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Phase IV Assessment Report

Thomasville Furniture Industries, Inc. Facility
Lenoir, North Carolina

Prepared for

Thomasville Furniture Industries, Inc.

February 11, 1993

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Table of Contents

1. Introduction 1
    1.1 Site History 1
    1.2 Scope of Work 4

2. Exploratory Excavations 4
    2.1 Locations of the Exploratory Excavations 4
    2.2 Excavation Procedures 6

3. Buried Drum Removal and Tracking 6
    3.1 Drum Burial Locations 6
    3.2 Removal Procedures 7

4. Sampling of Materials in Buried Drums 7

5. Soil Sample Collection and Analysis 9
    5.1 Volatile Organic Compounds 10
    5.2 Semivolatile Compounds 11
    5.3 Alcohols 13

6. Summary 14

Appendix A: Technical Methods
Appendix B: Exploratory Excavation and Drum Contents Descriptions
Appendix C: Chain of Custody and Laboratory Reports

1. Introduction

ENSCI Corporation has completed a Phase IV Assessment of the Thomasville Furniture Industries, Inc. facility in Lenoir, North Carolina. This phase of work continues assessment of the site following the unearthing of a drum believed to contain solvent material in December 1990. Phase IV was conducted in order to identify possible trench locations and possible buried drum caches located in the southern end of the facility. Site activities completed during this phase include the installation of seven exploratory trenches.

1.1 Site History

On December 27, 1990, Thomasville Furniture Industries, Inc. (TFI) discovered a drum believed to contain a solvent material in an excavation located in the parking lot of the Lenoir, North Carolina facility (see **Figure 1**).

ENSCI was contracted by TFI to perform an initial (Phase I) assessment of the area where the drum was located. The investigation consisted of the installation and sampling of eight monitoring wells (MW-1 through MW-8, see Figure 1) in the proximity of the potentially impacted area. As detailed in ENSCI's June 24, 1991 Phase I Assessment Report, the assessment resulted in the following findings:

- A potentiometric surface map generated for the report indicated that Blair Fork Creek has a strong influence on the shallow groundwater aquifer.
- A variety of volatile and semivolatile organic compounds were detected in groundwater at levels which exceed 15A NCAC 2L standards.

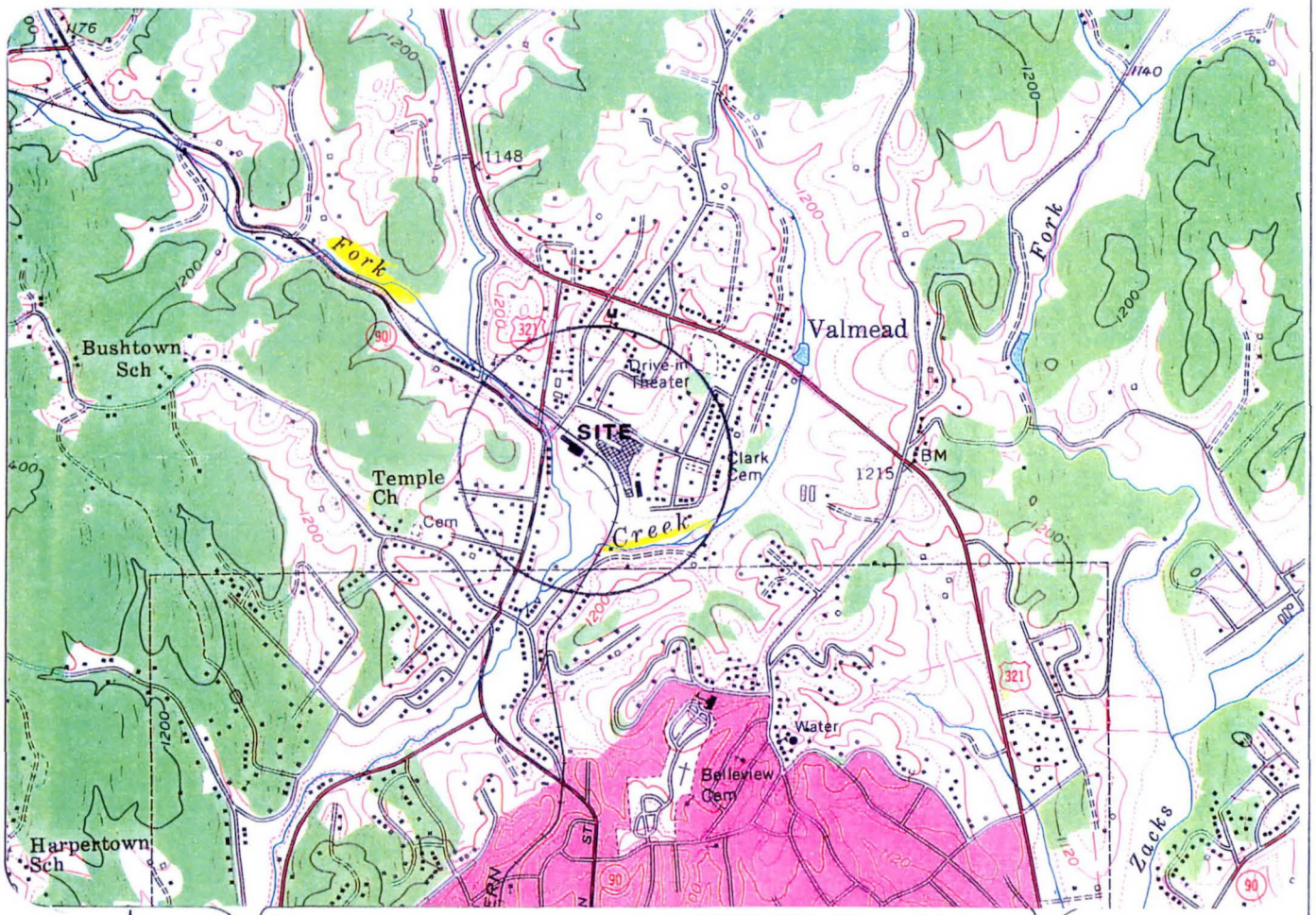
Subsequent to the Phase I investigation, TFI contracted ENSCI to conduct a Phase II Assessment at the Lenoir facility. This investigation included a ground-penetrating radar survey, a soil gas survey, sampling of sediment and water from Blair Fork Creek, and additional groundwater sampling.

The investigation yielded the following information, as discussed in the Phase II Assessment Report dated May 6, 1992:

- Several linear alignments of hyperbolic reflections were detected in the targeted area during the ground-penetrating radar survey. An estimated 200+ individual reflections were detected during this portion of the investigation.

TOPOGRAPHICAL MAP

Thomasville Furniture Incorporated
Lenoir, North Carolina



USGS LENOIR, NORTH CAROLINA 7.5 MINUTE QUADRANGLE

DATE OF MAP: 1956 PHOTOREVISION DATE: N/A

PHOTOREVISION DENOTED IN PURPLE (COLOR MAPS ONLY)

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

SCALE 1:24000

QUADRANGLE LOCATION

ROAD CLASSIFICATION

HEAVY-DUTY
MEDIUM-DUTY
LIGHT-DUTY
FOOT TRAIL
WGN & JEEP TRACK
UNIMPROVED ROAD

U.S. ROUTE
STATE ROUTE
INTERSTATE ROUTE

ENSCI® CORPORATION
HIGH POINT, NORTH CAROLINA

FOR: THOMASVILLE FURNITURE INC.	CITY: LENOIR STATE: NORTH CAROLINA
TITLE: TOPOGRAPHIC MAP	

SCALE: 1"=2000'	DWN BY: DJ DWG NAME: USGS-1	FIGURE: 1
DATE: 9/3/92	CK BY: TL	JOB #: H92051

- Soil gas anomalies indicated a plume composed almost exclusively of toluene present well north of the SIRS clusters, which suggests a source in the direction of the Reliance facility. Information acquired from the North Carolina State Superfund Section indicates that the Reliance facility is fraught with plumes of widely disparate chemicals that impact soil and groundwater to an undetermined extent.
- Contaminants were detected in analysis of water and sediment taken from Blair Fork Creek both upstream and downstream of the suspected drum burial site. This evidence suggests the presence of a source of contamination located upstream of the area. The detected materials are a combination of petroleum hydrocarbons and widespread, low-level halogenated compounds.

Based on the findings of the Phase II investigation indicating the presence of two distinct contamination plumes, a Phase III investigation was undertaken. This investigation consisted of the installation of five additional monitoring wells and collection of groundwater samples from all existing wells.

Following is a summary of the results of the Phase III investigation:

- Toluene was not detected in groundwater samples acquired from newly installed monitoring wells, as expected based on the Phase II soil gas survey results. These findings may result from lateral extension of the soil gas plume beyond contaminated groundwater.
- Compounds generally associated with solvents were detected in groundwater samples acquired from the southern end of the facility (in the vicinity of the suspected drum burial site).
- A comparison of types and concentrations of contaminants detected in groundwater acquired from the northern and southern ends of the facility indicates that there are two apparently separate plumes. The source of the plume responsible for contaminants detected in monitoring wells located in the northern end of the facility seems to be upgradient and unrelated to the TFI facility.

1.2 Scope of Work

Subsequent to the Phase III investigation, TFI contracted ENSCI to perform a Phase IV Assessment of the Lenoir facility. This phase of work was conducted in order to identify the locations of trenches and/or buried drum caches which may be located in the suspected drum burial site. The following site activities were performed July 24 through July 30, 1992:

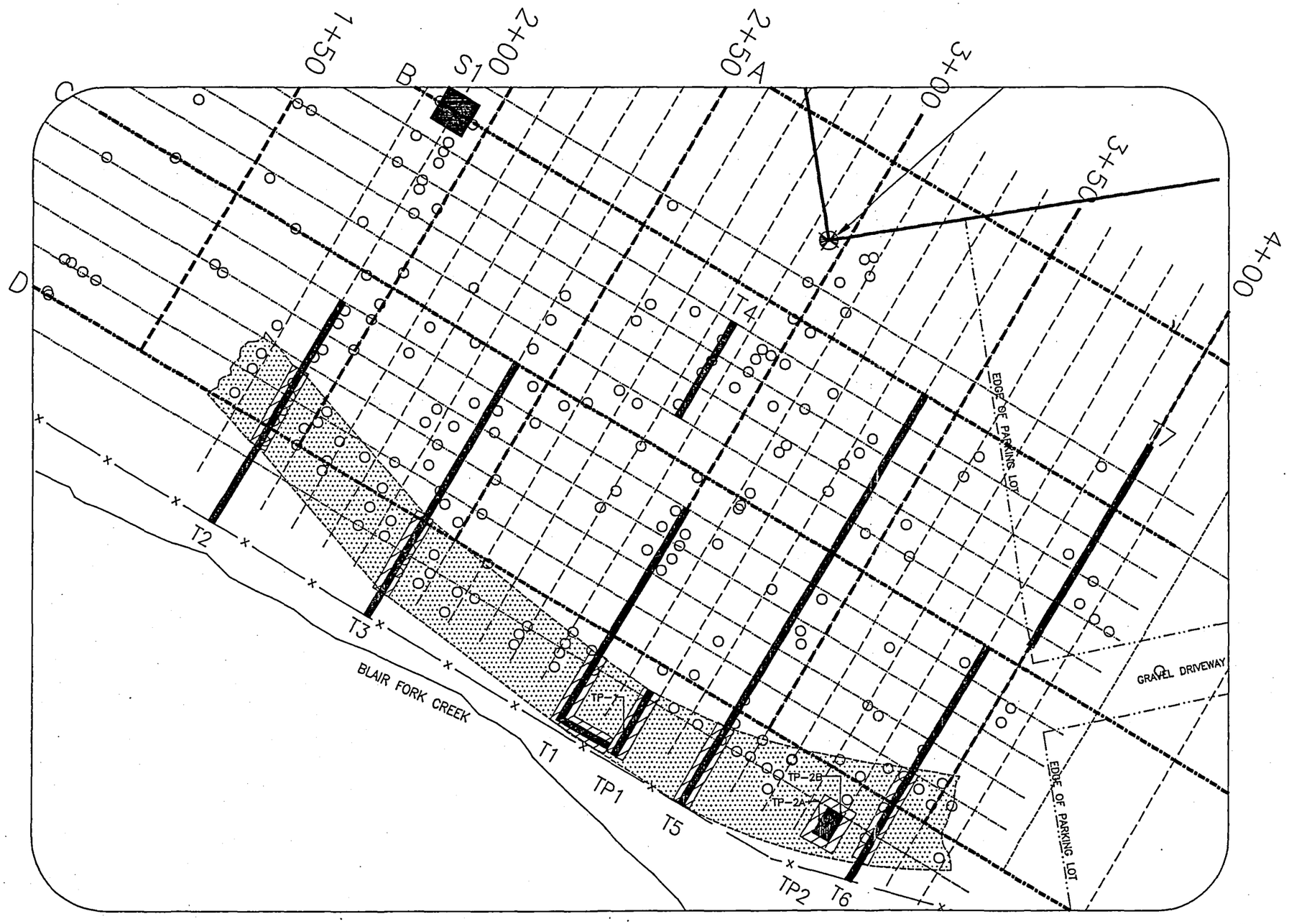
- Excavation of seven exploratory trenches and three satellite excavations to determine the extent and pattern of drum burial.
- Retrieval of buried drums encountered during trench excavation
- Acquisition of samples from each of the drums containing material, and subsequent testing using a Sensidyne HazCat Kit for field characterization
- Collection of three diagnostic soil samples during trenching operations for laboratory analysis and non-targeted library searches for volatile and semivolatile organic compounds as well as analysis for targeted alcohol compounds.

2. Exploratory Excavations

2.1 Locations of the Exploratory Excavations

Locations for the exploratory trenches and satellite excavations were chosen based on the findings of the Subsurface Interface Radar Survey (SIRS) conducted during the Phase II investigation. The SIRS indicated a number of linear alignments of hyperbolic reflections suspected to indicate the locations of trenches containing buried drums striking in a north-south orientation (see **Figure 2**). These alignments were located primarily on the west side of the subject site, in the southern part of the parking lot.

The exploratory excavations made during this investigation, also illustrated in Figure 2, were positioned so that they would be most likely to delineate the extent and orientation of trenches parallel to Blair Fork Creek containing waste materials. In order to accomplish this goal, the exploratory trenches were installed striking east to west, perpendicular to the linear alignments of hyperbolic refections found during the SIRS.



LEGEND

	HYPERBOLIC ANOMALIY LOCATION
	AREAS OF ENCOUNTERED FILL MATERIALS
	BOUNDARY OF AREA SUSPECTED TO CONTAIN DEBRIS
	TEST EXCAVATION AREA
TP-XXX	SAMPLE LOCATION

0 5 10 15 20 25 30 45 60

GRAPHIC SCALE IN FEET
1"=30'

ENSCI®
CORPORATION
HIGH POINT, NORTH CAROLINA

FOR: TFI INCORPORATED	CITY: LENOIR STATE: NORTH CAROLINA
TITLE: TRENCH LOCATION MAP	
SCALE: 1"=30'	DWN BY: DJ DWG NAME: TFI-GRD2
FIGURE: 2	
DATE: 9/21/92	CK BY: TL
JOB #: H92061	

2.2 Excavation Procedures

ENSCI personnel mobilized to the TFI Lenoir facility on July 24, 1992. Upon arrival at the site, preparations were made for exploratory excavation. Locations of proposed excavations were marked out on the parking lot using the grid system established for the SIRS. A contamination reduction zone was constructed using temporary construction fencing. The fencing surrounded a 45,000 square foot area in which all excavation activity was conducted. The fenced zone was established to confine contaminated materials and define a safety zone to keep bystanders out of the work area.

On July 25, 1992, ENSCI personnel met with TFI officials in order to outline the scope of work and review a Site Safety Plan prepared for this investigation in accordance with 29 CFR 1910.120. Immediately following this meeting, excavation procedures were initiated.

A temporary exclusion zone, located within the contamination reduction zone, was established around each exploratory excavation while excavation was in progress. The exclusion zone was delineated by orange cones. No nonessential personnel were permitted within this zone, and those whose presence within the zone was essential were required to wear Level B Personnel Protective Equipment. A trackhoe was used to remove soil and debris from the excavation locations. For safety purposes and to prevent a release of contaminants should buried drums be encountered, excavated materials were removed in 6-inch lifts. Additional exploratory excavation procedures and safety procedures are presented in **Appendix A**.

3. Buried Drum Removal and Tracking

A total of 27 buried drums were encountered in seven separate areas during exploratory excavation, as illustrated in Figure 2. When buried drums were encountered, their locations were recorded and the drums were remotely removed utilizing a trackhoe equipped with a hydraulic drum grappler.

3.1 Drum Burial Locations

Based on the locations from which the recovered drums were retrieved and observations of fill material placement, it is suspected that the drums were buried in trenches that generally strike north to south, parallel to Blair Fork Creek. The areas of the excavations in which fill material and buried drums were encountered are illustrated in Figure 2.

The drum burial trenches which were encountered consisted of debris material which extended from a depth of 2 feet below grade to a depth of 9 feet below grade. The width and number of the areas of fill varied in each exploratory excavation. All drum burial trenches which were encountered were present within a zone approximately 25 feet wide. The exploratory trenches intersected two to three parallel trenches containing debris and buried drums.

3.2 Removal Procedures

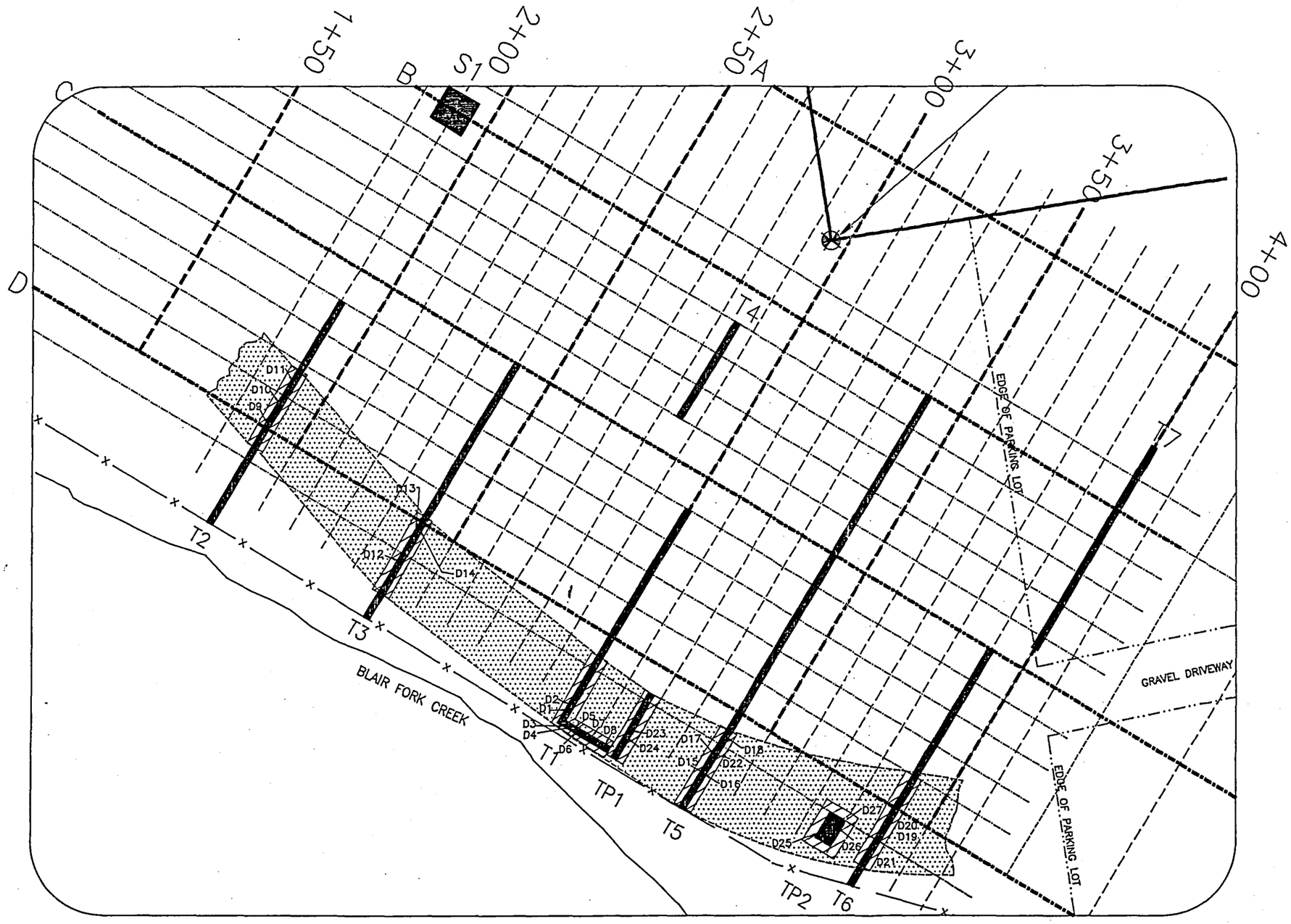
Competent (intact) drums were remotely placed in a steel blast berm. In order to prepare for the possibility that the drums contained shock-sensitive materials, each competent drum was remotely opened using a brass spike which was mounted on the drum grappler. Some drums which contained liquids were in poor condition and required their contents to be transferred into another drum before their removal. All drums determined to contain characteristic hazardous materials were placed in overpack drums and remain onsite. Additional drum removal procedures and safety procedures are presented in Appendix A.

Upon completion of each excavation, disturbed soil removed from the excavations was used as backfill to a depth of approximately 8 inches below grade. Crusher run gravel was used to complete backfilling the excavations to grade. Remaining excavated material was placed in four roll-off boxes. A composite soil sample was collected from each roll-off box and subsequently analyzed for disposal purposes.

4. Sampling of Materials in Buried Drums

Of the 27 55-gallon drums which were retrieved during this investigation, 7 drums contained liquids, 18 drums (including 2 of those which contained liquids) contained solid material, and 4 drums were empty. All of the drums were found on the west side of the subject area, as illustrated in **Figure 3**.

If possible, upon removal of each drum, a sample was retrieved for field analysis. A Sensidyne Hazcat Kit was utilized to obtain an onsite field chemical classification of the unknown materials. The HazCat Kit can identify and/or categorize virtually any unknown liquid or solid to provide information necessary to make decisions concerning the selection of proper protective clothing, containment activities, and decontamination procedures. The user of a HazCat Kit can also classify the unknown into a Department of Transportation (DOT) and/or Environmental Protection Agency (EPA) hazard classification.



LEGEND

- AREAS OF ENCOUNTERED FILL MATERIALS
- BOUNDARY OF AREA SUSPECTED TO CONTAIN DEBRIS
- TEST EXCAVATION AREA
- D1 — LOCATION OF RECOVERED, BURIED DRUM

0 5 10 15 20 25 30 45 60

GRAPHIC SCALE IN FEET
1"=30'

ENSCI® CORPORATION
HIGH POINT, NORTH CAROLINA

FOR: TFI INCORPORATED	CITY: LENOIR STATE: NORTH CAROLINA
TITLE: RETRIEVED DRUM LOCATION MAP	
SCALE: 1"=30'	DWN BY: DJ DWG NAME: TFI-GRD2
FIGURE: 3	
DATE: 9/21/92	CK BY: TL
JOB #: H92061	

Following is a summary of the findings of the HazCat field analysis of materials encountered in excavations:

- Drums D1 and D2 contained a brown to beige non-chlorinated, noncombustible liquid exhibiting a distinct solvent odor. This liquid is suspected to consist of large amounts of water mixed with solvent.
- Drums D8, D13, D16, D17, and D27 contained brown flammable liquids exhibiting a distinct solvent odor. These liquids tested positive for the presence of methyl ethyl ketone (MEK) and xylene compounds. The liquids in these drums are suspected to be a combination of stains and thinners.
- Drums D1, D2, D14, and disturbed soil in excavation TP1 contained a dark to light brown flammable solid material. This material tested positive for the presence of xylene and ketone compounds.
- Drums D5, D8, D21, and D22 contained non-combustible, brown to yellow solid material exhibiting a solvent and/or urea odor. These materials tested positive for the presence of urea, ketone and xylene compounds. The identity of this material is thought to be a silica- and urea-based glue saturated with solvent.
- Drum D7 and many of the trenches contained a white, non-combustible solid exhibiting a solvent odor. This material is thought to be a water-based wood glue saturated with solvent.
- Drums D11 and D4 contained flammable black organic and inorganic materials exhibiting a strong solvent odor. These materials tested positive for the presence of xylene compounds.

A more detailed description of each drum and its corresponding HazCat results is presented in **Appendix B**.

5. Soil Sample Collection and Analysis

Disturbed soil (backfill) which was encountered in ENSCI's exploratory excavations exhibited strong solvent odors. When screened with a photoionization detector (PID), this soil exhibited readings between 300 and 500 parts per million.

In addition to disturbed soil, a variety of fill materials were encountered in the drum burial trenches, including glue, 1-gallon metal containers (some of which contained stains

and solvent materials), and trash. A brief description of material encountered in each exploratory excavation and corresponding photographs are presented in Appendix B.

In order to obtain information pertaining to the identity and concentrations of contaminants potentially present in the soil, three soil samples were collected for analysis from the locations illustrated in Figure 2. These samples were obtained from disturbed soil located directly beneath buried drums. One soil sample was acquired from the satellite excavation TP-1, and the other two soil samples were acquired from exploratory excavation TP-2.

The soil samples were placed in properly prepared sample jars with Teflon lids, cooled in an ice-filled cooler to a temperature of 4°C, and shipped to AnalytiKEM, an EPA-approved laboratory located in Rock Hill, South Carolina for analysis. The following test methodologies were utilized:

- Method 8240, Gas Chromatography/ Mass Spectrometry for the detection of volatile organic compounds, with accompanying non-targeted library search.
- Method 8270, Gas Chromatography/ Mass Spectrometry for the detection of semivolatile organic compounds, with accompanying non-targeted library search.
- General Gas Chromatography for the detection of the following alcohol compounds: methanol, isopropanol, butanol and ethanol.

5.1 Volatile Organic Compounds

Positive analytical results from EPA Method 8240, illustrated in **Table 1**, indicate four volatile organic compounds in soil samples acquired in the vicinity of buried drums in excavations TP-1 and TP-2. A copy of the original laboratory report is included in **Appendix C**. As indicated in the laboratory report, due to matrix interference caused by large concentrations of organic materials encountered in the gas chromatography scan, it was necessary to elevate the quantitative detection limits of the targeted compounds in order to delineate the volatile organic compounds present in the soil samples. Due to the elevation of these detection limits, many compounds listed as undetected may be present in the soil samples.

Table 1: Results of Test Method 8240
Volatile Organic Compounds
(samples collected 8/27/92)

Sample I.D.	Toluene (ppm)	Ethylbenzene (ppm)	m,p-Xylene (ppm)	o-Xylene (ppm)
TP-1	10,000	920	2,700	590
TP-2	36	96	96	230
TP-2B	35	14	14	16

In order to identify any volatile organic compounds which were not detected during initial analysis using Method 8240, a non-targeted library search of the gas chromatography/mass spectrometry scans was performed (see laboratory report, Appendix C). Following is a summary of the library search analysis:

- TP-1: Detection of 7 unknown alkane compounds ranging in concentration from 310 ppm to 1,200 ppm; 3 unknown volatile organic compounds at concentrations ranging from 450 ppm to 550 ppm; and an alkylated cyclohexane isomer at a concentration of 940 ppm.
- TP-2A: Detection of 7 unknown alkane compounds ranging in concentration from 2 ppm to 27 ppm; 3 unknown volatile organic compounds at concentrations ranging from 7 ppm to 27 ppm; and an alkylated cyclohexane isomer at a concentration of 28 ppm.
- TP-2B: Detection of 6 unknown alkane compounds ranging in concentration from 31 ppm to 100 ppm; 3 unknown volatile organic compounds at concentrations ranging from 24 ppm to 66 ppm; an alkylated cyclohexane isomer at a concentration of 110 ppm; methyl cyclohexane at a concentration of 43 ppm; and decahydro naphthalene at a concentration of 26 ppm.

5.2 Semivolatile Compounds

The results of testing for semivolatile organics (EPA Method 8270) are presented in **Table 2** and Appendix C. As indicated in the laboratory report, many of the targeted semivolatile organic compounds were reported at elevated detection limits. The elevated

limits may indicate matrix interference as a result of large concentrations of organic materials in the soil samples.

Table 2: Semivolatile Organics
EPA Test Method 8270 in Parts Per Million

(Phase IV Analytical Results - Soil Samples Collected 8-27-92)

Compound	TP-1	TP-2A	TP-2B
2-Methylnaphthalene	26J	ND	70J
Dimethyl Phthalate	480	ND	ND
Dioctyl Phthalate	36J	1.1J	3J
Dibutyl Phthalate	29J	3J	14J
Bis (2-ethylhexyl) Phthalate	400	150	1000

J - Compound detected below quantitative level
ND - Not Detected

As illustrated in the table, analytical results indicated detection of five semivolatile compounds. Only two of these compounds (dimethyl phthalate and bis (2-ethylhexyl) phthalate) were detected above quantitative detection limits. The compound bis (2-ethylhexyl) phthalate is used as a plasticizer in the latex gloves worn during sampling activities. Based on the levels which were detected, however, its presence is not attributable to the gloves. The compound dimethyl phthalate is used as a plasticizer in the production of nitrocellulose acetate, which is a component commonly utilized in furniture finishing materials.

Dibutyl phthalate and dioctyl phthalate were detected at concentrations below quantitative detection limits. These compounds are commonly used as plasticizers in the production of furniture finishing materials. The compound 2-methylnaphthalene was also detected below quantitative detection limits. It is commonly used for organic synthesis and is a constituent in some insecticides.

In order to identify any semivolatile compounds which were not detected during initial testing using EPA Method 8270, a non-targeted library search of the gas

chromatography/mass spectrometry analysis was performed for each sample (see Appendix C). The following is a brief summary of the tests results for each soil sample:

- TP-1: Detection of 14 unknown semivolatile compounds with estimated concentrations ranging from 160 ppm to 2,100 ppm; 3 unknown alkane compounds with estimated concentrations ranging from 160 ppm to 170 ppm; an alkylated benzene compound at an estimated concentration of 200 ppm; hexanedoic acid at an estimated concentration of 130 ppm; methyl ester at an estimated concentration of 360 ppm; and an unknown phenanthrene carboxylic acid at an estimated concentration of 220 ppm.
- TP-2A: Detection of 11 unknown semivolatile compounds with estimated concentrations ranging from 4.1 ppm to 530 ppm; 8 unknown alkane compounds with estimated concentrations ranging from 4.1 ppm to 15 ppm; and an unknown benzene compound at an estimated concentration of 14 ppm.
- TP-2B: Detection of 5 unknown semivolatile compounds with estimated concentrations ranging from 110 ppm to 640 ppm; 16 unknown alkane compounds with estimated concentrations ranging from 100 ppm to 430 ppm; and an unknown isomer with a estimated concentration of 160 ppm.

5.3 Alcohols

The soil samples acquired from exploratory excavations TP-1 and TP-2 were tested using a General Chromatography analysis for the presence of 5 specific alcohol compounds. The results of this testing are illustrated in **Table 3.**

Table 3: General Chromatography for Alcohols (In Parts Per Million)

(Phase IV Analytical Results - Soil Samples Collected 8-27-92)

Compound	TP-1	TP-2A	TP-2B
N Butanol	170	35*	25
Iso Butanol	250	6.9	25
Methanol	320	27*	670*
Isopropanol	290	15*	54

Compound	TP-1	TP-2A	TP-2B
Ethanol	230	6.3	66

* Results obtained from diluted sample rerun due to saturation in original run.

As illustrated in the table, all soil samples which were tested indicated the presence of each targeted alcohol compound. Soil samples TP-2A and TP-2B exhibited concentrations of some alcohol compounds which exceeded the scale of the gas chromatograph. These samples were diluted and rerun due to the saturation encountered in the original run. The alcohol compounds which are listed in Table 3 are common constituents of furniture finishing materials.

6. Summary

The following items summarize the results of ENSCI's Phase IV investigation:

- The locations of buried drums and fill materials indicate that multiple trenches containing buried drums may be located underlying the west side of the parking lot of the TFI facility. These burial trenches generally run parallel to one another in a north-south orientation. The trenches which were encountered occupy a zone approximately 25 feet wide.
- A total 27 buried drums were retrieved during this investigation. The drums contained constituents of furniture manufacturing and finishing materials. Field analysis conducted with the HazCat chemical identification system indicates that some of these compounds are characteristic hazardous materials.
- Analysis of three soil samples retrieved from areas immediately adjacent to buried drums indicates that some soil underlying the trench locations has been impacted by compounds commonly found in furniture finishing materials. The full extent of soil contamination is unknown at this time.

Appendix A

Technical Methods

Trenching Procedures

During trenching operations, the following safety procedures were utilized. Additional safety procedures are addressed in the Site Safety Plan, which was reviewed by TFI representatives prior to the advent of site activities.

- A contamination reduction zone was constructed around the work area.
- The trackhoe operator utilized a blast shield and Level B PPE.
- A fire extinguisher was located in the cab of the excavator, within reach of the operator.
- Soil was removed in 6-inch lifts, in order to prevent the release of material should a buried drum be encountered.
- Each drum which was encountered was excavated remotely using a hydraulic grappler which was attached to a trackhoe.
- Excavated drums were placed in a steel blast berm. The blast berm would direct an explosion away from the trackhoe operator when the drum was spiked if the drum contained shock-sensitive material. A brass spike was used to avoid ignition.
- After sampling drum material for field analysis using the HazCat Kit, each drum was placed in a poly or steel overpack drum.

Appendix B

Exploratory Excavation and Drum Contents Descriptions

Exploratory Excavation T1

Date: 8-24-29

Location: L-shaped trench, approximately 85 feet in length, total depth ranged from 5 to 10 feet below grade. Located on grid line 3+00 (see Figure 3).

Fill materials encountered:

Fill materials encountered in this excavation were limited to the western side of the excavation. The fill materials extended approximately 25 feet to the east from the western end of the trench, at a fence located on the western border of the subject area. No distinct burial pattern could be delineated based on the observations of the placement of fill materials in this excavation. Disturbed soil encountered in the zone of fill exhibited a strong solvent odor. Headspace analysis of these soils using the PID indicated readings ranging from 300 to 700 parts per million. Large amounts of glue have been incorporated into the far western end of the trench.

A total of eight drums were retrieved from excavation T1. The location of each recovered drum is presented in Figure 3. Following is a brief description of each drum which was retrieved in this excavation.

- Drum D1: A 55-gallon steel closed head drum. The drum was found to be fairly competent condition, although some rust and pinhole leaks were observed. The drum primarily contained a brown to beige liquid (see HazCat sheet 1). The bottom one-third of the drum contained a brown solid material (see HazCat sheet 2). The drum remains onsite in an overpack drum.
- Drum D2: A 55-gallon open head steel drum. The drum was in poor condition: rusted, leaking and slightly crushed. It primarily contained a brown solid material (see HazCat sheet 2), as well as some brown liquid (see HazCat sheet 1), which was transferred to a competent 55-gallon drum. The crushed drum containing the remaining solids was placed in a rolloff box.
- Drum D3: A 55-gallon steel closed head drum. The drum was retrieved in poor condition, crushed and rusted. It contained a small amount of solid material. Due to the condition of the drum, a sample of this material could not be acquired for field analysis. The drum was placed in an overpack drum and remains onsite.
- Drum D4: A 55-gallon open-head steel container. The drum was found slightly crushed and rusted without its top. It was approximately 80% full of stratified light gray and red solids (see HazCat sheet 5). The drum was overpacked and remains onsite.
- Drum D5: A 55-gallon open-head steel container. When the drum was retrieved, its top was crushed, and large holes and rust were observed. It was approximately 60% full of a brown to yellow solid material (see Hazcat sheet 3). The drum was

overpacked and remains onsite.

- Drum D6: A 55-gallon steel open-head drum. When it was retrieved, the drum was crushed and its top was missing. It contained a small amount of solid material. Due to the condition of the drum, a sample of this material could not be acquired for field analysis. The drum was placed in an overpack drum and remains onsite.
- Drum D7: A 55-gallon open-head steel container. When it was retrieved, the drum's top was crushed, and large holes and rust were observed. It was approximately 50% full of a white to gray solid material (see Hazcat sheet 4). The drum was overpacked and remains onsite.
- Drum D8: A 55-gallon open-head steel container. When it was encountered, the drum had a very large tear down its side. It was approximately full of a tan to brown solid material (see Hazcat sheet 6). The drum was overpacked and remains onsite.

Exploratory Excavation T2

Date: 9/25/92

Location: linear trench, approximately 75 feet in length; total depth approximately 10 feet below grade. Located on grid line 1+90 (see Figure 3).

Fill materials encountered:

Two distinct zones of fill were encountered in a 20-foot section of this excavation, as illustrated in Figure 3. The first zone of fill was encountered between 25 and 36 feet from the western end of the trench, while the second zone of fill was observed between 40 and 45 feet from the western end of the trench. Drums D9 and D10 where retrieved from the first zone of fill, and drum D11 was retrieved from the second zone. Both zones of fill material were encountered at a depth of 2 feet and extended to an average depth of approximately 8 feet. Disturbed soil, small amounts of glue, and assorted debris were encountered in the fill. Disturbed soil exhibited PID headspace readings between 50 and 900 parts per million.

The locations of buried drums retrieved from this excavation are illustrated in Figure 3. Following is a brief description of the condition and contents of these recovered drums.

- Drum D9: The remnants of a 55-gallon steel drum which was severely crushed. Minor amounts of contents remained in the drum, but samples could not be collected due to its condition.
- Drum D10: A 55-gallon steel drum. The drum was rusted and severely crushed. It contained minor amounts of soil and possessed a strong petroleum odor. It is

suspected that the original contents of the drum escaped through the numerous large holes in the drum and that disturbed soil subsequently migrated into the drum. Headspace analysis of the soil contained indicated a reading of 276 ppm. The drum was overpacked and remains onsite.

- Drum D11: A 55-gallon open-head steel drum. The drum was encountered somewhat crushed, with no lid. It contained a black solid material, which appeared to have been burnt. This material exhibited a strong solvent odor. A chemical classification of this solid is presented in HazCat sheet 5. The drum was placed in an overpack drum and remains onsite.

Exploratory Excavation T3

Date: 9/25/92

Location: linear trench, approximately 80 feet in length; total depth approximately 10 feet below grade. Located on grid line 2+40 (see Figure 3).

Fill materials encountered:

Two distinct zones of fill were encountered in a 22-foot section of this excavation, as illustrated in Figure 3. These zones of fill materials were observed to exhibited a concave shape and overlapped one another. The first zone of fill was encountered between approximately 10 and 20 feet from the western end of the trench. The second zone of fill was observed to overlay the first. This zone was encountered between 15 and 30 feet from the western end of the trench. The first zone of fill contained primarily glue, with minor amounts of plastic and general debris. Drums D12, D13 and D14 where retrieved from the second zone of fill. Fill and disturbed soil were encountered at a depth of 1 to 2 feet and extended to an average depth of approximately 8 feet.

The locations of buried drums retrieved from this excavation are illustrated in Figure 3. Following is a brief description of the condition and contents of these recovered drums.

- Drum D12: The steel 55-gallon drum was discovered empty, severely crushed and rusted. It was placed in a roll-off box for disposal.
- Drum D13: A steel 55-gallon closed-head drum, D13 was discovered slightly crushed and severely rusted. Removal procedures caused approximately 10 gallons of the liquid contents to be released in the excavation. The drum was removed containing approximately 30 gallons of a liquid which possessed a distinct solvent odor (see Hazcat sheet 6). This drum was placed in an overpack drum. Absorbent pads were used to remove released liquids from the excavation. These pads, along with some transferred liquids, were placed in a new 55-gallon steel drum. Approximately one cubic yard of soil which was grossly contaminated

as a result of this release was excavated and placed in a rolloff box which remains onsite.

- Drum D14: This 55-gallon steel drum was discovered to contain a brown flammable solid material (see HazCat sheet 2). The container was found to be rusted and several large holes were observed in its side. The drum was overpacked and remains onsite.

Exploratory Excavation T4

Date: 9/25/92

Location: linear trench, approximately 30 feet in length, total depth approximately 8 feet below grade. Located on grid line 2+85 (see Figure 3).

Fill materials encountered:

This excavation did not encounter any fill materials. Stratified alluvial deposits of soil were encountered to a depth of approximately 8 feet, at which time excavation procedures were terminated.

Exploratory Excavation T5

Date: 9/25/92

Location: linear trench, approximately 125 feet in length; total depth was approximately 10 feet. Located on grid line 3+40 (see Figure 3).

Fill materials encountered:

Two distinct zones of fill were encountered in a 25-foot section of this excavation (see Figure 3). The first zone of fill was encountered between 7 and 15 feet from the western end of the trench, while the second zone of fill was observed between 17 and 25 feet from the western end of the trench. Drums D15 and D16 where retrieved from the first zone of fill, while drums D17, D18 and D22 were retrieved from the second zone. These zones of fill materials were encountered at a depth of 2 feet and extended to an average depth of approximately 8 feet. Disturbed soils, 55-gallon drums, glue, and fairly large amounts of assorted trash were encountered in these zones of fill.

The locations of buried drums retrieved in this excavation are illustrated in Figure 3. Following is a brief description of the condition and contents of these recovered drums.

- Drum D15: This 55-gallon steel drum was discovered to be crushed. A small amount of material, suspected to be solid, could not be sampled due to the drum

condition. The drum was overpacked and remains onsite.

- Drum D16: This 55-gallon steel closed-head container was discovered in excellent condition. No leaks or rust damage were present. The drum contained a brown liquid which possessed a strong solvent odor (see HazCat sheet 6). The drum was placed in an overpack drum and remains onsite.
- Drum D17: A steel 55-gallon closed-head drum, D17 was discovered slightly crushed and severely rusted. Removal procedures caused approximately 20 gallons of the liquid contents to be released in the excavation. The remaining contents of the drum was transferred to a open-head steel drum. The brown liquid contents possessed a distinct solvent odor (see Hazcat sheet 6). This discovered drum was placed in an overpack drum. Absorbent pads were used to remove released liquids from the excavation. These pads were placed in a 55-gallon steel drum.

Exploratory Excavation T6

Date: 9/25-26/92

Location: Linear trench, approximately 80 feet in length, total depth approximately 10 feet. Located on grid line 3+90 (see Figure 3).

Fill materials encountered:

Three distinct zones of fill were encountered in a 30-foot section of this excavation, as illustrated in Figure 3. The first zone of fill was encountered between 5 and 15 feet from the western end of the trench, while the second zone of fill was observed between 20 and 30 feet from the western end of the trench. The third zone of fill was encountered between 33 and 38 feet from the western end of the trench. The first zone of fill contained mostly trash; drum D21 was retrieved from this zone. Drums D19 and D20 where retrieved from the second zone of fill. The third zone of fill contained only trash. These zones of fill materials were encountered at a depth of 2 feet and extended to an average depth of approximately 8 feet. Disturbed soils, 55-gallon drums, glue, and fairly large amounts of assorted trash (plastic, bottles, glue, paper) were encountered in these zones of fill.

The locations of buried drums retrieved in this excavation are illustrated in Figure 3. Following is a brief description of the condition and contents of these recovered drums.

- Drum D19: This 55-gallon closed head steel drum was discovered crushed and thought to be empty. A sample of the small amount of its suspected solid contents could not be sampled. The drum was overpacked and remains onsite.
- Drum D20: This 55-gallon steel open-head container was discovered in fair condition. The drum was found to contain glue (see HazCat sheet 3). The

container was placed in an overpack drum and remains onsite.

- Drum D21: A steel 55-gallon open-head drum was discovered slightly crushed, without its lid. Subsequent to removal, the drum was determined to contain trash (paper, plastic, 1-gallon metal containers).

Exploratory Excavation T7

Date: 9/27/92

Location: Linear trench, approximately 65 feet in length, total depth approximately 8 feet. Located on grid line 4+00 (see Figure 3).

Materials encountered:

This excavation did not encounter any fill materials. Stratified alluvial deposits of soil were encountered to a depth of approximately 8 feet, at which time excavation procedures were terminated. Soil which was encountered did not exhibit odors or elevated PID readings which were common in excavations in which fill material were discovered.

Exploratory Excavation S1

Date: 9/25/92

Location: Square excavation approximately 10 feet square, total depth approximately 8 feet. Located on grid line 1+90 (see Figure 3).

Materials encountered:

This excavation did not encounter any fill materials. Stratified alluvial deposits of soil were encountered to a depth of approximately 8 feet at which time excavation procedures were terminated.

Exploratory Excavation TP1

Date: 9/27/92

Location: Linear trench, approximately 22 feet in length, total depth approximately 5 feet. Located on grid line 3+20 (see Figure 3). This area was excavated in order to acquire soil samples for laboratory analysis.

Fill materials encountered:

Two drums (D23 and D24) were recovered from this excavation. Ten 1-gallon containers which had apparently held paint or stains were discovered empty. A sample of disturbed soil encountered near these containers was recovered for field analysis (soil sample TP-1, See HazCat sheet 2).

The locations of buried drums retrieved in this excavation are illustrated in Figure 3. Following is a brief description of the condition and contents of these recovered drums.

- Drum D23: A 55-gallon open-head steel drum was discovered in poor condition without its lid. The drum contained solid material suspected to be glue. The container was placed in an overpack drum and remains onsite.
- Drum D24: An open-head 55-gallon steel container which was discovered to contain 1-gallon containers full of paint or stain. It is suspected that a great deal of the material contained in these 1-gallon containers has leaked into the surrounding soils. Soil underlying this drum was collected for laboratory analysis. The drum was placed in an overpack drum and remains onsite

Exploratory Excavation TP2

Date: 9/27/92

Location: Rectangular excavation approximately 10 x 5 feet, total depth approximately 5 feet. Located on grid line 1+90 (see Figure 3). This excavation was conducted in order to obtain soil samples for laboratory analysis.

Fill materials encountered:

Three drums (D25, D26 and D27) were recovered from the excavation. Large amounts of trash (bricks, paper, bottles and one-gallon containers) were also discovered.

The locations of buried drums retrieved from this excavation are illustrated in Figure 3. Following is a brief description of the condition and contents of these recovered drums.

- Drum D25: A 55-gallon open-head steel container which was discovered to contain glues and assorted trash (bricks and plastic). The drum was overpacked and remains onsite. A soil sample (TP-2A) was acquired for laboratory analysis from beneath this drum.
- Drum D26: A 55-gallon open-head steel drum, D26 was discovered to contain bricks and trash. The drum was placed in an overpack container and remains onsite.
- Drum D27: This 55-gallon steel closed-head container was discovered in fair condition, with minor leaks and rust damage. The drum contained a brown liquid

which possessed a strong solvent odor (see HazCat sheet 6). A soil sample (TP-2B) was collected for laboratory analysis from beneath the drum. The drum was placed in an overpack drum and remains onsite.

HAZCAT CHEMICAL IDENTIFICATION SYSTEM

WEAR EYE PROTECTION AND GLOVES WHEN PERFORMING TESTS

ORGANIC / INORGANIC LAB-PACK FORM

Location: TFI Lenoir Sample #: D11, D4 Container Size/Type: 55DM

Date: Aug. 27, 1992 Conclusion: Organic & Inorganic trash, saturated w/ xylene mixed w/ dry stain

Certainty: (100%) 75% 50% 25% Haz Class only: Flamm solid By: K.Cranford

Reactivity: Air N Water N Acid N Other ____ 1) Physical State: Color Black Odor Strong solvents

a) Liquid: ____ Viscosity: 1 2 3 4 5 6 Estimated Carbon Chain: C ____

b) Solid: ✓ Metallic Crystal Pellet Chunk Granule (Particulate) Powder Fiber

2) pH Test: 0 1 2 3 (4 5 6 7) 8 9 10 11 12 13 14 3) Oxidizer Test: Yes No Rate ____ Peroxide: N

4) Chlorine Hot Wire Test: Tested Y Chloride N Nitrate N Amine N Ammonia Gas Test N

5) Ignition Test:

a) Liquid: Extremely Flammable (Flammable) Combustible Not Combustible

b) (Solid:) Explosive Extremely Flammable Flammable Gas Flammable Combustible Not Combustible

c) Flame color Yellow Possibilities Org, Solv. 6) Water Solubility Test: Floats Sinks

Dissolves: Completely Partially Slowly Fast Alcohol & Hexane Solubility Tests: ____

7) Iodine Crystal Test: Brown (Mixture of xylen es & ke tones)

Aromatic(R) Aliphatic(P) Polar(O) Mixes(Brown) Reacts Dissappears No Reaction > Cl2

8) Char Test: Black tar with white smoke

Ignition of Head Space Gas: (YES) NO pH: 6 Oxidizer: Yes (No) Slow Fast

Smoke: Organic: Yes Sat'd Unsat'd Benzene Ring Water Mixture

Inorganic: ____ Flame Color: Yellow Residue: Black tar

9) Other Tests:

Salts: SO4 PO4 Fl Cl CN S2 Other METALS: Cr Pb Fe Hg As Se Cd Sb Ni Al Zn Mo Co Cu Ba Na K Li Ca

Ship: ____ Manifest No. ____ TSDF: ____ DOT Hazard Class/Packaging Group ____

Don't Ship: ____ Re-Do Haz Cat: ____ Send for Lab Analysis: ____

Tests Required: ____

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HAZCAT CHEMICAL IDENTIFICATION SYSTEM

WEAR EYE PROTECTION AND GLOVES WHEN PERFORMING TESTS

ORGANIC / INORGANIC LAB-PACK FORM

Location: TFI Lenoir Sample #: D 20, D8, D22, D5 Container Size/Type: _____

Date: Aug. 26, 1992 Conclusion: Glue, silica & urea based glue saturated w/ solvent

Certainty: 100% 75% 50% 25% Haz Class only: NONE By: K. Cranford

Reactivity: Air N Water N Acid N Other ____ 1) Physical State: Color Brw/Yel Odor Solvent/Urea

a) Liquid: ____ Viscosity: 1 2 3 4 5 6 Estimated Carbon Chain: C _____

b) Solid: ✓ Metallic Crystal Pellet (Chunk) Granule Particulate Powder Fiber

2) pH Test: 0 1 2 3 (5 6 7) 8 9 10 11 12 13 14 3) Oxidizer Test: Yes (No) Rate ____ Peroxide: ____

4) Chlorine Hot Wire Test: Tested YES Chloride N Nitrate N Amine N Ammonia Gas Test N

5) Ignition Test:

a) Liquid: Extremely Flammable Flammable Combustible Not Combustible

b) (Solid:) Explosive Extremely Flammable Flammable Gas Flammable Combustible (Not Combustible)

c) Flame color Yel/Orng Possibilities Organic/Urea 6) Water-Solubility Test: Floats (Sinks)

Dissolves: Completely Partially Slowly Fast Alcohol & Hexane Solubility Tests: INCONCLUSIVE

7) Iodine Crystal Test: Ureas & Ketones & Xylen es

Aromatic(R) Aliphatic(P) Polar(O) Mixes(Brown) Reacts Disappears No Reaction > Cl2

8) Char Test: Urea & Slovent

Ignition of Head Space Gas: YES (NO) pH: ____ Oxidizer: Yes No Slow Fast

Smoke: Organic: Yes Sat'd Unsat'd Benzene Ring Water (Mixture)

Inorganic: _____ Flame Color: Yellow Residue: Black Tar

9) Other Tests:

Salts: SO4 PO4 Fl Cl CN S2 Other METALS: Cr Pb Fe Hg As Se Cd Sb Ni Al Zn Mo Co Cu Ba Na K Li Ca

_____

Ship: _____ Manifest No. _____ TSDF: _____ DOT Hazard Class/Packaging Group _____

Don't Ship: _____ Re-Do Haz Cat: _____ Send for Lab Analysis: _____

Tests Required: _____

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HAZCAT CHEMICAL IDENTIFICATION SYSTEM

WEAR EYE PROTECTION AND GLOVES WHEN PERFORMING TESTS

ORGANIC / INORGANIC LAB-PACK FORM

Glue from ground &

Location: TFI Lenoir Sample #: D7 Container Size/Type: 55 DM

Date: Aug. 25, 1992 Conclusion: Water based wood glue (Saturated with solvent)

Certainty: 100% 75% (50%) 25% Haz Class only: NONE By: K. Cranford

Reactivity: Air N Water N Acid N Other N 1) Physical State: Color White Odor Solvent

a) Liquid: ____ Viscosity: 1 2 3 4 5 6 Estimated Carbon Chain: C _____

b) Solid: ✓ Metallic Crystal Pellet (Chunk) Granule Particulate Powder Fiber

2) pH Test: 0 1 2 3 (4 5 6) 8 9 10 11 12 13 14 3) Oxidizer Test: Yes (No) Rate ____ Peroxide: ____

4) Chlorine Hot Wire Test: Tested Y Chloride N Nitrate N Amine N Ammonia Gas Test ____

5) Ignition Test:

a) Liquid: Extremely Flammable Flammable Combustible Not Combustible

b) (Solid:) Explosive Extremely Flammable Flammable Gas Flammable Combustible (Not Combustible)

c) Flame color NONE Possibilities ____ 6) Water-Solubility Test: Floats Sinks

(Dissolves:) Completely Partially Slowly Fast Alcohol & Hexane Solubility Tests: _____

7) Iodine Crystal Test: NONE (Slight solvent)

Aromatic(R) Aliphatic(P) Polar(O) (Mixes(Brown)) Reacts Disappears No Reaction > Cl2

8) Char Test: Inconclusive

Ignition of Head Space Gas: YES (NO) pH: ____ Oxidizer: Yes (No) Slow Fast

Smoke: Organic: YES Sat'd Unsat'd Benzene Ring Water Mixture

Inorganic: _____ Flame Color: NO Residue: Organic

9) Other Tests:

Salts: SO4 PO4 Fl Cl CN S2 Other METALS: Cr Pb Fe Hg As Se Cd Sb Ni Al Zn Mo Co Cu Ba Na K Li Ca

_____

Ship: _____ Manifest No. _____ TSDF: _____ DOT Hazard Class/Packaging Group _____

Don't Ship: _____ Re-Do Haz Cat: _____ Send for Lab Analysis: _____

Tests Required: _____

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HAZCAT CHEMICAL IDENTIFICATION SYSTEM

WEAR EYE PROTECTION AND GLOVES WHEN PERFORMING TESTS

ORGANIC / INORGANIC LAB-PACK FORM

D8, D13, D17,

Location: TFI Lenoir Sample #: D16, D27 Container Size/Type: 55 DM

Date: Aug. 28, 1992 Conclusion: Stain & thinner containing M.E.K. & xylene 1% water

Certainty: (100%) 75% 50% 25% Haz Class only: Flammable liquid By: K.CRANFORD

Reactivity: Air N Water N Acid N Other - 1) Physical State: Color Brown Odor Solvent

a) Liquid: Y Viscosity: (1) 2 3 4 5 6 Estimated Carbon Chain: C _____

b) Solid: N Metallic Crystal Pellet Chunk Granule Particulate Powder Fiber

2) pH Test: 0 1 2 3 (4 5 6) 7 8 9 10 11 12 13 14 3) Oxidizer Test: Yes (No) Rate ____ Peroxide: No

4) Chlorine Hot Wire Test: Tested Y Chloride No Nitrate No Amine No Ammonia Gas Test No

5) Ignition Test:

a) (Liquid:) Extremely Flammable (Flammable) Combustible Not Combustible

b) Solid: Explosive Extremely Flammable Flammable Gas Flammable Combustible Not Combustible

c) Flame color Yellow Possibilities Organic solvent Water Solubility Test: (Floats) Sinks

Dissolves: Completely Partially Slowly Fast Alcohol & Hexane Solubility Tests: INCONCLUSIVE

7) Iodine Crystal Test: Yellow/ Orange (M.E.K. or Xylenes)

Aromatic(R) Aliphatic(P) Polar(O) Mixes(Brown) Reacts Disappears No Reaction > Cl2

8) Char Test: White smoke

Ignition of Head Space Gas: (YES) NO pH: 6 Oxidizer: Yes (No) Slow Fast

Smoke: Organic: ✓ Sat'd Unsat'd Benzene Ring Water Mixture

Inorganic: _____ Flame Color: Yellow Residue: Black Tar

9) Other Tests: N/A

Salts: SO4 PO4 Fl Cl CN S2 Other METALS: Cr Pb Fe Hg As Se Cd Sb Ni Al Zn Mo Co Cu Ba Na K Li Ca

Ship: _____ Manifest No. _____ TSDF: _____ DOT Hazard Class/Packaging Group _____

Don't Ship: _____ Re-Do Haz Cat: _____ Send for Lab Analysis: _____

Tests Required: _____

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HAZCAT CHEMICAL IDENTIFICATION SYSTEM

WEAR EYE PROTECTION AND GLOVES WHEN PERFORMING TESTS

ORGANIC / INORGANIC LAB-PACK FORM

Samples 1&2

Location: TFI - Lenoir Sample #: TP1, D14 Container Size/Type: _____

Date: 27 Aug 92 Conclusion: Overspray (lacquer) w/xylenes and ketones

Certainty: 100% 75% 50% 25% Haz Class only: Flammable solid By: K. Cranford

Reactivity: Air N Water N Acid N Other --- 1) Physical State: Color Dk & Lt Brown Odor Solvent

a) Liquid: ____ Viscosity: 1 2 3 4 5 6 Estimated Carbon Chain: C _____

b) Solid: ____ Metallic Crystal Pellet Chunk Granule Particulate Powder Fiber

2) pH Test: 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 3) Oxidizer Test: Yes No Rate ____ Peroxide: ____

4) Chlorine Hot Wire Test: Tested Y Chloride N Nitrate N Amine N Ammonia Gas Test N

5) Ignition Test:

a) Liquid: Extremely Flammable Flammable Combustible Not Combustible

b) Solid: Explosive Extremely Flammable Flammable Gas Flammable Combustible Not Combustible

c) Flame color Yellow Possibilities _____ 6) Water Solubility Test: Floats Sinks

Dissolves: Completely Partially Slowly Fast Alcohol & Hexane Solubility Tests: _____

7) Iodine Crystal Test: Orange (xylenes)

Aromatic(R) Aliphatic(P) Polar(O) Mixes(Brown) Reacts Disappears No Reaction > Cl2

8) Char Test: Black Tar

Ignition of Head Space Gas: YES NO pH: 7 Oxidizer: Yes No Slow Fast

Smoke: Organic: YES Sat'd Unsat'd Benzene Ring Water Mixture

Inorganic: _____ Flame Color: Yellow Residue: Black, Tan

9) Other Tests:

Salts: SO4 PO4 Fl Cl CN S2 Other METALS: Cr Pb Fe Hg As Se Cd Sb Ni Al Zn Mo Co Cu Ba Na K Li Ca

_____

Ship: _____ Manifest No. _____ TSDF: _____ DOT Hazard Class/Packaging Group _____

Don't Ship: _____ Re-Do Haz Cat: _____ Send for Lab Analysis: _____

Tests Required: _____

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HAZCAT CHEMICAL IDENTIFICATION SYSTEM

WEAR EYE PROTECTION AND GLOVES WHEN PERFORMING TESTS

ORGANIC / INORGANIC LAB-PACK FORM

Location: TFI - Lenoir Sample #: 1 & 2 Container Size/Type: 55 gal drum

Date: 26-28, 1992 Conclusion: Non-combustible, Non-chlorinated material (water w/ solvent)

Certainty: 100% 75% 50% 25% Haz Class only: Non-hazardous (F listed) By: K. Cranford

Reactivity: Air N Water N Acid N Other _____ 1) Physical State: Color beige/ ~~brown~~ Odor solvent

a) Liquid: X Viscosity: (1) 2 3 4 5 6 Estimated Carbon Chain: C _____

b) Solid: ____ Metallic Crystal Pellet Chunk Granule Particulate Powder Fiber

2) pH Test: 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 3) Oxidizer Test: Yes No Rate ____ Peroxide: N

4) Chlorine Hot Wire Test: Tested YES Chloride N Nitrate N Amine N Ammonia Gas Test N

5) Ignition Test:

a) Liquid: Extremely Flammable Flammable Combustible (Not Combustible)

b) Solid: Explosive Extremely Flammable Flammable Gas Flammable Combustible Not Combustible

c) Flame color N/A Possibilities Water 6) Water Solubility Test: Floats Sinks

(Dissolves:) (Completely) Partially Slowly Fast Alcohol & Hexane Solubility Tests: Inconclusive

7) Iodine Crystal Test: Light yellow (miniscule amounts of ketones or xylenes)

Aromatic(R) Aliphatic(P) Polar(O) Mixes(Brown) Reacts Disappears No Reaction > Cl2

8) Char Test: Disappears

Ignition of Head Space Gas: YES (NO) pH: ____ Oxidizer: Yes (No) Slow Fast

Smoke: Organic: N/A Sat'd Unsat'd Benzene Ring Water Mixture

Inorganic: N/A Flame Color: _____ Residue: _____

9) Other Tests:

Salts: SO4 PO4 Fl Cl CN S2 Other METALS: Cr Pb Fe Hg As Se Cd Sb Ni Al Zn Mo Co Cu Ba Na K Li Ca

Water test shows greater than 10% water.

Ship: _____ Manifest No. _____ TSDF: _____ DOT Hazard Class/Packaging Group _____

Don't Ship: _____ Re-Do Haz Cat: _____ Send for Lab Analysis: _____

Tests Required: _____

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Appendix C

Chain of Custody and Laboratory Reports

AnalytiKEM *An American NuKEM Company*

AnalytiKEM Inc.
454 S. Anderson Road, BTC 532
Rock Hill, SC 29730
803/329-9690

TEST REPORT NO. A82621

September 17, 1992

Prepared for:

ENSCI
1108 Thomasville Road
High Point, NC 27260

Attention: Thomas Lennon

Project: TFI-H92061

Reviewed &
Approved by: _____

Name: Carmine M. Fioriglio

Title: QA/QC Manager

AnalytiKEM

TABLE OF CONTENTS

		Page
I.	Certification	1
II.	Definition of Terms	2
III.	Sample Designations	3
IV.	Methodology	4
V.	Analytical Results	5 - 16
VI.	Quality Control Data	17 - 21

AnalytiKEM

I. Certification

AnalytiKEM, Inc.
Current Certifications/Regulatory Approvals

Tabulated below are the current laboratory certifications that are held by each AnalytiKEM Laboratory. Analyses performed at multiple AnalytiKEM locations will be noted in the test report.

Cherry Hill, NJ		Rock Hill, SC		Houston Analytical, TX	
State	Cert #	State	Cert #	State	Cert #
Arkansas	*	S. Carolina	46067	N. Dakota	R-006
Connecticut	PH-0715	N. Carolina	316	Oklahoma	8403
Florida	880985G	New Jersey	79795	Texas Water Commission *	
Massachusetts	NJ117			Louisiana	92-07
New Jersey	04012			S. Carolina	82011
New York	10815			N. Carolina	367
N. Carolina	258			Wisconsin	998010530
N. Dakota	R-038			New Jersey	82869
Pennsylvania	68366				
S. Carolina	94004				
Tennessee	02908				
Vermont	*				
Oklahoma	9107				

* No certification numbers are issued for these states.

II. Definition of Terms

AnalytiKEM

Term	Definition
D	Detected; result must be greater than zero.
DI	Deionized Water
J	Compound was detected at levels below the practical quantitation limit. The level reported is approximate.
MS/MSD	Matrix Spike/Matrix Spike Duplicate.
NA	Analysis not applicable to the sample matrix.
ND	Not Detected
NR	Not Requested
NTU	Nephelometric Turbidity Units
RPD	Relative Percent Difference
RSD	Relative Standard Deviation
U	Compound was analyzed for but not detected. The preceding number is the practical quantitation limit for the compound.
ppb	Parts-per-billion; may be converted to ppm by dividing by 1,000.
ppm	Parts-per-million; may be converted to ppb by multiplying by 1,000.
ug/l	Micrograms of constituent per liter of sample; equivalent to parts-per-billion.
ug/kg	Micrograms of constituent per kilogram of sample; equivalent to parts-per-billion.
ug/kg dw	Micrograms of constituent per kilogram of sample reported on a dry weight basis.
CCC	Calibration Check Compound; used to verify the precision of a GC/MS calibration curve.
SPCC	System Performance Check Compound; used to verify the correct operation of a GC/MS instrument.
PQL	Practical Quantitation Limit; the minimum level at which compounds can be dependably quantitated.
B	Analyte detected in associated blank as well as the sample. It indicates possible/probable blank contamination.

III. Sample Designations

AnalytiKEM

AnalytiKEM Designation	Client Designation	Matrix	Date Sampled
A82621-1	TP-1	Nonaquoeus	8/27/92
A82621-2	TP-2A	Nonaqueous	8/27/92
A82621-3	TP-2B	Nonaqueous	8/27/92
A82621-4	RO-2	Nonaquoeus	8/28/92
A82621-5	RO-1	Nonaqueous	8/28/92
A82621-6	RO-4	Nonaqueous	8/29/92
A82621-7	RO-3	Nonaqueous	8/29/92

Note: Samples will be held for 30 days beyond the test report date unless otherwise requested.

IV. Methodology

AnalytiKEM

Volatiles

Method 5030, Purge and Trap, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW846, Second Edition, USEPA.

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW846, Second Edition, USEPA.

Semivolatiles

Method 3550, Sonication Extraction, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW846, Second Edition, USEPA.

Method 3640, Gel-Permeation Cleanup, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW846, Second Edition, USEPA.

Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics: Capillary Column Technique, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW846, Second Edition, USEPA.

General Gas Chromatography

Polar Organics (alcohols, ketones, glycols)

AnalytiKEM Method FIDG-INH-OH-0789, Determination of Volatile Polar Organics by Direct Aqueous Injection, 1989 (unpublished).

V. Analytical Results

AnalytiKEM

Volatile Organics

Parameter	Sample Designation: Method Blank 1	A82621-1 TP-1
Chloromethane	1,000 U	500,000 U
Bromomethane	1,000 U	500,000 U
Vinyl Chloride	1,000 U	500,000 U
Chloroethane	1,000 U	500,000 U
Methylene Chloride	500 U	250,000 U
2-Propanone (Acetone)	10,000 U	5,000,000 U
Carbon Disulfide	500 U	250,000 U
1,1-Dichloroethene	500 U	250,000 U
1,1-Dichloroethane	500 U	250,000 U
trans-1,2-Dichloroethene	500 U	250,000 U
Chloroform	500 U	250,000 U
1,2-Dichloroethane	500 U	250,000 U
2-Butanone (MEK)	10,000 U	5,000,000 U
1,1,1-Trichloroethane	500 U	250,000 U
Carbon Tetrachloride	500 U	250,000 U
Vinyl Acetate	5,000 U	2,500,000 U
Bromodichloromethane	500 U	250,000 U
1,2-Dichloropropane	500 U	250,000 U
trans-1,3-Dichloropropene	500 U	250,000 U
Trichloroethene	500 U	250,000 U
Dibromochloromethane	500 U	250,000 U
1,1,2-Trichloroethane	500 U	250,000 U
Benzene	500 U	250,000 U
cis-1,3-Dichloropropene	500 U	250,000 U
2-Chloroethyl Vinyl Ether	1,000 U	500,000 U
Bromoform	500 U	250,000 U
4-Methyl-2-Pentanone (MIBK)	5,000 U	2,500,000 U
2-Hexanone	5,000 U	2,500,000 U
Tetrachloroethene	500 U	250,000 U
1,1,2,2-Tetrachloroethane	500 U	250,000 U
Toluene	500 U	10,000,000
Chlorobenzene	500 U	250,000 U
Ethylbenzene	500 U	920,000
Styrene	500 U	250,000 U
m,p-Xylene	500 U	2,700,000
o-Xylene	500 U	590,000
Units	(ug/kg)	(ug/kg)

V. Analytical Results (Cont'd)

AnalytiKEM

Volatile Organics

Parameter	Method Blank 2		A82621-2 TP-2A		A82621-3 TP-2B	
	Sample Designation					
Chloromethane	10	U	2,000	U	10,000	U
Bromomethane	10	U	2,000	U	10,000	U
Vinyl Chloride	10	U	2,000	U	10,000	U
Chloroethane	10	U	2,000	U	10,000	U
Methylene Chloride	5.0	U	1,000	U	5,000	U
2-Propanone (Acetone)	100	U	20,000	U	100,000	U
Carbon Disulfide	5.0	U	1,000	U	5,000	U
1,1-Dichloroethene	5.0	U	1,000	U	5,000	U
1,1-Dichloroethane	5.0	U	1,000	U	5,000	U
trans-1,2-Dichloroethene	5.0	U	1,000	U	5,000	U
Chloroform	5.0	U	1,000	U	5,000	U
1,2-Dichloroethane	5.0	U	1,000	U	5,000	U
2-Butanone (MEK)	100	U	20,000	U	100,000	U
1,1,1-Trichloroethane	5.0	U	1,000	U	5,000	U
Carbon Tetrachloride	5.0	U	1,000	U	5,000	U
Vinyl Acetate	50	U	10,000	U	50,000	U
Bromodichloromethane	5.0	U	1,000	U	5,000	U
1,2-Dichloropropane	5.0	U	1,000	U	5,000	U
trans-1,3-Dichloropropene	5.0	U	1,000	U	5,000	U
Trichloroethene	5.0	U	1,000	U	5,000	U
Dibromochloromethane	5.0	U	1,000	U	5,000	U
1,1,2-Trichloroethane	5.0	U	1,000	U	5,000	U
Benzene	5.0	U	1,000	U	5,000	U
cis-1,3-Dichloropropene	5.0	U	1,000	U	5,000	U
2-Chloroethyl Vinyl Ether	10	U	2,000	U	10,000	U
Bromoform	5.0	U	1,000	U	5,000	U
4-Methyl-2-Pentanone (MIBK)	50	U	10,000	U	50,000	U
2-Hexanone	50	U	10,000	U	50,000	U
Tetrachloroethene	5.0	U	1,000	U	5,000	U
1,1,2,2-Tetrachloroethane	5.0	U	1,000	U	5,000	U
Toluene	5.0	U	36,000		35,000	
Chlorobenzene	5.0	U	1,000	U	5,000	U
Ethylbenzene	5.0	U	20,000		33,000	
Styrene	5.0	U	1,000	U	5,000	U
m,p-Xylene m,p Xylene	5.0	U	96,000		230,000	
o-Xylene o-Xylene	5.0	U	14,000		16,000	
Units	(ug/l)		(ug/kg)		(ug/kg)	

V. Analytical Results (Cont'd)

AnalytiKEM

Semivolatile Organics (Page 1 of 2)

Parameter	Method Blank	A82621-1 TP-1	A82621-2 TP-2A	A82621-3 TP-2B
	Sample Designation			
N-Nitrosodimethylamine	1,000 U	100,000 U	10,000 U	100,000 U
Phenol	1,000 U	100,000 U	10,000 U	100,000 U
Bis(2-chloroethyl) Ether	1,000 U	100,000 U	10,000 U	100,000 U
2-Chlorophenol	1,000 U	100,000 U	10,000 U	100,000 U
1,3-Dichlorobenzene	1,000 U	100,000 U	10,000 U	100,000 U
1,4-Dichlorobenzene	1,000 U	100,000 U	10,000 U	100,000 U
Benzyl Alcohol	1,000 U	100,000 U	10,000 U	100,000 U
1,2-Dichlorobenzene	1,000 U	100,000 U	10,000 U	100,000 U
2-Methylphenol	1,000 U	100,000 U	10,000 U	100,000 U
Bis(2-chloroisopropyl) Ether	1,000 U	100,000 U	10,000 U	100,000 U
3+4-Methylphenol	1,000 U	100,000 U	10,000 U	100,000 U
N-Nitrosodipropylamine	1,000 U	100,000 U	10,000 U	100,000 U
Hexachloroethane	1,000 U	100,000 U	10,000 U	100,000 U
Nitrobenzene	1,000 U	100,000 U	10,000 U	100,000 U
Isophorone	1,000 U	100,000 U	10,000 U	100,000 U
2-Nitrophenol	1,000 U	100,000 U	10,000 U	100,000 U
2,4-Dimethylphenol	1,000 U	100,000 U	10,000 U	100,000 U
Benzoic Acid	5,000 U	500,000 U	50,000 U	500,000 U
Bis(2-chloroethoxy)methane	1,000 U	100,000 U	10,000 U	100,000 U
2,4-Dichlorophenol	1,000 U	100,000 U	10,000 U	100,000 U
1,2,4-Trichlorobenzene	1,000 U	100,000 U	10,000 U	100,000 U
Naphthalene	1,000 U	100,000 U	10,000 U	100,000 U
4-Chloroaniline	1,000 U	100,000 U	10,000 U	100,000 U
Hexachlorobutadiene	1,000 U	100,000 U	10,000 U	100,000 U
4-Chloro-3-methylphenol	1,000 U	100,000 U	10,000 U	100,000 U
2-Methylnaphthalene	1,000 U	26,000 J	10,000 U	70,000 J
Hexachlorocyclopentadiene	1,000 U	100,000 U	10,000 U	100,000 U
2,4,6-Trichlorophenol	1,000 U	100,000 U	10,000 U	100,000 U
2,4,5-Trichlorophenol	5,000 U	500,000 U	50,000 U	500,000 U
2-Chloronaphthalene	1,000 U	100,000 U	10,000 U	100,000 U
2-Nitroaniline	5,000 U	500,000 U	50,000 U	500,000 U
Dimethyl Phthalate	1,000 U	480,000	10,000 U	100,000 U
Acenaphthylene	1,000 U	100,000 U	10,000 U	100,000 U
3-Nitroaniline	5,000 U	500,000 U	50,000 U	500,000 U
Acenaphthene	1,000 U	100,000 U	10,000 U	100,000 U
2,4-Dinitrophenol	5,000 U	500,000 U	50,000 U	500,000 U
Units	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)

V. Analytical Results (Cont'd)

AnalytiKEM

Semivolatile Organics (Page 2 of 2)

Parameter	Method Blank	A82621-1 TP-1	A82621-2 TP-2A	A82621-3 TP-2B
		Sample Designation		
4-Nitrophenol	5,000 U	500,000 U	50,000 U	500,000 U
Dibenzofuran	1,000 U	100,000 U	10,000 U	100,000 U
2,4-Dinitrotoluene	1,000 U	100,000 U	10,000 U	100,000 U
2,6-Dinitrotoluene	1,000 U	100,000 U	10,000 U	100,000 U
Diethyl Phthalate	1,000 U	100,000 U	10,000 U	100,000 U
4-Chlorophenyl Phenyl Ether	1,000 U	100,000 U	10,000 U	100,000 U
Fluorene	1,000 U	100,000 U	10,000 U	100,000 U
4-Nitroaniline	5,000 U	500,000 U	50,000 U	500,000 U
4,6-Dinitro-2-methylphenol	5,000 U	500,000 U	50,000 U	500,000 U
N-Nitrosodiphenylamine	1,000 U	100,000 U	10,000 U	100,000 U
4-Bromophenyl Phenyl Ether	1,000 U	100,000 U	10,000 U	100,000 U
Hexachlorobenzene	1,000 U	100,000 U	10,000 U	100,000 U
Pentachlorophenol	1,000 U	100,000 U	10,000 U	100,000 U
Phenanthrene	1,000 U	100,000 U	10,000 U	100,000 U
Anthracene	1,000 U	100,000 U	10,000 U	100,000 U
Dibutyl Phthalate	1,000 U	29,000 J	3,000 J	14,000 J
Fluoranthene	860 J	100,000 U	10,000 U	100,000 U
Benzidine	5,000 U	500,000 U	50,000 U	500,000 U
Pyrene	1,000 U	100,000 U	10,000 U	100,000 U
Butylbenzyl Phthalate	1,000 U	100,000 U	10,000 U	100,000 U
3,3'-Dichlorobenzidine	2,000 U	200,000 U	20,000 U	200,000 U
Benzo(a)anthracene	1,000 U	100,000 U	10,000 U	100,000 U
Bis(2-ethylhexyl) Phthalate	440 J	900,000	150,000	1,000,000
Chrysene	1,000 U	100,000 U	10,000 U	100,000 U
Dioctyl Phthalate	1,000 U	36,000 J	1,100 J	100,000 U
Benzo(b)fluoranthene	1,000 U	100,000 U	10,000 U	100,000 U
Benzo(k)fluoranthene	1,000 U	100,000 U	10,000 U	100,000 U
Benzo(a)pyrene	1,000 U	100,000 U	10,000 U	100,000 U
Indeno(1,2,3-cd)pyrene	1,000 U	100,000 U	10,000 U	100,000 U
Dibenzo(a,h)anthracene	1,000 U	100,000 U	10,000 U	100,000 U
Benzo(g,h,i)perylene	1,000 U	100,000 U	10,000 U	100,000 U
Units	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)

AnalytiKEM

V. Analytical Results (Cont'd)

EPA/NIH/NBS Nontargetted Library Search

No nontargetted compounds were detected in the following samples:

Volatile Method Blank 1
Volatile Method Blank 2

AnalytiKEM Designation Semivolatile Method Blank

CAS Number	Compound Name	Fraction	Scan Number	Estimated Concentration (ug/kg)
	Unknown Compound	BNA	239	53,000
	Unknown Compound	BNA	412	1,400
	Unknown Compound	BNA	489	180
	Unknown Compound	BNA	653	1,500
	Unknown Compound	BNA	3255	700

Note: Estimated concentration is calculated against the nearest eluting internal standard.

AnalytiKEM

V. Analytical Results (Cont'd)

EPA/NIH/NBS Nontargetted Library Search

AnalytiKEM Designation A82621-1

Client Designation TP-1

CAS Number	Compound Name	Fraction	Scan Number	Estimated Concentration (ug/kg)
	Unknown Compound	VOA	1052	450,000
	Unknown Compound	VOA	1237	550,000
	Unknown Alkane	VOA	1357	1,100,000
	Unknown Alkane	VOA	1397	780,000
	Alkylated Cyclohexane Isomer	VOA	1471	940,000
	Unknown Alkane	VOA	1509	1,200,000
	Unknown Alkane	VOA	1644	310,000
	Unknown Compound	VOA	1715	550,000
	Unknown Alkane	VOA	1755	620,000
	Unknown Alkane	VOA	1785	370,000
	Unknown Alkane	VOA	2510	370,000

Note: Estimated concentration is calculated against the nearest eluting internal standard.

AnalytiKEM

V. Analytical Results (Cont'd)

EPA/NIH/NBS Nontargetted Library Search

AnalytiKEM Designation A82621-1 (Cont'd)

Client Designation TP-1

CAS Number	Compound Name	Fraction	Scan Number	Estimated Concentration (ug/kg)
	Alkylated Benzene	BNA	283	200,000
	Unknown Compound	BNA	390	820,000
	Unknown Alkane	BNA	849	240,000
	Unknown Alkane	BNA	1066	160,000
	Unknown Compound	BNA	1375	170,000
	Unknown Compound	BNA	1415	240,000
	Unknown Alkane	BNA	1630	170,000
	Unknown Compound	BNA	1753	160,000
	Unknown Compound	BNA	1806	2,100,000
57103	Hexanedecanoic Acid	BNA	2342	130,000
2345291	8-Octadecanoic Acid, Methyl Ester	BNA	2521	360,000
	Unknown Compound	BNA	2574	590,000
	Unknown Compound	BNA	2582	1,400,000
	Stearic Acid Isomer	BNA	2604	420,000
	Unknown Compound	BNA	2785	330,000
	Unknown Compound	BNA	2790	200,000
	Unknown Compound	BNA	2833	410,000
	Unknown Compound	BNA	2931	330,000
1740198	Unknown Phenanthrene Carboxylic Acid	BNA	2952	220,000
	Unknown Compound	BNA	3119	830,000
	Unknown Compound	BNA	3126	340,000
	Unknown Compound	BNA	3142	180,000

Note: Estimated concentration is calculated against the nearest eluting internal standard.

AnalytiKEM

V. Analytical Results (Cont'd)

EPA/NIH/NBS Nontargetted Library Search

AnalytiKEM Designation A82621-2

Client Designation TP-2A

CAS Number	Compound Name	Fraction	Scan Number	Estimated Concentration (ug/kg)
	Unknown Alkane	VOA	1203	7,500
	Unknown Compound	VOA	1235	12,000
	Unknown Alkane	VOA	1355	27,000
	Unknown Alkane	VOA	1396	23,000
	Alkylated Cyclohexane Isomer	VOA	1470	28,000
	Unknown Alkane	VOA	1643	4,100
	Unknown Compound	VOA	1714	7,700
	Unknown Alkane	VOA	1754	7,000
	Unknown Alkane	VOA	1784	5,300
	Unknown Compound	VOA	2213	2,300
	Unknown Alkane	VOA	2508	2,000

Note: Estimated concentration is calculated against the nearest eluting internal standard.

AnalytiKEM

V. Analytical Results (Cont'd)

EPA/NIH/NBS Nontargetted Library Search

AnalytiKEM Designation A82621-2 (Cont'd)

Client Designation TP-2A

CAS Number	Compound Name	Fraction	Scan Number	Estimated Concentration (ug/kg)
	Unknown Compound	BNA	224	45,000
	Unknown Benzene	BNA	279	14,000
	Unknown Compound	BNA	398	530,000
	Unknown Alkane	BNA	609	4,100
	Unknown Alkane	BNA	688	7,500
	Unknown Alkane	BNA	735	15,000
	Unknown Alkane	BNA	759	11,000
	Unknown Alkane	BNA	786	7,900
	Unknown Alkane	BNA	845	14,000
	Unknown Compound	BNA	968	4,100
	Unknown Alkane	BNA	985	5,200
	Unknown Alkane	BNA	1061	8,400
	Unknown Compound	BNA	1206	14,000
	Unknown Compound	BNA	1562	4,200
	Unknown Compound	BNA	2430	9,100
	Unknown Compound	BNA	2679	7,200
	Unknown Compound	BNA	2701	6,100
	Unknown Compound	BNA	2931	40,000
	Unknown Compound	BNA	3119	78,000
	Unknown Compound	BNA	3144	12,000

Note: Estimated concentration is calculated against the nearest eluting internal standard.

AnalytiKEM

V. Analytical Results (Cont'd)

EPA/NIH/NBS Nontargetted Library Search

AnalytiKEM Designation A82621-3

Client Designation TP-2B

CAS Number	Compound Name	Fraction	Scan Number	Estimated Concentration (ug/kg)
	Unknown Compound	VOA	1194	31,000
108872	Methyl Cyclohexane	VOA	1230	43,000
	Unknown Alkane	VOA	1352	100,000
	Unknown Alkane	VOA	1393	90,000
	Alkylated Cyclohexane Isomer	VOA	1466	110,000
	Unknown Alkane	VOA	1640	33,000
	Unknown Compound	VOA	1711	66,000
	Unknown Alkane	VOA	1750	43,000
	Unknown Alkane	VOA	1780	38,000
	Unknown Compound	VOA	2210	24,000
	Unknown Alkane	VOA	2504	31,000
91178	Decahydro Naphthalene	VOA	2521	26,000

Note: Estimated concentration is calculated against the nearest eluting internal standard.

AnalytiKEM

V. Analytical Results (Cont'd)

EPA/NIH/NBS Nontargetted Library Search

AnalytiKEM Designation A82621-3 (Cont'd)

Client Designation TP-2B

CAS Number	Compound Name	Fraction	Scan Number	Estimated Concentration (ug/kg)
	Unknown Alkane	BNA	689	120,000
	Unknown Compound	BNA	731	160,000
	Unknown Compound	BNA	751	110,000
	Unknown Alkane	BNA	759	150,000
	Unknown Alkane	BNA	775	110,000
	Unknown Alkane	BNA	843	430,000
	Unknown Alkane	BNA	880	220,000
	Unknown Alkane	BNA	894	120,000
	Unknown Alkane	BNA	903	130,000
	Unknown Compound	BNA	917	150,000
	Unknown Alkane	BNA	965	280,000
	Unknown Isomer	BNA	973	160,000
	Unknown Alkane	BNA	983	280,000
	Unknown Alkane	BNA	996	190,000
	Unknown Alkane	BNA	1059	390,000
	Unknown Alkane	BNA	1087	140,000
	Unknown Alkane	BNA	1204	110,000
	Unknown Alkane	BNA	1445	120,000
	Unknown Alkane	BNA	1555	110,000
	Unknown Alkane	BNA	1621	100,000
	Unknown Compound	BNA	1795	640,000
	Unknown Compound	BNA	2424	220,000

Note: Estimated concentration is calculated against the nearest eluting internal standard.

AnalytiKEM

V. Analytical Results (Cont'd)

Alcohols

Parameter	Method Blank	A82621-1 TP-1	A82621-2 TP-2A	A82621-3 TP-2B
	Sample Designation			
n-Butanol	1,200 U	170,000	35,000 *	25,000
iso-Butanol	1,200 U	250,000	6,900	25,000
Methanol	1,200 U	320,000	27,000 *	670,000 *
iso-Propanol	1,200 U	290,000	15,000 *	54,000
Ethanol	1,200 U	230,000	6,300	66,000
Units	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)

* Result obtained from rerun due to saturation in original run.

AnalytiKEM

VI. Quality Control Data

Volatile Organics

Nonaqueous Matrix Spike/Matrix Spike Duplicate Recovery Data

Sample Spiked A74009-PC

Parameter	Amount of Spike	Recovery MS	Recovery MSD	RPD	Control Limits Recovery
1,1-Dichloroethene	0.25	81	90	9	D-234
Trichloroethene (TCE)	0.25	104	106	2	71-157
Benzene	0.25	106	111	5	37-151
Toluene	0.25	102	109	7	47-150
Chlorobenzene	0.25	102	102	0	37-160
Units	(ug)	(%)	(%)	(%)	(%)

Recovery: 0 out of 10 outside control limits

RPD: 0 out of 5 outside control limits

AnalytiKEM

VI. Quality Control Data (Cont'd)

Volatile Organics

Nonaqueous Surrogate Recovery Data

Sample Designation	Surrogate Recovery: 1,2-Dichloroethane-d_4 (50 ppb Added)	Toluene-d_8 (50 ppb Added)	4-Bromofluorobenzene (50 ppb Added)
Method Blank 1	90	93	103
Method Blank 2	96	102	107
A74009-PC Spike	83	95	95
A74009-PC Spike Dup.	87	100	96
A82621-1	*	*	*
A82621-2	79	88	100
A82621-3	80	99	101
Units	(%)	(%)	(%)
Control Limits	62-152	57-159	62-148

* Not recovered due to dilution.

3 out of 18 surrogate recoveries are outside control limits.

AnalytiKEM

VI. Quality Control Data (Cont'd)

Semivolatile Organics

Nonaqueous Matrix Spike/Matrix Spike Duplicate Recovery Data

Sample Spiked A74009-PG

Parameter	Amount of Spike	Recovery MS	Recovery MSD	RPD	Control Limits Recovery	Control Limits Max. RPD
1,4-Dichlorobenzene	50	73	89	20	18-120	43
N-Nitrosodipropylamine	50	30	28	7	10-156	31
1,2,4-Trichlorobenzene	50	88	99	12	24-161	17
Acenaphthene	50	107	102	5	10-151	16
2,4-Dinitrotoluene	50	93	96	3	10-197	33
Pyrene	50	118	127	7	10-167	31
Phenol	100	90	139	43	10-141	41
Phenol ϕ	100	93	--	--	10-141	41
2-Chlorophenol	100	79	100	23	33-101	19
2-Chlorophenol ϕ	100	82	--	--	33-101	19
4-Chloro-3-methylphenol	100	116	129	11	26-117	25
4-Chloro-3-methylphenol ϕ	100	106	--	--	26-117	25
4-Nitrophenol	100	123	137	11	10-221	36
Pentachlorophenol	100	139	141	1	10-179	16
Units	(ppb)	(%)	(%)	(%)	(%)	(%)

ϕ Spike performed on DI Water.

Recovery: 1 out of 25 outside control limits

RPD: 2 out of 11 outside control limits

AnalytiKEM

VI. Quality Control Data (Cont'd)

Semivolatile Organics

Nonaqueous Surrogate Recovery Data

Sample Designation	Surrogate Recovery 2-Fluorophenol (200 ppb Added)	Phenol-d_5 (200 ppb Added)	2,4,6-Tribromophenol (200 ppb Added)
Method Blank	42	49	61
A74009-PC Spike	70	82	159
A74009-PC Spike Dup.	84	65	164
A82621-1	*	*	*
A82621-2	54	52	48
A82621-3	*	*	*
Units	(%)	(%)	(%)
Control Limits	27-106	30-88	42-89

Sample Designation	Surrogate Recovery Nitrobenzene-d_5 (100 ppb Added)	2-Fluorobiphenyl (100 ppb Added)	Terphenyl-d_{14} (100 ppb Added)
Method Blank	47	59	67
A74009-PC Spike	73	115	126
A74009-PC Spike Dup.	73	110	124
A82621-1	*	*	*
A82621-2	43	69	77
A82621-3	*	*	*
Units	(%)	(%)	(%)
Control Limits	34-107	10-157	10-175

* Not recovered due to dilution.

2 out of 24 surrogate recoveries are outside control limits.

AnalytiKEM

VI. Quality Control Data (Cont'd)

Alcohols

Nonaqueous Matrix Spike/Matrix Spike Duplicate Recovery Data

Sample Spiked A82621-1

Parameter	Amount of Spike	Recovery MS	Recovery MSD	RPD	Control Limits Recovery	Control Limits Max. RPD
iso-Butanol	4,000	*	*	--	70-130	30
iso-Butanol ϕ	4,000	93	--	--	70-130	30
n-Butanol	4,000	*	*	--	70-130	30
n-Butanol ϕ	4,000	72	--	--	70-130	30
Methanol	4,000	*	*	--	70-130	30
Methanol ϕ	4,000	73	--	--	70-130	30
iso-Propanol	4,000	*	*	--	70-130	30
iso-Propanol ϕ	4,000	101	--	--	70-130	30
Ethanol	4,000	*	*	--	70-130	30
Ethanol ϕ	4,000	87	--	--	70-130	30
Units	(ppb)	(%)	(%)	(%)	(%)	(%)

* Not recovered due to high amount of analyte detected in sample.

ϕ Spike performed on DI Water.

Recovery: 0 out of 5 outside control limits

AnalytiKEM *An American NuKEM Company*

AnalytiKEM Inc.
454 S. Anderson Road, BTC 532
Rock Hill, SC 29730
803/329-9690

TEST REPORT NO. A82621

September 18, 1992

Prepared for:

ENSCI
1108 Thomasville Road
High Point, NC 27260

Attention: Thomas Lennon

Project: TFI-H92061

Reviewed &
Approved by: _____

Name: Carmine M. Fioriglio

Title: QA/QC Manager

AnalytiKEM

TABLE OF CONTENTS

		Page
I.	List of Certifications	1
II.	Definition of Terms	2
III.	Sample Designations	3
IV.	Methodology	4
V.	Laboratory Chronicle	5
VI.	Extraction Log	6
VII.	Outlier Summary	7
VIII.	Analytical Results	8 - 15
IX.	Quality Control Data	16 - 24

AnalytiKEM

I. Certification

AnalytiKEM, Inc.
Current Certifications/Regulatory Approvals

Tabulated below are the current laboratory certifications that are held by each AnalytiKEM Laboratory. Analyses performed at multiple AnalytiKEM locations will be noted in the test report.

Cherry Hill, NJ		Rock Hill, SC		Houston Analytical, TX	
State	Cert #	State	Cert #	State	Cert #
Arkansas	*	S. Carolina	46067	N. Dakota	R-006
Connecticut	PH-0715	N. Carolina	316	Oklahoma	8403
Florida	880985G	New Jersey	79795	Texas Water Commission	*
Massachusetts	NJ117			Louisiana	92-07
New Jersey	04012			S. Carolina	82011
New York	10815			N. Carolina	367
N. Carolina	258			Wisconsin	998010530
N. Dakota	R-038			New Jersey	82869
Pennsylvania	68366				
S. Carolina	94004				
Tennessee	02908				
Vermont	*				
Oklahoma	9107				

* No certification numbers are issued for these states.

AnalytiKEM

II. Definition of Terms

Term	Definition
DI	Deionized Water
J	Compound was detected at levels below the practical quantitation limit. The level reported is approximate.
MS/MSD	Matrix Spike/Matrix Spike Duplicate
NA	Analysis not applicable to the sample matrix.
ND	Not Detected
NR	Not Requested
RPD	Relative Percent Difference
RSD	Relative Standard Deviation
U	Compound was analyzed for but not detected. The preceding number is the practical quantitation limit for the compound.
mg/L	Milligrams of constituent per liter of TCLP Leachate; equivalent to parts-per-million (ppm).
CCC	Calibration Check Compound; used to verify the precision of a GC/MS calibration curve.
SPCC	System Performance Check Compound; used to verify the correct operation of a GC/MS instrument.
PQL	Practical Quantitation Limit; the minimum level at which compounds can be dependably quantitated.
TCLP	Toxic Characteristic Leachate Procedure
ZHE	Zero Headspace Extraction
TC	Toxic Characteristic
ug	Micrograms

III. Sample Designations

AnalytiKEM

AnalytiKEM Designation	Client Designation	Matrix	Date Sampled
A82621-4	RO-2	Nonaqueous	8/28/92
A82621-5	RO-1	Nonaqueous	8/28/92
A82621-6	RO-4	Nonaqueous	8/29/92
A82621-7	RO-3	Nonaqueous	8/29/92

Note: Samples will be held for 30 days beyond the test report date unless otherwise requested.

IV. Methodology

AnalytiKEM

All analysis are performed in accordance with methodologies found in the following publications:

- Federal Register, Vol. 55, No. 126, June 29, 1990.
- 40 CFR, Part 216, Appendix 2, Method 1311.
- Test Methods for Evaluating Solid Waste, USEPA, SW-846, Second Edition, 1982.
- Test Methods for Evaluating Solid Waste, USEPA, SW-846, Third Edition, 1982.
- Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, USEPA, March 1983.

V. Laboratory Chronicle

AnalytiKEM

	DATE I	DATE II
Date Sampled	8/28 & 8/29/92	
Receipt/Refrigeration	8/28 & 8/31/92	
TCLP Extractions		
Zero Headspace Extraction	9/02/92	
TC Extraction	9/03/92	
Sample Preparations		
Semivolatiles	9/07/92	
Pesticides	9/08/92	
Herbicides	9/07/92	
Metals:		
General	9/08/92	
Mercury	9/08/92	
Furnace	9/08/92	
Analyses		
Volatiles	9/03 & 9/04/92	
Semivolatiles	9/09/92	
Pesticides	9/09/92	
Herbicides	9/08/92	
Metals		
General	9/09/92	
Mercury	9/08/92	
Furnace	9/09/92	

Laboratory Manager Review & Approval
(Signature)
(Printed Name) Gregory A. Pruna
(Date) 9/21/92

NOTE: If fractions are reextracted and reanalyzed because the initial endeavors failed to meet the required quality control criteria, the dates of reextraction and/or reanalysis will be entered in column II additionally.

VI. Extraction Log

AnalytiKEM

Sample Designation	Zero Headspace Extraction, (g)	TCLP Extraction, (g)	Extraction Fluid Type	Extraction Fluid Volume (ml)
A82621-4	25	--	1	500
A82621-4	--	300	1	6,000
A82621-5	25	--	1	500
A82621-5	--	300	1	6,000
A82621-6	25	--	1	500
A82621-6	--	300	1	6,000
A82621-7	25	--	1	500
A82621-7	--	300	1	6,000

AnalytiKEM

VII. Outlier Summary: Toxicity Characteristic Leachate Procedure (TCLP)

No Compounds were reported above the Regulatory Limits for the following samples:

A82621-4 RO-2
A82621-5 RO-1
A82621-6 RO-4
A82621-7 RO-3

VIII. Analytical Results

AnalytiKEM

TCLP Organic Analyses

AnalytiKEM Designation: A82621-4

Client Designation: RO-2

EPA Number	Parameter	Method Blank	Sample Result	Regulatory Level
Volatile Organics				
D043	Vinyl Chloride	0.011 U	0.018 U	0.02
D029	1,1-Dichloroethylene	0.0052 U	0.0086 U	0.07
D022	Chloroform	0.0050 U	0.0083 U	0.6
D028	1,2-Dichloroethane	0.0050 U	0.0082 U	0.05
D035	2-Butanone (Methyl Ethyl Ketone)	0.18 U	0.30 U	20
D019	Carbon Tetrachloride	0.0051 U	0.0085 U	0.05
D040	Trichloroethylene	0.0052 U	0.0086 U	0.05
D018	Benzene	0.0052 U	0.0086 U	0.05
D039	Tetrachloroethylene	0.0052 U	0.0086 U	0.07
D021	Chlorobenzene	0.0052 U	0.0085 U	10
Semivolatile Organics				
D038	Pyridine	0.012 U	0.024 U	0.50
D027	1,4-Dichlorobenzene	0.0066 U	0.013 U	0.75
D026	Cresols (total)	0.0079 U	0.016 U	20
D034	Hexachloroethane	0.0052 U	0.010 U	0.30
D036	Nitrobenzene	0.0061 U	0.012 U	0.20
D033	Hexachlorobutadiene	0.0057 U	0.011 U	0.05
D042	2,4,6-Trichlorophenol	0.0066 U	0.013 U	0.20
D041	2,4,5-Trichlorophenol	0.028 U	0.056 U	40
D030	2,4-Dinitrotoluene	0.0056 U	0.011 U	0.013
D032	Hexachlorobenzene	0.0052 U	0.010 U	0.013
D037	Pentachlorophenol	0.0047 U	0.0094 U	10
Pesticides and Herbicides				
D020	Chlordane	0.0036 U	0.0036 U	0.003
D012	Endrin	0.0017 U	0.0017 U	0.002
D031	Heptachlor	0.00052 U	0.00052 U	0.0008
D031	Heptachlor Expoxide	0.00027 U	0.00027 U	0.0008
D013	Lindane	0.00047 U	0.00047 U	0.040
D014	Methoxychlor	0.0020 U	0.0020 U	1.0
D015	Toxaphene	0.0035 U	0.0035 U	0.05
D016	2,4-D	0.016 U	0.016 U	1.0
D017	2,4,5-TP (Silvex)	0.0013 U	0.0013 U	0.10
Units		(mg/l)	(mg/l)	(mg/l)

VIII. Analytical Results (Cont'd)

AnalytiKEM

TCLP Metals

AnalytiKEM Designation: A82621-4

Client Designation: RO-2

EPA Number	Parameter	Method Blank	Sample Result	Regulatory Level
D004	Arsenic	0.31 U	0.31 U	0.50
D005	Barium	5.0 U	0.84 J	10
D006	Cadmium	0.054 U	0.054 U	0.10
D007	Chromium	0.33 U	0.33 U	0.50
D008	Lead	0.33 U	0.33 U	0.50
D009	Mercury	0.020 U	0.020 U	0.020
D010	Selenium	0.054 U	0.054 U	0.10
D011	Silver	0.096 U	0.096 U	0.50
Units		(mg/l)	(mg/l)	(mg/l)

Note: All results are corrected for spike recoveries.

VIII. Analytical Results (Cont'd)

AnalytiKEM

TCLP Organic Analyses

AnalytiKEM Designation: A82621-5

Client Designation: RO-1

EPA Number	Parameter	Method Blank	Sample Result	Regulatory Level
Volatile Organics				
D043	Vinyl Chloride	0.010 U	0.017 U	0.02
D029	1,1-Dichloroethylene	0.0049 U	0.0081 U	0.07
D022	Chloroform	0.0050 U	0.0083 U	0.6
D028	1,2-Dichloroethane	0.0049 U	0.0081 U	0.05
D035	2-Butanone (Methyl Ethyl Ketone)	0.11 U	0.18 U	20
D019	Carbon Tetrachloride	0.0047 U	0.0078 U	0.05
D040	Trichloroethylene	0.0050 U	0.0083 U	0.05
D018	Benzene	0.0052 U	0.0086 U	0.05
D039	Tetrachloroethylene	0.0048 U	0.0080 U	0.07
D021	Chlorobenzene	0.0050 U	0.0083 U	10
Semivolatile Organics				
D038	Pyridine	0.012 U	0.024 U	0.50
D027	1,4-Dichlorobenzene	0.0066 U	0.013 U	0.75
D026	Cresols (total)	0.0079 U	0.016 U	20
D034	Hexachloroethane	0.0052 U	0.010 U	0.30
D036	Nitrobenzene	0.0061 U	0.012 U	0.20
D033	Hexachlorobutadiene	0.0057 U	0.011 U	0.05
D042	2,4,6-Trichlorophenol	0.0066 U	0.013 U	0.20
D041	2,4,5-Trichlorophenol	0.028 U	0.056 U	40
D030	2,4-Dinitrotoluene	0.0056 U	0.011 U	0.013
D032	Hexachlorobenzene	0.0052 U	0.010 U	0.013
D037	Pentachlorophenol	0.0047 U	0.0094 U	10
Pesticides and Herbicides				
D020	Chlordane	0.0036 U	0.0036 U	0.003
D012	Endrin	0.0017 U	0.0017 U	0.002
D031	Heptachlor	0.00052 U	0.00052 U	0.0008
D031	Heptachlor Expoxide	0.00027 U	0.00027 U	0.0008
D013	Lindane	0.00047 U	0.00047 U	0.040
D014	Methoxychlor	0.0020 U	0.0020 U	1.0
D015	Toxaphene	0.0035 U	0.0035 U	0.05
D016	2,4-D	0.016 U	0.016 U	1.0
D017	2,4,5-TP (Silvex)	0.0013 U	0.0013 U	0.10
Units		(mg/l)	(mg/l)	(mg/l)

VIII. Analytical Results (Cont'd)

AnalytiKEM

TCLP Metals

AnalytiKEM Designation: A82621-5

Client Designation: RO-1

EPA Number	Parameter	Method Blank		Sample Result		Regulatory Level
D004	Arsenic	0.31	U	0.31	U	0.50
D005	Barium	5.0	U	0.42	J	10
D006	Cadmium	0.054	U	0.054	U	0.10
D007	Chromium	0.33	U	0.33	U	0.50
D008	Lead	0.33	U	0.33	U	0.50
D009	Mercury	0.020	U	0.0011	J	0.020
D010	Selenium	0.054	U	0.054	U	0.10
D011	Silver	0.096	U	0.096	U	0.50
Units		(mg/l)		(mg/l)		(mg/l)

Note: All results are corrected for spike recoveries.

VIII. Analytical Results (Cont'd)

AnalytiKEM

TCLP Organic Analyses

AnalytiKEM Designation: A82621-6

Client Designation: RO-4

EPA Number	Parameter	Method Blank	Sample Result	Regulatory Level
Volatile Organics				
D043	Vinyl Chloride	0.011 U	0.018 U	0.02
D029	1,1-Dichloroethylene	0.0052 U	0.0086 U	0.07
D022	Chloroform	0.0050 U	0.0083 U	0.6
D028	1,2-Dichloroethane	0.0050 U	0.0082 U	0.05
D035	2-Butanone (Methyl Ethyl Ketone)	0.18 U	0.30 U	20
D019	Carbon Tetrachloride	0.0051 U	0.0085 U	0.05
D040	Trichloroethylene	0.0052 U	0.0086 U	0.05
D018	Benzene	0.0052 U	0.0086 U	0.05
D039	Tetrachloroethylene	0.0052 U	0.0086 U	0.07
D021	Chlorobenzene	0.0052 U	0.0085 U	10
Semivolatile Organics				
D038	Pyridine	0.012 U	0.024 U	0.50
D027	1,4-Dichlorobenzene	0.0066 U	0.013 U	0.75
D026	Cresols (total)	0.0079 U	0.016 U	20
D034	Hexachloroethane	0.0052 U	0.010 U	0.30
D036	Nitrobenzene	0.0061 U	0.012 U	0.20
D033	Hexachlorobutadiene	0.0057 U	0.011 U	0.05
D042	2,4,6-Trichlorophenol	0.0066 U	0.013 U	0.20
D041	2,4,5-Trichlorophenol	0.028 U	0.056 U	40
D030	2,4-Dinitrotoluene	0.0056 U	0.011 U	0.013
D032	Hexachlorobenzene	0.0052 U	0.010 U	0.013
D037	Pentachlorophenol	0.0047 U	0.0094 U	10
Pesticides and Herbicides				
D020	Chlordane	0.0036 U	0.0036 U	0.003
D012	Endrin	0.0017 U	0.0017 U	0.002
D031	Heptachlor	0.00052 U	0.00052 U	0.0008
D031	Heptachlor Expoxide	0.00027 U	0.00027 U	0.0008
D013	Lindane	0.00047 U	0.00047 U	0.040
D014	Methoxychlor	0.0020 U	0.0020 U	1.0
D015	Toxaphene	0.0035 U	0.0035 U	0.05
D016	2,4-D	0.016 U	0.016 U	1.0
D017	2,4,5-TP (Silvex)	0.0013 U	0.0013 U	0.10
Units		(mg/l)	(mg/l)	(mg/l)

VIII. Analytical Results (Cont'd)

AnalytiKEM

TCLP Metals

AnalytiKEM Designation: A82621-6

Client Designation: RO-4

EPA Number	Parameter	Method Blank		Sample Result		Regulatory Level
D004	Arsenic	0.31	U	0.31	U	0.50
D005	Barium	5.0	U	0.51	J	10
D006	Cadmium	0.054	U	0.054	U	0.10
D007	Chromium	0.33	U	0.33	U	0.50
D008	Lead	0.33	U	0.33	U	0.50
D009	Mercury	0.020	U	0.020	U	0.020
D010	Selenium	0.054	U	0.054	U	0.10
D011	Silver	0.096	U	0.096	U	0.50
Units		(mg/l)		(mg/l)		(mg/l)

Note: All results are corrected for spike recoveries.

VIII. Analytical Results (Cont'd)

AnalytiKEM

TCLP Organic Analyses

AnalytiKEM Designation: A82621-7

Client Designation: RO-3

EPA Number	Parameter	Method Blank	Sample Result	Regulatory Level
Volatile Organics				
D043	Vinyl Chloride	0.011 U	0.018 U	0.02
D029	1,1-Dichloroethylene	0.0052 U	0.0086 U	0.07
D022	Chloroform	0.0050 U	0.0083 U	0.6
D028	1,2-Dichloroethane	0.0050 U	0.0082 U	0.05
D035	2-Butanone (Methyl Ethyl Ketone)	0.18 U	0.11 J	20
D019	Carbon Tetrachloride	0.0051 U	0.0085 U	0.05
D040	Trichloroethylene	0.0052 U	0.0086 U	0.05
D018	Benzene	0.0052 U	0.0086 U	0.05
D039	Tetrachloroethylene	0.0052 U	0.0086 U	0.07
D021	Chlorobenzene	0.0052 U	0.0085 U	10
Semivolatile Organics				
D038	Pyridine	0.012 U	0.024 U	0.50
D027	1,4-Dichlorobenzene	0.0066 U	0.013 U	0.75
D026	Cresols (total)	0.0079 U	0.016 U	20
D034	Hexachloroethane	0.0052 U	0.010 U	0.30
D036	Nitrobenzene	0.0061 U	0.012 U	0.20
D033	Hexachlorobutadiene	0.0057 U	0.011 U	0.05
D042	2,4,6-Trichlorophenol	0.0066 U	0.013 U	0.20
D041	2,4,5-Trichlorophenol	0.028 U	0.056 U	40
D030	2,4-Dinitrotoluene	0.0056 U	0.011 U	0.013
D032	Hexachlorobenzene	0.0052 U	0.010 U	0.013
D037	Pentachlorophenol	0.0047 U	0.0094 U	10
Pesticides and Herbicides				
D020	Chlordane	0.0036 U	0.0036 U	0.003
D012	Endrin	0.0017 U	0.0017 U	0.002
D031	Heptachlor	0.00052 U	0.00052 U	0.0008
D031	Heptachlor Expoxide	0.00027 U	0.00027 U	0.0008
D013	Lindane	0.00047 U	0.00047 U	0.040
D014	Methoxychlor	0.0020 U	0.0020 U	1.0
D015	Toxaphene	0.0035 U	0.0035 U	0.05
D016	2,4-D	0.016 U	0.016 U	1.0
D017	2,4,5-TP (Silvex)	0.0013 U	0.0013 U	0.10
Units		(mg/l)	(mg/l)	(mg/l)

VIII. Analytical Results (Cont'd)

AnalytiKEM

TCLP Metals

AnalytiKEM Designation: A82621-7

Client Designation: RO-3

EPA Number	Parameter	Method Blank	Sample Result	Regulatory Level
D004	Arsenic	0.31 U	0.31 U	0.50
D005	Barium	5.0 U	0.50 J	10
D006	Cadmium	0.054 U	0.054 U	0.10
D007	Chromium	0.33 U	0.33 U	0.50
D008	Lead	0.33 U	0.33 U	0.50
D009	Mercury	0.020 U	0.0024 J	0.020
D010	Selenium	0.054 U	0.054 U	0.10
D011	Silver	0.096 U	0.096 U	0.50
Units		(mg/l)	(mg/l)	(mg/l)

Note: All results are corrected for spike recoveries.

AnalytiKEM

IX. Quality Control Data

TCLP Procedure

Volatile Organics

Aqueous Matrix Spike Recovery Data

Sample Spiked A82531-1

Parameter	Amount of Spike	Recovery MS
Vinyl Chloride	100	94
1,1-Dichloroethene	100	97
Chloroform	100	100
1,2-Dichloroethane	100	101
2-Butanone (MEK)	200	56
Carbon Tetrachloride	100	98
Trichloroethene	100	97
Benzene	100	97
Tetrachloroethene	100	97
Chlorobenzene	100	98
Units	(ppb)	(%)

IX. Quality Control Data (Cont'd)

AnalytiKEM

TCLP Procedure

Volatile Organics

Aqueous Surrogate Recovery Data

Sample Designation	Surrogate Recovery: 1,2-Dichloroethane-d_4 (50 ppb Added)	Toluene-d_8 (50 ppb Added)	4-Bromofluorobenzene (50 ppb Added)
Method Blank	100	103	101
A82531-1 Spike	100	101	100
A82621-4	98	103	100
A82621-6	102	103	102
A82621-7	99	103	102
Units	(%)	(%)	(%)

IX. Quality Control Data (Cont'd)

AnalytiKEM

TCLP Procedure

Volatile Organics

Aqueous Matrix Spike Recovery Data

Sample Spiked A82585-1

Parameter	Amount of Spike	Recovery MS
Vinyl Chloride	200	96
1,1-Dichloroethene	100	102
Chloroform	100	100
1,2-Dichloroethane	100	102
2-Butanone (MEK)	200	90
Carbon Tetrachloride	100	106
Trichloroethene	100	100
Benzene	100	97
Tetrachloroethene	100	104
Chlorobenzene	100	100
Units	(ppb)	(%)

IX. Quality Control Data (Cont'd)

AnalytiKEM

TCLP Procedure

Volatile Organics

Aqueous Surrogate Recovery Data

Sample Designation	Surrogate Recovery: 1,2-Dichloroethane-d_4 (50 ppb Added)	Toluene-d_8 (50 ppb Added)	4-Bromofluorobenzene (50 ppb Added)
Method Blank	100	103	101
A82585-1 Spike	102	100	101
A82621-5	98	103	111
Units	(%)	(%)	(%)

AnalytiKEM

IX. Quality Control Data (Cont'd)

TCLP Procedure

Semivolatile Organics

Aqueous Matrix Spike Recovery Data

Sample Spiked A82621-5

Parameter	Amount of Spike	Recovery MS
Pyridine	50	43
1,4-Dichlorobenzene	50	77
Cresols (total)	300	63
Hexachloroethane	50	97
Nitrobenzene	50	82
Hexachlorobutadiene	50	88
2,4,6-Trichlorophenol	100	76
2,4,5-Trichlorophenol	100	88
2,4-Dinitrotoluene	50	89
Hexachlorobenzene	50	97
Pentachlorophenol	100	106
Units	(ppb)	(%)

IX. Quality Control Data (Cont'd)

AnalytiKEM

TCLP Procedure

Semivolatile Organics

Aqueous Surrogate Recovery Data

Sample Designation	Surrogate Recovery 2-Fluorophenol (100 ppb Added)	Phenol-d_5 (100 ppb Added)	2,4,6-Tribromophenol (100 ppb Added)
Method Blank	30	20	103
A82621-5 Spike	40	34	93
A82621-4	22	14	56
A82621-5	31	22	69
A82621-6	33	24	61
A82621-7	25	17	60
Units	(%)	(%)	(%)

Sample Designation	Surrogate Recovery Nitrobenzene-d_5 (50 ppb Added)	2-Fluorobiphenyl (50 ppb Added)	Terphenyl-d_{14} (50 ppb Added)
Method Blank	10	16	28
A82621-5 Spike	80	85	92
A82621-4	61	73	75
A82621-5	63	73	76
A82621-6	61	72	71
A82621-7	62	73	74
Units	(%)	(%)	(%)

IX. Quality Control Data (Cont'd)

AnalytiKEM

TCLP Procedure

Pesticides and Herbicides

Aqueous Matrix Spike Recovery Data

Parameter	Sample Spiked	Amount of Spike	Recovery MS
gamma-BHC	A73993-C	100	*
gamma-BHC	DI Water	100	32
Heptachlor	A73993-C	100	48
Heptachlor Epoxide	A73993-C	100	*
Heptachlor Epoxide	DI Water	100	73
Endrin	A73993-C	500	76
Methoxychlor	A73993-C	100	*
Methoxychlor	DI Water	100	86
Chlordane (Tech.)	A73993-C	2,000	*
Chlordane (Tech.)	DI Water	2,000	90
Toxaphene	A73993-C	2,000	*
Toxaphene	DI Water	2,000	91
2,4-D	A82621-4	500	95
2,4,5-TP (Silvex)	A82621-4	500	119
Units		(ppb)	(%)

* Not recovered due to matrix interference.

ϕ This recovery was used to spike correct results.

IX. Quality Control Data (Cont'd)

AnalytiKEM

TCLP Procedure

Pesticides and Herbicides

Aqueous Surrogate Recovery Data

Sample Designation	Surrogate Recovery: Dibutylchlorendate (100 ppb Added)	Surrogate Recovery: 2,4-DB (500 ppb Added)
Method Blank	67	121
A73993-C Spike (Pest.)	116	--
DI Water Spike (Pest.)	139	--
A73993-C Spike (Tec.)	107	--
DI Water Spike (Tec.)	107	--
A73993-C Spike (Tox.)	18	--
DI Water Spike (Tox.)	70	--
A82621-4 Spike (Herb.)	--	150
A82621-4	86	126
A82621-5	109	124
A82621-6	73	120
A82621-7	137	130
Units	(%)	(%)

AnalytiKEM

IX. Quality Control Data (Cont'd)

TCLP Procedure

Metals

Aqueous Matrix Spike Recovery Data

Sample Spiked A82621-7

Parameter	Amount of Spike	Recovery MS
Arsenic	300	96
Barium	300	100
Cadmium	300	92
Chromium	300	91
Lead	300	92
Mercury	20	101
Selenium	100	92
Silver	300	73
Units	(ppb)	(%)

AnalytiKEM An American NuKEM Company

04218

Chain-of-Custody Record

82621

Program Area: Drinking Water Wastewater Groundwater Solid and Hazardous Waste

Client: ENSCI **Sample Collector:** Lennon

Project: T.F.I **AnalytiKEM Contact:** Greg

Laboratory	Sales Office
2324 Vernsdale Road Rock Hill, South Carolina 29731 (803) 324-5310 Fax: (803) 324-8378	454 South Anderson Road BTC 532 Rock Hill, South Carolina 29730 (803) 329-9690 Fax: (803) 329-9689

ITEM NUMBER	SAMPLE DESIGNATION	DATE	TIME	MATRIX	Grab or Composite		40 ml vials	950 ml Org. Pres.	1L ml Unpres. Sylt	ml HNO_3	ml H_2SO_4	ml NaOH	ml HCL	500 ml			PARAMETERS
1	TP-1	8/27	1500	soil	G		2	3	1								8240, 8270, Alcohols
2	TP-2A	8/27	1700	soil	G		2	3									8240, 8270, Alcohols
3	TP-2B	8/27	1840	soil	G		2	3									8240, 8270, Alcohols
4	RO-2	8/28	1400	soil	C			2	~~X~~				4				TCLP (Full)
5	RO-1	8/28	1415	soil	C			2					4				TCLP (Full)
6	~~RO-3~~	~~8/28~~	~~1430~~	~~soil~~	~~C~~								~~4~~				~~TCLP (Full)~~ 2L
7																	
8																	
9																	
10																	

TRANSFER NUMBER	ITEM NUMBER	TRANSFERS RELINQUISHED BY	TRANSFERS ACCEPTED BY	DATE	TIME
1		[signature]	[signature]	8-28-92	3:00 pm
2		[signature]	[signature]	8-28-92	5:15 pm
3					
4					

REMARKS
Run Library search on 8210 + 8240
Alcohols test for methanol, I.P.A, butanol + ethanol

[signature]

SAMPLER'S SIGNATURE

Reorder: PJ Associates 803-329-2300 White Laboratory Copy Yellow Client Copy AKEM #1 12/89

AnalytiKEM An[redacted]eri[redacted]Nu[redacted]Co[redacted]ny [redacted] 00341

Chain-of-Custody Record

82631 PO# 31513

Program Area: Drinking Water Wastewater Groundwater Solid and Hazardous Waste

Client: ENSCI

Sample Collector: Lennon

Project: TFI H92061

AnalytiKEM Contact: Greg

Laboratory	Sales Office
2324 Vernsdale Road Rock Hill, South Carolina 29731 (803) 324-5310 Fax: (803) 324-8378	454 South Anderson Road BTC 532 Rock Hill, South Carolina 29730 (803) 329-9690 Fax: (803) 329-9689

ITEM NUMBER	SAMPLE DESIGNATION	DATE	TIME	MATRIX	Grab or Composite	40 ml vials	500-950 ml Org. Pres.	ml Unpres.	ml HNO_3	ml H_2SO_4	ml NaOH	ml HCL	250 septa			PARAMETERS
1	6/RO-4	8/29	1000	Soil			4						2			Full TCLP
2	7/RO-3	8/29	900	Soil			4						2			Full TCLP
3																
4																
5																
6																
7																
8																
9																
10																

TRANSFER NUMBER	ITEM NUMBER	TRANSFERS RELINQUISHED BY	TRANSFERS ACCEPTED BY	DATE	TIME	REMARKS
1	1-2	Jim Lennon	Grady Lane	8-31-92	1115	
2	1-2	Grady Lane	Greg Barrett	8-31-92	1710	
3						Jim Lennon
4						SAMPLER'S SIGNATURE

Reorder: PJ Associates 803-329-2300 White Laboratory Copy Yellow Client Copy AKEM #1 12/89