	u
(102P)	319-84-6	α-BHC	0.1	u

PESTICIDES

PP #	CAS #		ug/l or ug/kg (circle one)	
(103P)	319-85-7	β-BHC	0.1	u
(104P)	319-86-8	δ-BHC	0.1	u
(105P)	58-89-9	γ-BHC(lindane)	0.1	u
(106P)	53469-21-9	PCB-1242	1	u
(107P)	11097-69-1	PCB-1254	2.2	
(108P)	11104-28-2	PCB-1221	2	u
(109P)	11141-16-5	PCB-1232	2	u
(110P)	12672-29-6	PCB-1248	2	u
(111P)	11096-82-5	PCB-1260	4	u
(112P)	12674-11-2	PCB-1016	1	u
(113P)	8001-35-2	toxaphene	1	u

DIOXINS

(129B)	1746-01-6	2,3,7,8-tetrachlorodibenzo-p-dioxin	0.1	u

Surrogate Spike Results

Compound Name	Concentration (ug/l) or ✓amount (ug)	Spike Added ug/l or ug	Percent Recovery
Dibutyl Chlorendate, Pesticide	7.2	5.0	144

AR100155

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ORGANICS ANALYSIS DATA SHEET - Page 3

Sample Number
c-3148

Laboratory Name: NUS

QC Report No:

A. Surrogate Spike Results

Compound Name	Fraction	amount ug	Surrogates Only	
			Spike Added ug	Percent Recover
D_6 - Benzene	VOA	0.50	0.50	100
D_8 - Toluene	VOA	0.60	0.50	120
D_5 - Nitrobenzene	BN	29	50	58
2 - Fluorobiphenyl	BN	39	50	78
D_5 - Phenol	Acid	17	50	34
2 - Fluorophenol	Acid	19	50	38

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining results are encourage Definition of such flags must be explicit however.

Value - If the result is a value greater than or equal to the detection limit, report the value.

U - Indicates compound was analyzed for but not detected. Report the minimum detection limit value with the U, e.g., 10U. The footnote should read: U - Compound was analyzed for but not detected. The number is the minimum detection limit.

K - If the mass spectral data indicate the presence of a compound that meets the identification criteria but the quantitative result is less than the specified detection limit but greater than zero, report the detection limit as K, e.g., 10K. The footnote should read: K - Actual value, within the limitations of this method, is less than the value given.

FS - This flag applies to analysis performed by Fused Silica Capillary Column.

J - Indicates an estimated value which is used when estimatir a concentration for tentatively identified compounds; e.g 12003. The footnote should read: J - Estimated value.

Other - Other specific flags and footnotes may be required : properly define the results. If used, they must be ful described in a page attached to the data summary report.

** - This flag applies to pesticides parameters where the ident fication has been performed using two column confirmatic (as specified in Method 608) but the level is too low fc verification of the compound by mass spectrometry.

CX - This flag is used to indicate those compounds which wer concentrated by a factor of 10 times.

AR100156

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Sample Number
C-3148

ORGANICS ANALYSIS DATA SHEET - Page 4

Laboratory Name: NUS Corporation Case No: 1761

QC Report No:

B. Tentatively Identified Compounds

	CAS #	Compound Name	Fraction	Scan No. or Retention Time	% Maximum Score Attained Mass Matching Routine: (Specify: FIT)	Estimated Concentration ug/kg
1.						
2.						
3.						
4.						
5.						
6.						
7.						
8.						
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30.						

4/82

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P.O. Box 818, Alexandria, Virginia 22313 - 703/557-2490

C-3149

Field Blank (water)

ORGANICS ANALYSIS DATA SHEET
Low Level Soil

Laboratory Name: NUS Case No: 1761

Lab Sample I.D. No: 13051442 QC Report No:

Multiply Detection Limits by 1 [X] or 10 [ ] (Check Box for Appropriate Factor)

ACID COMPOUNDS

PP #	CAS #		ug/kg
(21A)	88-06-2	2,4,6-trichlorophenol	200 u
(22A)	59-50-7	p-chloro-m-cresol	200 u
(24A)	95-57-8	2-chlorophenol	200 u
(31A)	120-83-2	2,4-dichlorophenol	200 u
(34A)	105-67-9	2,4-dimethylphenol	200 u
(57A)	88-75-5	2-nitrophenol	400 u
(58A)	100-02-7	4-nitrophenol	1000 u
(59A)	51-28-5	2,4-dinitrophenol	1000 u
(60A)	534-52-1	4,6-dinitro-2-methylphenol	400 u
(64A)	87-86-5	pentachlorophenol	200 u
(65A)	108-95-2	phenol	200 u

PP #	CAS #		ug/kg
(73B)	50-32-8	benzo(a)pyrene	400 u
(74B)	205-99-2	benzo(b)fluoranthene	400 u
(75B)	207-08-9	benzo(k)fluoranthene	400 u
(76B)	218-01-9	chrysene	400 u
(77B)	208-96-8	acenaphthylene	200 u
(78B)	120-12-7	anthracene	200 u
(79B)	191-24-2	benzo(ghi)perylene	400 u
(80B)	86-73-7	fluorene	200 u
(81B)	85-01-8	phenanthrene	200 u
(82B)	53-70-3	dibenzo(a,h)anthracene	400 u
(83B)	193-39-5	indeno(1,2,3-cd)pyrene	400 u
(84B)	129-00-0	pyrene	200 u

BASE/NEUTRAL COMPOUNDS

(1B)	83-32-9	acenaphthene	200 u
(5B)	92-87-5	benzidine	800 u
(8B)	120-82-1	1,2,4-trichlorobenzene	200 u
(9B)	118-74-1	hexachlorobenzene	200 u
(12B)	67-72-1	hexachloroethane	200 u
(18B)	111-44-4	bis(2-chloroethyl)ether	200 u
(20B)	91-58-7	2-chloronaphthalene	200 u
(25B)	95-50-1	1,2-dichlorobenzene	200 u
(26B)	541-73-1	1,3-dichlorobenzene	200 u
(27B)	106-46-7	1,4-dichlorobenzene	200 u
(28B)	91-94-1	3,3'-dichlorobenzidine	400 u
(35B)	121-14-2	2,4-dinitrotoluene	400 u
(36B)	606-20-2	2,6-dinitrotoluene	400 u
(37B)	122-66-7	1,2-diphenylhydrazine	400 u
(39B)	206-44-0	fluoranthene	200 u
(40B)	7005-72-3	4-chlorophenyl phenyl ether	200 u
(41B)	101-55-3	4-bromophenyl phenyl ether	200 u
(42B)	39638-32-9	bis (2-chloroisopropyl) ether	400 u
(43B)	111-91-1	bis (2-chloroethoxy) methane	400 u
(52B)	87-68-3	hexachlorobutadiene	200 u
(53B)	77-47-4	hexachlorocyclopentadiene	200 u
(54B)	78-59-1	isophorone	200 u
(55B)	91-20-3	naphthalene	200 u
(56B)	98-95-3	nitrobenzene	200 u
(62B)	86-30-6	N-nitrosodiphenylamine	200 u
(63B)	621-64-7	N-nitrosodipropylamine	200 u
(66B)	117-81-7	bis (2-ethylhexyl) phthalate	200 u
(67B)	85-68-7	benzyl butyl phthalate	200 u
(68B)	84-74-2	di-n-butyl phthalate	200 u
(69B)	117-84-0	di-n-octyl phthalate	200 u
(70B)	84-66-2	diethyl phthalate	200 u
(71B)	131-11-3	dimethyl phthalate	200 u
(72B)	56-55-3	benzo(a)anthracene	200 u

VOLATILES

(2V)	107-02-8	acrolein	100 u
(3V)	107-13-1	acrylonitrile	100 u
(4V)	71-43-2	benzene	5 u
(6V)	56-23-5	carbon tetrachloride	5 u
(7V)	108-90-7	chlorobenzene	5 u
(10V)	107-06-2	1,2-dichloroethane	1 u
(11V)	71-55-6	1,1,1-trichloroethane	5 u
(13V)	75-34-3	1,1-dichloroethane	5 u
(14V)	79-00-5	1,1,2-trichloroethane	5 u
(15V)	79-34-5	1,1,2,2-tetrachloroethane	10 u
(16V)	75-00-3	chloroethane	10 u
(19V)	110-75-8	2-chloroethylvinyl ether	10 u
(23V)	67-66-3	chloroform	5 u
(29V)	75-35-4	1,1-dichloroethene	5 u
(30V)	156-60-5	trans-1,2-dichloroethene	5 u
(32V)	78-87-5	1,2-dichloropropane	10 u
(33V)	10061-02-6	trans-1,3-dichloropropene	5 u
	10061-01-05	cis-1,3-dichloropropene	5 u
(38V)	100-41-4	ethylbenzene	5 u
(44V)	75-09-2	methylene chloride	27 c
(45V)	74-87-3	chloromethane	10 u
(46V)	74-83-9	bromomethane	10 u
(47V)	75-25-2	bromoform	10 u
(48V)	75-27-4	bromodichloromethane	5 u
(49V)	75-69-4	fluorotrichloromethane	NA
(50V)	75-71-8	dichlorodifluoromethane	NA
(51V)	124-48-1	chlorodibromomethane	5 u
(85V)	127-18-4	tetrachloroethene	5 u
(86V)	108-88-3	toluene	5 k
(87V)	79-01-6	trichloroethene	5 u
(88V)	75-01-4	vinyl chloride	10 u

AB100158

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Low Level Soil
ORGANICS ANALYSIS DATA SHEET

Sample Number
c-3149

Laboratory Name: NUS Corporation Case No: 1761

Lab Sample I.D.NO: 13051442 QC Report No:

Multiply Detection Limits by 1 [X] or 10 [ ] (Check box for appropriate factor)

Non-Priority Pollutant Hazardous Substances List Compounds

ACID COMPOUNDS

CAS #		ug/l or ug/kg (circle one)
65-85-0	benzoic acid	2000 u
95-48-7	2-methylphenol	100 u
108-39-4	4-methylphenol	100 u
95-95-4	2,4,5-trichlorophenol	2000 u

BASE/NEUTRAL COMPOUNDS

CAS #		ug/l or ug/kg (circle one)
62-53-3	aniline	100 u
100-51-6	benzyl alcohol	400 u
106-47-8	4-chloroaniline	1000 u
132-64-9	dibenzofuran	200 u
91-57-6	2-methylnaphthalene	400 u
88-74-4	2-nitroaniline	2000 u
99-09-2	3-nitroaniline	2000 u
100-01-6	4-nitroaniline	2000 u

VOLATILES

CAS #		ug/l or ug/kg (circle one)
67-64-1	acetone	5 u
78-93-3	2-butanone	5 u
75-15-0	carbondisulfide	1 u
519-78-6	2-hexanone	5 u
108-10-1	4-methyl-2-pentanone	5 u
100-42-5	styrene	5 u
108-05-4	vinyl acetate	5 u
95-47-6	o-xylene	5 u
	4-methyl-2-pentanol	ND
	tetrahdyrefuran	ND

ND=Not detected

AR100159

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ORGANOCHLORINE DATA SHEET
Low Level Soil

Sample Number: c-3149

Laboratory Name: NUS Corporation Case No: 1761 ORIGINAL

Lab Sample I.D.No: 13060586 QC Report No: (Rec)

Multiply Detection Limits by 1 [X] or 10 [ ] (Check box for appropriate factor)

PP #	CAS #	PESTICIDES	ug/l or ug/kg (circle one)
(89P)	309-00-2	aldrin	0.1 u
(90P)	60-57-1	dieldrin	0.1 u
(91P)	57-74-9	chlordane	1 u
(92P)	50-29-3	4,4'-DDT	0.2 u
(93P)	72-55-9	4,4'-DDE	0.1 u
(94P)	72-54-8	4,4'-DDD	0.2 u
(95P)	115-29-7	α-endosulfan	0.1 u
(96P)	115-29-7	β-endosulfan	0.1 u
(97P)	1031-07-8	endosulfan sulfate	0.2 u
(98P)	72-20-8	endrin	0.1 u
(99P)	7421-93-4	endrin aldehyde	0.2 u
(100P)	76-44-8	heptachlor	0.1 u
(101P)	1024-57-3	heptachlor epoxide	0.1 u
(102P)	319-84-6	α-BHC	0.1 u

PP #	CAS #	PESTICIDES	ug/l or ug/kg (circle one)
(103P)	319-85-7	β-BHC	0.1 u
(104P)	319-86-8	δ-BHC	0.1 u
(105P)	58-89-9	γ-BHC(lindane)	0.1 u
(106P)	53469-21-9	PCB-1242	1 u
(107P)	11097-69-1	PCB-1254	2 u
(108P)	11104-28-2	PCB-1221	2 u
(109P)	11141-16-5	PCB-1232	2 u
(110P)	12672-29-6	PCB-1248	2 u
(111P)	11096-82-5	PCB-1260	4 u
(112P)	12674-11-2	PCB-1016	1 u
(113P)	8001-35-2	toxaphene	1 u

DIOXINS

(129B)	1746-01-6	2,3,7,8-tetrachlorodibenzo-p-dioxin	0.1 u

Surrogate Spike Results

Compound Name	Concentration (ug/l) or amount (ug)	Spike Added ug/l or ug	Percent Recovery
Dibutyl Chlorendate, Pesticide	5.8	5.0	117

AR100160

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ORIGINAL
(Red)

ORGANICS ANALYSIS DATA SHEET - Page 3

Sample Number
C-3149
Field Blank
(water)

Laboratory Name: NUS

QC Report No:

A. Surrogate Spike Results

Compound Name	Fraction	Amount ug	Surrogates Only	
			Spike Added ug	Percent Recovery
D_6 - Benzene	VOA	0.60	0.50	120
D_8 - Toluene	VOA	0.77	0.50	154
D_5 - Nitrobenzene	BN	29	50	58
2 - Fluorobiphenyl	BN	31	50	62
D_5 - Phenol	Acid	19	50	38
2 - Fluorophenol	Acid	12	50	24

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining results are encourage Definition of such flags must be explicit however.

Value - If the result is a value greater than or equal to the detection limit, report the value.

U - Indicates compound was analyzed for but not detected. Report the minimum detection limit value with the U, e.g., 10U. The footnote should read: U - Compound was analyzed for but not detected. The number is the minimum detection limit.

K - If the mass spectral data indicate the presence of a compound that meets the identification criteria but the quantitative result is less than the specified detection limit but greater than zero, report the detection limit as K, e.g., 10K. The footnote should read: K - Actual value, within the limitations of this method, is less than the value given.

FS - This flag applies to analysis performed by Fused Silica Capillary Column.

J - Indicates an estimated value which is used when estimati a concentration for tentatively identified compounds; e.g 1200J. The footnote should read: J - Estimated value.

Other - Other specific flags and footnotes may be required properly define the results. If used, they must be ful described in a page attached to the data summary report.

** - This flag applies to pesticides parameters where the ident fication has been performed using two column confirmati (as specified in Method 608) but the level is too low f verification of the compound by mass spectrometry.

CX - This flag is used to indicate those compounds which we concentrated by a factor of 10 times.

Form I (continued)

AR100161

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ORGANICS ANALYSIS DATA SHEET - Page 4 -

Sample Number
C-3149
Field Blank
(water)

Laboratory Name: NUS Case No: 1761
QC Report No:

B. Tentatively Identified Compounds

CAS #	Compound Name	Fraction	Scan No. or Retention Time	% Maximum Score Attained Mass Matching Routine: (Specify: FT)	Estimated Concentration (ug/L or ug/kg)
1.					
2.					
3.					
4.					
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AR100162

Form I (continued)

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Sample Number C-3150

U.S. ENVIRONMENTAL PROTECTION AGENCY - CLP Sample Management Office
P.O. Box 818, Alexandria, Virginia 22313 - 703/557-2490

Low Level Water
ORGANICS ANALYSIS DATA SHEET

Laboratory Name: NUS
Lab Sample I.D. No: 13051443
Case No: 1761
QC Report No:

Multiply Detection Limits by 1 [X] or 10 [X] (Check Box for Appropriate Factor)
VOA only

ACID COMPOUNDS

PP #	CAS #		ug/l or ug/kg (circle one)
(21A)	88-06-2	2,4,6-trichlorophenol	10 u
(22A)	59-50-7	p-chloro-m-cresol	14
(24A)	95-57-8	2-chlorophenol	10 u
(31A)	120-83-2	2,4-dichlorophenol	10 u
(34A)	105-67-9	2,4-dimethylphenol	10 u
(57A)	88-75-5	2-nitrophenol	20 u
(58A)	100-02-7	4-nitrophenol	50 u
(59A)	51-28-5	2,4-dinitrophenol	50 u
(60A)	534-52-1	4,6-dinitro-2-methylphenol	20 u
(64A)	87-86-5	pentachlorophenol	10 u
(65A)	108-95-2	phenol	10 u

BASE/NEUTRAL COMPOUNDS

PP #	CAS #		ug/l or ug/kg (circle one)
(1B)	83-32-9	acenaphthene	10 u
(5B)	92-87-5	benzidine	40 u
(8B)	120-82-1	1,2,4-trichlorobenzene	10 u
(9B)	118-74-1	hexachlorobenzene	10 u
(12B)	67-72-1	hexachloroethane	10 u
(18B)	111-44-4	bis(2-chloroethyl)ether	10 u
(20B)	91-58-7	2-chloronaphthalene	10 u
(25B)	95-50-1	1,2-dichlorobenzene	10 u
(26B)	541-73-1	1,3-dichlorobenzene	10 u
(27B)	106-46-7	1,4-dichlorobenzene	10 u
(28B)	91-94-1	3,3'-dichlorobenzidine	20 u
(35B)	121-14-2	2,4-dinitrotoluene	20 u
(36B)	606-20-2	2,6-dinitrotoluene	20 u
(37B)	122-66-7	1,2-diphenylhydrazine	20 u
(39B)	206-44-0	fluoranthene	10 u
(40B)	7005-72-3	4-chlorophenyl phenyl ether	10 u
(41B)	101-55-3	4-bromophenyl phenyl ether	10 u
(42B)	39638-32-9	bis (2-chloroisopropyl) ether	20 u
(43B)	111-91-1	bis (2-chloroethoxy) methane	20 u
(52B)	87-68-3	hexachlorobutadiene	10 u
(53B)	77-47-4	hexachlorocyclopentadiene	10 u
(54B)	78-59-1	isophorone	10 u
(55B)	91-20-3	naphthalene	10 u
(56B)	98-95-3	nitrobenzene	10 u
(62B)	86-30-6	N-nitrosodiphenylamine	10 u
(63B)	621-64-7	N-nitrosodipropylamine	10 u
(66B)	117-81-7	bis (2-ethylhexyl) phthalate	63
(67B)	85-68-7	benzyl butyl phthalate	10 u
(68B)	84-74-2	di-n-butyl phthalate	10 k
(69B)	117-84-0	di-n-octyl phthalate	10 u
(70B)	84-66-2	diethyl phthalate	10 u
(71B)	131-11-3	dimethyl phthalate	10 u
(72B)	56-55-3	benzo(a)anthracene	10 u
(73B)	50-32-8	benzo(a)pyrene	20 u
(74B)	205-99-2	benzo(b)fluoranthene	20 u
(75B)	207-08-9	benzo(k)fluoranthene	20 u
(76B)	218-01-9	chrysene	20 u
(77B)	208-96-8	acenaphthylene	10 u
(78B)	120-12-7	anthracene	10 u
(79B)	191-24-2	benzo(ghi)perylene	20 u
(80B)	86-73-7	fluorene	10 u
(81B)	85-01-8	phenanthrene	10 u
(82B)	53-70-3	dibenzo(a,h)anthracene	20 u
(83B)	193-39-5	indeno(1,2,3-cd)pyrene	20 u
(84B)	129-00-0	pyrene	10 u

VOLATILES

(2V)	107-02-8	acrolein	100 u
(3V)	107-13-1	acrylonitrile	100 u
(4V)	71-43-2	benzene	5 u
(6V)	56-23-5	carbon tetrachloride	5 u
(7V)	108-90-7	chlorobenzene	5 u
(10V)	107-06-2	1,2-dichloroethane	5 u
(11V)	71-55-6	1,1,1-trichloroethane	5 u
(13V)	75-34-3	1,1-dichloroethane	5 u
(14V)	79-00-5	1,1,2-trichloroethane	5 u
(15V)	79-34-5	1,1,2,2-tetrachloroethane	10 u
(16V)	75-00-3	chloroethane	10 u
(19V)	110-75-8	2-chloroethylvinyl ether	10 u
(23V)	67-66-3	chloroform	5 u
(29V)	75-35-4	1,1-dichloroethene	5 u
(30V)	156-60-5	trans-1,2-dichloroethene	5 u
(32V)	78-87-5	1,2-dichloropropane	10 u
(33V)	10061-02-6	trans-1,3-dichloropropene	5 u
	10061-01-05	cis-1,3-dichloropropene	5 u
(38V)	100-41-4	ethylbenzene	5 u
(44V)	75-09-2	methylene chloride	9200 c
(45V)	74-87-3	chloromethane	10 u
(46V)	74-83-9	bromomethane	10 u
(47V)	75-25-2	bromoform	10 u
(48V)	75-27-4	bromodichloromethane	5 u
(49V)	75-69-4	fluorotrichloromethane	NA
(50V)	75-71-8	dichlorodifluoromethane	NA
(51V)	124-48-1	chlorodibromomethane	5 u
(83V)	127-18-4	tetrachloroethene	5 u
(84V)	108-88-3	toluene	5 u
(87V)	79-01-6	trichloroethene	5 u
(88V)	75-01-4	vinyl chloride	10 u

AR100163

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Low Level Water
ORGANICS ANALYSIS DATA SHEET

Sample Number
C-3150

Laboratory Name: NUS Corporation
Case No: 1761
Lab Sample I.D.NO: 13051443
QC Report No:
Multiply Detection Limits by 1 [X] or 10 [X] (Check box for appropriate factor)
VOA only

Non-Priority Pollutant Hazardous Substances List Compounds

ACID COMPOUNDS

CAS #		ug/l or ug/kg (circle one)
65-85-0	benzoic acid	100 k
95-48-7	2-methylphenol	5 u
108-39-4	4-methylphenol	10
95-95-4	2,4,5-trichlorophenol	100 u

BASE/NEUTRAL COMPOUNDS

CAS #		ug/l or ug/kg (circle one)
62-53-3	aniline	5 u
100-51-6	benzyl alcohol	20 u
106-47-8	4-chloroaniline	50 u
132-64-9	dibenzofuran	10 u
91-57-6	2-methylnaphthalene	20 u
88-74-4	2-nitroaniline	100 u
99-09-2	3-nitroaniline	100 u
100-01-6	4-nitroaniline	100 u

VOLATILES

CAS #		ug/l or ug/kg (circle one)
67-64-1	acetone	1030
78-93-3	2-butanone	5 u
75-15-0	carbondisulfide	1 u
519-78-6	2-hexanone	5 u
108-10-1	4-methyl-2-pentanone	5 u
100-42-5	styrene	5 u
108-05-4	vinyl acetate	5 u
95-47-6	o-xylene	5 u
	4-methyl-2-pentanol	ND
	tetrahydrofuran	ND

ND=Not detected

AR100164

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Low Level Water

c-3150

Laboratory Name: NUS Corporation

Case No: 1761

Lab Sample I.D.No: 12051443

QC Report No:

Multiply Detection Limits by 1 [ ] or 10 [X] (Check box for appropriate factor)

5-corrections for dilution factor

PESTICIDES

PP #	CAS #		ug/l or ug/kg (circle one)
(89P)	309-00-2	aldrin	0.005 u
(90P)	60-57-1	dieldrin	0.005 u
(91P)	57-74-9	chlordane	0.050 u
(92P)	50-29-3	4,4'-DDT	0.010 u
(93P)	72-55-9	4,4'-DDE	0.005 u
(94P)	72-54-8	4,4'-DDD	0.010 u
(95P)	115-29-7	α-endosulfan	0.005 u
(96P)	115-29-7	β-endosulfan	0.005 u
(97P)	1031-07-8	endosulfan sulfate	0.010 u
(98P)	72-20-8	endrin	0.005 u
(99P)	7421-93-4	endrin aldehyde	0.010 u
(100P)	76-44-8	heptachlor	0.005 u
(101P)	1024-57-3	heptachlor epoxide	0.005 u
(102P)	319-84-6	α-BHC	0.005 u

PESTICIDES

PP #	CAS #		ug/l or ug (circle on
(103P)	319-85-7	β-BHC	0.005
(104P)	319-86-8	δ-BHC	0.005
(105P)	58-89-9	γ-BHC(lindane)	0.005
(106P)	53469-21-9	PCB-1242	0.050
(107P)	11097-69-1	PCB-1254	0.100
(108P)	11104-28-2	PCB-1221	0.100
(109P)	11141-16-5	PCB-1232	0.100
(110P)	12672-29-6	PCB-1248	0.100
(111P)	11096-82-5	PCB-1260	0.200
(112P)	12674-11-2	PCB-1016	0.050
(113P)	8001-35-2	toxaphene	0.050

DIOXINS

(129B)	1746-01-6	2,3,7,8-tetrachlorodibenzo-p-dioxin	0.005

Surrogate Spike Results

Compound Name	Concentration (ug/l) or amount (ug)	Spike Added ug/l or ug	Percent Recovery
Dibutyl Chlorendate, Pesticide	6.67	5.0	133

AR100165

If the page filmed in this frame is not as readable or legible as this label, it is due to substandard color or condition of the original page.

ORGANICS ANALYSIS DATA SHEET - Page 3

Sample Number
C-3150

Laboratory Name: NUS Corp. Laboratories Services Div.

QC Report No: _____

A. Surrogate Spike Results

Compound Name	Fraction	Concentration (ug/l)	Surrogates Only	
			Spike Added (ug/l)	Percent Recov
D_6 - Benzene	VOA	960	1000	96
D_8 - Toluene	VOA	930	1000	93
D_5 - Nitrobenzene	BN	31	50	62
2 - Fluorobiphenyl	BN	43	50	86
D_5 - Phenol	Acid	36	50	72
2 - Fluorophenol	Acid	31	50	62

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining results are encourag Definition of such flags must be explicit however.

Value - If the result is a value greater than or equal to the detection limit, report the value.

U - Indicates compound was analyzed for but not detected. Report the minimum detection limit value with the U, e.g., 10U. The footnote should read: U - Compound was analyzed for but not detected. The number is the minimum detection limit.

K - If the mass spectral data indicate the presence of a compound that meets the identification criteria but the quantitative result is less than the specified detection limit but greater than zero, report the detection limit as K, e.g., 10K. The footnote should read: K - Actual value, within the limitations of this method, is less than the value given.

FS - This flag applies to analysis performed by Fused Silica Capillary Column.

J - Indicates an estimated value which is used when estimati a concentration for tentatively identified compounds; e., 12(J). The footnote should read: J - Estimated value.

Other - Other specific flags and footnotes may be required properly define the results. If used, they must be fu. described in a page attached to the data summary report.

** - This flag applies to pesticides parameters where the ident fication has been performed using two column confirmati (as specified in Method 608) but the level is too low f. verification of the compound by mass spectrometry.

CX - This flag is used to indicate those compounds which we concentrated by a factor of 10 times.

AR100166

Form I (continued)

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ORGANICS ANALYSIS DATA SHEET - Page 4

Sample Number C-3150

Laboratory Name: NUS Case No: 1761

QC Report No:

B. Tentatively Identified Compounds

	CAS #	Compound Name	Fraction	Scan No. or Retention Time	% Maximum Score Attained Mass Matching Routine: (Specify: FIT)	Estimated Concentration (ug/l or ug/kg)
1.	617-84-5	Formamide, N, N-Diethyl	BNA	294	88	60 J
2.	632-22-4	Urea, Tetramethyl	BNA	350	91	30 J
3.	685-91-6	Acetamide, N, N-Diethyl	BNA	361	97	80 J
4.	617-94-7	Benzenemethanol, Alpha			98	
5.		Alpha,-Dimethyl	BNA	440		40 J
6.	646-07-1	Pentanoicacid, 4-methyl	BNA	489	81	300 J
7.	272-16-2	1, 2-Benzisothiazole	BNA	577	98	50 J
8.	--------	Unknown	BNA	665	--	30 J
9.	55724-73-7	Butanoicacid, 4-Butoxy	BNA	722	90	90 J
10.	----------	Unknown	BNA	865	--	40 J
11.	91-64-5	2 H-1-Benzopyran-2-one	BNA	886	92	90 J
12.		1, 2-Benzisothiazol-				
13.	2634-33-5	3(2H)-one	BNA	982	88	1300 J
14.	---------	Unknown	BNA	941	--	60 J
15.	---------	Unknown	BNA	1001	--	40 J
16.	54798-95-7	Benzothiazole, 2-butyl	BNA	1029	88	60 J
17.						
18.						
19.						
20.						
21.						
22.						
23.						
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AR100167

Form 1 (continued)

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P.O. Box 818, Alexandria, Virginia 22313 - 703/557-2490

C-3152

Low Level Water
ORGANICS ANALYSIS DATA SHEET

Laboratory Name: NUS Case No: 1761

Lab Sample I.D. No: 13051444 QC Report No:

Multiply Detection Limits by 1 [X] or 10 [ ] (Check Box for Appropriate Factor)

VOA only

ACID COMPOUNDS

PP #	CAS #		ug/l (circle one)
(21A)	88-06-2	2,4,6-trichlorophenol	10 u
(22A)	59-50-7	p-chloro-m-cresol	10 u
(24A)	95-57-8	2-chlorophenol	10 u
(31A)	120-83-2	2,4-dichlorophenol	10 u
(34A)	105-67-9	2,4-dimethylphenol	10 u
(37A)	88-75-5	2-nitrophenol	20 u
(38A)	100-02-7	4-nitrophenol	50 u
(39A)	51-28-5	2,4-dinitrophenol	50 u
(60A)	534-52-1	4,6-dinitro-2-methylphenol	20 u
(64A)	87-86-5	pentachlorophenol	10 u
(65A)	108-95-2	phenol	10 u

BASE/NEUTRAL COMPOUNDS

PP #	CAS #		ug/l (circle one)
(73B)	50-32-8	benzo(a)pyrene	20 u
(74B)	205-99-2	benzo(b)fluoranthene	20 u
(75B)	207-08-9	benzo(k)fluoranthene	20 u
(76B)	218-01-9	chrysene	20 u
(77B)	208-96-8	acenaphthylene	10 u
(78B)	120-12-7	anthracene	10 u
(79B)	191-24-2	benzo(ghi)perylene	20 u
(80B)	86-73-7	fluorene	10 u
(81B)	85-01-8	phenanthrene	10 u
(82B)	53-70-3	dibenzo(a,h)anthracene	20 u
(83B)	193-39-5	indeno(1,2,3-cd)pyrene	20 u
(84B)	129-00-0	pyrene	10 u

BASE/NEUTRAL COMPOUNDS

(1B)	83-32-9	acenaphthene	10 u
(5B)	92-87-5	benzidine	40 u
(8B)	120-82-1	1,2,4-trichlorobenzene	10 u
(9B)	118-74-1	hexachlorobenzene	10 u
(12B)	67-72-1	hexachloroethane	10 u
(18B)	111-44-4	bis(2-chloroethyl)ether	10 u
(20B)	91-58-7	2-chloronaphthalene	10 u
(25B)	95-50-1	1,2-dichlorobenzene	10 u
(26B)	541-73-1	1,3-dichlorobenzene	10 u
(27B)	106-46-7	1,4-dichlorobenzene	10 u
(28B)	91-94-1	3,3'-dichlorobenzidine	20 u
(35B)	121-14-2	2,4-dinitrotoluene	20 u
(36B)	606-20-2	2,6-dinitrotoluene	20 u
(37B)	122-66-7	1,2-diphenylhydrazine	20 u
(39B)	206-44-0	fluoranthene	10 u
(40B)	7005-72-3	4-chlorophenyl phenyl ether	10 u
(41B)	101-55-3	4-bromophenyl phenyl ether	10 u
(42B)	39638-32-9	bis(2-chloroisopropyl) ether	20 u
(43B)	111-91-1	bis(2-chloroethoxy) methane	20 u
(52B)	87-68-3	hexachlorobutadiene	10 u
(53B)	77-47-4	hexachlorocyclopentadiene	10 u
(54B)	78-59-1	isophorone	10 u
(55B)	91-20-3	naphthalene	10 u
(56B)	98-95-3	nitrobenzene	10 u
(62B)	86-30-6	N-nitrosodiphenylamine	10 u
(63B)	621-64-7	N-nitrosodipropylamine	10 u
(66B)	117-81-7	bis(2-ethylhexyl) phthalate	10 u
(67B)	85-68-7	benzyl butyl phthalate	10 u
(68B)	84-74-2	dibutyl phthalate	10 u
(69B)	117-84-0	di-n-octyl phthalate	10 u
(70B)	84-66-2	diethyl phthalate	10 u
(71B)	131-11-3	dimethyl phthalate	10 u
(72B)	56-55-3	benzo(a)anthracene	20 u

VOLATILES

(2V)	107-02-8	acrolein	100 u
(3V)	107-13-1	acrylonitrile	100 u
(4V)	71-43-2	benzene	5 u
(6V)	56-23-5	carbon tetrachloride	5 u
(7V)	108-90-7	chlorobenzene	5 u
(10V)	107-06-2	1,2-dichloroethane	1 u
(11V)	71-55-6	1,1,1-trichloroethane	5 u
(13V)	75-34-3	1,1-dichloroethane	5 u
(14V)	79-00-5	1,1,2-trichloroethane	5 u
(15V)	79-34-5	1,1,2,2-tetrachloroethane	10 u
(16V)	75-00-3	chloroethane	10 u
(19V)	110-75-8	2-chloroethylvinyl ether	10 u
(23V)	67-66-3	chloroform	5 u
(29V)	75-35-4	1,1-dichloroethene	5 u
(30V)	156-60-5	trans-1,2-dichloroethene	5 u
(32V)	78-87-5	1,2-dichloropropane	10 u
(33V)	10061-02-6	trans-1,3-dichloropropene	5 u
	10061-01-05	cis-1,3-dichloropropene	5 u
(38V)	100-41-4	ethylbenzene	5 u
(44V)	75-09-2	methylene chloride	5 B
(45V)	74-87-3	chloromethane	10 u
(46V)	74-83-9	bromomethane	10 u
(47V)	75-25-2	bromoform	10 u
(48V)	75-27-4	bromodichloromethane	5 u
(49V)	75-69-4	trichlorofluoromethane	NA
(50V)	75-71-8	dichlorodifluoromethane	NA
(51V)	124-48-1	chlorodibromomethane	5 u
(85V)	127-18-4	tetrachloroethene	5 u
(86V)	108-88-3	toluene	5 u
(87V)	79-01-6	trichloroethene	5 u
(88V)	75-01-4	vinyl chloride	10 u

AR100168

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Low Level Water

ORGANICS ANALYSIS DATA SHEET

Sample Number: C-3152

Laboratory Name: NUS Corporation

Case No: 1761

Lab Sample I.D.NO: 1381444

QC Report No:

Multiply Detection Limits by 1 [X] or 10 [X] (Check box for appropriate factor)

VOA only

Non-Priority Pollutant Hazardous Substances List Compounds

ACID COMPOUNDS

ug/l or ug/kg (circle one)

CAS #		
65-85-0	benzoic acid	100 u
95-48-7	2-methylphenol	5 u
108-39-4	4-methylphenol	10 u
95-95-4	2,4,5-trichlorophenol	100 u

BASE/NEUTRAL COMPOUNDS

62-53-3	aniline	5 u
100-51-6	benzyl alcohol	20 u
106-47-8	4-chloroaniline	50 u
132-64-9	dibenzofuran	10 u
91-57-6	2-methylnaphthalene	20 u
88-74-4	2-nitroaniline	100 u
99-09-2	3-nitroaniline	100 u
100-01-6	4-nitroaniline	100 u

VOLATILES

ug/l or ug/kg (circle one)

CAS #		
67-64-1	acetone	5 u
78-93-3	2-butanone	5 u
75-15-0	carbondisulfide	1 u
519-78-6	2-hexanone	5 u
108-10-1	4-methyl-2-pentanone	5 u
100-42-5	styrene	5 u
108-05-4	vinyl acetate	5 u
95-47-6	o-xylene	5 u
	4-methyl-2-pentanol	ND
	tetrahydrofuran	ND

ND=Not detected

AR100169

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Low Level Water

Sample Numb
C-3152

Laboratory Name: NUS Corporation

Case No: T761

Lab Sample I.D.No: 12051444

QC Report No:

Multiply Detection Limits by 1 ☐ or 10 ☒ (Check box for appropriate factor)

2.5-dry weight correction factor

PESTICIDES

PP #	CAS #		ug/l or ug/kg (circle one)
(89P)	309-00-2	aldrin	0.005 u
(90P)	60-57-1	dieldrin	0.005 u
(91P)	57-74-9	chlordane	0.050 u
(92P)	50-29-3	4,4'-DDT	0.010 u
(93P)	72-55-9	4,4'-DDE	0.005 u
(94P)	72-54-8	4,4'-DDD	0.010 u
(95P)	115-29-7	α-endosulfan	0.005 u
(96P)	115-29-7	β-endosulfan	0.005 u
(97P)	1031-07-8	endosulfan sulfate	0.010 u
(98P)	72-20-8	endrin	0.005 u
(99P)	7421-93-4	endrin aldehyde	0.010 u
(100P)	76-44-8	heptachlor	0.005 u
(101P)	1024-57-3	heptachlor epoxide	0.005 u
(102P)	319-84-6	α-BHC	0.005 u

PESTICIDES

PP #	CAS #		ug/l or ug (circle one)
(103P)	319-85-7	β-BHC	0.005
(104P)	319-86-8	δ-BHC	0.005
(105P)	58-89-9	γ-BHC(lindane)	0.005
(106P)	53469-21-9	PCB-1242	0.050
(107P)	11097-69-1	PCB-1254	0.100
(108P)	11104-28-2	PCB-1221	0.100
(109P)	11141-16-5	PCB-1232	0.100
(110P)	12672-29-6	PCB-1248	0.100
(111P)	11096-82-5	PCB-1260	0.200
(112P)	12674-11-2	PCB-1016	0.050
(113P)	8001-35-2	toxaphene	0.050

DIOXINS

(129B)	1746-01-6	2,3,7,8-tetrachlorodibenzo-p-dioxin	0.005

Surrogate Spike Results

Compound Name	Concentration (ug/l) or amount (ug)	Spike Added ug/l or ug	Percent Recovery
Dibutyl Chlorendate, Pesticide	1.4	5.0	28

AR100170

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ORGANICS ANALYSIS DATA SHEET - Page 3

Sample No. C-3152

Laboratory Name: NUS Corp. Laboratories Services Div.

QC Report No: _____

A. Surrogate Spike Results

Compound Name	Fraction	Concentration (ug/l)	Surrogates Only	
			Spike Added (ug/l)	Perc Reco
D_6 - Benzene	VOA	1060	1000	106
D_8 - Toluene	VOA	1110	1000	111
D_5 - Nitrobenzene	BN	22	50	44
2 - Fluorobiphenyl	BN	26	50	52
D_5 - Phenol	Acid	15	50	30
2 - Fluorophenol	Acid	18	50	36

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining results are encourag Definition of such flags must be explicit however.

Value - If the result is a value greater than or equal to the detection limit, report the value.

U - Indicates compound was analyzed for but not detected. Report the minimum detection limit value with the U, e.g., 10U. The footnote should read: U - Compound was analyzed for but not detected. The number is the minimum detection limit.

K - If the mass spectral data indicate the presence of a compound that meets the identification criteria but the quantitative result is less than the specified detection limit but greater than zero, report the detection limit as K, e.g., 10K. The footnote should read: K - Actual value, within the limitations of this method, is less than the value given.

FS - This flag applies to analysis performed by Fused Silica Capillary Column.

J - Indicates an estimated value which is used when estimat a concentration for tentatively identified compounds; e 12000J. The footnote should read: J - Estimated value.

Other - Other specific flags and footnotes may be required properly define the results. If used, they must be described in a page attached to the data summary report.

** - This flag applies to pesticides parameters where the ide fication has been performed using two column confirma (as specified in Method 608) but the level is too low verification of the compound by mass spectrometry.

CX - This flag is used to indicate those compounds which concentrated by a factor of 10 times.

AR100171

Form I (continued)

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Sample Number
C-3152

ORGANICS ANALYSIS DATA SHEET - Page 4

Laboratory Name: NUS Case No: 1761
QC Report No:

B. Tentatively Identified Compounds

CAS #	Compound Name	Fraction	Scan No. or Retention Time	% Maximum Score Attained Mass Matching Routine: (Specify: FIT)	Estimated Concentration (ug/L) or ug/kg
1. 10544-50-0	Sulfur, Mol. (S8)	BNA	1238	96	30 J
2. ----------	Unknown	BNA	1193	--	30 J
3.					
4.					
5.					
6.					
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AR100172

Form I (continued)

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U.S. ENVIRONMENTAL PROTECTION AGENCY - CLP Sample Management Office
P.O. Box 818, Alexandria, Virginia 22313 - 703/557-2490

Sample Number
C-3153

Low Level Water
ORGANICS ANALYSIS DATA SHEET

Laboratory Name: NUS
Case No: 1761
Lab Sample I.D. No: 13051445
QC Report No:

Multiply Detection Limits by 1 [X] or 10 [ ] (Check Box for Appropriate Factor)

ACID COMPOUNDS

PP #	CAS #		ug/l or ug/kg (circle one)
(21A)	88-06-2	2,4,6-trichlorophenol	10 u
(22A)	59-50-7	p-chloro-m-cresol	10 u
(24A)	95-57-8	2-chlorophenol	10 u
(31A)	120-83-2	2,4-dichlorophenol	10 u
(34A)	105-67-9	2,4-dimethylphenol	10 u
(57A)	88-75-5	2-nitrophenol	20 u
(58A)	100-02-7	4-nitrophenol	50 u
(59A)	51-28-5	2,4-dinitrophenol	50 u
(60A)	534-52-1	4,6-dinitro-2-methylphenol	20 u
(64A)	87-86-5	pentachlorophenol	10 u
(65A)	108-95-2	phenol	10 u

BASE/NEUTRAL COMPOUNDS

PP #	CAS #		ug/l or ug/kg (circle one)
(1B)	83-32-9	acenaphthene	10 u
(5B)	92-87-5	benzidine	40 u
(8B)	120-82-1	1,2,4-trichlorobenzene	10 u
(9B)	118-74-1	hexachlorobenzene	10 u
(12B)	67-72-1	hexachloroethane	10 u
(18B)	111-44-4	bis(2-chloroethyl)ether	10 u
(20B)	91-58-7	2-chloronaphthalene	10 u
(25B)	95-50-1	1,2-dichlorobenzene	10 u
(26B)	541-73-1	1,3-dichlorobenzene	10 u
(27B)	106-46-7	1,4-dichlorobenzene	10 u
(28B)	91-94-1	3,3'-dichlorobenzidine	20 u
(35B)	121-14-2	2,4-dinitrotoluene	20 u
(36B)	606-20-2	2,6-dinitrotoluene	20 u
(37B)	122-66-7	1,2-diphenylhydrazine	20 u
(39B)	206-44-0	fluoranthene	10 u
(40B)	7005-72-3	4-chlorophenyl phenyl ether	10 u
(41B)	101-55-3	4-bromophenyl phenyl ether	10 u
(42B)	39638-32-9	bis (2-chloroisopropyl) ether	20 u
(43B)	111-91-1	bis (2-chloroethoxy) methane	20 u
(52B)	87-68-3	hexachlorobutadiene	10 u
(53B)	77-47-4	hexachlorocyclopentadiene	10 u
(54B)	78-59-1	isophorone	10 u
(55B)	91-20-3	naphthalene	10 u
(56B)	98-95-3	nitrobenzene	10 u
(62B)	86-30-6	N-nitrosodiphenylamine	10 u
(63B)	621-64-7	N-nitrosodipropylamine	10 u
(66B)	117-81-7	bis (2-ethylhexyl) phthalate	10 u
(67B)	85-68-7	benzyl butyl phthalate	10 u
(68B)	84-74-2	di-n-butyl phthalate	10 u
(69B)	117-84-0	di-n-octyl phthalate	10 u
(70B)	84-66-2	diethyl phthalate	10 u
(71B)	131-11-3	dimethyl phthalate	10 u
(72B)	56-55-3	benzo(a)anthracene	10 u
(73B)	50-32-8	benzo(a)pyrene	20 u
(74B)	205-99-2	benzo(b)fluoranthene	20 u
(75B)	207-08-9	benzo(k)fluoranthene	20 u
(76B)	218-01-9	chrysene	20 u
(77B)	208-96-8	acenaphthylene	10 u
(78B)	120-12-7	anthracene	10 u
(79B)	191-24-2	benzo(ghi)perylene	20 u
(80B)	86-73-7	fluorene	10 u
(81B)	85-01-8	phenanthrene	10 u
(82B)	53-70-3	dibenzo(a,h)anthracene	20 u
(83B)	193-39-5	indeno(1,2,3-cd)pyrene	20 u
(84B)	129-00-0	pyrene	10 u

VOLATILES

(2V)	107-02-8	acrolein	100 u
(3V)	107-13-1	acrylonitrile	100 u
(4V)	71-43-2	benzene	5 u
(6V)	56-23-5	carbon tetrachloride	5 u
(7V)	108-90-7	chlorobenzene	5 u
(10V)	107-06-2	1,2-dichloroethane	5 u
(11V)	71-55-6	1,1,1-trichloroethane	5 u
(13V)	75-34-3	1,1-dichloroethane	26
(14V)	79-00-5	1,1,2-trichloroethane	5 u
(15V)	79-34-5	1,1,2,2-tetrachloroethane	10 u
(16V)	75-00-3	chloroethane	10 u
(19V)	110-75-8	2-chloroethylvinyl ether	10 u
(23V)	67-66-3	chloroform	5 u
(29V)	75-35-4	1,1-dichloroethene	5 u
(30V)	156-60-5	trans-1,2-dichloroethene	1700
(32V)	78-87-5	1,2-dichloropropane	10 u
(33V)	10061-02-6	trans-1,3-dichloropropene	5 u
	10061-01-05	cis-1,3-dichloropropene	5 u
(38V)	100-41-4	ethylbenzene	5 u
(44V)	75-09-2	methylene chloride	5 u
(45V)	74-87-3	chloromethane	10 u
(46V)	74-83-9	bromomethane	10 u
(47V)	75-25-2	bromoform	10 u
(48V)	75-27-4	bromodichloromethane	5 u
(49V)	75-69-4	fluorotrichloromethane	NA
(50V)	75-71-8	dichlorodifluoromethane	NA
(51V)	124-48-1	chlorodibromomethane	5 u
(85V)	127-18-4	tetrachloroethene	5 u
(86V)	108-88-3	toluene	5 u
(87V)	79-01-6	trichloroethene	5 u
(88V)	75-01-4	vinyl chloride	950

AR100173

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Low Level Water

ORGANICS ANALYSIS DATA SHEET

Sample Number
C-3153

Laboratory Name: NUS Corporation

Case No: 1761

Lab Sample I.D.NO: 13051445

QC Report No:

Multiply Detection Limits by 1 [X] or 10 [ ] (Check box for appropriate factor)

Non-Priority Pollutant Hazardous Substances List Compounds

ACID COMPOUNDS

CAS #		ug/l or ug/kg (circle one)
65-85-0	benzoic acid	100 u
95-48-7	2-methylphenol	5 u
108-39-4	4-methylphenol	10 u
95-95-4	2,4,5-trichlorophenol	100 u

BASE/NEUTRAL COMPOUNDS

CAS #		ug/l or ug/kg (circle one)
62-53-3	aniline	5 u
100-51-6	benzyl alcohol	20 u
106-47-8	4-chloroaniline	50 u
132-64-9	dibenzofuran	10 u
91-57-6	2-methylnaphthalene	20 u
88-74-4	2-nitroaniline	100 u
99-09-2	3-nitroaniline	100 u
100-01-6	4-nitroaniline	100 u

VOLATILES

CAS #		ug/l or ug/kg (circle one)
67-64-1	acetone	5 u
78-93-3	2-butanone	5 u
75-15-0	carbondisulfide	1 u
519-78-6	2-hexanone	5 u
108-10-1	4-methyl-2-pentanone	5 u
100-42-5	styrene	5 u
108-05-4	vinyl acetate	5 u
95-47-6	o-xylene	5 u
	4- methyl-2pentanol	ND
	tetrahydrefuran	ND

ND=Not detected

AR100174

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Low Level Water

Sample Number: C-3153

Laboratory Name: NUS Corporation

Case No: 1761

Lab Sample I.D.No: 13051445

QC Report No:

Multiply Detection Limits by 1 [X] or 10 [ ] (Check box for appropriate factor)

PESTICIDES

PP #	CAS #		ug/l or ug/kg (circle one)
(89P)	309-00-2	aldrin	0.005 u
(90P)	60-57-1	dieldrin	0.005 u
(91P)	57-74-9	chlordane	0.050 u
(92P)	50-29-3	4,4'-DDT	0.010 u
(93P)	72-55-9	4,4'-DDE	0.005 u
(94P)	72-54-8	4,4'-DDD	0.010 u
(95P)	115-29-7	α-endosulfan	0.005 u
(96P)	115-29-7	β-endosulfan	0.005 u
(97P)	1031-07-8	endosulfan sulfate	0.010 u
(98P)	72-20-8	endrin	0.005 u
(99P)	7421-93-4	endrin aldehyde	0.010 u
(100P)	76-44-8	heptachlor	0.005 u
(101P)	1024-57-3	heptachlor epoxide	0.005 u
(102P)	319-84-6	α-BHC	0.005 u

PESTICIDES

PP #	CAS #		ug/l or ug/ (circle one
(103P)	319-85-7	β-BHC	0.005 u
(104P)	319-86-8	δ-BHC	0.005 u
(105P)	58-89-9	γ-BHC(lindane)	0.007
(106P)	53469-21-9	PCB-1242	0.050 u
(107P)	11097-69-1	PCB-1254	0.100 u
(108P)	11104-28-2	PCB-1221	0.100 u
(109P)	11141-16-5	PCB-1232	0.100 u
(110P)	12672-29-6	PCB-1248	0.100 u
(111P)	11096-82-5	PCB-1260	0.200 u
(112P)	12674-11-2	PCB-1016	0.050 u
(113P)	8001-35-2	toxaphene	0.050 u

DIOXINS

(129B)	1746-01-6	2,3,7,8-tetrachlorodi-benzo-p-dioxin	0.005 u

Surrogate Spike Results

Compound Name	✓ Concentration (ug/l) or amount (ug)	Spike Added ug/l or ug	Percent Recovery
Dibutyl Chlorendate, Pesticide	8.78	5.0	176

AR100175

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ORGANICS ANALYSIS DATA SHEET - Page 3

Sample Number
C-3153

Laboratory Name: NUS Corp. Laboratories Services Div.

QC Report No: _____

A. Surrogate Spike Results

Compound Name	Fraction	Concentration (ug/l)	Surrogates Only	
			Spike Added (ug/l)	Percent Recovery
D_6 - Benzene	VOA	109	100	109
D_8 - Toluene	VOA	117	100	117
D_5 - Nitrobenzene	BN	26	50	52
2 - Fluorobiphenyl	BN	40	50	80
D_5 - Phenol	Acid	22	50	44
2 - Fluorophenol	Acid	28	50	56

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit however.

Value - If the result is a value greater than or equal to the detection limit, report the value.

U - Indicates compound was analyzed for but not detected. Report the minimum detection limit value with the U, e.g., 10U. The footnote should read: U - Compound was analyzed for but not detected. The number is the minimum detection limit.

K - If the mass spectral data indicate the presence of a compound that meets the identification criteria but the quantitative result is less than the specified detection limit but greater than zero, report the detection limit as K, e.g., 10K. The footnote should read: K - Actual value, within the limitations of this method, is less than the value given.

FS - This flag applies to analysis performed by Fused Silica Capillary Column.

J - Indicates an estimated value which is used when estimating a concentration for tentatively identified compounds; e.g. 1200J. The footnote should read: J - Estimated value.

Other - Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described in a page attached to the data summary report.

** - This flag applies to pesticides parameters where the identification has been performed using two column confirmation (as specified in Method 608) but the level is too low for verification of the compound by mass spectrometry.

CX - This flag is used to indicate those compounds which were concentrated by a factor of 10 times.

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ORGANICS ANALYSIS DATA SHEET - Page 4

(Sample Number
C-3153

Laboratory Name: NUS Case No: 1761
QC Report No:

B. Tentatively Identified Compounds

CAS #	Compound Name	Fraction	Scan No. or Retention Time	% Maximum Score Attained Mass Matching Routine: (Specify:_____)	Estimated Concentration (ug/L or ug/kg)
1.					
2.					
3.					
4.					
5.					
6.					
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U.S. ENVIRONMENTAL PROTECTION AGENCY - Sample Management Office
P.O. Box 818, Alexandria, Virginia 22313 - 703/557-2490

Sample Number
C-3154

Low Level Water
ORGANICS ANALYSIS DATA SHEET

Laboratory Name: NUS Case No: 1761
Lab Sample I.D. No: 13051446 QC Report No:

Multiply Detection Limits by 1 [X] or 10 [ ] (Check Box for Appropriate Factor)

ACID COMPOUNDS

PP #	CAS #		ug/l or ug/kg (circle one)
(21A)	88-06-2	2,4,6-trichlorophenol	10 u
(22A)	59-50-7	p-chloro-m-cresol	10 u
(24A)	95-57-8	2-chlorophenol	10 u
(31A)	120-83-2	2,4-dichlorophenol	10 u
(34A)	105-67-9	2,4-dimethylphenol	10 u
(57A)	88-75-5	2-nitrophenol	20 u
(58A)	100-02-7	4-nitrophenol	50 u
(59A)	51-28-5	2,4-dinitrophenol	50 u
(60A)	534-52-1	4,6-dinitro-2-methylphenol	20 u
(64A)	87-86-5	pentachlorophenol	10 u
(65A)	108-95-2	phenol	10 u

BASE/NEUTRAL COMPOUNDS

PP #	CAS #		ug/l or ug/kg (circle one)
(1B)	83-32-9	acenaphthene	10 u
(5B)	92-87-5	benzidine	40 u
(8B)	120-82-1	1,2,4-trichlorobenzene	10 u
(9B)	118-74-1	hexachlorobenzene	10 u
(12B)	67-72-1	hexachloroethane	10 u
(18B)	111-44-4	bis(2-chloroethyl)ether	10 u
(20B)	91-58-7	2-chloronaphthalene	10 u
(25B)	95-50-1	1,2-dichlorobenzene	10 u
(26B)	541-73-1	1,3-dichlorobenzene	10 u
(27B)	106-46-7	1,4-dichlorobenzene	10 u
(28B)	91-94-1	3,3'-dichlorobenzidine	20 u
(35B)	121-14-2	2,4-dinitrotoluene	20 u
(36B)	606-20-2	2,6-dinitrotoluene	20 u
(37B)	122-66-7	1,2-diphenylhydrazine	20 u
(39B)	206-44-0	fluoranthene	10 u
(40B)	7005-72-3	4-chlorophenyl phenyl ether	10 u
(41B)	101-55-3	4-bromophenyl phenyl ether	10 u
(42B)	39638-32-9	bis (2-chloroisopropyl) ether	20 u
(43B)	111-91-1	bis (2-chloroethoxy) methane	20 u
(52B)	87-68-3	hexachlorobutadiene	10 u
(53B)	77-47-4	hexachlorocyclopentadiene	10 u
(54B)	78-59-1	isophorone	10 u
(55B)	91-20-3	naphthalene	10 u
(56B)	98-95-3	nitrobenzene	10 u
(62B)	86-30-6	N-nitrosodiphenylamine	10 u
(63B)	621-64-7	N-nitrosodipropylamine	10 u
(66B)	117-81-7	bis (2-ethylhexyl) phthalate	10 u
(67B)	85-68-7	benzyl butyl phthalate	10 u
(68B)	84-74-2	di-n-butyl phthalate	10 u
(69B)	117-84-0	di-n-octyl phthalate	10 u
(70B)	84-66-2	diethyl phthalate	10 u
(71B)	131-11-3	dimethyl phthalate	10 u
(72B)	56-55-3	benzo(a)anthracene	10 u
(73B)	50-32-8	benzo(a)pyrene	20 u
(74B)	205-99-2	benzo(b)fluoranthene	20 u
(75B)	207-08-9	benzo(k)fluoranthene	20 u
(76B)	218-01-9	chrysene	20 u
(77B)	208-96-8	acenaphthylene	10 u
(78B)	120-12-7	anthracene	10 u
(79B)	191-24-2	benzo(ghi)perylene	20 u
(80B)	86-73-7	fluorene	10 u
(81B)	85-01-8	phenanthrene	10 u
(82B)	53-70-3	dibenzo(a,h)anthracene	20 u
(83B)	193-39-5	indeno(1,2,3-cd)pyrene	20 u
(84B)	129-00-0	pyrene	10 u

VOLATILES

(2V)	107-02-8	acrolein	100 u
(3V)	107-13-1	acrylonitrile	100 u
(4V)	71-43-2	benzene	5 u
(6V)	56-23-5	carbon tetrachloride	5 u
(7V)	108-90-7	chlorobenzene	5 u
(10V)	107-06-2	1,2-dichloroethane	1 u
(11V)	71-55-6	1,1,1-trichloroethane	5 u
(13V)	75-34-3	1,1-dichloroethane	5 u
(14V)	79-00-5	1,1,2-trichloroethane	5 u
(15V)	79-34-5	1,1,2,2-tetrachloroethane	10 u
(16V)	75-00-3	chloroethane	10 u
(19V)	110-75-8	2-chloroethylvinyl ether	10 u
(23V)	67-66-3	chloroform	5 u
(29V)	75-35-4	1,1-dichloroethene	5 u
(30V)	156-60-5	trans-1,2-dichloroethene	5 u
(32V)	78-87-5	1,2-dichloropropane	10 u
(33V)	10061-02-6	trans-1,3-dichloropropene	5 u
	10061-01-05	cis-1,3-dichloropropene	5 u
(38V)	100-41-4	ethylbenzene	5 u
(44V)	75-09-2	methylene chloride	5 u
(45V)	74-87-3	chloromethane	10 u
(46V)	74-83-9	bromomethane	10 u
(47V)	75-25-2	bromoform	10 u
(48V)	75-27-4	bromodichloromethane	5 u
(49V)	75-69-4	fluorotrichloromethane	NA
(50V)	75-71-8	dichlorodifluoromethane	NA
(51V)	124-48-1	chlorodibromomethane	5 u
(85V)	127-18-4	tetrachloroethene	5 u
(86V)	108-88-3	toluene	5 u
(87V)	79-01-6	trichloroethene	5 u
(88V)	75-01-4	vinyl chloride	10 u

AR100178

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Low Level Water
ORGANICS ANALYSIS DATA SHEET

Sample Number
C-3154

Laboratory Name: NUS Corporation
Case No: 1761
Lab Sample I.D.NO: 13051446
QC Report No:
Multiply Detection Limits by 1 [X] or 10 [ ] (Check box for appropriate factor)

Non-Priority Pollutant Hazardous Substances List Compounds

ACID COMPOUNDS

CAS #		ug/l or ug/kg (circle one)
65-85-0	benzoic acid	100 u
95-48-7	2-methylphenol	5 u
108-39-4	4-methylphenol	10 u
95-95-4	2,4,5-trichlorophenol	100 u

BASE/NEUTRAL COMPOUNDS

62-53-3	aniline	5 u
100-51-6	benzyl alcohol	20 u
106-47-8	4-chloroaniline	50 u
132-64-9	dibenzofuran	10 u
91-57-6	2-methylnaphthalene	20 u
88-74-4	2-nitroaniline	100 u
99-09-2	3-nitroaniline	100 u
100-01-6	4-nitroaniline	100 u

VOLATILES

CAS #		ug/l or ug/kg (circle one)
67-64-1	acetone	5 u
78-93-3	2-butanone	5 u
75-15-0	carbondisulfide	1 u
519-78-6	2-hexanone	5 u
108-10-1	4-methyl-2-pentanone	5 u
100-42-5	styrene	5 u
108-05-4	vinyl acetate	5 u
95-47-6	o-xylene	5 u
	4-methyl-2-pentanol	ND
	tetrahydofuran	ND

ND=Not detected

AR100179

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Low Level Water

Sample Numbe
c-3154

Laboratory Name: NUS Corporation

Case No: 7761

Lab Sample I.D.No: 13051446

QC Report No:

Multiply Detection Limits by 1 [X] or 10 [ ] (Check box for appropriate factor)

PESTICIDES

PP #	CAS #		ug/l or ug/kg (circle one)
(89P)	309-00-2	aldrin	0.005 u
(90P)	60-57-1	dieldrin	0.005 u
(91P)	57-74-9	chlordane	0.050 u
(92P)	50-29-3	4,4'-DDT	0.010 u
(93P)	72-55-9	4,4'-DDE	0.005 u
(94P)	72-54-8	4,4'-DDD	0.010 u
(95P)	115-29-7	α-endosulfan	0.005 u
(96P)	115-29-7	β-endosulfan	0.005 u
(97P)	1031-07-8	endosulfan sulfate	0.010 u
(98P)	72-20-8	endrin	0.005 u
(99P)	7421-93-4	endrin aldehyde	0.010 u
(100P)	76-44-8	heptachlor	0.005 u
(101P)	1024-57-3	heptachlor epoxide	0.005 u
(102P)	319-84-6	α-BHC	0.005 u

PESTICIDES

PP #	CAS #		ug/l or ug/ (circle one)
(103P)	319-85-7	β-BHC	0.005 u
(104P)	319-86-8	δ-BHC	0.005 u
(105P)	58-89-9	γ-BHC(lindane)	0.005 u
(106P)	53469-21-9	PCB-1242	0.050 u
(107P)	11097-69-1	PCB-1254	0.100 u
(108P)	11104-28-2	PCB-1221	0.100 u
(109P)	11141-16-5	PCB-1232	0.100 u
(110P)	12672-29-6	PCB-1248	0.100 u
(111P)	11096-82-5	PCB-1260	0.200 u
(112P)	12674-11-2	PCB-1016	0.050 u
(113P)	8001-35-2	toxaphene	0.050 u

DIOXINS

(129B)	1746-01-6	2,3,7,8-tetrachlorodi-benzo-p-dioxin	0.005 u

Surrogate Spike Results

Compound Name	Concentration (ug/l) or amount (ug)	Spike Added ug/l or ug	Percent Recovery
Dibutyl Chlorendate, Pesticide	8.67	5.0	173

AR100180

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ORGANICS ANALYSIS DATA SHEET - Page 3

Sample C-315

Laboratory Name: NUS Corp. Laboratories Services Div.

QC Report No: _____

A. Surrogate Spike Results

Compound Name	Fraction	Concentration (ug/l)	Surrogates Only	
			Spike Added (ug/l)	Perc Reco
D_6 - Benzene	VOA	106	100	106
D_8 - Toluene	VOA	107	100	107
D_5 - Nitrobenzene	BN	30	50	60
2 - Fluorobiphenyl	BN	46	50	92
D_5 - Phenol	Acid	13	50	26
2 - Fluorophenol	Acid	10	50	20

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining results are encoura Definition of such flags must be explicit however.

Value - If the result is a value greater than or equal to the detection limit, report the value.

U - Indicates compound was analyzed for but not detected. Report the minimum detection limit value with the U, e.g., 10U. The footnote should read: U - Compound was analyzed for but not detected. The number is the minimum detection limit.

K - If the mass spectral data indicate the presence of a compound that meets the identification criteria but the quantitative result is less than the specified detection limit but greater than zero, report the detection limit as K, e.g., 10K. The footnote should read: K - Actual value, within the limitations of this method, is less than the value given.

FS - This flag applies to analysis performed by Fused Silica Capillary Column.

J - Indicates an estimated value which is used when estima a concentration for tentatively identified compounds; 12000. The footnote should read: J - Estimated value.

Other - Other specific flags and footnotes may be require properly define the results. If used, they must be described in a page attached to the data summary report

** - This flag applies to pesticides parameters where the id fication has been performed using two column confirma (as specified in Method 608) but the level is too low verification of the compound by mass spectrometry.

CX - This flag is used to indicate those compounds which concentrated by a factor of 10 times.

AR100181

Form I (continued)

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ORGANICS ANALYSIS DATA SHEET - Page 4

Sample Number
C-3154

Laboratory Name: NUS

QC Report No:

Case No: 1761

B. Tentatively Identified Compounds

	CAS #	Compound Name	Fraction	Scan No. or Retention Time	% Maximum Score Attained Mass Matching Routine: (Specify: _____)	Estimated Concentration (ug/L or ug/kg)
1.						
2.						
3.						
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AR100182

Form I (continued)

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U.S. ENVIRONMENTAL PROTECTION AGENCY
P.O. Box 818, Alexandria, Virginia 22313 • 703/557-2490

C-3155

Low Level Water
ORGANICS ANALYSIS DATA SHEET

Laboratory Name: NUS Case No: 1761
Lab Sample I.D. No: 13051447 QC Report No:

Multiply Detection Limits by 1 [X] or 10 [ ] (Check Box for Appropriate Factor)

ACID COMPOUNDS

PP #	CAS #		ug/l or ug/kg (circle one)
(21A)	88-06-2	2,4,6-trichlorophenol	10 u
(22A)	59-50-7	p-chloro-m-cresol	10 u
(24A)	95-57-8	2-chlorophenol	10 u
(31A)	120-83-2	2,4-dichlorophenol	10 u
(34A)	105-67-9	2,4-dimethylphenol	10 u
(57A)	88-75-5	2-nitrophenol	20 u
(58A)	100-02-7	4-nitrophenol	50 u
(59A)	51-28-5	2,4-dinitrophenol	50 u
(60A)	534-52-1	4,6-dinitro-2-methylphenol	20 u
(64A)	87-86-5	pentachlorophenol	10 u
(65A)	108-95-2	phenol	10 u

BASE/NEUTRAL COMPOUNDS

PP #	CAS #		ug/l or ug/kg (circle one)
(73B)	50-32-8	benzo(a)pyrene	20 u
(74B)	205-99-2	benzo(b)fluoranthene	20 u
(75B)	207-08-9	benzo(k)fluoranthene	20 u
(76B)	218-01-9	chrysene	20 u
(77B)	208-96-8	acenaphthylene	10 u
(78B)	120-12-7	anthracene	10 u
(79B)	191-24-2	benzo(ghi)perylene	20 u
(80B)	86-73-7	fluorene	10 u
(81B)	85-01-8	phenanthrene	10 u
(82B)	53-70-3	dibenzo(a,h)anthracene	20 u
(83B)	193-39-5	indeno(1,2,3-cd)pyrene	20 u
(84B)	129-00-0	pyrene	10 u

BASE/NEUTRAL COMPOUNDS

(1B)	83-32-9	acenaphthene	10 u
(5B)	92-87-5	benzidine	40 u
(8B)	120-82-1	1,2,4-trichlorobenzene	10 u
(9B)	118-74-1	hexachlorobenzene	10 u
(12B)	67-72-1	hexachloroethane	10 u
(18B)	111-44-4	bis(2-chloroethyl)ether	10 u
(20B)	91-58-7	2-chloronaphthalene	10 u
(25B)	95-50-1	1,2-dichlorobenzene	10 u
(26B)	541-73-1	1,3-dichlorobenzene	10 u
(27B)	106-46-7	1,4-dichlorobenzene	10 u
(28B)	91-94-1	3,3'-dichlorobenzidine	20 u
(35B)	121-14-2	2,4-dinitrotoluene	20 u
(36B)	606-20-2	2,6-dinitrotoluene	20 u
(37B)	122-66-7	1,2-diphenylhydrazine	20 u
(39B)	206-44-0	fluoranthene	10 u
(40B)	7005-72-3	4-chlorophenyl phenyl ether	10 u
(41B)	101-55-3	4-bromophenyl phenyl ether	10 u
(42B)	39638-32-9	bis (2-chloroisopropyl) ether	20 u
(43B)	111-91-1	bis (2-chloroethoxy) methane	20 u
(32B)	87-68-3	hexachlorobutadiene	10 u
(33B)	77-47-4	hexachlorocyclopentadiene	10 u
(34B)	78-59-1	isophorone	10 u
(35B)	91-20-3	naphthalene	10 u
(36B)	98-95-3	nitrobenzene	10 u
(62B)	86-30-6	N-nitrosodiphenylamine	10 u
(63B)	621-64-7	N-nitrosodipropylamine	10 u
(66B)	117-81-7	bis (2-ethylhexyl) phthalate	10 u
(67B)	85-68-7	benzyl butyl phthalate	10 u
(68B)	84-74-2	di-n-butyl phthalate	10 u
(69B)	117-84-0	di-n-octyl phthalate	10 u
(70B)	84-66-2	diethyl phthalate	10 u
(71B)	131-11-3	dimethyl phthalate	10 u
(72B)	56-55-3	benzo(a)anthracene	10 u

VOLATILES

(2V)	107-02-8	acrolein	100 u
(3V)	107-13-1	acrylonitrile	100 u
(4V)	71-43-2	benzene	5 u
(6V)	56-23-5	carbon tetrachloride	5 u
(7V)	108-90-7	chlorobenzene	
(10V)	107-06-2	1,2-dichloroethane	
(11V)	71-55-6	1,1,1-trichloroethane	5 u
(13V)	75-34-3	1,1-dichloroethane	5 u
(14V)	79-00-5	1,1,2-trichloroethane	5 u
(15V)	79-34-5	1,1,2,2-tetrachloroethane	10 u
(16V)	75-00-3	chloroethane	10 u
(19V)	110-75-8	2-chloroethylvinyl ether	10 u
(23V)	67-66-3	chloroform	5 u
(29V)	75-35-4	1,1-dichloroethene	5 u
(30V)	156-60-5	trans-1,2-dichloroethene	5 u
(32V)	78-87-5	1,2-dichloropropane	10 u
(33V)	10061-02-6	trans-1,3-dichloropropene	5 u
	10061-01-05	cis-1,3-dichloropropene	5 u
(38V)	100-41-4	ethylbenzene	5 u
(44V)	75-09-2	methylene chloride	5 u
(45V)	74-87-3	chloromethane	10 u
(46V)	74-83-9	bromomethane	10 u
(47V)	75-25-2	bromoform	10 u
(48V)	75-27-4	bromodichloromethane	5 u
(49V)	75-69-4	fluorotrichloromethane	NA
(50V)	75-71-8	dichlorodifluoromethane	NA
(51V)	124-48-1	chlorodibromomethane	5 u
(85V)	127-18-4	tetrachloroethene	5 u
(86V)	108-88-3	toluene	5 u
(87V)	79-01-6	trichloroethene	5 u
(88V)	75-01-4	vinyl chloride	10 u

AR100183

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Low Level Water
ORGANICS ANALYSIS DATA SHEET

Sample Number
C-3155

Laboratory Name: NUS Corporation Case No: 1761

Lab Sample I.D.NO: 13051447 QC Report No:

Multiply Detection Limits by 1 [X] or 10 [ ] (Check box for appropriate factor)

Non-Priority Pollutant Hazardous Substances List Compounds

ACID COMPOUNDS

CAS #		ug/l or ug/kg (circle one)
65-85-0	benzoic acid	100 u
95-48-7	2-methylphenol	5 u
108-39-4	4-methylphenol	10 u
95-95-4	2,4,5-trichlorophenol	100 u

BASE/NEUTRAL COMPOUNDS

62-53-3	aniline	5 u
100-51-6	benzyl alcohol	20 u
106-47-8	4-chloroaniline	50 u
132-64-9	dibenzofuran	10 u
91-57-6	2-methylnaphthalene	20 u
88-74-4	2-nitroaniline	100 u
99-09-2	3-nitroaniline	100 u
100-01-6	4-nitroaniline	100 u

VOLATILES

CAS #		ug/l or ug/ (circle one
67-64-1	acetone	5 u
78-93-3	2-butanone	5 u
75-15-0	carbondisulfide	1 u
519-78-6	2-hexanone	5 u
108-10-1	4-methyl-2-pentanone	5 u
100-42-5	styrene	5 u
108-05-4	vinyl acetate	5 u
95-47-6	o-xylene	5 u
	4-methyl-2-pentanol	ND
	tetrahydrofuran	ND

ND=Not detected

AR100184

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Low Level Water

c-3155

Laboratory Name: NUS Corporation

Case No: 1761

Lab Sample I.D.No: 13051447

QC Report No:

Multiply Detection Limits by 1 [x] or 10 [ ] (Check box for appropriate factor)

PESTICIDES (ug/l or ug/kg (circle one))

PP #	CAS #		
(89P)	309-00-2	aldrin	0.005 u
(90P)	60-57-1	dieldrin	0.005 u
(91P)	57-74-9	chlordane	0.050 u
(92P)	50-29-3	4,4'-DDT	0.010 u
(93P)	72-55-9	4,4'-DDE	0.005 u
(94P)	72-54-8	4,4'-DDD	0.010 u
(95P)	115-29-7	α-endosulfan	0.005 u
(96P)	115-29-7	β-endosulfan	0.005 u
(97P)	1031-07-8	endosulfan sulfate	0.010 u
(98P)	72-20-8	endrin	0.005 u
(99P)	7421-93-4	endrin aldehyde	0.010 u
(100P)	76-44-8	heptachlor	0.005 u
(101P)	1024-57-3	heptachlor epoxide	0.005 u
(102P)	319-84-6	α-BHC	0.005 u

PESTICIDES (ug/l or ug/kg (circle one))

PP #	CAS #		
(103P)	319-85-7	β-BHC	0.005 u
(104P)	319-86-8	δ-BHC	0.005 u
(105P)	58-89-9	γ-BHC (lindane)	0.005 u
(106P)	53469-21-9	PCB-1242	0.050 u
(107P)	11097-69-1	PCB-1254	0.100 u
(108P)	11104-28-2	PCB-1221	0.100 u
(109P)	11141-16-5	PCB-1232	0.100 u
(110P)	12672-29-6	PCB-1248	0.100 u
(111P)	11096-82-5	PCB-1260	0.200 u
(112P)	12674-11-2	PCB-1016	0.050 u
(113P)	8001-35-2	toxaphene	0.050 u

DIOXINS

(129B)	1746-01-6	2,3,7,8-tetrachlorodibenzo-p-dioxin	0.005 u

Surrogate Spike Results

Compound Name	Concentration (ug/l) or amount (ug)	Spike added (ug/l or ug)	Percent Recovery
Dibutyl Chlorendate, Pesticide	8.91	5.0	178

AR100185

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ORGANICS ANALYSIS DATA SHEET - Page 3

Sample Number
C-3155

Laboratory Name: NUS Corp. Laboratories Services Div.

QC Report No:

A. Surrogate Spike Results

Compound Name	Fraction	Concentration (ug/l)	Surrogates Only	
			Spike Added (ug/l)	Percent Recovery
D_6 - Benzene	VOA	103	100	103
D_8 - Toluene	VOA	104	100	104
D_5 - Nitrobenzene	BN	28	50	56
2 - Fluorobiphenyl	BN	44	50	88
D_5 - Phenol	Acid	22	50	44
2 - Fluorophenol	Acid	32	50	64

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit however.

Value - If the result is a value greater than or equal to the detection limit, report the value.

U - Indicates compound was analyzed for but not detected. Report the minimum detection limit value with the U, e.g., 10U. The footnote should read: U - Compound was analyzed for but not detected. The number is the minimum detection limit.

K - If the mass spectral data indicate the presence of a compound that meets the identification criteria but the quantitative result is less than the specified detection limit but greater than zero, report the detection limit as K, e.g., 10K. The footnote should read: K - Actual value, within the limitations of this method, is less than the value given.

FS - This flag applies to analysis performed by Fused Silica Capillary Column.

J - Indicates an estimated value which is used when estimating a concentration for tentatively identified compounds; e.g. 1200J. The footnote should read: J - Estimated value.

Other - Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described in a page attached to the data summary report.

** - This flag applies to pesticides parameters where the identification has been performed using two column confirmation (as specified in Method 608) but the level is too low for verification of the compound by mass spectrometry.

CX - This flag is used to indicate those compounds which were concentrated by a factor of 10 times.

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Sample Number
0-3455

ORGANICS ANALYSIS DATA SHEET - Page 4 -

Laboratory Name: NUS Case No: 1761
QC Report No:

B. Tentatively Identified Compounds

CAS #	Compound Name	Fraction	Scan No. or Retention Time	% Maximum Score Attained Mass Matching Routine: (Specify:_____)	Estimated Concentration (ug/L or ug/kg)
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					
13.					
14.					
15.					
16.					
17.					
18.					
19.					
20.					
21.					
22.					
23.					
24.					
25.					
26.					
27.					
28.					
29.					
30.					

4/82

AR100187

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P.O. Box 818, Alexandria, Virginia 22313 • 703/557-2490

Sample Number
C-3156

Low Level Water
ORGANICS ANALYSIS DATA SHEET

Laboratory Name: NUS Case No: 1761
Lab Sample I.D. No: 13051448 QC Report No:

Multiply Detection Limits by 1 [X] or 10 [ ] (Check Box for Appropriate Factor)

ACID COMPOUNDS

PP #	CAS #		ug/l or ug/kg (circle one)
(21A)	88-06-2	2,4,6-trichlorophenol	10 u
(22A)	59-50-7	p-chloro-m-cresol	10 u
(24A)	95-57-8	2-chlorophenol	10 u
(31A)	120-83-2	2,4-dichlorophenol	10 u
(34A)	105-67-9	2,4-dimethylphenol	10 u
(57A)	88-75-5	2-nitrophenol	20 u
(58A)	100-02-7	4-nitrophenol	50 u
(59A)	51-28-5	2,4-dinitrophenol	50 u
(60A)	534-52-1	4,6-dinitro-2-methylphenol	20 u
(64A)	87-86-5	pentachlorophenol	10 u
(65A)	108-95-2	phenol	10 u

BASE/NEUTRAL COMPOUNDS

PP #	CAS #		ug/l or ug/kg (circle one)
(1B)	83-32-9	acenaphthene	10 u
(5B)	92-87-5	benzidine	40 u
(8B)	120-82-1	1,2,4-trichlorobenzene	10 u
(9B)	118-74-1	hexachlorobenzene	10 u
(12B)	67-72-1	hexachloroethane	10 u
(18B)	111-44-4	bis(2-chloroethyl)ether	10 u
(25B)	91-58-7	2-chloronaphthalene	10 u
(29B)	95-50-1	1,2-dichlorobenzene	10 u
(30B)	541-73-1	1,3-dichlorobenzene	10 u
(27B)	106-46-7	1,4-dichlorobenzene	10 u
(28B)	91-94-1	3,3'-dichlorobenzidine	20 u
(35B)	121-14-2	2,4-dinitrotoluene	20 u
(36B)	606-20-2	2,6-dinitrotoluene	20 u
(37B)	122-66-7	1,2-diphenylhydrazine	20 u
(39B)	206-44-0	fluoranthene	10 u
(40B)	7005-72-3	4-chlorophenyl phenyl ether	10 u
(41B)	101-55-3	4-bromophenyl phenyl ether	10 u
(42B)	39638-32-9	bis (2-chloroisopropyl) ether	20 u
(43B)	111-91-1	bis (2-chloroethoxy) methane	20 u
(52B)	87-68-3	hexachlorobutadiene	10 u
(53B)	77-47-4	hexachlorocyclopentadiene	10 u
(54B)	78-59-1	isophorone	10 u
(55B)	91-20-3	naphthalene	10 u
(56B)	98-95-3	nitrobenzene	10 u
(62B)	86-30-6	N-nitrosodiphenylamine	10 u
(63B)	621-64-7	N-nitrosodipropylamine	10 u
(66B)	117-81-7	bis (2-ethylhexyl) phthalate	10 u
(67B)	85-68-7	benzyl butyl phthalate	10 u
(68B)	84-74-2	di-n-butyl phthalate	10 u
(69B)	117-84-0	di-n-octyl phthalate	10 u
(70B)	84-66-2	diethyl phthalate	10 u
(71B)	131-11-3	dimethyl phthalate	10 u
(72B)	56-55-3	benzo(a)anthracene	10 u

PP #	CAS #		ug/l or ug/kg (circle one)
(73B)	50-32-8	benzo(a)pyrene	20 u
(74B)	205-99-2	benzo(b)fluoranthene	20 u
(75B)	207-08-9	benzo(k)fluoranthene	20 u
(76B)	218-01-9	chrysene	20 u
(77B)	208-96-8	acenaphthylene	10 u
(78B)	120-12-7	anthracene	10 u
(79B)	191-24-2	benzo(ghi)perylene	20 u
(80B)	86-73-7	fluorene	10 u
(81B)	85-01-8	phenanthrene	10 u
(82B)	53-70-3	dibenzo(a,h)anthracene	20 u
(83B)	193-39-5	indeno(1,2,3-cd)pyrene	20 u
(84B)	129-00-0	pyrene	10 u

VOLATILES

PP #	CAS #		ug/l or ug/kg (circle one)
(2V)	107-02-8	acrolein	100 u
(3V)	107-13-1	acrylonitrile	100 u
(4V)	71-43-2	benzene	5 u
(6V)	56-23-5	carbon tetrachloride	5 u
(7V)	108-90-7	chlorobenzene	5 u
(10V)	107-06-2	1,2-dichloroethane	1 u
(11V)	71-55-6	1,1,1-trichloroethane	5 u
(13V)	75-34-3	1,1-dichloroethane	5 u
(14V)	79-00-5	1,1,2-trichloroethane	5 u
(15V)	79-34-5	1,1,2,2-tetrachloroethane	10 u
(16V)	75-00-3	chloroethane	10 u
(19V)	110-75-8	2-chloroethylvinyl ether	10 u
(23V)	67-66-3	chloroform	5 u
(29V)	75-35-4	1,1-dichloroethene	5 u
(30V)	156-60-5	trans-1,2-dichloroethene	5 u
(32V)	78-87-5	1,2-dichloropropane	10 u
(33V)	10061-02-6	trans-1,3-dichloropropene	5 u
	10061-01-05	cis-1,3-dichloropropene	5 u
(38V)	100-41-4	ethylbenzene	5 u
(44V)	75-09-2	methylene chloride	5 u
(45V)	74-87-3	chloromethane	10 u
(46V)	74-83-9	bromomethane	10 u
(47V)	75-25-2	bromoform	10 u
(48V)	75-27-4	bromodichloromethane	5 u
(49V)	75-69-4	fluorotrichloromethane	NA
(50V)	75-71-8	dichlorodifluoromethane	NA
(51V)	124-48-1	chlorodibromomethane	5 u
(85V)	127-18-4	tetrachloroethene	5 u
(86V)	108-88-3	toluene	5 u
(87V)	79-01-6	trichloroethene	5 u
(88V)	75-01-4	vinyl chloride	5 u

AR300188

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Low Level Water

ORGANICS ANALYSIS DATA SHEET

Sample Number: C-3156

Laboratory Name: NUS Corporation Case No: 1761

Lab Sample I.D.NO: 13061448 QC Report No:

Multiply Detection Limits by 1 [X] or 10 [ ] (Check box for appropriate factor)

Non-Priority Pollutant Hazardous Substances List Compounds

ACID COMPOUNDS

CAS #		ug/l or ug/kg (circle one)
65-85-0	benzoic acid	100 u
95-48-7	2-methylphenol	5 u
108-39-4	4-methylphenol	10 u
95-95-4	2,4,5-trichlorophenol	100 u

BASE/NEUTRAL COMPOUNDS

CAS #		ug/l or ug/kg (circle one)
62-53-3	aniline	5 u
100-51-6	benzyl alcohol	20 u
106-47-8	4-chloroaniline	50 u
132-64-9	dibenzofuran	10 u
91-57-6	2-methylnaphthalene	20 u
88-74-4	2-nitroaniline	100 u
99-09-2	3-nitroaniline	100 u
100-01-6	4-nitroaniline	100 u

VOLATILES

CAS #		ug/l or ug/kg (circle one)
67-64-1	acetone	5 u
78-93-3	2-butanone	5 u
75-15-0	carbondisulfide	1 u
519-78-6	2-hexanone	5 u
108-10-1	4-methyl-2-pentanone	5 u
100-42-5	styrene	5 u
108-05-4	vinyl acetate	5 u
95-47-6	o-xylene	5 u
	4-methyl-2-pentanol	ND
	tetrahydrofuran	ND

ND=Not detected

AR100189

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Low Level Water

Sample Number: C-3156

Laboratory Name: NUS Corporation

Case No: 1761

Lab Sample I.D.No: 13051448

QC Report No:

Multiply Detection Limits by 1 [X] or 10 [ ] (Check box for appropriate factor)

PESTICIDES

PP #	CAS #		ug/l or ug/kg (circle one)
(89P)	309-00-2	aldrin	0.005 u
(90P)	60-57-1	dieldrin	0.005 u
(91P)	57-74-9	chlordane	0.050 u
(92P)	50-29-3	4,4'-DDT	0.010 u
(93P)	72-55-9	4,4'-DDE	0.005 u
(94P)	72-54-8	4,4'-DDD	0.010 u
(95P)	115-29-7	a-endosulfan	0.005 u
(96P)	115-29-7	b-endosulfan	0.005 u
(97P)	1031-07-8	endosulfan sulfate	0.010 u
(98P)	72-20-8	endrin	0.005 u
(99P)	7421-93-4	endrin aldehyde	0.010 u
(100P)	76-44-8	heptachlor	0.005 u
(101P)	1024-57-3	heptachlor epoxide	0.005 u
(102P)	319-84-6	a-BHC	0.005 u

PESTICIDES

PP #	CAS #		ug/l or ug (circle on
(103P)	319-85-7	B-BHC	0.005
(104P)	319-86-8	d-BHC	0.005
(105P)	58-89-9	✓-BHC(lindane)	0.005
(106P)	53469-21-9	PCB-1242	0.050
(107P)	11097-69-1	PCB-1254	0.100
(108P)	11104-28-2	PCB-1221	0.100
(109P)	11141-16-5	PCB-1232	0.100
(110P)	12672-29-6	PCB-1248	0.100
(111P)	11096-82-5	PCB-1260	0.200
(112P)	12674-11-2	PCB-1016	0.050
(113P)	8001-35-2	toxaphene	0.050

DIOXINS

(129B)	1746-01-6	2,3,7,8-tetrachlorodibenzo-p-dioxin	0.005

Surrogate Spike Results

Compound Name	✓ Concentration (ug/l) or amount (ug)	Spike Added ug/l or ug	Percent Recovery
Dibutyl Chlorendate, Pesticide	*	5.0	--

* Data system error-the data system did not take the strong peak of dibutyl chlorendate shown on chromatogram.

AR100190

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ORGANICS ANALYSIS DATA SHEET - Page 3

Sample Nur
C-3156

Laboratory Name: NUS Corp. Laboratories Services Div.

QC Report No: _____

A. Surrogate Spike Results

Compound Name	Fraction	Concentration (ug/l)	Surrogates Only	
			Spike Added (ug/l)	Percer Recove
D_6 - Benzene	VOA	129	100	129
D_8 - Toluene	VOA	120	100	120
D_5 - Nitrobenzene	BN	30	50	60
2^{-} - Fluorobiphenyl	BN	44	50	88
D_5 - Phenol	Acid	16	50	32
2^{-} - Fluorophenol	Acid	18	50	36

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining results are encourage Definition of such flags must be explicit however.

Value - If the result is a value greater than or equal to the detection limit, report the value.

U - Indicates compound was analyzed for but not detected. Report the minimum detection limit value with the U, e.g., 10U. The footnote should read: U - Compound was analyzed for but not detected. The number is the minimum detection limit.

K - If the mass spectral data indicate the presence of a compound that meets the identification criteria but the quantitative result is less than the specified detection limit but greater than zero, report the detection limit as K, e.g., 10K. The footnote should read: K - Actual value, within the limitations of this method, is less than the value given.

FS - This flag applies to analysis performed by Fused Silica Capillary Column.

J - Indicates an estimated value which is used when estimati a concentration for tentatively identified compounds; e.g 1200J. The footnote should read: J - Estimated value.

Other - Other specific flags and footnotes may be required properly define the results. If used, they must be ful described in a page attached to the data summary report.

** - This flag applies to pesticides parameters where the ident fication has been performed using two column confirmatic (as specified in Method 608) but the level is too low f verification of the compound by mass spectrometry.

CX - This flag is used to indicate those compounds which wer concentrated by a factor of 10 times.

AR100191

Form I (continued)

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ORGANICS ANALYSIS DATA SHEET - Page 4 -

Sample Number
C-3156

Laboratory Name: NUS Case No: 1761
QC Report No:

B. Tentatively Identified Compounds

CAS #	Compound Name	Fraction	Scan No. or Retention Time	% Maximum Score Attained Mass Matching Routine: (Specify: _____)	Estimated Concentration (ug/L or ug/kg
1.					
2.					
3.					
4.					
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30.					

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AR100192

Form I (continued)

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U.S. ENVIRONMENTAL PR... Sample Management Office
P.O. Box 818, Alexandria, Virginia 22313 - 703/557-2490

Sample Number
C-3157

Low Level Water
ORGANICS ANALYSIS DATA SHEET

Laboratory Name: NUS
Case No: 1761
Lab Sample I.D. No: 13051449
QC Report No:

Multiply Detection Limits by 1 [X] or 10 [X] (Check Box for Appropriate Factor)
VOA only

ACID COMPOUNDS

PP #	CAS #		ug/l or ug/kg (circle one)
(21A)	88-06-2	2,4,6-trichlorophenol	10 u
(22A)	59-50-7	p-chloro-m-cresol	10 u
(24A)	95-57-8	2-chlorophenol	10 u
(31A)	120-83-2	2,4-dichlorophenol	10 u
(34A)	105-67-9	2,4-dimethylphenol	10 u
(57A)	88-75-5	2-nitrophenol	20 u
(58A)	100-02-7	4-nitrophenol	50 u
(59A)	51-28-5	2,4-dinitrophenol	50 u
(60A)	534-52-1	4,6-dinitro-2-methylphenol	20 u
(64A)	87-86-5	pentachlorophenol	10 u
(65A)	108-95-2	phenol	10 u

BASE/NEUTRAL COMPOUNDS

PP #	CAS #		ug/l or ug/kg (circle one)
(1B)	83-32-9	acenaphthene	10 u
(5B)	92-87-5	benzidine	40 u
(8B)	120-82-1	1,2,4-trichlorobenzene	10 u
(9B)	118-74-1	hexachlorobenzene	10 u
(12B)	67-72-1	hexachloroethane	10 u
(18B)	111-44-4	bis(2-chloroethyl)ether	10 u
(20B)	91-58-7	2-chloronaphthalene	10 u
(25B)	95-50-1	1,2-dichlorobenzene	10 u
(26B)	541-73-1	1,3-dichlorobenzene	10 u
(27B)	106-46-7	1,4-dichlorobenzene	10 u
(28B)	91-94-1	3,3'-dichlorobenzidine	20 u
(35B)	121-14-2	2,4-dinitrotoluene	20 u
(36B)	606-20-2	2,6-dinitrotoluene	20 u
(37B)	122-66-7	1,2-diphenylhydrazine	20 u
(39B)	206-44-0	fluoranthene	10 u
(40B)	7005-72-3	4-chlorophenyl phenyl ether	10 u
(41B)	101-55-3	4-bromophenyl phenyl ether	10 u
(42B)	39638-32-9	bis (2-chloroisopropyl) ether	20 u
(43B)	111-91-1	bis (2-chloroethoxy) methane	20 u
(52B)	87-68-3	hexachlorobutadiene	10 u
(53B)	77-47-4	hexachlorocyclopentadiene	10 u
(54B)	78-59-1	isophorone	10 u
(55B)	91-20-3	naphthalene	10 u
(56B)	98-95-3	nitrobenzene	10 u
(62B)	86-30-6	N-nitrosodiphenylamine	10 u
(63B)	621-64-7	N-nitrosodipropylamine	10 u
(66B)	117-81-7	bis (2-ethylhexyl) phthalate	10 u
(67B)	85-68-7	benzyl butyl phthalate	10 u
(68B)	84-74-2	di-n-butyl phthalate	10 u
(69B)	117-84-0	di-n-octyl phthalate	10 u
(70B)	84-66-2	diethyl phthalate	10 u
(71B)	131-11-3	dimethyl phthalate	10 u
(72B)	56-55-3	benzo(a)anthracene	10 u
(73B)	50-32-8	benzo(a)pyrene	20 u
(74B)	205-99-2	benzo(b)fluoranthene	20 u
(75B)	207-08-9	benzo(k)fluoranthene	20 u
(76B)	218-01-9	chrysene	20 u
(77B)	208-96-8	acenaphthylene	10 u
(78B)	120-12-7	anthracene	10 u
(79B)	191-24-2	benzo(ghi)perylene	20 u
(80B)	86-73-7	fluorene	10 u
(81B)	85-01-8	phenanthrene	10 u
(82B)	53-70-3	dibenzo(a,h)anthracene	20 u
(83B)	193-39-5	indeno(1,2,3-cd)pyrene	20 u
(84B)	129-00-0	pyrene	10 u

VOLATILES

(2V)	107-02-8	acrolein	100 u
(3V)	107-13-1	acrylonitrile	100 u
(4V)	71-43-2	benzene	5 u
(6V)	56-23-5	carbon tetrachloride	5 u
(7V)	108-90-7	chlorobenzene	[illegible]
(10V)	107-06-2	1,2-dichloroethane	[illegible] u
(11V)	71-55-6	1,1,1-trichloroethane	5 u
(13V)	75-34-3	1,1-dichloroethane	5 u
(14V)	79-00-5	1,1,2-trichloroethane	5 u
(15V)	79-34-5	1,1,2,2-tetrachloroethane	10 u
(16V)	75-00-3	chloroethane	10 u
(19V)	110-75-8	2-chloroethylvinyl ether	10 u
(23V)	67-66-3	chloroform	5 u
(29V)	75-35-4	1,1-dichloroethene	5 u
(30V)	156-60-5	trans-1,2-dichloroethene	5 u
(32V)	78-87-5	1,2-dichloropropane	10 u
(33V)	10061-02-6	trans-1,3-dichloropropene	5 u
	10061-01-05	cis-1,3-dichloropropene	5 u
(38V)	100-41-4	ethylbenzene	5 u
(44V)	75-09-2	methylene chloride	5 k
(45V)	74-87-3	chloromethane	10 u
(46V)	74-83-9	bromomethane	10 u
(47V)	75-25-2	bromoform	10 u
(48V)	75-27-4	bromodichloromethane	5 u
(49V)	75-69-4	fluorotrichloromethane	NA
(50V)	75-71-8	dichlorodifluoromethane	NA
(51V)	124-48-1	chlorodibromomethane	5
(85V)	127-18-4	tetrachloroethene	[illegible]
(86V)	108-88-3	toluene	5 u
(87V)	79-01-6	trichloroethene	5 u
(88V)	75-01-4	vinyl chloride	10 u

ARI00193

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Low Level Water
ORGANICS ANALYSIS DATA SHEET

Sample Number
C-3157

Laboratory Name: NUS Corporation Case No: 1761

Lab Sample I.D.NO: 13051449 QC Report No:

Multiply Detection Limits by 1 [X] or 10 [ ] (Check box for appropriate factor)
VOA only

Non-Priority Pollutant Hazardous Substances List Compounds

ACID COMPOUNDS

CAS #		ug/l or ug/kg (circle one)
65-85-0	benzoic acid	100 u
95-48-7	2-methylphenol	5 u
108-39-4	4-methylphenol	10 u
95-95-4	2,4,5-trichlorophenol	100 u

BASE/NEUTRAL COMPOUNDS

CAS #		ug/l or ug/kg (circle one)
62-53-3	aniline	5 u
100-51-6	benzyl alcohol	20 u
106-47-8	4-chloroaniline	50 u
132-64-9	dibenzofuran	10 u
91-57-6	2-methylnaphthalene	20 u
88-74-4	2-nitroaniline	100 u
99-09-2	3-nitroaniline	100 u
100-01-6	4-nitroaniline	100 u

VOLATILES

CAS #		ug/l or ug/kg (circle one)
67-64-1	acetone	210
78-93-3	2-butanone	5 u
75-15-0	carbondisulfide	1 u
519-78-6	2-hexanone	5 u
108-10-1	4-methyl-2-pentanone	5 u
100-42-5	styrene	5 u
108-05-4	vinyl acetate	5 u
95-47-6	o-xylene	5 u
	4-methyl-2-pentanol	ND
	tetrahydrofuran	ND

ND=Not detected

AR100194

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Low Level Water

Sample Number: C-3157

Laboratory Name: NUS Corporation Case No: 1761

Lab Sample I.D.No: 13051449 QC Report No:

Multiply Detection Limits by 1 [x] or 10 [ ] (Check box for appropriate factor)

PP #	CAS #	PESTICIDES	ug/l or ug/kg (circle one)
(89P)	309-00-2	aldrin	0.005 u
(90P)	60-57-1	dieldrin	0.005 u
(91P)	57-74-9	chlordane	0.050 u
(92P)	50-29-3	4,4'-DDT	0.010 u
(93P)	72-55-9	4,4'-DDE	0.005 u
(94P)	72-54-8	4,4'-DDD	0.010 u
(95P)	115-29-7	α-endosulfan	0.005 u
(96P)	115-29-7	β-endosulfan	0.005 u
(97P)	1031-07-8	endosulfan sulfate	0.010 u
(98P)	72-20-8	endrin	0.005 u
(99P)	7421-93-4	endrin aldehyde	0.010 u
(100P)	76-44-8	heptachlor	0.005 u
(101P)	1024-57-3	heptachlor epoxide	0.005 u
(102P)	319-84-6	α-BHC	0.005 u

PP #	CAS #	PESTICIDES	ug/l or ug/ (circle one)
(103P)	319-85-7	β-BHC	0.005 u
(104P)	319-86-8	δ-BHC	0.005 u
(105P)	58-89-9	γ-BHC(lindane)	0.005 u
(106P)	53469-21-9	PCB-1242	0.050 u
(107P)	11097-69-1	PCB-1254	0.100 u
(108P)	11104-28-2	PCB-1221	0.100 u
(109P)	11141-16-5	PCB-1232	0.100 u
(110P)	12672-29-6	PCB-1248	0.100 u
(111P)	11096-82-5	PCB-1260	0.200 u
(112P)	12674-11-2	PCB-1016	0.050 u
(113P)	8001-35-2	toxaphene	0.050 u

DIOXINS

(129B)	1746-01-6	2,3,7,8-tetrachlorodi-benzo-p-dioxin	0.005 u

Surrogate Spike Results

Compound Name	✓ Concentration (ug/l) or amount (ug)	Spike Added ug/l or ug	Percent Recovery
Dibutyl Chlorendate, Pesticide	2.42	5.0	48

AR100195

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ORGANICS ANALYSIS DATA SHEET - Page 3

Sample Number
C-3157

Laboratory Name: NUS Corp. Laboratories Services Div.

QC Report No: _____

A. Surrogate Spike Results

Compound Name	Fraction	Concentration (ug/l)	Surrogates Only	
			Spike Added (ug/l)	Perce Recov
D_6 - Benzene	VOA	1060	1000	106
D_8 - Toluene	VOA	990	1000	99
D_5 - Nitrobenzene	BN	30	50	60
2 - Fluorobiphenyl	BN	48	50	96
D_5 - Phenol	Acid	20	50	40
2 - Fluorophenol	Acid	30	50	60

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining results are encourag Definition of such flags must be explicit however.

Value - If the result is a value greater than or equal to the detection limit, report the value.

U - Indicates compound was analyzed for but not detected. Report the minimum detection limit value with the U, e.g., 10U. The footnote should read: U - Compound was analyzed for but not detected. The number is the minimum detection limit.

K - If the mass spectral data indicate the presence of a compound that meets the identification criteria but the quantitative result is less than the specified detection limit but greater than zero, report the detection limit as K, e.g., 10K. The footnote should read: K - Actual value, within the limitations of this method, is less than the value given.

FS - This flag applies to analysis performed by Fused Silica Capillary Column.

J - Indicates an estimated value which is used when estimati a concentration for tentatively identified compounds; e. 12000J. The footnote should read: J - Estimated value.

Other - Other specific flags and footnotes may be required properly define the results. If used, they must be fu described in a page attached to the data summary report.

** - This flag applies to pesticides parameters where the iden fication has been performed using two column confirmati (as specified in Method 603) but the level is too low f verification of the compound by mass spectrometry.

CX - This flag is used to indicate those compounds which we concentrated by a factor of 10 times.

AR100196

Form I (continued)

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Sample Number
C-3157

ORGANICS ANALYSIS DATA SHEET - Page 4

Laboratory Name: NUS Case No: 1761

QC Report No:

B. Tentatively Identified Compounds

	CAS #	Compound Name	Fraction	Scan No. or Retention Time	% Maximum Score Attained Mass Matching Routine: (Specify:_____)	Estimated Concentration (ug/L or ug/kg)
1.						
2.						
3.						
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AR100197

Form I (continued)

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C-3158

Low Level Water
ORGANICS ANALYSIS DATA SHEET

Laboratory Name: NUS Case No: 1761
Lab Sample I.D. No: 13051450 QC Report No:

Multiply Detection Limits by 1 [X] or 10 [ ] (Check Box for Appropriate Factor)

ACID COMPOUNDS

PP #	CAS #		ug/l or ug/kg (circle one)
(21A)	88-06-2	2,4,6-trichlorophenol	10 u
(22A)	59-50-7	p-chloro-m-cresol	10 u
(24A)	95-57-8	2-chlorophenol	10 u
(31A)	120-83-2	2,4-dichlorophenol	10 u
(34A)	105-67-9	2,4-dimethylphenol	10 u
(57A)	88-75-5	2-nitrophenol	20 u
(58A)	100-02-7	4-nitrophenol	50 u
(59A)	51-28-5	2,4-dinitrophenol	50 u
(60A)	534-52-1	4,6-dinitro-2-methylphenol	20 u
(64A)	87-86-5	pentachlorophenol	10 u
(65A)	108-95-2	phenol	10 u

BASE/NEUTRAL COMPOUNDS

PP #	CAS #		ug/l or ug/kg (circle one)
(1B)	83-32-9	acenaphthene	10 u
(5B)	92-87-5	benzidine	40 u
(8B)	120-82-1	1,2,4-trichlorobenzene	10 u
(9B)	118-74-1	hexachlorobenzene	10 u
(12B)	67-72-1	hexachloroethane	10 u
(13B)	111-44-4	bis(2-chloroethyl)ether	10 u
(20B)	91-58-7	2-chloronaphthalene	10 u
(25B)	95-50-1	1,2-dichlorobenzene	10 u
(26B)	541-73-1	1,3-dichlorobenzene	10 u
(27B)	106-46-7	1,4-dichlorobenzene	10 u
(28B)	91-94-1	3,3'-dichlorobenzidine	20 u
(35B)	121-14-2	2,4-dinitrotoluene	20 u
(36B)	606-20-2	2,6-dinitrotoluene	20 u
(37B)	122-66-7	1,2-diphenylhydrazine	20 u
(39B)	206-44-0	fluoranthene	10 u
(40B)	7005-72-3	4-chlorophenyl phenyl ether	10 u
(41B)	101-55-3	4-bromophenyl phenyl ether	10 u
(42B)	39638-32-9	bis (2-chloroisopropyl) ether	20 u
(43B)	111-91-1	bis (2-chloroethoxy) methane	20 u
(52B)	87-68-3	hexachlorobutadiene	10 u
(53B)	77-47-4	hexachlorocyclopentadiene	10 u
(54B)	78-59-1	isophorone	10 u
(55B)	91-20-3	naphthalene	10 u
(56B)	98-95-3	nitrobenzene	10 u
(62B)	86-30-6	N-nitrosodiphenylamine	10 u
(63B)	621-64-7	N-nitrosodipropylamine	10 u
(66B)	117-81-7	bis (2-ethylhexyl) phthalate	10 u
(67B)	85-68-7	benzyl butyl phthalate	10 u
(68B)	84-74-2	dien-butyl phthalate	10 u
(69B)	117-84-0	dien-octyl phthalate	10 u
(70B)	84-66-2	diethyl phthalate	10 u
(71B)	131-11-3	dimethyl phthalate	10 u
(72B)	56-55-3	benzo(a)anthracene	10 u
(73B)	50-32-8	benzo(a)pyrene	20 u
(74B)	205-99-2	benzo(b)fluoranthene	20 u
(75B)	207-08-9	benzo(k)fluoranthene	20 u
(76B)	218-01-9	chrysene	20 u
(77B)	208-96-8	acenaphthylene	10 u
(78B)	120-12-7	anthracene	10 u
(79B)	191-24-2	benzo(ghi)perylene	20 u
(80B)	86-73-7	fluorene	10 u
(81B)	85-01-8	phenanthrene	10 u
(82B)	53-70-3	dibenzo(a,h)anthracene	20 u
(83B)	193-39-5	indeno(1,2,3-cd)pyrene	20 u
(84B)	129-00-0	pyrene	10 u

VOLATILES

(2V)	107-02-8	acrolein	100 u
(3V)	107-13-1	acrylonitrile	100 u
(4V)	71-43-2	benzene	5 u
(6V)	56-23-5	carbon tetrachloride	5 u
(7V)	108-90-7	chlorobenzene	5 u
(10V)	107-06-2	1,2-dichloroethane	1 u
(11V)	71-55-6	1,1,1-trichloroethane	5 u
(13V)	75-34-3	1,1-dichloroethane	5 u
(14V)	79-00-5	1,1,2-trichloroethane	5 u
(15V)	79-34-5	1,1,2,2-tetrachloroethane	10 u
(16V)	75-00-3	chloroethane	10 u
(19V)	110-75-8	2-chloroethylvinyl ether	10 u
(23V)	67-66-3	chloroform	5 u
(29V)	75-35-4	1,1-dichloroethene	5 u
(30V)	156-60-5	trans-1,2-dichloroethene	5 u
(32V)	78-87-5	1,2-dichloropropane	10 u
(33V)	10061-02-6	trans-1,3-dichloropropene	5 u
	10061-01-05	cis-1,3-dichloropropene	5 u
(38V)	100-41-4	ethylbenzene	5 u
(44V)	75-09-2	methylene chloride	9
(45V)	74-87-3	chloromethane	10 u
(46V)	74-83-9	bromomethane	10 u
(47V)	75-25-2	bromoform	10 u
(48V)	75-27-4	bromodichloromethane	5 u
(49V)	75-69-4	fluorotrichloromethane	NA
(50V)	75-71-8	dichlorodifluoromethane	NA
(51V)	124-48-1	chlorodibromomethane	5 u
(85V)	127-18-4	tetrachloroethene	5 u
(86V)	108-88-3	toluene	5 K
(87V)	79-01-6	trichloroethene	5 u
(88V)	75-01-4	vinyl chloride	10 u

AR100198

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AR100199

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