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29 September 1993

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Re: Moss-American Site, Milwaukee, WI  
Technical Memorandum - Predesign Task 16  
Treatability Study of Soil Washing Treatment Technology

Dear Ms. Eleder:

Roy F. Weston, Inc. (WESTON®), on behalf of the settling defendant, Kerr-McGee Chemical Corp. (KMCC) is hereby transmitting the above-referenced Technical Memorandum.

Per the Consent Decree Statement of Work (SOW) for Predesign Task 16, this study evaluated soil washing treatment technology in treating PAH-laden soils from the Moss-American site. The study was conducted by Bergmann USA of Gallatin, Tennessee, under contract to WESTON.

In a meeting with U.S. EPA and WDNR on 4 August 1993, WESTON presented the findings of the Bergmann study which concludes that the technology was ineffective in achieving the 6.1 ppm treatment standard for CPAHs. This Technical Memorandum presents the details of the treatability evaluation including the study protocols, sampling and analysis program, technical discussions and conclusions.





Ms. Bonnie Eleder  
U.S. EPA

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29 September 1993

Should the reviewers have any questions or comments on this transmittal, please direct them to the undersigned.

Very truly yours,

ROY F. WESTON, INC.

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Senior Project Manager

Kurt S. Stimpson  
Project Director

GJD/KSS/llk  
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Ms. Bonnie Eleder  
U.S. EPA

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29 September 1993

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**TECHNICAL MEMORANDUM - PHASE I  
TREATABILITY STUDY OF  
SOILS WASHING TREATMENT TECHNOLOGY**

Prepared for

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27 September 1993



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## **LIST OF ACRONYMS**

<b>BTEX</b>	<b>benzene-toluene-ethylbenzene-xylene</b>
<b>CERCLA</b>	<b>Comprehensive Environmental Response, Compensation, and Liability Act</b>
<b>CD</b>	<b>Consent Decree</b>
<b>CPAH</b>	<b>carcinogenic polycyclic aromatic hydrocarbons</b>
<b>KMCC</b>	<b>Kerr McGee Chemical Corporation</b>
<b>NPL</b>	<b>National Priorities List</b>
<b>PAH</b>	<b>polycyclic aromatic hydrocarbons</b>
<b>QA/QC</b>	<b>Quality Assurance/Quality Control</b>
<b>RCRA</b>	<b>Resource Conservation and Recovery Act</b>
<b>RI/FS</b>	<b>Remedial Investigation/Feasibility Study</b>
<b>ROD</b>	<b>Record of Decision</b>
<b>SOW</b>	<b>Statement of Work</b>
<b>U.S. EPA</b>	<b>United States Environmental Protection Agency</b>

## **SECTION 1**

### **INTRODUCTION**

#### **1.1 BACKGROUND**

The United States Environmental Protection Agency (U.S. EPA), pursuant to Section 105 of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), placed the Moss-American site in Milwaukee, Wisconsin (the Facility) on the National Priorities List (NPL) in 1983. The U.S. EPA conducted a Remedial Investigation/Feasibility Study (RI/FS) for the Facility and issued the corresponding RI and FS reports on January 9 and May 24, 1990, respectively.

On May 29, 1990, U.S. EPA published a notice of completion of the RI/FS and issued the proposed remedial action plan for the Facility. A public comment period began with issuance of the proposed plan and extended until August 6, 1990. On September 27, 1990, the U.S. EPA Regional Administrator signed the Record of Decision (ROD), which describes the remedial action plan for the Facility. Public comments that were received, and the U.S. EPA response to the comments were included in the ROD, with which the state of Wisconsin has expressed concurrence.

A Consent Decree (CD) incorporating the Statement of Work (SOW) was signed by Kerr-McGee Chemical Corporation, Inc. (KMCC) on July 17, 1991. The CD was lodged by the U.S. Department of Justice on December 28, 1991. Under this CD, the Settling Defendant, KMCC, will lead in developing and implementing the remedial design and remedial action plan for the Facility.

#### **1.2 SITE DESCRIPTION**

##### **1.2.1 Facility Location**

The Facility is located in the northwestern section of the city of Milwaukee, county of Milwaukee, state of Wisconsin, at the southeast corner of the intersection of Brown Deer

and Granville Roads, at 8716 Granville Road. The Facility, as defined by the CD, includes the former Moss-American wood preserving plant property and approximately 5 miles of the Little Menomonee River. The Little Menomonee River, portions of which are defined as part of the Facility, flows through the eastern portion of the former wood preserving plant, continuing on through the Milwaukee County Parkway, to its confluence with the Menomonee River about 5 miles south. Portions of the Little Menomonee River's floodplain are included in the Facility boundary. Fifty-one acres of the former wood preserving plant are undeveloped Milwaukee County park land. Twenty-three acres are owned by the Chicago and North Western Transportation Company, and are used as a loading and storage area for automobile transport. The Facility is located in a moderately-populated suburban area of mixed industrial, commercial, residential, and recreational use. Population in the nearby area is estimated at 2,036 persons per square mile.

### **1.2.2 History of Operations**

The Facility was operated as a wood preserving plant from 1921 until 1976. During its operating life, the facility treated wood using a creosote/fuel oil mixture. Environmental action at the facility focuses upon the constituents of creosote, primarily carcinogenic polycyclic aromatic hydrocarbons (CPAHs).

### **1.2.3 Prior Removal and Remediation Activities**

Sediments from the Little Menomonee River were dredged in 1973, due to concern over creosote, and the dredged materials were placed in a landfill. Following the closing of the wood preserving operation in 1976, the plant facilities were demolished in 1978. At the time of demolition, some oil-saturated soils were excavated and disposed at an off-site landfill.

The facility was placed on the NPL in 1983. The RI began in 1987 and was completed in 1990. The FS was also completed in 1990. The ROD specifies the use of bioslurry reactor technology to treat creosote-contaminated soils and sediments. Soil washing may be used as an adjunct to bioslurry treatment.

### **1.3 WASTE DESCRIPTION**

The environmental media to be addressed by the possible use of soils washing and bioslurry treatment include creosote-contaminated soils from the former manufacturing facility and the floodplain of the Little Menomonee River, and sediments from the Little Menomonee River. Based upon the FS, the estimated quantities of materials to be treated may range from 80,000 to 200,000 cubic yards. Additional delineation of the extent of contamination will be conducted during predesign activities to determine actual quantities. Various parts of the site have been classified as loamy sand and poorly drained silty soils. However, geotechnical characterization of the contaminated soils and sediments is limited, and additional characterization will be conducted during the Predesign phase.

The major contaminants at the site are polycyclic aromatic hydrocarbons (PAHs) derived from creosote. The primary chemicals of concern include eight carcinogenic CPAHs:

benz(a)anthracene	chrysene
benzo(b)fluoranthene	benzo(k)fluoranthene
benzo(a)pyrene	indeno(1,2,3-c,d)pyrene
dibenz(a)anthracene	benzo(g,h,i)perylene

Based upon the data presented in the RI/FS, total PAH concentrations in soils at the site may range as high as 32,000 mg/kg. Benzene-toluene-ethylbenzene-xylene (BTEX) concentrations may range up to 17 mg/kg. Typical total CPAH concentrations are 300-400 mg/kg, with maximum observed concentrations of approximately 1,900 mg/kg.

The treatment criterion specified in the Consent Decree Statement of Work (SOW) (which is to be achieved through a combination of soil washing and biological treatment processes) is 6.1 mg/kg of the CPAH fraction.



## **SECTION 2**

### **TREATABILITY STUDY APPROACH**

#### **2.1 TEST OBJECTIVES AND RATIONALE**

Roy F. Weston, Inc. (WESTON®) contracted the services of Bergmann USA to evaluate the effectiveness and applicability of soils/sediment washing as a volumetric reduction preprocessing step for PAH-contaminated soils from the Moss-American Site.

There are currently established cleanup and treatment criteria for the Moss-American Site for CPAHs. The application of bench-scale soils washing as a remedial technology was to be performed to determine overall removal/treatment efficiency of PAHs and CPAHs and the technology's ability to achieve the treatment criterion.

The scope of this treatability evaluation for the soil washing technology was conducted under Predesign Task 16 of the SOW. A Treatability Test Plan was prepared by Bergmann and WESTON for review by U.S. EPA and WDNR. The Test Plan (final version January 1993) defined the scope, objectives, and protocols for the study and was approved by U.S. EPA prior to implementing the study.

#### **2.2 EXPERIMENTAL DESIGN AND PROCEDURES**

##### **2.2.1 Grain Size Analysis**

The first step in the treatability test was the determination of whether the site soil/sediment qualifies as a good candidate for volumetric reduction. This was accomplished with application of ASTM D 4749-87 Standard Method for Performing Sieve Analysis (Appendix A). Bergmann utilizes a set of 8-inch diameter, root 2 U.S. series stainless steel sieves in conjunction with a Frietsch sieve shaking unit for this test. Table 2-1 summarizes the comparison of grain size analyses performed by both WESTON and Bergmann on two Moss-American site soil samples.

**Table 2-1**

**Grain Size Distribution**

**Sample BRG-TS01**

**Size of Screening**

+3/8 inch  
200 mesh (74 micron)  
-200 mesh (74 micron)

**Weston Data**

< 15.8 % retained  
< 67.1 % retained  
> 32.9 % passing

**Bergmann Data**

< 11.2 % retained  
< 73.8 % retained  
> 26.2 % passing

**Sample BRG-TS02**

**Size of Screening**

+3/8 inch  
200 mesh (74 micron)  
-200 mesh (74 micron)

**Weston Data**

< 4.6 % retained  
< 69.9 % retained  
> 30.1 % passing

**Bergmann Data**

< 7.5 % retained  
< 68.2 % retained  
> 31.8 % passing

A 500-gram sample of each Moss-American composite sample was split out of the feedstock material and wet sieved at 200 mesh (74 microns). The -200 mesh material was then collected in a separate container. This material was dewatered on a Hazen 12-inch diameter pressure filter utilizing a sharkskin filter cloth with a nominal pore opening of <8 microns. The sample was dried in a laboratory oven at 150°F (66°C) for a 24-hour period and then weighed. The +200 mesh fraction was also dried then placed on a nest of root 2 series sieves with a 1/4-inch top sieve size. There was no material in excess of 1/2-inch in size. The sieve nest was placed within the Frietsch shaker for a 15-minute period. While sieving, wash water was added to the top sieve and collected in the bottom pan. After 15 minutes, the sieves were checked for blinding (clogging) and then placed back on the shaker for an additional 15 minutes. Appendix B provides the Bergmann USA sample preparation/sieve analysis procedure.

The grain size distribution of this sample showed from 4 to 15 percent of +1/4-inch, from 67 to 74 percent of +200 mesh, and from 26 to 30 percent of -200 mesh. There was little intermediate sized material, with the exception of a small amount of humic/organic matter such as leaves, twigs, roots and grass.

The general purpose for the initial 1/4-inch sample screening was to remove any large pieces of rock, debris material, and agglomerated clay before the attrition scrubbing step was performed. This step simulates the full-scale soils washing applications, wherein this oversized material would be subjected to intensive scrubbing via a "log washer." This unit is similar in configuration to a screw washer; however, a log washer comprises twin counter rotating shafts with heavy paddles. The primary commercial application of log washers is to remove clay from rock and stone. The overflow of the log washer is again screened, with the +1/4-inch material rinsed and discharged from the system for reuse or disposal, and the -1/4-inch fine fractions advanced through the washing system.

### **2.2.2 Initial Attrition Cell Test Parameters**

Following the initial desliming step for the removal of -200 mesh contaminated fines, the coarse 1/4-inch to 200 mesh material was prepared for attrition scrubbing. The application of attrition scrubbing is a standard mineral or ore enrichment unit process operation in which a thickened slurry of soil (65 percent to 75 percent solids, by weight) are placed in a tank in which the operation of an impeller causes a particle-to-particle scouring action to occur. This function liberates additional -200 mesh fine material, a technique referred to as desliming, thereby removing surficial contaminants from the +200 mesh material.

Bergmann utilized a 1500 cc stainless steel Denver bench-scale attrition cell which is equipped with a set of 3-inch diameter opposing pitched impellers. Standard rotational speed is 900 feet per minute (fpm) impeller tip speed. The duration of the attrition scrub is 15 minutes, based upon full-scale plant operations. Following attritioning, the soil was removed from the cell and wet sieved a second time to remove newly liberated -200 mesh fine material. These fines were subsequently filtered on a Hazen 12-inch diameter filter press using an 8 micron effective opening "sharkskin" filter cloth, air dried for 24 hours, and combined with the fine material removed prior to the initial attritioning step. Appendix C presents Bergmann USA's attrition scrubbing procedure.

Dependent upon the type of contamination, various additives/reagents may be added to the soil slurry during the attrition step. These additives are used to aid in the liberation of the contaminated fines from the surface of the coarse fractions. The Moss-American site soil samples were subjected to a battery of attrition tests to evaluate the removal efficiencies of water alone, and two selected surfactants at high and low additive concentrations. All initial attrition steps were followed by a desliming of generated fines across a 200 mesh screen, followed by a second 15 minute attrition scrub cycle with water only. The slurry from the second attrition test was deslimed a third time with all -200 mesh fractions being added to the initial fines fractions for dewatering and analysis. Table 2-2 summarizes the attrition scrubbing test matrix.

**Table 2-2**

**Attrition Scrubbing Test Matrix Parameters**

<u>TEST</u>	<u>ADDITIVES</u>	<u>RESIDENCE TIME</u>
Attrition Test #1 75% Solids	Water Only Double Attrition Scrub	15 min. + 15 min.
Attrition Test #2 75% Solids	Moncosolve <sup>(1)</sup> Low Concentration (0.1%*) followed by Water Attrition Scrub	15 min. + 15 min.
Attrition Test #3 75% Solids	Moncosolve High Concentration (0.2%*) followed by Water Attrition Scrub	15 min. + 15 min.
Attrition Test #4 75% Solids	Lauryl Sulfate <sup>(2)</sup> Low Concentration (0.1%*) followed by Water Attrition Scrub	15 min. + 15 min.
Attrition Test #5 75% Solids	Lauryl Sulfate High Concentration (0.2%*) followed by Water Attrition Scrub	15 min. + 15 min.

\* Surfactant Concentrations on weight basis.

(1) Terpene - 100% organic solvent

(2) Sodium Lauryl Sulfate

**NOTE:** All attritioning evaluations were performed at approximately 75% solids content (by weight) with a total residence time of 30 minutes within the attrition cell.

### **2.3 EQUIPMENT AND MATERIALS FOR BENCH-SCALE SOILS WASHING**

The following is a list of the bench/pilot scale equipment that was used by Bergmann for the subject treatability study:

- Gilson Vibratory Screen.
- Frietsch Wet Sieve Stack and Shaker.
- Denver Attrition Scrubber Unit.
- Denver Froth Flotation Unit.
- Sedimentation/Flocculation Cells.
- Hazen Fines Dewatering Filter.

### **2.4 SAMPLING AND ANALYSIS**

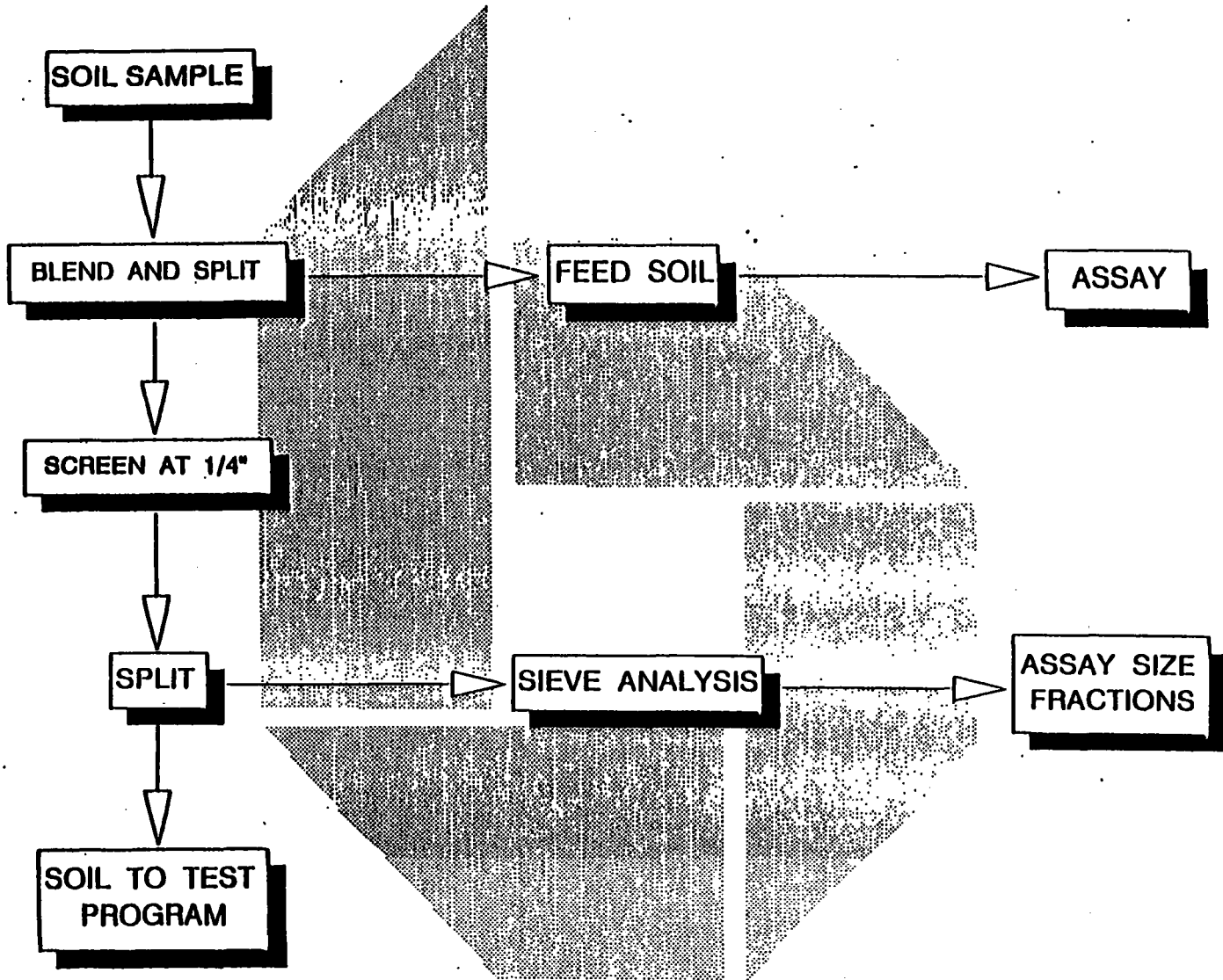
Two composite samples originating from the Moss-American Superfund Site located in Milwaukee, Wisconsin, were received from WESTON for the evaluation on 30 October 1992. These samples were collected from the Site by WESTON on 18 September and 28 October 1992. Initial characterization data for these samples, taken at the time of their collection from the site, are provided in Appendix D. Following the U.S. EPA's Test Plan Approval in February 1993, Bergmann proceeded with the treatability effort for the evaluation of soils washing in the remediation of PAH-contaminated materials.

#### **2.4.1 Contaminated Soil Characterization**

The soil characterization protocol is presented in Figure 2-1. The following is the soil characterization process and initial chemical analysis of the samples:

- Blend and split ("cone & quarter") a sample of feed soil for analysis.
- Dry screen the remaining material to remove 1/4-inch top size material. Weigh the 1/4-inch oversize, and the 1/4-inch undersize.

**FIGURE 2-1 - SOIL CHARACTERIZATION PROCEDURE**



- Cone and quarter the 1/4-inch undersize material. Blend two opposing quarters, and cone and quarter again. Repeat this procedure to generate sufficient sample for wet screening and chemical analysis.
- If clay lumps form during screening, subject fractions to ultrasonic bath until lumps are broken up.
- Conduct soil grain size analyses - ASTM D4749-87 Standard Method for Performing Wet Sieve Analyses.
- Conduct pH analyses of both residual and filtrate fractions.
- Conduct PAHs analyses of both residual and filtrate fractions.
- Conduct benzene-toluene-ethylbenzene-xylene (BTEX) analyses of both residual and filtrate fractions.
- Conduct oil and grease analyses of both residual and filtrate fractions.
- Conduct moisture analyses of residual fractions.

The analytical matrix is summarized in Table 2-3.

#### **2.4.2 Initial Soil Washing Protocol Tests**

The soil washing process is shown schematically in Figure 2-2. Sampling and analytical requirements are detailed in Table 2-4. The following steps were employed:

- Sample the feed soil and analyze as shown in Table 2-4.
- Wet screen the 1/4-inch material at 200 mesh to remove the fine fraction. Filter the -200 mesh slurry for sampling and analyses according to Table 2-3.
- Blend and split the +200 mesh fraction into 10 samples of approximately equal weight. The samples will be tested according to the test program presented in Table 2-4.
- Mix the samples with water and/or reagents to a pulp density of 75 percent solids.
- Attrition scrub for 15 minutes.



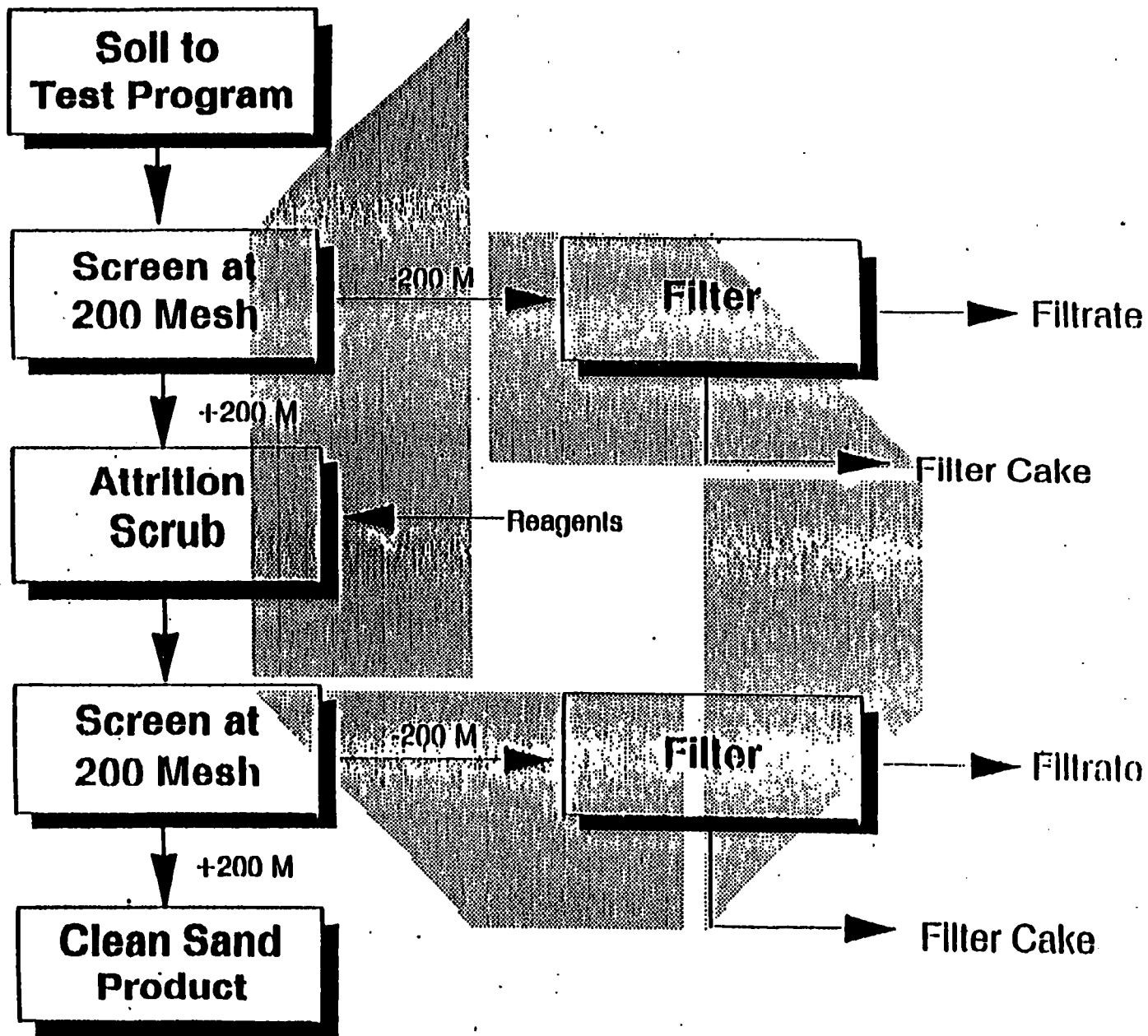
**Table 2-3**

**SOIL CHARACTERIZATION ANALYTICAL REQUIREMENTS**

<u>Material</u>	<u>Weight/Volume</u>	<u>Analysis<sup>(1)</sup></u>	<u>Sample A</u>	<u>Sample B</u>
<i>Feed Soil</i>	<i>Dry Weight</i>			
<i>Dry Screening</i>				
+3/8 Inch	<i>Dry Weight</i>	<i>*ASTM</i>	<i>1</i>	<i>1</i>
-3/8 Inch	<i>Dry Weight</i>	<i>D4749-87</i>	<i>1</i>	<i>1</i>
<i>Wet Screen Analysis:</i>				
<i>Size Fraction:</i>				
+ 10 Mesh	<i>Dry Weight</i>		<i>1</i>	<i>1</i>
+ 50 Mesh	<i>Dry Weight</i>	<i>.</i>	<i>1</i>	<i>1</i>
+ 100 Mesh	<i>Dry Weight</i>	<i>.</i>	<i>1</i>	<i>1</i>
+ 200 Mesh	<i>Dry Weight</i>	<i>.</i>	<i>1</i>	<i>1</i>
+ 325 Mesh	<i>Dry Weight</i>	<i>.</i>	<i>1</i>	<i>1</i>
-325 Mesh	<i>Dry Weight</i>		<i>1</i>	<i>1</i>
<b>Totals</b>			<b>8</b>	<b>8</b>

\* ASTM D4749-87 - Standard Method for Performing Wet Sieve Analysis  
 (1) Duplicates were not analyzed for this low frequency of analyses.

**FIGURE 2-2 - TEST PROTOCOL FOR CONTAMINATED SOIL WASHING**



**TABLE 2-4****SOIL WASHING ANALYTICAL REQUIREMENTS****Analyses**

<b><u>Test</u></b>	<b><u>Weight/ Volume</u></b>	<b><u>Moist- ure</u></b>	<b><u>PAH</u></b>	<b><u>O&amp;G</u></b>	<b><u>BTEX</u></b>
<b>Feed: (a)</b>					
<b>Soil to Test Program</b>					
<b>Solids</b>	<b>Dry Weight</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>
<b>Reject: (a)</b>					
<b>-200 Mesh Screened</b>					
<b>Solids</b>	<b>Dry Weight</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>
<b>Filtrate</b>	<b>Volume</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>
<b>Test Program</b>					
<b>Products: (b)</b>					
<b>Sands</b>	<b>Dry Weight</b>	<b>30</b>	<b>30</b>	<b>30</b>	<b>30</b>
<b>Fines</b>	<b>Dry Weight</b>	<b>30</b>	<b>30</b>	<b>30</b>	<b>30</b>
<b>Filtrate</b>	<b>Volume</b>		<b>30</b>	<b>30</b>	<b>30</b>
<b>Totals</b>		<b>66</b>	<b>96</b>	<b>96</b>	<b>96</b>

(a) Tests and analyses run on two samples, A and B.

(b) Test Program:

- Test #1 - Water only, two attrition scrubs. Assay sand fraction of second scrub.
- Test #2 - Moncosolve 210, high concentration, 0.2 percent (4 lbs per ton)
- Test #3 - Moncosolve 210, low concentration, 0.1 percent (2 lbs per ton)
- Test #4 - Lauryl sulfate surfactant, high concentration, 0.2 percent (4 lbs per ton)
- Test #5 - Lauryl sulfate surfactant, low concentration, 0.1 percent (2 lbs per ton)

- Wet screen the pulp at 200 mesh. Measure the weight (wet and dry) of the +200 mesh clean sand product. Blend the wash water with -200 mesh fines fraction.
- Filter the -200 mesh fines to form a filter cake for analyses. Record weights and volumes.
- Submit samples for analysis according to Table 2-4.
- Clean the equipment between runs using reagent grade tri-sodium phosphate.

The final matrix of testing and sampling is summarized in Figure 2-3.

## **2.5 DATA MANAGEMENT**

All sample analyses (solids and aqueous) were conducted by Lancaster Laboratories, Inc. of Lancaster, Pennsylvania. Analytical methods and Quality Assurance/Quality Control (QA/QC) procedures are provided in the Test Plan. Analytical samples were preserved with blue ice and shipped under chain-of-custody documentation via overnight carrier to:

Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, Pennsylvania 17601-5994  
(717) 656-2301  
ATTN: Pat Downing/Dee Brooks

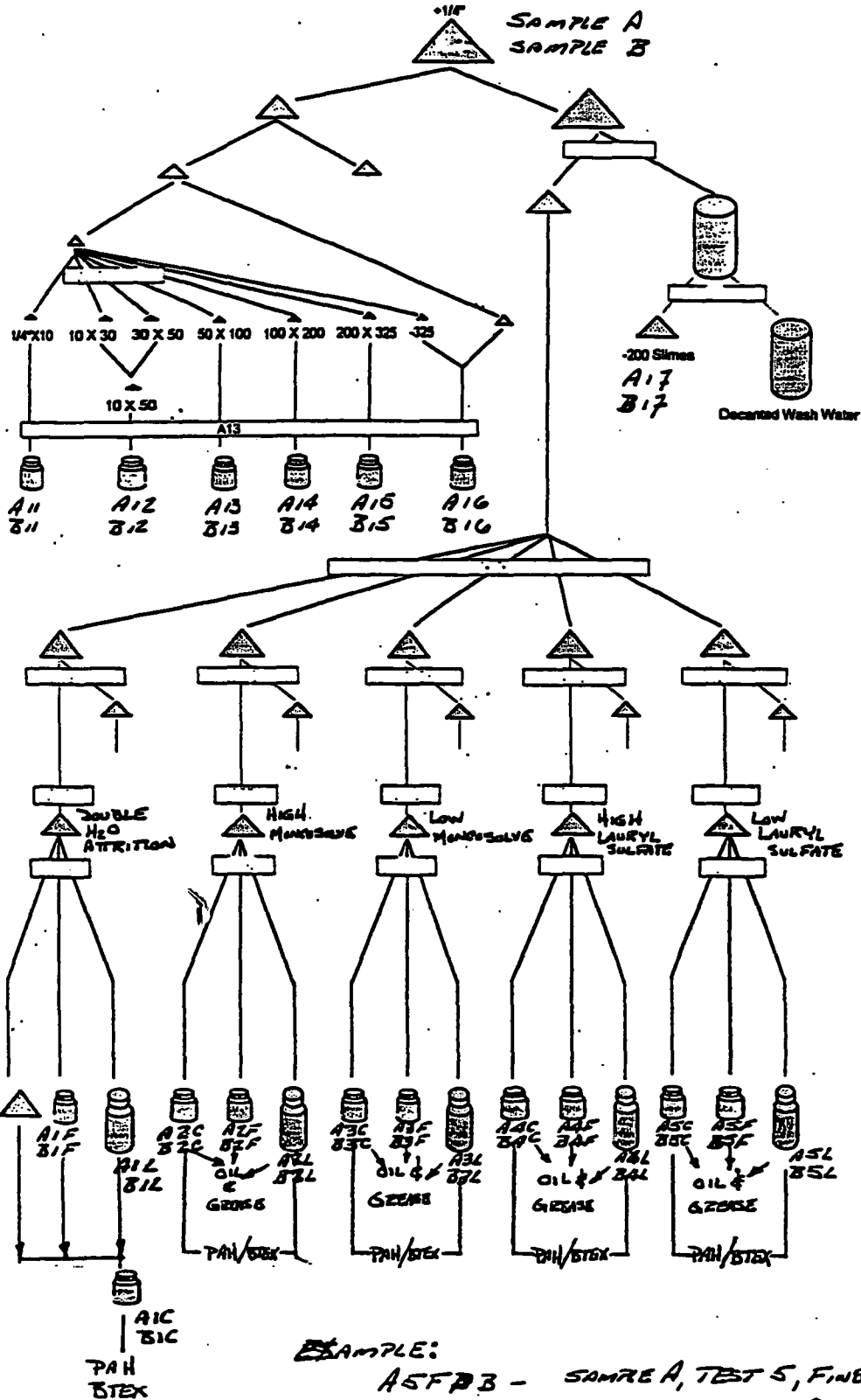
Summaries of analytical data presented in this report were prepared directly from the standard analytical data reports received from Lancaster Laboratories. Copies of chain-of-custody forms and the laboratory analytical reports are provided in Volume II of this Technical Memorandum.

For purposes of the analytical program, Sample BRG-TS01 was designated as Sample A and BRG-TS02 as Sample B. All analytical data reports employing A in the sample identification code are therefore associated with BRG-TS01, and those employing B in the sample identification code are associated with BRG-TS02. Based upon the initial characterization results (Appendix D), BRG-TS01 was expected to exhibit a high level of



# FIGURE 2-3

General Road Map of Sample Prep, Size Analysis, and Attrition Scrubbing



PAH/CPAH contamination and BRG-TS02 was expected to exhibit a moderate level of PAH/CPAH contamination.

## **2.6 DEVIATIONS FROM THE TEST PLAN**

Deviations from the Test Plan were identified as follows:

- Requested analyses for CPAH and BTEX were omitted for Samples A12, A13, A14, A15, and A16 through a laboratory error. Likewise, Sample A11 was not analyzed for BTEX and Sample A16 was not analyzed for oil and grease (O&G). Appendix F provides a letter from Lancaster Laboratories, dated 4 May 1993, accepting responsibility for this error of omission.

As shown in Figure 2-3, these samples were from the particle size distribution analysis, and represent intermediate screen breaks of 10 x 50, 50 x 100, 100 x 200, 200 x 325, and 325 x 0 mesh sizes. Although there were insufficient raw contaminated samples remaining from the initial treatability to perform a wet sieving of the material, Bergmann rescreened the balance of Samples A and B and submitted to Lancaster Laboratories for a PAH, BTEX, and O&G analyses. The omission of these data interferes with interpretation of the mass balance/distribution and PAHs in soils but does not affect results regarding CPAHs in washed soils, which are required to establish the ability to meet the cleanup criteria.

- Insufficient sample volumes prevented O&G analyses on certain samples from the particle size distribution analysis of Sample B. Utilizing the full quantity of initial -1/4-inch screened raw contaminated Sample B material for the soils washing treatability, the material was wet sieved, bottled, and shipped to Lancaster Laboratories on 22 February 1993 for PAH, BTEX, and O&G analyses. On 8 March 1993, Lancaster Laboratories contacted Bergmann to indicate that the quantity of material supplied was insufficient to perform O&G on Samples B13 (50 x 100 mesh), B14 (100 x 200 mesh), and B15 (200 x 325 mesh) (Figure 2-3). Appendix F provides correspondence from Lancaster Laboratories dated 11 March 1993 to that effect.

In addition, Lancaster Laboratories was directed to perform PAH analyses in solids utilizing Method SW846/8310. Unusually high level-of-detections were repeatedly reported for naphthalene, acenaphthylene, acenaphthene, and fluorene. Lancaster Laboratories indicated that due to the small quantity of sample sent to them for analyses, higher than usual levels-of-detection were resultant.

- Due to an oversight by Bergmann in the preparation of the Lancaster Laboratories chain-of-custody forms, analysis for PAH and BTEX was omitted for the -200 mesh fines fraction of Samples B1, B2, B3, B4, and B5 (Figure 2-3).

Although this fractional analysis was stipulated in the project scope of work to provide mass balance data on the effectiveness of the soil washing process, the missing data points are not required for the evaluation of the soil washing technology's effectiveness in meeting the 6.1 mg/kg CPAH target cleanup level for the coarse (+200 mesh) fractions as reported in Table 6 (Section 5).

As a result of these deviations, and in order to provide mass balance data, an additional soil washing test, beyond those specified in the test plan, was conducted, as discussed in Section 2.7.

## **2.7 OPTIMIZED SOIL WASHING TEST**

Initial review of the coarse fraction (+200 mesh) washing data for Sample B (BRG-TSO1) indicated an average CPAH contaminant reduction of 69 percent, to an overall CPAH concentration of 75 mg/kg from a starting concentration of approximately 245 mg/kg. The missing data would prevent a complete mass-balance closure from being performed. However, the results indicated that, although soils washing provides a reduction in CPAHs in the coarse product, the technology will not meet the 6.1 mg/kg treatment standard.

In order to provide the mass balance data required for this project, Bergmann repeated the bench-scale treatability study utilizing an optimized soils washing protocol following discussions with both WESTON and KMCC.

The optimized soils washing protocol was intended to evaluate the potential for improved performance in PAH/CPAH removal that might be achieved by the addition of a froth flotation step following the conventional soils washing protocol. Observation and examination of the Moss-American samples during the initial bench evaluation revealed a significant fraction of humic (detritus) material (leaves, twigs, roots, grass, etc.), coal and coal ash. Both of these fractions are primary adsorbers or hosts of contaminants. The use

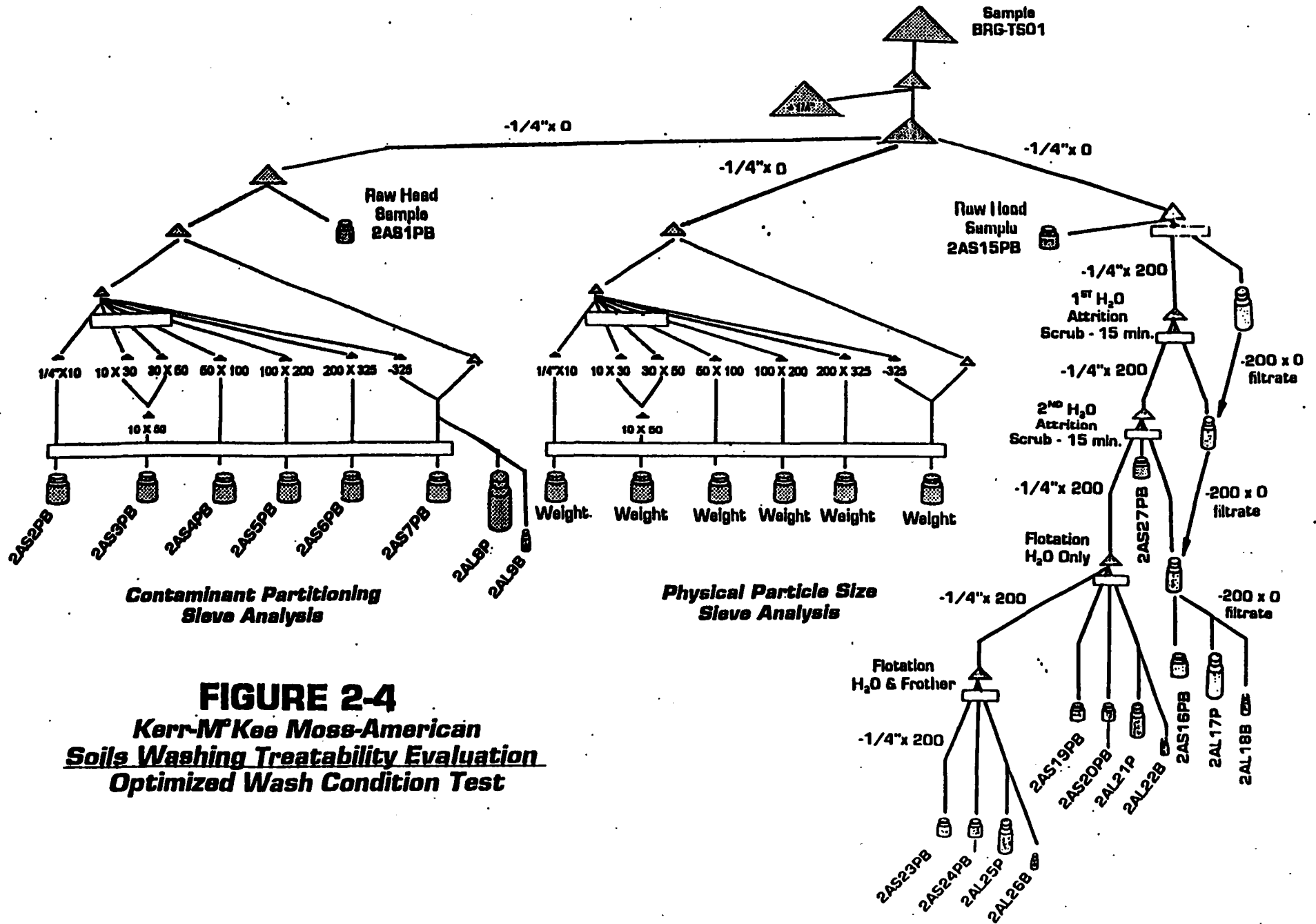
of a frothing agent was considered to be potentially useful in removing these materials. K-1 kerosene is a commonly used frothing agent in the coal processing industry.

Bergmann recommended that a new raw head sample from the BRG-TS02 composite be washed using the following set of conditions:

- Screening of + 1/4-inch material from sample.
- Desliming and removal of -200 mesh slimes.
- Initial attrition scrubbing, water only, 75 percent solids, 15 minutes.
- Repulp sample, desliming and removal of -200 mesh slimes.
- Secondary attrition scrubbing, water only, 75 percent solids, 15 minutes.
- Repulp sample, desliming and removal of -200 mesh slimes.
- Sample subjected to froth flotation, water only, for removal of humic material.
- Sample subjected to froth flotation, with K-1 froth agent, for removal of coal and coal ash.

In addition to providing an evaluation of the additional processing step (froth flotation) the optimized test would provide the mass balance data omitted from the initial testing protocol. The optimized testing and sampling protocol is summarized in Figure 2-4.





**FIGURE 2-4**  
**Kerr-McKee Moss-American**  
**Soils Washing Treatability Evaluation**  
**Optimized Wash Condition Test**

**SECTION 3**  
**RESULTS AND DISCUSSION**

**3.1 DATA ANALYSIS AND INTERPRETATION**

**3.1.1. Analysis of Waste Characteristics**

The size distribution of the two samples (BRG-TS01 and BRG-TS02) provided by WESTON was found to contain approximately 67 percent and 70 percent material in the +200 mesh (74 micron) size fraction. Sixteen and five percent of each respective sample contained material coarser than 3/8 inch.

Bergmann's size distribution analyses of samples BRG-TS01 and BRG-TS02 was found to contain approximately 68 percent and 74 percent material in the +200 mesh (74 micron) size fraction. Approximately fifteen and four percent of each respective sample contained material coarser than 1/4 inch. Appendix D presents both the WESTON and Bergmann grain size distribution data for each sample.

The starting contaminant concentrations of the two samples, based upon the initial WESTON sample characterization data are shown in Tables 3-1 and 3-2.

**3.1.2 Analysis of Treatability Study Data**

Tables 3-1 and 3-2 present the results of the initial soils washing evaluation for the removal efficiencies and residual contaminant levels on samples BRG-TS01 and BRG-TS02. Following a review of the data with WESTON and KMCC, Bergmann extended the soils washing bench-scale evaluation program by conducting the optimized set of wash conditions on the remaining portion of Sample BRG-TS02. The optimized soils washing evaluation on Sample BRG-TS02 yielded the results for the removal efficiencies and residual contaminant levels, as shown on Table 3-3.

Bergmann's originally approved scope of work stated the bench-scale soils washing treatability evaluation of the Moss-American samples would be conducted with the use of

**Table 3-1**

**Summary of Treatability Study Findings  
Soil Washing Treatment  
Sample BRG-TS01 - BASE TEST**

	Sample BRG-TS01 - BASE TEST											
	Pretreatment Concentration	Treatment Objective	Water-Based		Monc. 210 <sup>1</sup> (Low)		Monc. 210 <sup>1</sup> (High)		Laurel Sulfate <sup>1</sup> (Low)		Laurel Sulfate <sup>1</sup> (High)	
			Conc.	% R	Conc.	% R	Conc.	% R	Conc.	% R	Conc.	% R
Total PAHs (mg/kg)	1,227.7	N/A	340	72%	297	76%	265	78%	308	73%	297	76%
CPAHs (mg/kg)	244.7	6.1	99	59%	91	63%	77	68%	93	62%	75	69%

%R - % Reduction of contaminants in treated soil residual based on concentrations.

(1) - See Appendix E for product and MSDS information.

3-2

**Table 3-2**

**Summary of Treatability Study Findings  
Soil Washing Treatment  
Sample BRG-TS02 - BASE TEST**

	Sample BRG-TS02 - BASE TEST											
	Pretreatment Concentration	Treatment Objective	Water-Based		Monc. 210 <sup>1</sup> (Low)		Monc. 210 <sup>1</sup> (High)		Laurel Sulfate <sup>1</sup> (Low)		Laurel Sulfate <sup>1</sup> (High)	
			Conc.	% R	Conc.	% R	Conc.	% R	Conc.	% R	Conc.	% R
Total PAHs (mg/kg)	340	N/A	147	57%	165	52%	156	54%	186	40%	203	45%
CPAHs (mg/kg)	59.3	6.1	19	68%	24	60%	22	63%	25	57%	27	55%

%R - % Reduction of contaminants in treated soil residual based on concentrations.

(1) - See Appendix E for product and MSDS information.

**Table 3-3**

**Summary of Treatability Study Findings  
Soil Washing Treatment  
Sample BRG-TS02 - OPTIMIZATION STUDY**

	Sample BRG-TS02 - OPTIMIZATION STUDY							
	Initial Concentration	Treatment Objective	Attrition w/Water		Flotation w/Water		Flotation w/K-1 Froth <sup>1</sup>	
			Conc.	% R	Conc.	% R	Conc.	% R
Total PAHs (mg/kg)	197	N/A	86.3	56%	88.5	55%	53.4	73%
CPAHs (mg/kg)	66	6.1	23.3	32%	32	61%	17	74%

%R - % Reduction of contaminants in treated soil residual based on concentrations.

<sup>(1)</sup> - See Appendix E for product information.

water wash only and Sodium Lauryl Sulfate and Moncosolve surfactants additives at set concentrations of 0.1 and 0.2 percent. These surfactant addition concentrations were determined to provide an optimal range in bracketing the effectiveness of each surfactant by doubling its concentration during the soils wash tests.

The selection of these test concentrations is predicated upon past extensive surfactant optimization research conducted in 1987 by the U.S. Environmental Protection Agency's Releases Control Branch located in Edison, NJ. This research identified various groups of surfactants (anionic, cationic and non-ionic) and selected commercially available products that were economically obtainable, in the \$1 - \$2 per pound category, and did not pose any significant environmental hazards or impacts by themselves. This research was based upon a variety of performance indicators, of which one was the evaluation of the critical micelle concentration (CMC). The CMC was found to generally range from 0.1 to 0.2 percent for soil-water systems. The addition of surfactants significantly greater than the CMC can cause difficulties in the sliming of filter cloths and subsequent dewatering operations of fine clay soil fractions. The observations of Lahs and Luthy in their 12/20/92 Journal of Biotechnology and Bioengineering paper entitled, "Effects of Nonionic Surfactants on the Solubilization and Mineralization of Phenanthrene in Soil-Water Systems" also supports the optimal surfactant concentrations ranging from 0.05 to 0.2 percent.

The objective of the Moss-American bench-scale soils treatability study was the determination of the general effectiveness of soils washing as a volumetric reduction technology and in achieving the treatment standard. The optimization of a more precise surfactant addition concentration based upon the involved CMC tests would be performed in the event soils washing was selected for full-scale implementation.

Evaluation of the test results from the soils washing protocol (Table 3-1) show that the addition of Moncosolve 210 at a high concentration of 0.2 percent (4 lbs per ton) in an initial attrition scrub, followed by desliming and a second attrition scrub of using water only, and subsequent desliming will yield a removal efficiency of approximately 78 percent of PAHs with a final +200 mesh product concentration of 265 mg/kg, from an initial concentration of 1,228 mg/kg. Maximum removal efficiency for CPAHs for Sample BRG-

TS01 was obtained by the addition of Sodium Lauryl Sulfate at a concentration of 0.2 percent providing 69 percent removal to a clean fraction level of 75 mg/kg from an initial starting concentration of 245 mg/kg.

Table 3-2 shows that for Sample BRG-TS02, the best removal efficiency was achieved with water washing only. A removal efficiency of approximately 57 percent of PAHs was achieved with a final clean +200 mesh product concentration of 147 mg/kg, from an initial concentration of 340 mg/kg. Maximum removal efficiency for CPAHs for Sample BRG-TS02 was also obtained by water only, providing a 68 percent removal to a clean fraction level of 19 mg/kg from an initial starting concentration of 59 mg/kg.

The sensitivity of the analytical data should be considered in evaluating relatively small differences in removal efficiency among treatments, as presented in Table 3-2. Standard laboratory procedures require approximately 100 grams of dry solids for extraction in order to obtain good analytical sensitivity. Due to the limited quantity of sample to conduct wet sieving for the five separate soil washing scenarios, smaller quantities of residuals were produced in the treatability study and submitted to the laboratory for extraction and analyses. The small quantity of material for extraction results in elevated detection limits. This results in reduced sensitivity in the data so that, for example, reported removal efficiencies of 59 and 63 percent may not be significantly different.

The optimized soils washing protocol conducted on Sample BRG-TS02 utilized water-only double attrition scrubbing and yielded a removal efficiency for PAHs of 56 percent, with a clean fraction concentration of 86 mg/kg from an initial concentration of 197 mg/kg. Removal efficiency for CPAHs was 32 percent, with a clean fraction concentration of 23 mg/kg from an initial concentration of 66 mg/kg.

The addition of K-1 (kerosene) as a froth agent at a concentration of 0.8 percent by weight facilitated the removal of coal material from the clean sample. The removal efficiency increased to 73 percent for PAHs, with a final concentration in the clean soil fraction of 53 mg/kg from an initial concentration of 197 mg/kg. Removal efficiency for CPAHs was 74

percent with a clean fraction concentration of 17 mg/kg from an initial concentration of 66 mg/kg.

Although it is intuitively anticipated that a potential disadvantage in the utilization of K-1 as a froth agent would be an increase in BTEX concentrations of the initially clean coarse soil fractions, this was not supported in the data. Table 3-4 and Table 14 (Section 5) present the BTEX concentrations of the clean +200 mesh soil fractions. However, as shown in Table 16 (Section 5), the use of K-1 as a frothing agent did increase BTEX concentrations in the wash water. Using water-only attrition scrubbing, the total BTEX concentration in the wash solution was  $<7 \mu\text{g/L}$ ; with 0.8 percent K-1 frother added, the BTEX wash water concentration increased to  $156 \mu\text{g/L}$ .

Table 15 (Section 5) presents the concentrations of PAHs and CPAHs in the fines (-200 mesh) and froth fractions. Although Sample BRG-TS02 contained 91 mg/kg of PAHs and 34 mg/kg of CPAHs, double water attritioning (following desliming of the -200 mesh fines fraction) produced a fines fraction containing 151 mg/kg PAHs and 23 mg/kg of CPAHs due to the further de-agglomeration and release of contaminated silt clay and colloidal materials from the +200 mesh coarser fractions.

Following secondary desliming, flotation with water only increased PAH concentration in the recovered froth to an additional 377 mg/kg and 102 mg/kg for CPAHs. The addition of the K-1 frothing agent released the highly contaminated coal ash. This froth contained a supplemental 490 mg/kg of PAHs and 110 mg/kg of CPAHs.

Based upon the observed results of the optimized bench-scale evaluation, it should be possible to achieve similar results in terms of PAH/CPAH removals, as exhibited in the evaluation of enhanced (K-1) froth flotation, with upflow classification or elutriation in the full-scale treatment system. As exhibited in the "water-only" flotation evaluation, the use of a dense media separator in a full-scale soils washing installation would be able to effectively remove both humic and coal ash without the addition of chemical agents. Therefore, the addition of K-1 as a froth agent is not required.



**Table 3-4**

**BTEX Concentrations\* in +200 Mesh Soil Fractions  
Optimized Soils Washing Protocol**

Sample BRG-TS02	Raw Head <u>Sample</u>	Double H <sub>2</sub> O <u>Scrub</u>	Flotation with H <sub>2</sub> O <u>Only</u>	Flotation with 0.8% <u>K-1 Frother</u>
BTEX	<57	<189	<130	<160

\* Concentrations units expressed in  $\mu\text{g}/\text{kg}$ . Elevated detection limits result from limitations on soil samples size.

The results indicate that double attrition water-only scrubbing at a 75 percent solids slurry concentration, followed by elutriation and dense media separation, is the preferred process.

Appendix G presents the raw laboratory data for the study as reported by Lancaster Laboratories, Inc.

### **3.1.3 Comparison to Test Objectives**

Both the initial soils washing protocol and the optimized test protocol results clearly indicate that although soils washing exhibits an effective reduction of PAHs and CPAHs, the technology will not meet the 6.1 mg/kg treatment standard.

Based upon particle size distribution data presented in Section 2, the coarse product from a full-scale soil washing plant would constitute approximately 68 percent (by volume) of the contaminated feed soils. However, based upon contaminant removal data presented in Section 3, this coarse product would exhibit residual CPAH levels substantially above the 6.1 mg/kg cleanup level. A fines fraction constituting approximately 32 percent of the original soil volume and enriched in CPAH concentration would also be produced and require further management or treatment. On this basis, the technology appears to be ineffective in treating (or reducing the volume of) the Moss-American Site soils to within the treatment standard.

## **3.2 QUALITY ASSURANCE/QUALITY CONTROL**

At the request of both WESTON and KMCC, Lancaster Laboratories upgraded the quality assurance/quality control (QA/QC) analytical program. A complete Lancaster Laboratories/EPA Tier 2 QA/QC package along with all "raw" data and graphs is available upon request.

## SECTION 4

### CONCLUSIONS AND RECOMMENDATIONS

#### 4.1 CONCLUSIONS

##### 4.1.1 Analysis of Treatability Study Data - Base Test-Soils Washing Protocol

Evaluation of the test results from the base test-soils washing protocol show that for Sample BRG-TS01, the addition of the surfactant (Moncosolve 210) at a high concentration of 0.2 percent (4 lbs per ton of soil) in an initial attrition scrub, followed by desliming, followed by a second attrition scrub of using water only and subsequent desliming will yield a removal efficiency of approximately 78 percent of PAHs. This will result in a final clean +200 mesh product with a concentration of 264 mg/kg of PAHs, down from an initial concentration of 1,228 mg/kg. Maximum removal efficiency for CPAHs for Sample BRG-TS01 was obtained by the addition of Sodium Lauryl Sulfate surfactant at a high concentration of 0.2 percent, which yielded a 69 percent removal to a clean fraction level of 75 mg/kg from an initial starting concentration of 245 mg/kg. Comparatively, the use of "water-only" washing yielded a removal efficiency of 40 percent with a clean fraction CPAH concentration of 99 mg/kg.

For Sample BRG-TS02, the best removal efficiency was achieved with water only. A removal efficiency of approximately 57 percent of PAHs was achieved with a final clean +200 mesh product concentration of 147 mg/kg, down from an initial concentration of 340 mg/kg. Maximum removal efficiency for CPAHs for Sample BRG-TS02 was also obtained by water-only "attrition" operations exhibiting a 68 percent removal to a clean fraction level of 19 mg/kg from an initial starting concentration of 59 mg/kg. The application of 0.2 percent Moncosolve 210 yielded a removal of 63 percent with a coarse fraction concentration of 21.9 mg/kg; Sodium Lauryl Sulfate at 0.1 percent yielded a removal of 57 percent with a coarse fraction concentration of 25.3 mg/kg.

#### **4.1.2 Analysis of Treatability Study Data - Optimized Soils Washing Protocol**

The optimized soils washing test protocol on Sample BRG-TS02 utilized water-only double attrition scrubbing and yielded a removal efficiency for PAHs of 56 percent, with a clean fraction concentration of 86 mg/kg from an initial concentration of 197 mg/kg. Removal efficiency for CPAHs was 32 percent with a clean fraction concentration of 23 mg/kg from an initial concentration of 66 mg/kg.

The addition of K-1 (kerosene) as a froth agent at a concentration of 0.8 percent by weight facilitated the segregation and removal of coal material from the clean sample. Under these conditions, the removal efficiency increased to 73 percent for PAHs with a final concentration of the clean soil fraction of 53 mg/kg from an initial concentration of 197 mg/kg. Removal efficiency for CPAHs increased to 74 percent, with a clean fraction concentration of 17 mg/kg from an initial concentration of 66 mg/kg.

As shown in Table 16 (Section 5), the downside of the utilization of K-1 as a froth agent causes an increase in BTEX concentrations in the wash water. Using water-only attrition scrubbing, the total BTEX concentration in the wash solution was <7 µg/L; with 0.8 percent K-1 frother added, the BTEX wash water concentration increased to 156 µg/L.

The raw head Sample BRG-TS02 was split (2AS15PB and 2AS1PB) and individually analyzed for PAH and BTEX. Although the sample was thoroughly homogenized prior to obtaining the grab, the concentrations varied as follows:

<u>Sample BRG-TS02</u>	<u>PAHs</u>	<u>CPAH</u>	<u>BTEX</u>
2AS15PB	<92	<34	<57
2AS1PB	<197	<66	<155

The variations in PAH and CPAH concentrations could be due to the extraction of a large piece of debris or coal from the 2AS1PB sample.

Table 15 (Section 5) presents the concentrations of PAHs and CPAHs in the fines (-200 mesh) and froth fractions. Although split Sample BRG-TS02 (2AS15PB) contained 91 mg/kg of PAHs and 34 mg/kg of CPAHs, double water attritioning (following desliming of the -200 mesh fines fraction) increased the PAH/CPAH concentration released and added an additional 151 mg/kg PAHs and 23 mg/kg of CPAHs to the flotables fraction. Following secondary desliming, flotation with water only increased PAH concentration in the recovered froth to an additional 377 mg/kg and 102 mg/kg for CPAHs.

The addition of the K-1 frothing agent also released coal fractions from the soil matrix. This froth contained a supplemental 490 mg/kg of PAHs and 110 mg/kg of CPAHs.

Both the base test-soils washing protocol and the optimized test protocol results indicate that although soils washing exhibits a reduction of PAHs and CPAHs (approximately 74 percent reduction), the technology will not meet the 6.1 mg/kg CPAH target cleanup level.

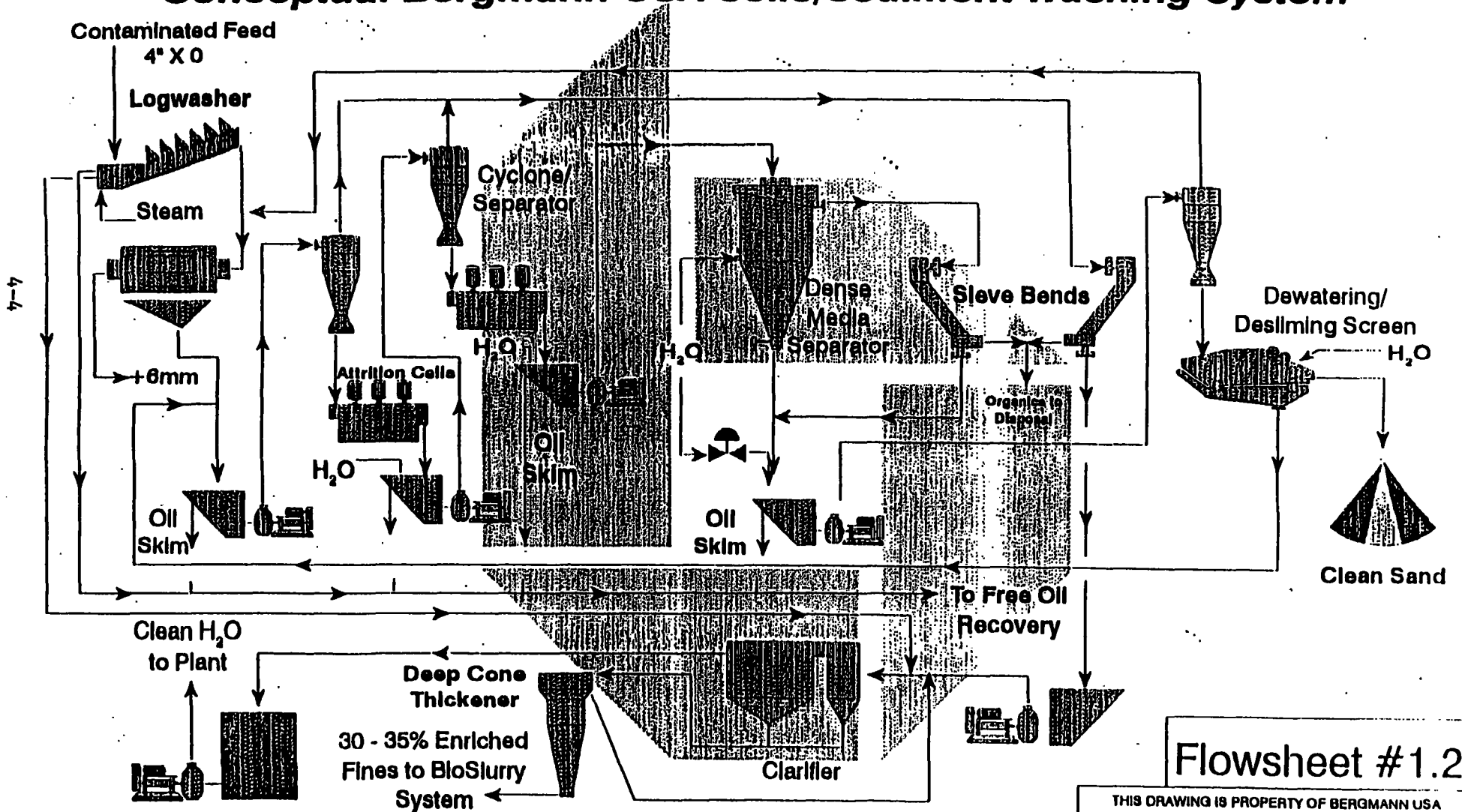
#### **4.2 RECOMMENDATIONS**

Under full-scale plant operations, it should be possible to achieve similar results in terms of PAH/CPAH removals as exhibited in the evaluation of enhanced (K-1) froth flotation with upflow classification or elutriation.

It is generally desired to minimize the use of additional intermediate chemical additives in the soils washing process. Based upon Bergmann's full-scale system application experience, the use of a dense media separator for elutriation operations in full-scale soils washing installations will effectively remove both humic and coal fractions without the addition of chemical agents. However, as demonstrated in this testing, this additional operation will not achieve the specified treatment standard.

**FIGURE 4-1**

**Conceptual Bergmann USA Soils/Sediment Washing System**



**Flowsheet #1.2**

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## SECTION 5

### REFERENCES

TABLE 1	Sample A - Sieve Mesh Analysis Test Results
TABLE 2	Sample A - Coarse (+200 Mesh) Fraction Test Results
TABLE 3	Sample A - Fines (-200 Mesh) Fraction Test Results
TABLE 4	Sample A - Filtrate Test Results
TABLE 5	Sample B - Sieve Mesh Analysis Test Results
TABLE 6	Sample B - Coarse (+200 Mesh) Fraction Test Results
TABLE 7	Sample B - Fines (-200 Mesh) Fraction Test Results
TABLE 8	Sample A - Filtrate Test Results
TABLE 9	Sample A - Percent Removal Efficiency (Dry Weight Basis) Test Results
TABLE 10	Sample B - Percent Removal Efficiency (Dry Weight Basis) Test
TABLE 11	Optimized Wash - Percent Removal Efficiency (Dry Weight Basis) Test
TABLE 12	Optimized Wash - Sieve Mesh Analysis Test Results
TABLE 13	Optimized Wash - Wet Sieve Filtrate Test Results
TABLE 14	Optimized Wash - Coarse (+200 Mesh) Fraction Test Results
TABLE 15	Optimized Wash - Fines (-200 Mesh) and Flotables Fraction Test Results
TABLE 16	Optimized Wash - Attrition/Flotation Filtrate Test Results
TABLE 17	Comparison of BRG-TS02 Raw Head Sample Splits

**Table 1 - Bench-Scale Soils Washing Treatability  
Moss-American Superfund Site  
Sample A (BRG-TSO2) - Raw Contaminated Feed Material  
Sieve Mesh Analysis Test Results**

Analytical Parameter	1/4" x 10		10 x 50		50 x 100		100 x 200		200 x 325		325 x 0		200 x 0	
	Wet	Dry	Wet	Dry	Wet	Dry	Wet	Dry	Wet	Dry	Wet	Dry	Wet	Dry
PAH's in Solids (SW846/8310) mg/kg	A11		A12		A13		A14		A15		A16		Fines Split A17	
Naphthalene	<20	<20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<20	<300
Acenaphthylene	<4	<4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<20	<300
Acenaphthene	<7	<7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<20	<300
Fluorene	<2	<2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<20	<300
Phenanthrene	<8	<8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<7	<100
Anthracene	<5	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	<80
Fluoranthene	30	30	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	10	160
Pyrene	40	40	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	18	290
Benzo(a)-anthracene	6	6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.1	34
Chrysene	<10	<10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3	60
Benzo(b)-fluoranthene	18	18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	9	140
Benzo(k)-fluoranthene	7	7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3	60
Benzo(a)pyrene	15	15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5	80
Dibenzo(a,h)-anthracene	<1	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	<20
Benzo(g,h,i,-perylene	19	20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	8	17
Indeno(1,2,3,-cd)pyrene	<6	<6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	17	270
BTEX Scan (8020) ug/kg														
Benzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<6	<100
Toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	130	2100
Ethylzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	44	720
O-xylene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	27	440
M-xylene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	81	1300
P-xylene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	50	820
Oil & Grease % by weight	.38	.38	.38	.38	.54	.55	1.13	1.16	.80	.82	NA	NA	.55	9.1

NA - Not Analyzed: Lancaster Laboratory was directed by Bergmann USA to analyze samples A11, A12, A13, A14, A15, A16 and A17 for CPAHs, BTEX and Oil & Grease. Although the Lancaster Labs sample coordinator requested these analyses, samples A12, A13, A14, A15 and A16 were not analyzed for CPAHs and BTEX. Sample A11 was not analyzed for BTEX, and sample A16 was not analyzed for O&G. Attached is a letter from Lancaster Laboratories, dated 5/3/93, accepting responsibility for this error of omission.



**Table 2 - Bench-Scale Soils Washing Treatability  
Moss-American Superfund Site  
Sample A (BRG-TS02) - Coarse (+200 Mesh) Fraction  
Test Results**

Analytical Parameter	Double H <sub>2</sub> O Scrub		Monco High+H <sub>2</sub> O .2%		Monco Low+H <sub>2</sub> O .1%		Lauryl High+H <sub>2</sub> O .2%		Lauryl Low+H <sub>2</sub> O .1%		Weston BRG-TS02 Head Dry
	Wet	Dry	Wet	Dry	Wet	Dry	Wet	Dry	Wet	Dry	
PAH's in Solids (SW846/8310) mg/kg	A1		A2		A3		A4		A5		BRG-TS02
Naphthalene	<30	<30	<30	<30	<30	<30	<40	<40	<40	<40	57
Acenaphthylene	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	120
Acenaphthylene	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	18
Fluorene	<20	<20	<20	<20	<20	<20	<20	<30	<20	<30	2.3
Phenanthrene	8	8	9	9	10	10	14	22	12	12	16
Anthracene	<5	<5	<5	<5	<5	<5	<5	<6	<5	<5	5.8
Fluoranthene	12	12	14	14	17	17	18	18	16	16	38
Pyrene	13	13	17	17	19	19	19	20	18	18	24
* Benzo(a)anthracene	2.6	2.6	3.4	3.4	3.9	3.9	3.9	4.0	3.3	3.3	3.7
* Chrysene	3	3	<1	<1	5	5	5	5	4	4	12
* Benzo(b)fluoranthene	4.3	4.3	5.5	5.5	4.9	5.0	5.5	5.6	5.6	5.6	12
* Benzo(k)fluoranthene	1.8	1.8	2.3	2.3	2.1	2.1	2.4	2.4	2.3	2.4	3.6
* Benzo(a)pyrene	2.4	2.4	3.0	3.0	2.8	2.8	3.0	3.1	3.3	3.3	8.3
* Dibenzo(a,h)anthracene	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	.61
* Benzo(g,h,i)perylene	3.6	3.6	<5	<5	3.7	3.7	<5	<5	<5	<5	10
* Indeno(1,2,3,-cd)pyrene	1.2	1.2	1.5	1.5	1.3	1.3	1.3	1.3	1.4	1.5	9.1
Total PAH	<147.1	<147.1	<156.1	<156.1	<165.0	<164.9	<182.3	<202.6	<176.1	<186.3	340.41
*Total CPAH	19.1	19.1	21.9	21.9	23.9	24.0	26.3	26.6	25.1	25.3	59.3
BTEX Scan (8020) ug/kg											
Benzene	<20	<20	240	240	<20	<20	<20	<20	<20	<20	ND
Toluene	2100	2100	3300	3300	2000	2000	1600	1600	1400	1400	ND
Ethylbenzene	150	150	350	350	150	150	140	130	130	130	ND
O-xylene	110	110	300	300	110	110	100	100	100	100	ND
M-xylene	320	320	810	810	340	340	310	320	300	310	ND
P-xylene	160	160	360	360	170	170	160	160	180	180	ND
Oil & Grease % by weight	.10	.10	.09	.09	.10	.10	.11	.12	.12	.13	NA

NA - Not Analyzed

ND - Non-Detect

**Table 3 - Bench-Scale Soils Washing Treatability**  
**Moss-American Superfund Site**  
**Sample A (BRG-TS02) - Fines (-200 Mesh) Fraction**  
**Test Results**

Analytical Parameter	Double H <sub>2</sub> O Scrub Wet Dry		Monco High+H <sub>2</sub> O .2% Wet Dry		Monco Low+H <sub>2</sub> O .1% Wet Dry		Lauryl High+H <sub>2</sub> O .2% Wet Dry		Lauryl Low+H <sub>2</sub> O .1% Wet Dry	
	A1	A1	A2	A2	A3	A3	A4	A4	A5	A5
<b>PAH's in Solids (SW846/8310) mg/kg</b>										
Naphthalene	<200	<200	<90	<90	<70	<70	<70	<70	<70	<70
Acenaphthylene	<60	<60	<20	<20	<20	<20	<20	<20	<20	<20
Acenaphthene	<60	<60	<20	<20	<20	<20	<20	<20	<20	<20
Fluorene	<60	<60	<20	<20	<20	<20	<20	<30	<20	<30
Phenanthrene	40	40	20	21	16	16	15	15	15	16
Anthracene	<20	<20	<6	<6	<10	<10	<6	<6	<6	<6
Fluoranthene	52	54	30	30	30	30	30	30	30	30
Pyrene	55	57	26	27	23	24	25	26	26	27
Benzo(a)anthracene	11	11	7.1	7.4	5.2	5.4	5.7	5.9	5.8	6.1
Chrysene	13	13	<10	<10	<10	<10	<10	<10	<10	<10
Benzo(b)fluoranthene	19	19	18	19	18	18	19	20	19	20
Benzo(k)fluoranthene	7.8	8.0	7	8	7	7	7	8	7	8
Benzo(a)pyrene	12	13	16	16	14	15	16	16	17	18
Dibenzo(a,h)anthracene	<1	<1	<2	<2	<2	<2	<2	<2	<2	<2
Benzo(g,h,i)perylene	17	17	25	26	21	22	28	29	29	31
Indeno(1,2,3,-cd)pyrene	5	6	8.7	9.1	7.6	7.8	10	11	11	11
<b>BTEX Scan (8020) ug/kg</b>										
Benzene	<300	<300	<300	<300	<200	<200	<200	<200	<100	<100
Toluene	800,000	830,000	20,000	21,000	13,000	13,000	12,000	12,000	11,000	11,000
Ethylbenzene	5100	5300	1400	1400	900	900	700	800	700	700
O-xylene	3200	3300	1200	1300	700	700	600	600	500	500
M-xylene	10,000	10,000	4400	4500	2500	2600	1800	1800	1600	1700
P-xylene	5600	5600	1700	1700	1000	1100	900	900	800	900
Oil & Grease % by weight	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR

MOBSTATL3

**Table 4 - Bench-Scale Soils Washing Treatability  
Moss-American Superfund Site  
Sample A (BRG-TS02) - Filtrate Test Results**

Analytical Parameter	Double H <sub>2</sub> O Scrub	Monco High+H <sub>2</sub> O .2%	Monco Low+H <sub>2</sub> O .1%	Lauryl High+H <sub>2</sub> O .2%	Lauryl Low+H <sub>2</sub> O .1%
<b>PAH's in Solids (SW846/8310) ug/l</b>	<b>A1</b>	<b>A2</b>	<b>A3</b>	<b>A4</b>	<b>A5</b>
Naphthalene	<10	<10	<10	<10	<10
Acenaphthylene	<20	<20	<20	<20	<20
Acenaphthene	<20	<20	<20	<20	<20
Fluorene	<2	<2	<2	<2	<2
Phenanthrene	<2	<2	<2	<2	<2
Anthracene	<1	<1	<1	<1	<1
Fluoranthene	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	<2	<2	<2	<2	<2
Benzo(a)anthracene	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	<1	<1	<1	<1	<1
Benzo(b)fluoranthene	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(k)fluoranthene	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	<0.2	<0.2	<0.2	<0.2	<0.2
Dibenzo(a,h)anthracene	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(g,h,i)perylene	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1,2,3-cd)pyrene	<0.5	<0.5	<0.5	<0.5	<0.5
<b>BTEX Scan (8020) ug/l</b>					
Benzene	<1	<10	<5	<20	<20
Toluene	<1	<5	<2	<5	<5
Ethylbenzene	<1	<1	<1	<1	<1
O-xylene	<1	<1	<1	<1	<1
M-xylene	<1	1	<1	1	1
P-xylene	<1	<1	<1	<1	<1
Oil & Grease mg/l	<5	<5	<5	<5	<5

MOBETABL.4

**Table 5 - Bench-Scale Soils Washing Treatability  
 Moss-American Superfund Site  
 Sample B (BRG-TSO1) - Raw Contaminated Feed Material  
 Sieve Mesh Analysis Test Results**

Analytical Parameter	1/4" x 10 Wet Dry	10 x 50 Wet Dry	50 x 100 Wet Dry	100 x 200 Wet Dry	200 x 325 Wet Dry	325 x 0 Wet Dry	200 x 0 Wet Dry
PAH's in Solids (SW846/B310) mg/kg	B11	B12	B13	B14	B15	B16	Fines Split B17
Naphthalene	<20 <20	<20 <20	<20 <20	<20 <300	<20 <100	<20 <20	<20 <20
Acenaphthylene	<20 <20	<20 <20	<20 <20	<20 <300	<20 <100	<20 <20	<20 <20
Acenaphthene	<20 <20	<20 <20	<20 <20	<20 <300	<20 <100	<20 <20	<20 <20
Fluorene	<20 <20	<20 <20	<20 <20	<20 <300	<20 <100	<20 <20	<20 <20
Phenanthrene	35 35	<50 <50	<20 <20	<20 <300	<20 <100	<5 <6	<5 <8
Anthracene	<8 <8	<20 <20	<7 <7	<9 <100	<7 <50	<5 <6	<5 <8
Fluoranthene	100 100	120 130	90 90	90 1200	70 490	20 30	9 15
Pyrene	81 82	110 120	40 40	55 740	47 330	17 21	7 11
Benzo(a)-anthracene	25 25	34 37	30 31	22 300	18 130	10 12	3.2 5.0
Chrysene	23 23	40 40	20 20	28 380	23 160	20 20	6 9
Benzo(b)-fluoranthene	23 23	52 57	51 52	45 610	34 230	26 32	14 21
Benzo(k)-fluoranthene	10 10	22 24	20 20	18 240	13 87	12 15	5 8
Benzo(a)pyrene	18 19	43 47	51 52	43 580	22 150	21 26	12 18
Dibenzo(a,h)-anthracene	<3 <3	<3 <3	<4 <4	<5 <70	<4 <30	<4 <5	<2 <3
Benzo(g,h,i,-)perylene	5 5	14 15	9 9	10 140	8 50	7 9	4 6
Indeno(1,2,3,-cd)pyrene	14 14	36 39	27 27	31 410	22 150	21 26	11 17
BTEX Scan (8020) ug/kg							
Benzene	<20 <20	<40 <40	*	*	*	<30 <40	<5 <8
Toluene	1,200 1,300	1,600 1,700	*	*	*	1,800 2,200	<5 <8
Ethylbenzene	120 120	150 170	*	*	*	130 160	<5 <8
O-xylene	86 87	140 150	*	*	*	99 120	<5 <8
M-xylene	230 230	370 410	*	*	*	250 300	<5 <8
P-xylene	130 130	200 220	*	*	*	130 160	<5 <8
Oil & Grease % by weight			*	*	*	*	.89 1.07

\* Insufficient quantity of sample for Lancaster Laboratories to perform analyses

**Table 6 - Bench-Scale Soils Washing Treatability  
Moss-American Superfund Site  
Sample B (BRG-TS01) - Coarse (+200 Mesh) Fraction  
Test Results**

Analytical Parameter	Double H <sub>2</sub> O Scrub		Monco High+H <sub>2</sub> O .2%		Monco Low+H <sub>2</sub> O .1%		Lauryl High+H <sub>2</sub> O .2%		Lauryl Low+H <sub>2</sub> O .1%		Weston BRG-TS01 head Dry
	Wet	Dry	Wet	Dry	Wet	Dry	Wet	Dry	Wet	Dry	
PAH's in Solids (SW846/8310) mg/kg	B1		B2		B3		B4		B5		BRG-TS01
Naphthalene	<20	<20	<20	<20	<20	<20	<20	<30	<20	<20	30
Acenaphthylene	<20	<20	<20	<20	<20	<20	<20	<30	<20	<20	170
Acenaphthene	<20	<20	<20	<20	<20	<20	<20	<30	<20	<20	83
Fluorene	<20	<20	<20	<20	<20	<20	<20	<30	<20	<20	23
Phenanthrene	29	36	18	22	21	25	17	22	21	25	87
Anthracene	<10	<10	<5	<6	<6	<7	<5	<6	<6	<7	220
Fluoranthene	50	60	40	40	40	50	30	40	50	60	210
Pyrene	45	55	32	40	37	44	27	34	37	43	160
* Benzo(a)anthracene	11	13	8.0	9.9	10	12	7.1	8.9	13	15	27
* Chrysene	16	20	12	14	14	17	11	14	13	16	100
* Benzo(b)fluoranthene	15	18	12	14	14	17	11	13	17	20	48
* Benzo(k)fluoranthene	6	8	5	6	6	8	5	6	7	8	4.1
* Benzo(a)pyrene	15	18	12	15	15	18	12	15	14	16	36
* Dibenzo(a,h)anthracene	<2	<2	<2	<2	<2	<2	<2	<3	<2	<2	8.6
* Benzo(g,h,i)perylene	<4	<5	3	<4	3	<4	3	<4	3	4	11
* Indeno(1,2,3-cd)pyrene	12	15	10	12	11	13	9	11	10	12	10
Total PAH	295	340	239		259	297	219.1		273	308	1227.7
				284.9			296.9				
*Total CPAH	81	99	64	77	75	91	60	75	79	93	244.7
BTEX Scan (8020) ug/kg											
Benzene	<5	<6	<5	<6	<5	<6	<5	<6	<5	<6	ND
Toluene	8	10	13	15	11	13	10	12	11	13	ND
Ethylbenzene	<5	<6	<5	<6	<5	<6	<5	<6	<5	<6	ND
O-xylene	<5	<6	11	13	<5	<6	<5	<6	<5	<6	ND
M-xylene	13	15	150	190	18	21	15	19	16	18	ND
P-xylene	<5	<6	<20	<20	<5	<6	<5	<6	<5	<6	ND
Oil & Grease % by weight	.41	.51	.48	.55	.52	.61	.59	.72	.52	.62	NA

NA - Not Analyzed  
ND - Non Detect

**Table 7 - Bench-Scale Soils Washing Treatability**  
**Moss-American Superfund Site**  
**Sample B (BRG-TS01) - Fines (-200 Mesh) Fraction**  
**Test Results**

Analytical Parameter	Double H <sub>2</sub> O Scrub		Monco High+H <sub>2</sub> O .2%		Monco Low+H <sub>2</sub> O .1%		Lauryl High+H <sub>2</sub> O .2%		Lauryl Low+H <sub>2</sub> O .1%	
	Wet	Dry	Wet	Dry	Wet	Dry	Wet	Dry	Wet	Dry
<b>PAH's in Solids (SW846/8310) mg/kg</b>	<b>B1</b>		<b>B2</b>		<b>B3</b>		<b>B4</b>		<b>B5</b>	
Naphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzo(a,h)anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
<b>BTEX Scan (8020) ug/kg</b>										
Benzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
O-xylene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
M-xylene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
P-xylene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
<b>Oil &amp; Grease % by weight</b>	<b>1.31</b>	<b>2.60</b>	<b>1.53</b>	<b>2.98</b>	<b>1.35</b>	<b>3.06</b>	<b>1.65</b>	<b>2.75</b>	<b>1.50</b>	<b>2.98</b>

NA - Not Analyzed: CPAH and BTEX analyses for Sample B fines fractions were inadvertently not requested by Bergmann.

**Table 8 - Bench-Scale Soils Washing Treatability  
Moss-American Superfund Site  
Sample B (BRG-TS01) - Filtrate Test Results**

Analytical Parameter	Double H <sub>2</sub> O Scrub	Monco High+H <sub>2</sub> O .2%	Monco Low+H <sub>2</sub> O .1%	Lauryl High+H <sub>2</sub> O .2%	Lauryl Low+H <sub>2</sub> O .1%
<b>PAH's in Solids (SW846/8310) ug/l</b>	<b>B1</b>	<b>B2</b>	<b>B3</b>	<b>B4</b>	<b>B5</b>
Naphthalene	<10	<10	<10	<10	<10
Acenaphthylene	<20	<20	<20	<20	<20
Acenaphthene	<20	<20	<20	<20	<20
Fluorene	<2	<3	<2	<2	<2
Phenanthrene	<2	<2	<2	<2	<2
Anthracene	<1	<2	<1	<1	<1
Fluoranthene	1.2	10	4.6	1.1	2
Pyrene	<2	<8	<4	<2	<2
Benzo(a)anthracene	<0.1	3.0	1.3	<0.1	<0.1
Chrysene	<1	<20	<8	<1	<1
Benzo(b)fluoranthene	0.8	7.0	2.9	0.5	0.8
Benzo(k)fluoranthene	<0.1	2.4	1.1	<0.1	<0.1
Benzo(a)pyrene	0.7	6.1	2.7	0.4	0.7
Dibenzo(a,h)anthracene	<0.2	<0.6	<0.2	<0.2	<0.2
Benzo(g,h,i)perylene	<0.5	5.5	2.3	<0.5	0.6
Indeno(1,2,3,-cd)pyrene	<0.5	2.1	1.0	<0.5	0.5
<b>BTEX Scan (8020) ug/l</b>					
Benzene	<10	<20	<20	<10	<10
Toluene	28	24	24	30	30
Ethylbenzene	<1	<1	<1	<10	<10
O-xylene	<1	<1	<1	<10	<10
M-xylene	1	<1	<1	<10	<10
P-xylene	<1	<1	<1	<10	<10
Oil & Grease mg/l	<5	6	<5	<5	6

MOBETABL.3

**Table 9 - Bench-Scale Soils Washing Treatability  
Moss-American Superfund Site  
Sample A (BRG-TS02) - Coarse (+200 Mesh) Fraction  
Percent Removal Efficiency (Dry Weight Basis) Test Results**

Analytical Parameter	Double H <sub>2</sub> O Scrub Dry	Monco High+H <sub>2</sub> O .2% Dry	Monco Low+H <sub>2</sub> O .1% Dry	Lauryl High+H <sub>2</sub> O .2% Dry	Lauryl Low+H <sub>2</sub> O .1% Dry
PAH's in Solids (SW846/8310) % removal	A1	A2	A3	A4	A5
Naphthalene	>47	>47	>47	>30	>30
Acanaphthylene	>83	>83	>83	>83	>83
Acanaphthene	(<11)	(<11)	(<11)	(<11)	(<11)
Fluorene	(<769)	(<769)	(<769)	(<1204)	(<1204)
Phenanthrene	50	44	38	(37)	25
Anthracene	>14	>14	>14	(3)	>14
Fluoranthene	68	63	55	53	58
Pyrene	46	29	21	16	25
* Benzo(a)anthracene	30	8	(5)	(8)	11
* Chrysene	75	>92	58	58	67
* Benzo(b)fluoranthene	64	54	58	53	53
* Benzo(k)fluoranthene	50	36	42	33	33
* Benzo(a)pyrene	71	64	66	63	60
* Dibenzo(a,h)anthracene	>67	>67	>67	>67	>67
* Benzo(g,h,i)perylene	64	>50	>63	>50	50
* Indeno(1,2,3,-cd)pyrene	84	84	86	86	83
Total PAH % Removal Efficiency	>57%	>54%	>52%	>40%	>45%
*Total CPAH % Removal Efficiency	>68%	>63%	>60%	>55%	>57%

( ) - Negative % Removal Efficiency



**Table 10 - Bench-Scale Soils Washing Treatability  
Moss-American Superfund Site  
Sample B (BAG-TS01) - Coarse (+200 Mesh) Fraction  
Percent Removal Efficiency (Dry Weight Basis) Test Results**

Analytical Parameter	Double H <sub>2</sub> O Scrub Dry	Monco High+H <sub>2</sub> O .2% Dry	Monco Low+H <sub>2</sub> O .1% Dry	Lauryl High+H <sub>2</sub> O .2% Dry	Lauryl Low+H <sub>2</sub> O .1% Dry
PAH's in Solids (SW846/8310) % removal	81	82	83	84	85
Naphthalene	>33	>33	>33	>0	>33
Acenaphthylene	>88	>88	>88	>82	>88
Acenaphthene	>76	>76	>76	>64	>76
Fluorene	13	13	13	13	13
Phenanthrene	58	75	71	75	71
Anthracene	>95	>97	>97	>97	>97
Fluoranthene	71	81	76	81	71
Pyrene	66	75	72	79	73
* Benzo(a)anthracene	52	63	56	67	44
* Chrysene	80	>86	83	86	84
* Benzo(b)fluoranthene	62	71	64	73	58
* Benzo(k)fluoranthene	(195)	(146)	(195)	(146)	(195)
* Benzo(a)pyrene	50	58	50	58	56
* Dibenzo(a,h)anthracene	>77	>77	>77	>65	>77
* Benzo(g,h,i)perylene	54	>64	>64	>64	64
* Indeno(1,2,3,-cd)pyrene	(150)	(120)	(130)	(110)	(120)
Total PAH % Removal Efficiency	>72%	>76%	>76%	>76%	>73%
*Total CPAH % Removal Efficiency	>59%	>66%	>63%	>69%	>62%

( ) - Negative % Removal Efficiency

**Table 11 - Optimized Bench-Scale Soils Washing Treatability**

**Moss-American Superfund Site  
Primary Contaminant Group Concentrations  
Percent Removal Efficiency (Dry Weight Basis) Test Results**

**Sample BRG-TS02 - Coarse (1/4"x200 Mesh) & Fine (-200x0 Mesh) Fractions**

	<b>Total PAHs mg/kg</b>	<b>Total PAHs % removal</b>	<b>CPAHs mg/kg</b>	<b>CPAHs % removal</b>	<b>BTEX ug/kg</b>	<b>BTEX % removal</b>
<b>BRG-TS01 Raw Sample Splits 2AS15PB 2AS1PB</b>	<b>&lt; 81.3 &lt; 187</b>	<b>- -</b>	<b>&lt; 34.3 &lt; 66</b>	<b>- -</b>	<b>&lt; 57 &lt; 155</b>	<b>- -</b>
<b>Double H<sub>2</sub>O Attrition Scrub 1/4" x 200 (2AS27PB) -200 x 0 (2AS16PB)</b>	<b>&lt; 86.3 &lt;151.3</b>	<b>5.5 / 56.2</b>	<b>&lt; 23.3 &lt; 66.3</b>	<b>32.1/(+.4)</b>	<b>&lt; 189 &lt; 154</b>	<b>(+331)/.6</b>
<b>Flotation w/H<sub>2</sub>O Only 1/4" x 200 (2AS19PB) -200 x 0 (2AS20PB)</b>	<b>&lt; 88.5 &lt; 377</b>	<b>3.1 / 55.1</b>	<b>&lt; 25.5 &lt; 102</b>	<b>25.6/61.4</b>	<b>&lt; 130 &lt; 3570</b>	<b>(+228)/16</b>
<b>Flotation w/ K-1 Froth Agent(.8%) 1/4" x 200 (2AS23PB) -200 x 0 (2AS24PB)</b>	<b>&lt; 53.4 &lt; 480</b>	<b>41.5/72.9</b>	<b>&lt;17 &lt;110</b>	<b>50.4/74.2</b>	<b>&lt; 180 &lt; 3420</b>	<b>(+281)/+103</b>

**Table 12 - Optimized Bench-Scale Soils Washing Treatability  
 Moss-American Superfund Site  
 Sample A (BRG-TS02) - Raw Contaminated Feed Material  
 Sieve Mesh Analysis Test Results**

Analytical Parameter	Raw Head Sample		1/4" x 10		10 x 50		50 x 100		100 x 200		200 x 325		325 x 0	
	Wet	Dry	Wet	Dry	Wet	Dry	Wet	Dry	Wet	Dry	Wet	Dry	Wet	Dry
PAH's in Solids (SW846/8310) mg/kg	2AS1PB		2AS2PB		2AS3PB		2AS4PB		2AS5PB		2AS6PB		2AS7PB	
Naphthalene	<20	<20	<10	<10	<4	<4	<10	<10	<10	<10	<20	<20	<2	<2
Acenaphthylene	<20	<20	<10	<10	<10	<10	<10	<10	<20	<20	<20	<20	<2	<2
Acenaphthene	<20	<20	<10	<10	10	10	20	20	<20	<20	<20	<20	<2	<2
Fluorene	<20	<20	<10	<10	<10	<10	<10	<10	<10	<10	<20	<20	<2	<2
Phenanthrene	<5	<6	17	17	8	9	<10	<10	14	14	11	12	<.5	<.5
Anthracene	<5	<6	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<.5	<.5
Fluoranthene	<20	<20	30	40	15	15	17	19	20	21	17	17	.3	.3
Pyrene	<20	<20	31	32	14	14	20	20	20	20	4	4	<.2	<.2
Benzo(a)-anthracene	3	4	14	14	3.8	4.0	4.1	4.5	4.4	4.7	4	4	.06	.07
Chrysene	<10	<10	15	15	6	6	7	8	8	9	<10	<10	.1	.1
Benzo(b)-fluoranthene	11	13	20	20	14	14	15	16	18	20	17	17	.28	.31
Benzo(k)-fluoranthene	4	5	10	10	5	5	6	7	7	8	6	6	.09	.10
Benzo(a)pyrene	8	10	15	16	11	11	12	13	14	15	12	13	.26	.28
Dibenzo(a,h)-anthracene	<2	<2	3	3	<1	<1	<1	<1	<1	<1	<4	<4	<.2	<.2
Benzo(g,h,i)-perylene	<5	<6	6	8	4	4	7	7	8	9	<10	<10	<.5	<.5
Indeno(1,2,3-cd)pyrene	13	16	19	19	12	12	17	19	20	22	20	20	.45	.49
BTEX Scan (8020) ug/kg														
Benzene	<5	<6	<10	<10	<5	<5	<5	<5	<5	<5	<30	<30	<5	<5
Toluene	16	20	610	620	330	330	180	190	200	210	760	770	170	180
Ethylbenzene	<5	<6	100	100	58	60	53	58	<5	<5	<30	<30	<5	<5
O-xylene	<40	<50	110	110	76	79	60	66	80	85	90	100	16	18
M-xylene	39	48	170	170	140	140	100	110	120	120	150	150	27	29
P-xylene	20	25	130	130	85	89	78	85	92	98	100	100	17	18

**Table 13 - Optimized Bench-Scale Soils Washing Treatability**  
**Moss-American Superfund Site**  
**Wet Sieve Analysis for Contaminant Partitioning**  
**Sample A (BRG-TS02) - Filtrate Test Results**

Analytical Parameter	
<b>PAH's in Solids (SW846/8310) ug/l</b>	<b>2AL8P</b>
Naphthalene	<20
Acenaphthylene	<40
Acenaphthene	<40
Fluorene	<4
Phenanthrene	<4
Anthracene	<2
Fluoranthene	<1
Pyrene	<4
Benzo(a)anthracene	<0.2
Chrysene	<2
Benzo(b)fluoranthene	<0.4
Benzo(k)fluoranthene	<0.2
Benzo(a)pyrene	<0.4
Dibenzo(a,h)anthracene	<0.4
Benzo(g,h,i)perylene	<1
Indeno(1,2,3,-cd)pyrene	<1
<b>BTEX Scan (8020) ug/l</b>	<b>2AL9B</b>
Benzene	<1
Toluene	<1
Ethylbenzene	<1
O-xylene	<1
M-xylene	<1
P-xylene	<1

**Table 14 - Optimized Bench-Scale Soils Washing Treatability**  
**Moss-American Superfund Site**  
**Sample A (BRG-TS02) - Coarse (+200 Mesh) Fraction**  
**Test Results**

Analytical Parameter	Raw Head Sample		Double H <sub>2</sub> O Scrub		Flotation w/ H <sub>2</sub> O Only		Flotation w/ .3% K-1	
	Wet	Dry	Wet	Dry	Wet	Dry	Wet	Dry
<b>PAH's in Solids (SW846/8310) mg/kg</b>	<b>2AS15PB</b>		<b>2AS27PB</b>		<b>2AS19PB</b>		<b>2AS23PB</b>	
Naphthalene	<3	<4	<5	<6	<5	<5	<2	<3
Acenaphthylene	<4	<5	<3	<4	<3	<3	<2	<3
Acenaphthylene	7	9	<4	<5	<4	<4	<2	<3
Fluorene	<4	<5	<2	<3	<2	<2	<2	<3
Phenanthrene	5	7	8	11	11	12	4.0	5.5
Anthracene	<2	<3	<5	<6	<5	<5	.7	.9
Fluoranthene	9	12	11	14	16	17	7	10
Pyrene	9	12	11	14	14	15	6	8
* Benzo(a)anthracene	2.2	3.0	2.4	3.1	3.6	3.7	1.7	2.4
* Chrysene	3	5	3	4	4	4	2	3
* Benzo(b)fluoranthene	5.3	7.3	4.1	5.2	5.2	5.4	2.5	3.5
* Benzo(k)fluoranthene	2.2	3.0	1.8	2.3	2.4	2.5	1.2	1.7
* Benzo(a)pyrene	3.3	4.5	2.5	3.2	3.5	3.6	1.6	2.2
* Dibenzo(a,h)anthracene	<.4	<.5	<.4	<.5	<.3	<.3	<.2	<.3
* Benzo(g,h,i)perylene	2	3	1	1	<2	<2	<.7	<1.0
* Indeno(1,2,3-cd)pyrene	6	8	3	4	4	4	2.1	2.9
Total PAH	<91.3		<88.3		<88.5		<53.4	
* Total CPAH	<34.3		<23.3		<25.5		<17	
<b>BTEX Scan (8020) ug/kg</b>								
Benzene	<5	<7	<5	<6	<5	<5	<5	<7
Toluene	13	18	40	51	33	35	6	8
Ethylbenzene	<5	<7	18	23	15	16	<5	<7
O-xylene	<5	<7	23	29	17	18	33	45
M-xylene	8	11	40	50	30	31	44	61
P-xylene	<5	<7	24	30	24	25	23	32

**Table 15 - Optimized Bench-Scale Soils Washing Treatability**  
**Moss-American Superfund Site**  
**Sample A (BRG-TSO2) - Fines (-200 Mesh) & Flotables Fractions**  
**Test Results**

Analytical Parameter	Raw Head Sample		Double H <sub>2</sub> O Scrub Fines		Flotation w/ H <sub>2</sub> O Only Flotables		Flotation w/ .3% K-1 Flotables	
	Wet	Dry	Wet	Dry	Wet	Dry	Wet	Dry
PAH's in Solids (SW846/8310) mg/kg	2AS15PB		2AS16PB		2AS20PB		2AS24PB	
Naphthalene	<3	<4	<3	<5	<20	<20	<50	<50
Acenaphthylene	<4	<5	<5	<9	<30	<30	<20	<20
Acenaphththlene	7	9	12	22	<20	<20	<20	<20
Fluorene	<4	<5	<4	<7	<20	<20	<20	<20
Phenanthrene	5	7	5	9	50	51	70	70
Anthracene	<2	<3	<2	<4	<50	<50	<50	<50
Fluoranthene	9	12	8	15	70	70	70	80
Pyrene	9	12	8	14	50	50	70	70
* Benzo(a)anthracene	2.2	3.0	2.0	3.6	14	14	16	17
* Chrysene	3	5	4	7	20	20	20	20
* Benzo(b)fluoranthene	5.3	7.3	8.6	15	19	19	22	23
* Benzo(k)fluoranthene	2.2	3.0	2.9	5.2	10	10	10	10
* Benzo(a)pyrene	3.3	4.5	6.4	11	13	13	14	14
* Dibenzo(a,h)anthracene	<.4	<.5	<.8	<.1	<2	<2	<2	<2
* Benzo(g,h,i)perylene	2	3	3.6	6.5	6	6	<6	<6
* Indeno(1,2,3,-cd)pyrene	6	8	9.4	17	18	18	17	18
Total PAH	<91.3		<151.3		<377		<490	
*Total CPAH	<34.3		<23.3		<102		<110	
BTEX Scan (8020) ug/kg								
Benzene	<5	<7	<5	<9	<30	<30	<20	<20
Toluene	13	18	26	46	1,300	1,400	580	610
Ethylenzene	<5	<7	7	13	370	370	540	570
O-xylene	<5	<7	8	14	500	510	660	700
M-xylene	8	11	30	54	730	740	930	980
P-xylene	<5	<7	10	18	510	520	510	540

**Table 16 - Optimized Bench-Scale Soils Washing Treatability**  
**Moss-American Superfund Site**  
**Sample A (BRG-TS02) - Attrition Scubbing & Froth Flotation**  
**Filtrate Test Results**

Analytical Parameter	Double H <sub>2</sub> O Scrub	Flotation w/ H <sub>2</sub> O-Only	Flotation w/ .8% K-1
PAH's in Solids (SW846/8310) ug/l	2AL17P	2AL21P	2AL25P
Naphthalene	<20	<20	<20
Acenaphthylene	<40	<40	<40
Acenaphthylene	<40	<40	<40
Fluorene	<4	<4	<4
Phenanthrene	<4	<4	<4
Anthracene	<2	<2	<2
Fluoranthene	<1	<1	<1
Pyrene	<4	<4	<4
* Benzo(a)anthracene	<.2	<.2	<.2
* Chrysene	<2	<2	<2
* Benzo(b)fluoranthene	<.4	<.4	<.4
* Benzo(k)fluoranthene	<.2	<.2	<.2
* Benzo(a)pyrene	<4	<4	<4
* Dibenzo(a,h)anthracene	<.4	<.4	<.4
* Benzo(g,h,i)perylene	<1	<1	<1
* Indeno(1,2,3,-cd)pyrene	<1	<1	<1
Total PAH	<120.6	<120.6	<120.6
*Total CPAH	<5.6	<5.6	<5.6
BTEX Scan (8020) ug/kg	2AL18B	2AL22B	2AL26B
Benzene	<1	<1	2
Toluene	2	2	21
Ethylbenzene	<1	<1	58
O-xylene	<1	<1	45
M-xylene	<1	<1	14
P-xylene	<1	<1	16

**Table 17 - Optimized Bench-Scale Soils Washing Treatability**  
**Moss-American Superfund Site**  
**Sample A (BRG-TS02) - Comparison of Raw Head Split Samples**  
**Test Results**

Analytical Parameter	Raw Head Sample		Raw Head Sample	
	Wet	Dry	Wet	Dry
PAH's in Solids (SWB46/8310) mg/kg	2AS15PB		2AS1PB	
Naphthalene	<3	<4	<20	<20
Acenaphthylene	<4	<5	<20	<20
Acenaphthylene	7	9	<20	<20
Fluorene	<4	<5	<20	<20
Phenanthrene	5	7	<5	<6
Anthracene	<2	<3	<20	<20
Fluoranthene	9	12	<20	<20
Pyrene	9	12	3	4
* Benzo(a)anthracene	2.2	3.0	<10	<10
* Chrysene	3	5	11	13
* Benzo(b)fluoranthene	5.3	7.3	4	5
* Benzo(k)fluoranthene	2.2	3.0	8	10
* Benzo(a)pyrene	3.3	4.5	<2	<2
* Dibenzo(a,h)anthracene	<4	<5	<2	<2
* Benzo(g,h,i)perylene	2	3	<5	<6
* Indeno(1,2,3,-cd)pyrene	6	8	13	16
Total PAH	<91.3		<197	
*Total CPAH	<34.3		<66	
BTEX Scan (8020) ug/kg				
Benzene	<5	<7	<5	<6
Toluene	13	18	16	20
Ethylbenzene	<5	<7	<5	<6
O-xylene	<5	<7	<40	<50
M-xylene	8	11	39	48
P-xylene	<5	<7	20	25



**APPENDIX A**

**ASTM D 4749-87 - STANDARD TEST METHOD FOR  
PERFORMING SIEVE ANALYSIS**



# Standard Test Method for Performing the Sieve Analysis of Coal and Designating Coal Size<sup>1</sup>

This standard is issued under the fixed designation D 4749; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reappraisal. A superscript epsilon ( $\epsilon$ ) indicates an editorial change since the last revision or reappraisal.

## 1. Scope

1.1 This test method covers procedures for determining the sieve analysis of coal and designating the size of coal from sieve analysis data. Raw as well as prepared (crushed, cleaned or screened) coals can be tested by this test method.

1.2 This test method explains how to designate coal sizes from the results of sieve analysis data in order to represent the condition of the coal as sold. In the case of special mixtures or coals with noncontinuous ranges of sizes, a sufficiently complete sieve analysis must be made to properly describe the size distribution.

1.3 This test method is not applicable for determining the sieve analysis nor for designating the size of pulverized coal.<sup>2</sup> Size fractions down to and including 38  $\mu\text{m}$  (No. 400 U.S.A. Standard Series) can be treated by the methods discussed in this test method. Methods for handling size fractions below 38  $\mu\text{m}$  (No. 400) will be developed by this committee.

1.4 The values stated in metric units shall be regarded as standard. The values shown in parentheses are provided for information only. The values stated in each system may not be exact equivalents; therefore, each system must be used independently of the other, without combining values in any way.

1.5 This standard may involve hazardous materials, operations, and equipment. This standard does not purport to address all of the safety problems associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

## 2. Referenced Documents

### 2.1 ASTM Standards:

D 197 Method of Sampling and Fineness Test of Pulverized Coal<sup>3</sup>

D 346 Method of Collection and Preparation of Coke Samples for Laboratory Analysis<sup>3</sup>

D 388 Classification of Coals by Rank<sup>3</sup>

D 2013 Method of Preparing Coal Samples for Analysis<sup>3</sup>

D 2234 Methods for Collection of a Gross Sample of Coal<sup>3</sup>

D 4371 Test Method for Determining the Washability Characteristics of Coal<sup>3</sup>

E 11 Specification for Wire-Cloth Sieves for Testing Purposes<sup>4</sup>

E 323 Specification for Perforated-Plate Sieves for Testing Purposes<sup>4</sup>

### 2.2 Other Document:

Specification C-80 Commonwealth of Pennsylvania, Department of General Services, Bureau of Purchases, Specification for Coal: Anthracite<sup>5</sup>

## 3. Descriptions of Terms Specific to this Standard

3.1 *as-mined coal*—same as ROM coal (3.8).

3.2 *as-shipped or produced coal*—raw or prepared coal in any state or condition at which it leaves the mine property or loading facility.

3.3 *bottomsize, nominal*—the sieve designating the lower limit or bottomsize shall be that sieve of the series given in Section 6 with the largest openings through which passes a total of less than 15% of the sample. This defined bottomsize is not to be confused with the size of the smallest particles in the lot.

NOTE 1—Precaution: In the case of a commercial, double-screened product, for example, 37.5 by 9.5 mm (1½ by ¾ in.), this designation may not be valid. In such commercial or contractual situations, the amount of allowable material smaller than the bottomsize (for example, 9.5 mm) must be specified by the contract under which the coal is bought and sold.

3.4 *dry sieving*—for the purposes of this test method, the test method for the sieving of coal after the sample has been air-dried under prescribed conditions; this is generally used when testing with coal particles larger than 600  $\mu\text{m}$ . (No. 30 U.S.A. Standard Sieve Series.)

3.5 *opening*—for the purpose of this test method, openings and apertures shall be regarded as synonymous terms. Dimensions for round and square openings shall be determined as follows: for round holes, dimensions shall refer to the opening diameter; for square holes, dimensions shall refer to the distance between parallel wires.

3.6 *prepared coal*—any coal, regardless of its topsize, that has been manually or mechanically cleaned. This includes coal that has been processed over a picking table or air tables, through a breaker, jig, or other device which segregates according to size or density (specific gravity).

3.7 *raw coal*—any coal, regardless of its topsize, that has not been manually or mechanically cleaned. Crushed coal that has not been mechanically cleaned (including coal that

<sup>1</sup> This test method is under the jurisdiction of ASTM Committee D-5 on Coal and Coke and is the direct responsibility of Subcommittee D05.07 on Physical Characterization and Beneficiation of Coal and Coal Slurries.

Current edition approved Nov. 27, 1987. Published January 1988.

<sup>2</sup> For powdered or pulverized coal as is fired into steam boilers, refer to Method D 197.

<sup>3</sup> Annual Book of ASTM Standards, Vol 05.05.

<sup>4</sup> Annual Book of ASTM Standards, Vols 05.05 and 14.02.

<sup>5</sup> Available from Commonwealth of Pennsylvania, Dept. of General Services, Bureau of Purchases, 414 N. Office Building, Harrisburg, PA 17125.

has not been through a breaker which normally rejects oversize) is considered to be raw coal. Coal delivered to the surface from an underground mine is considered to be raw coal even when crushing and grinding is done underground. Coal removed from the pit of a surface mine is considered to be raw coal even when breaking and crushing facilities are provided in the pit.

3.8 *run-of-mine (ROM) coal*—in the case of an underground mine, it is that coal delivered to the surface by a slope belt, hoist, etc. In the case of a surface mine, it is that coal as it exists after it has been removed from the pit and placed into the initial means of transportation whether it be an on-the-road or off-the-road haul truck, dump hopper which feeds a pit-to-plant conveyor, etc. For both underground and surface mines, ROM coal is as-mined and has not been exposed to any treatment such as breaking, crushing, or cleaning except for that done by the normal operations used to extract the coal from the ground, that is, blasting, ripping, loading, cutting, etc.

3.9 *topsize, nominal*—the sieve designating the upper limit or topsize shall be that sieve of the series given in Section 6 with the smallest openings upon which is cumulatively retained a total of less than 5 % of the sample. This defined topsize is not to be confused with the size of the largest particle in the lot.

3.10 *wet sieving*—for the purposes of this test method, the test method for the sieving of coal that uses water as a medium for facilitating the segregation of the sample into particle sizes; this is generally used when testing coal particles 600  $\mu\text{m}$  (No. 30 U.S.A. Standard Series) or smaller.

#### 4. Significance and Use

4.1 This test method concerns the sieving of coal into designated size fractions for the purpose of characterizing the material as to its particle size distribution for further processing or for commercial purposes. This is covered in Part A of this standard. Raw, as well as prepared (crushed, cleaned, or screened), coals can be tested by this test method.

4.2 This test method is applicable for all types of coals, except for pulverized coals (see Method D 197) such as fed into steam boilers. Low rank coals, that is, lignites, subbituminous, and high volatile bituminous C, must be dried with caution and handled with care to minimize deterioration or size degradation during sieving.

4.3 This test method is applicable for the wet or dry-sieving of coal at sizes from 200 mm (8 in.) to 38  $\mu\text{m}$  (No. 400 U.S.A. Standard). Methods for sizing materials below 38  $\mu\text{m}$  are outside the scope of this test method.

NOTE 2—The sizing of material that passes the 38  $\mu\text{m}$  sieve is normally performed by optical microscopy, sedimentation, centrifugation, light scattering or obfuscation, surface area measurement, or other such methods. Subsieve techniques are also used sometimes.

4.4 This test method also concerns the designation of a coal sample as to its upper (nominal top-size) and lower (nominal bottom-size) limiting sizes for the purpose of characterizing the material for further processing or for commercial purposes. This is covered in Part B of this test method. Anthracite coal is further designated by a one word descriptive term (see 14.4).

4.5 Enough material may not be collected by this test method to meet subsequent test procedures, such as wash-

ability analyses (Test Method D 4371).

#### PART A. SIEVE ANALYSIS OF COAL

#### 5. Apparatus

##### 5.1 Sieves:

##### 5.1.1 Wire Cloth Sieves:

5.1.1.1 Standard test sieves that conform to Specification E 11 shall always be used.

5.1.1.2 For most sieve tests, where the largest particle in the sample does not exceed 25 mm (1 in.), standard 203-mm (8-in.) diameter, 50-mm (2-in.) deep sieves or sieves with larger diameters (for example 300 mm (12 in.) or 450 mm (18 in.)) are recommended. For special cases, and with small samples, 75-mm (3-in.) and 150-mm (6-in.) diameter sieves are available.

5.1.1.3 Standard test sieves shall be made from either brass or stainless steel frames and either brass, phosphor bronze, or stainless steel cloth.

5.1.1.4 In general, these square mesh sieves are used when sizing with sieves with openings smaller than 6.3 mm ( $\frac{1}{4}$  in.). U.S.A. Standard Sieve Designations shall be used.

5.1.1.5 For more complete details of standard test sieves, including methods of checking and calibrating the sieves, see Specification E 11.

##### 5.1.2 Perforated Plate Sieves:

5.1.2.1 Perforated plate sieves, made to conform to Specification E 323, are available with square apertures from 125 mm (5 in.) to 3.36 mm (0.132 in.) and with staggered round apertures from 125 mm (5 in.) to 1 mm (0.038 in.). The sizes of successive apertures in the series follow the same ratio as in Specification E 11 for sieves.

5.1.2.2 Standard frames for perforated plate sieves with apertures 4.00 mm and larger are made of hardwood or steel to hold 300-mm (12-in.), 400-mm (16-in.), or 450-mm (18-in.) square sieve plates. For apertures smaller than 4.00 mm, 203-mm (8-in.) circular frames as well as the above larger square frames may be used.

5.1.2.3 In general, round hole sieves with staggered openings are used when sizing with sieves with opening diameters of 6.3 mm ( $\frac{1}{4}$  in.) or larger.

5.1.2.4 Where perforated sieves and wire cloth sieves are used in the same test (for example, in an analysis from 125 mm (5 in.) to 250  $\mu\text{m}$  (No. 60)) or where results with perforated sieves are to be compared with results with wire cloth sieves, it is better to use only square aperture sieves.

NOTE 3—This action should be taken primarily while performing sieving analyses on noncommercial samples, as, for instance, in preparation plant component studies (see 6.5.1). In commerce, mixed series are still customary (see 6.1.1 and 6.3.1).

5.1.2.5 Results with a given square aperture and with the same diameter round aperture are not compatible. Therefore, all reports of sieve analysis data are incomplete without designation as to the type of sieves employed (round or square openings).

5.1.2.6 Aperture sizes of some sieves for anthracitic coal (6.3.2.1) do not conform to Specification E 323.

##### 5.2 Mechanical Sieve Shaker:

5.2.1 Mechanical sieve shakers are used in practically all laboratories where frequent tests are made. They not only eliminate tedious hand labor, but, when properly used, will

produce more consistent results than hand sieving. They can, however, result in excessive sample degradation when proper precautions are not taken. Therefore it is important to establish and to monitor the sieving amplitude and the sieving time.

5.2.2 There are several general types of mechanical sieve shakers. One type is designed to simulate hand sieving by using a circular motion combined with a tapping action. This type of mechanical sieve shaker is acceptable.

5.2.3 A type of sieve shaker which will handle a stack of either round or rectangularly framed sieves and produces a vigorous agitation is especially suitable for handling large samples of coarse material. This type of mechanical sieve shaker is acceptable for handling large samples provided it is not overloaded and provided agitation time is limited so that degradation of the coal being sieved does not occur (see 11.3.5).

NOTE 4—Some manufacturers can supply machines with reduced amplitude of vibration or variable speeds, or both, for soft materials.

5.2.4 Mechanical sieve shakers can generally be classified into two types: batch (acceptable) and continuous (unacceptable).

5.2.4.1 *Batch*—Batch mechanical sieve shakers are those in which a controlled quantity of coal is placed into the apparatus and mechanical action is initiated. After a controlled time period, mechanical action is completed and the size fractions are removed from the horizontal sieves. These types of mechanical sieve shakers are acceptable.

5.2.4.2 *Continuous*—Continuous mechanical sieve shakers are unacceptable for the purpose of this test method. Continuous mechanical sieve shakers are those in which a continuous stream of coal is fed into the apparatus and over a set of inclined sieves. The retention time on these sieves depends upon the degree of inclination, the throw of the sieves, and the frequency of mechanical action. The various size fractions are collected in individual containers in a continuous stream.

## 6. Standard Series of Sieves

### 6.1 Crushed Bituminous, Subbituminous, and Lignitic Coals:

6.1.1 For crushed bituminous, subbituminous, and lignitic coals, the standard series of sieves shall utilize round-hole perforated plate sieves for sieves with opening diameters of 6.3 mm (¼ in.) or larger and wire-cloth (U.S.A. Standard) sieves with square openings for sieves with open-

ings smaller than 6.3 mm (¼ in.).

6.1.2 For the purpose of simplifying communication between concerned parties, the following series of sieves shall be considered as the standard series for crushed bituminous, subbituminous and lignitic coals:

#### Round Hole Perforated Plate Sieves

200 mm (8 in.)	37.5 mm (1½ in.)
150 mm (6 in.)	31.5 mm (1¼ in.)
125 mm (5 in.)	25.0 mm (1 in.)
100 mm (4 in.)	19.0 mm (¾ in.)
75 mm (3 in.)	12.5 mm (½ in.)
63 mm (2½ in.)	9.5 mm (⅜ in.)
50 mm (2 in.)	6.3 mm (¼ in.)

#### Wire Cloth (U.S.A. Standard) Sieves with Square Openings

4.75 mm (No. 4)	300 µm (No. 50)
2.36 mm (No. 8)	150 µm (No. 100)
1.18 mm (No. 16)	75 µm (No. 200)
600 µm (No. 30)	38 µm (No. 400)

6.1.3 For crushed bituminous, subbituminous, and lignitic coals, an alternate standard series of sieves can utilize square-hole perforated plate or steel-wire sieves for sieves with openings of 6.3 mm (¼ in.) or larger and wire cloth (U.S.A. Standard) sieves for sieves with openings smaller than 6.3 mm (¼ in.). This alternate series shall use sieves with openings of the same dimensions as those given in 6.1.2. When this alternate series of square openings is used, the report must include this information.

6.1.3.1 Since round hole 6.3-mm (¼-in.) perforated plate sieves produce undersize of approximately the same amount as 4.75-mm (No. 4 U.S.A. Standard) wire cloth sieves, that is, these sieves are nearly equivalent, it is not necessary to utilize both 6.3-mm (¼ in. round) perforated plate and 4.75-mm (No. 4 U.S.A. Standard) wire cloth sieves simultaneously. The selection of either will be sufficient.

#### 6.2 Coal Used as Coke Oven Charge:

6.2.1 For coal that will be used as a coke oven charge, the standard series of sieves shall utilize square-hole perforated plate or steel-wire sieves with openings of 6.3 mm (¼ in.) or larger and wire cloth (U.S.A. Standard) sieves for sieves with openings smaller than 6.3 mm (¼ in.).

6.2.1.1 Typical coke oven charge is 80 % minus 3.2 mm (¼ in. round). For the purpose of identifying compliance with this criteria of 80 % passing ¼ in. round, it should not be necessary to use sieves larger than 4.75 mm (No. 4 U.S.A. Standard). To designate the topsize of this charge according to Part B of this test method (Section 14), it may be necessary to use larger sieves. It is recommended that sieving be done initially at 4.75 mm (No. 4 U.S.A. Standard), then progressively sieve the oversize through the next larger sieve until the 5 % criteria of 4.8 is met.

6.2.2 For the purpose of simplifying communication between concerned parties, the following series of sieves shall be considered as the standard series for coal that will be used as a coke oven charge:

#### Square Hole Perforated Plate Sieves

50.0 mm (2 in.)
37.5 mm (1½ in.)
25.0 mm (1 in.)
19.0 mm (¾ in.)
12.5 mm (½ in.)
9.5 mm (⅜ in.)
6.3 mm (¼ in.)

TABLE 1 Size Designation, Anthracitic Coal

Size	Size of Round-Hole Openings in Testing Sieves, mm (in.)	
	Passing	Retained On
Egg	83 (3¼) <sup>A</sup>	62 (2½)
Stone	62 (2½)	41 (1½)
Chestnut	41 (1½)	21 (¾)
Pea	27 (¾)	14 (⅝)
Buckwheat #1	14 (⅝)	8 (⅜)
Buckwheat #2 (Rice)	8 (⅜)	4.8 (⅜)
Buckwheat #3 (Barley)	4.8 (⅜)	2.4 (¼)
Buckwheat #4	2.4 (¼)	1.2 (⅛)

<sup>A</sup> Listed in Specification E 323, Table 1.

6.2.2.1 Smaller sizes shall conform to specifications for wire-cloth sieves (U.S.A. Standard) with square openings, and are the same as those in 6.1.2.

6.3 Anthracitic Coal:

6.3.1 For anthracitic coal, the standard series of sieves shall utilize round-hole perforated plate sieves.

6.3.1.1 Sieve plates mounted in hardwood or steel box frames 40.6 to 50.8 cm (16 to 20 in.) square are satisfactory for testing chestnut, pea, and buckwheat sizes of anthracitic coal. For egg and stove sizes (see Table 1), it is more convenient to use sieves with frames that are square or rectangular in shape having an area of 0.37 to 0.56 m<sup>2</sup> (4 to 6 ft<sup>2</sup>).

6.3.2 For the purpose of simplifying communication between concerned parties, the following series of sieves shall be considered as the standard series for anthracitic coal:

Round Hole Perforated Plate Sieves

83 mm (3 1/4 in.)
76 mm (3 in.) <sup>4</sup>
62 mm (2 7/16 in.)
41 mm (1 1/2 in.)
21 mm (1 3/16 in.)
14 mm (9/16 in.)
8 mm (5/16 in.) <sup>4</sup>
4.8 mm (3/16 in.) <sup>4</sup>
2.4 mm (3/32 in.)
1.2 mm (1/64 in.)

<sup>4</sup> Listed in Specification E 323.

6.3.2.1 These standard anthracitic coal sieve sizes are those specified by Commonwealth of Pennsylvania Specification C 80.

6.4 Additional Sieves—Additional sieves are required if a discontinuity(ies) or deviation(s), or both, from a normal gradation of sizes is (are) found. For sieves below 6.3 mm (1/4 in.), additional wire-cloth sieves can be selected from Table 1 of Specification E 11. For sieves above 6.3 mm (1/4 in.), additional round or square hole perforated plate sieves may be selected from Table 1 of Specification E 323.

6.5 Other Shapes—Other opening shapes can more fully characterize the coal (oval, rectangular, etc.). They shall only be used by agreement between the concerned parties.

6.5.1 The use of round hole sieves in plant sizing operations has been a common practice and much data has been established. However, newer plants, most coking operations, and mathematical treatment of comminution studies use the square hole sieves. For comparison purposes, round hole openings may be calculated to an approximation of the square opening in accordance with the following formula:

$$\frac{\text{round opening, mm}}{1.25} = \text{square opening, mm}$$

6.5.1.1 Due to differences in particle shape peculiar to individual coal types, 1.25 is not always the best factor to use when converting between round hole and square hole openings. The normal range for this factor varies from 1.17 to 1.26. It is best to determine this conversion factor for any coal in question by determining the sieve analysis alternatively using first round and then square openings.

6.5.1.2 When specifying preparation plant components that utilize wire mesh, Tyler mesh designations are often used rather than U.S.A. Standard. Table 2 shows the comparison of Tyler mesh designations with the U.S.A.

TABLE 2 Comparison Table of U.S.A. Standard with Tyler Sieve Series

U.S.A. Standard Series		Tyler
Standard	Alternate	
5.60 mm	No. 3 1/2	3 1/2 mesh
4.75 mm	No. 4	4 mesh
4.00 mm	No. 5	5 mesh
3.35 mm	No. 6	6 mesh
2.80 mm	No. 7	7 mesh
2.36 mm	No. 8	8 mesh
2.00 mm	No. 10	9 mesh
1.70 mm	No. 12	10 mesh
1.40 mm	No. 14	12 mesh
1.18 mm	No. 16	14 mesh
1.00 mm	No. 18	16 mesh
850 μm	No. 20	20 mesh
710 μm	No. 25	24 mesh
600 μm	No. 30	28 mesh
500 μm	No. 35	32 mesh
425 μm	No. 40	35 mesh
355 μm	No. 45	42 mesh
300 μm	No. 50	48 mesh
250 μm	No. 60	60 mesh
212 μm	No. 70	65 mesh
180 μm	No. 80	80 mesh
150 μm	No. 100	100 mesh
125 μm	No. 120	115 mesh
106 μm	No. 140	150 mesh
90 μm	No. 170	170 mesh
75 μm	No. 200	200 mesh
63 μm	No. 230	250 mesh
53 μm	No. 270	270 mesh
45 μm	No. 325	325 mesh
38 μm	No. 400	400 mesh

Standard designation based on the aperture sizes of each type. U.S.A. Standard Series designations shall always be used. Tyler mesh designations are also to be given where necessary for clarity.

6.6 Frames conforming to criteria in Specification E 11 or Specification E 323 shall be used with applicable sieves.

6.7 Suitable pans and covers as applicable to fit specific sieves shall be used as required by Specification E 11 or Specification E 323.

7. Gross Sample

7.1 Collect the gross sample in accordance with the principles of Methods D 2234.

NOTE 5—ASTM methods for collection of gross samples from stockpiles, cartops, etc. (stationary sampling) are being developed. When these methods are available, application of those standards will be required for stationary sampling.

7.2 Accurate sampling is of the greatest importance and is the basic requirement for reliable sieve analyses. Take great care to obtain samples that are representative of the batch or lot being tested. The greatest cause of inconsistencies in test results is improper sampling that does not represent the material being tested. Therefore, once a sampling procedure has been established, this same procedure is followed during subsequent sampling.

7.3 The quantity or mass of a gross sample will depend on the character of the material and the form in which it is available and also on whether the test is to determine the particle size distribution of a pile, batch, shipment, day's production, or a short span of time for production control.

The range of quantity or mass of a gross sample can be as much as several thousand kilograms or it may be as little as a fraction of a kilogram.

7.4 Collect increments regularly and systematically, so that the entire quantity of coal sampled will be represented proportionately in the gross sample, and with such frequency that a gross sample of the required amount shall be collected. Collect not less than the number of increments specified in Table 2 of Methods D 2234.

7.5 When the coal is passing over a conveyor or through a chute, take increments which include the full width and thickness of the stream of coal, either by stopping the conveyor and removing all coal from a transverse section of it or by momentarily inserting a suitable container into the stream and withdrawing the sample. When it is impracticable to collect increments the full width and thickness of the coal stream, collect the increments systematically from all portions of the stream.

7.6 The method of collection of the gross sample shall be such as to produce a minimum of degradation.

7.7 The probability of collecting representative portions (samples) for sieve analysis is less from the surface of coal in piles or from loaded cars or bins than from a moving stream of coal. Where possible, sample such that the full volume of coal in the lot being sampled is represented in the final sample.

### 8. Weight of Gross Sample

8.1 The weight of the gross sample collected shall conform to the general principles of Methods D 2234. Usually the minimum masses to be collected are those given in Table 3. For lots of coal greater than 10 000 tons, the interested parties shall agree on the method to be used for collection and division of the gross sample prior to sieve analysis. In such cases, the following information shall be included on the analysis report:

- 8.1.1 Total weight of lot sampled.
- 8.1.2 Number of sampling increments taken.
- 8.1.3 Total weight of sample taken.

NOTE 6—Precaution: Enough material may not be collected by this method to meet subsequent test procedures, such as determining the washability characteristics of coal (Test Method D 4371). See the weight required by proposed subsequent test methods prior to sampling for the sieve analysis.

TABLE 3 Gross Sample Quantity to be Collected for Crushed Coals Other than Anthracitic Coal<sup>a</sup>

Type of Coal	Minimum Mass Required
Run-of-mine coal	Not less than 1800 kg (4000 lb)
Screened coal with upper limit larger than 100 mm (4 in.) round	Not less than 1800 kg (4000 lb)
Coal smaller than 100 mm (4 in.) round	Not less than 900 kg (2000 lb)
Coal smaller than 50 mm (2 in.) round	Not less than 450 kg (1000 lb)
Coal smaller than 25 mm (1 in.) round	Not less than 215 kg (500 lb)
Coal smaller than 12.5 mm (½ in.) round	Not less than 45 kg (100 lb)
Coal smaller than 2.36 mm (No. 8 mesh, U.S.A. Standard)	Not less than 4.5 kg (10 lb)
Coal smaller than 600 µm (No. 30 mesh, U.S.A. Standard)	Not less than 0.5 kg (1 lb)

<sup>a</sup> For anthracitic coal, see 9.4.

### 9. Preparation and Division of Gross Sample into Test Sample for Sieving

9.1 When necessary for proper handling and division, air-dry the gross sample in accordance with Method D 2013.

9.2 In order to divide the gross sample into test samples, do sample division in accordance with the procedures outlined in Method D 2013 or Method D 2234.

NOTE 7—Precaution: Never reduce the topsize of a sample to be used for size analysis, that is, decreasing the quantity of a sample is allowed as long as the remaining portion is representative of the material sampled, but reduction in topsize is never allowed.

9.3 Samples may be divided according to the following schedule:

9.3.1 *Coal Larger than 25 mm (1 in.) Round*—Sieve without mixing or dividing.

9.3.2 *Coal Smaller than 25 mm (1 in.) Round*—Divide in amount to not less than 56.6 kg (125 lb) by riffing or by arranging the sample in a long, flat pile and successively halving it or quartering it by the alternate-shovel method as follows: Starting at one end of the long pile, take successive shovelfuls from the long pile using a flat, straight-edged shovel (advancing a distance equal to the width of the shovel for each shovelful), and retain alternate shovelfuls or every fourth shovelful for the sample (see Plate 1 of Method D 346).

9.3.3 *Coal Smaller than 12.5 mm (½ in.) Round*—Divide to not less than 11.4 kg (25 lb) by passing it through a riffle or equally accurate dividing device, or by the alternate-shovel method as described in 9.3.2.

9.3.4 *Coal Smaller than 4.75 mm (No. 4) Sieve*—Divide to not less than 1000 g (2 lb) by riffing.

9.3.5 *Coal Smaller than 2.36 mm (No. 8) Sieve*—Divide to not less than 500 g (1 lb) by riffing.

9.4 For anthracitic coal, the laboratory samples for sieving shall consist of the following approximate minimum amounts:

Sample Quantity: Anthracitic Coal

Size (see Table 1)	Laboratory Sample Approximate Minimum Mass, kg (lb)
pea	22.7 (50)
buckwheat #1	11.3 (25)
buckwheat #2 (rice)	4.5 (10)

9.4.1 For sizes larger than pea, use Table 3.

9.4.2 For sizes smaller than buckwheat # 2 (rice) use Table 3.

### 10. Sample Preparation

10.1 When the test sample is not dry and free flowing because of moisture, dry in accordance with Method D 2013. The air drying apparatus shall conform to Method D 2013. For air-drying ovens, drying temperatures shall be maintained at 10 to 15°C (18 to 27°F) above room temperature with a maximum temperature of 40°C (104°F), unless ambient temperature is above 40°C (104°F) in which case ambient temperature shall be used.

10.1.1 Sufficient dryness for bituminous coals has been found to be that point during the drying process when all apparent wetness is gone and when dust appears when representative portions of the coal are dropped from a height of 150 mm (about 6 in.).

**APPENDIX B**

**BERGMANN USA SAMPLE PREPARATION/SIEVE ANALYSIS**

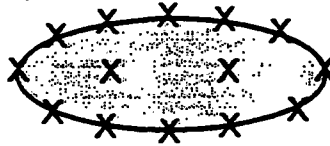


## Sample Preparation / Sieve Analysis

A1. Weigh the plus 1/4" material. \_\_\_\_\_ lbs.

A3. Place all -1/4" material on a large sheet of plastic or paper. Roll the material around on the paper by lifting each corner of the paper. Do this for about 30 times until the material looks well homogenized.

A4. Sample about 1500 grams of material from this homogenized pile by scooping a little from each point shown below:



A5. Set remainder of pile aside.

### Sieve Analysis

A6. Using the sample splitter, split the 1500 grams collected from the pile into two piles. Select one of these two piles for analysis. The analysis procedure is as follows:

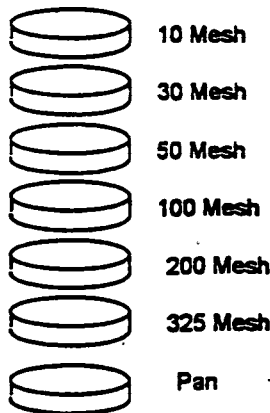
A7. Weigh the material on the electronic balance (it should be close to 750 grams +/- 15 grams). Record the weight. \_\_\_\_\_ grams.

A8. Place about 50 grams of material on a 325 Mesh sieve. Wet sieve this material using a Gilson spray head attached to the water faucet. Collect all of the fines in a 5 gallon bucket(s). Repeat this until all of the +/- 750 gram sample has been wet sieved.

A9. Filter and dry (oven temperature around 100° F) the +325 mesh. Record dry weight \_\_\_\_\_ grams. Set aside.

A10. Filter and dry the -325 mesh. Record dry weight \_\_\_\_\_ grams. Set aside.

A11. Assemble a nest of 8" sieves to include the following sieves:





**A12. Place no more than 100 grams of the dried +325 mesh onto the #10 sieve. Place nest of sieves on Ro-Tap shaker. Turn on Ro-Tap for 15 minutes. After 15 minutes, remove nest of sieves. Weigh amount of material on each sieve and record in following table:**

Sieve #	Weight, grams
10	
30	
50	
100	
200	
325	
pan	

**Please keep all size fractions in separate plastic bags.  
Repeat Ro-tap and weighing until all +325 mesh is sieved.**

**Save the samples in the following manner:**

**A13. In sample jars:**

- +/- 750 grams not sieved
- +10 Mesh
- 10 X 30 Mesh
- 30 X 50 Mesh
- 50 X 100 Mesh
- 100 X 200 Mesh
- 200 X 325 Mesh
- - 325 mesh filter cake and any -325 from the sieve analysis

**A14. In a pail or bucket(s):**

- the large pile of -1/4" from which the sieve samples were cut.

### **More Sample Preparation!**

**A15. Change out the Derrick screen and put on the 170 mesh cloth. Mix up a slurry of the -1/4" material which was stored in buckets after the seive procedure. Slowly pour slurry across Derrick Screen. The unders should be collected in a large clean drum (be careful not to overflow this drum – all material must be contained). The overs should be collected in a pail. If the overs appear "slimy" it may be necessary to repeat the procedure.**

**Once the material has been deslimed on the Derrick to the following:**

#### **Oversize**

**A16. Filter the overs and let air dry (drying may take 24 hours).**

**Once again, place entire pile on a plastic sheet. Roll from corner to corner. Sample from around the pile so that you end up with 10 or 12 samples each weighing about 1500 grams. Store each sample in a plastic bag and label \_\_\_\_\_.**



**Undersize**

**A17. Let the drum or drums containing the slimes settle for a day or two so that the clear water on the top can be siphoned or pumped off into other lined 55 gallon drums. Label Drums \_\_\_\_\_.**

**A18. Remove the slimes as best as possible. Store in 5 gallon pails. Label \_\_\_\_\_.**

**☺ This completes the sample preparation and sieve analysis. The next step is to perform the attrition scrubbing tests.**

**APPENDIX C**

**BERGMANN USA ATTRITION SCRUBBING PROCEDURE**

## Attrition Scrubbing Procedure

---

**A19.** Select one of the bagged samples from step A16. Split out approximately 300 grams and record the exact weight. This weight is will be called T. Reseal the remaining 1200 grams in the plastic bag and set aside for scrubbing.

$$T = \underline{\hspace{2cm}} \text{grams}$$

**A20.** Place the small sample from A19 into an oven at 120°F. When material appears bone dry, remove from oven and weigh. This weight will be called  $\Phi$ .  $\Phi = \underline{\hspace{2cm}} \text{grams}$

**A21.** Calculate and record solids content of sample. Solids content will be called  $\epsilon$ .

$$\epsilon = (\Phi/T) \times 100$$
$$\epsilon = \underline{\hspace{2cm}} \%$$

**A22.** Retrieve sample to be scrubbed and weigh for an exact weight. Record weight,  $\theta$ ,  $\underline{\hspace{2cm}} \text{grams}$

**A23.** Calculate dry weight, F, of scrubbing test charge.

$$F = \theta (\epsilon / 100)$$
$$F = \underline{\hspace{2cm}} \text{grams}$$

**A24.** For 2.7 gravity materials such as sand, scrubbing should be done at or near 70% solids by weight. Therefore, water should be added to the scrubber charge. The amount of water necessary to bring the charge to 70% solids is found by:

$$H_2O = (F / 0.7) - \theta$$
$$H_2O = \underline{\hspace{2cm}} \text{ml}$$

**A25.** Place the charge of material into the attrition cell. Add the appropriate amount of water calculated in A24. Lower attrition prop into cell. Add reagents if necessary. Cover cell. Scrub for 15 minutes at 900 RPM.

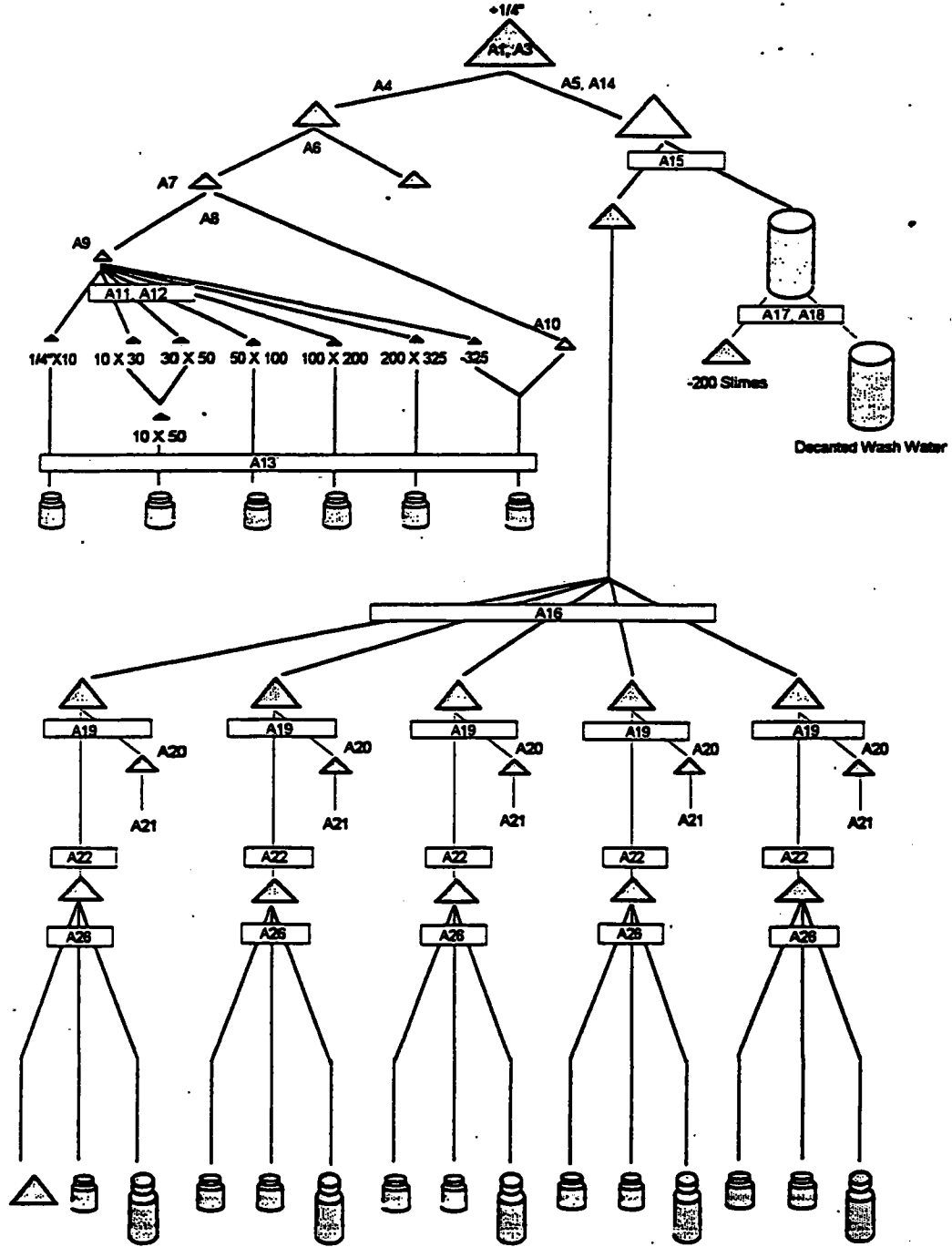
**A26.** After scrubbing, wet sieve contents of cell on a 200 mesh screen. Collect all wash water in a clean pail. Place +200 mesh into sample bottle.

**A27.** Filter -200 on sharkskin filter paper in the pressure filter. Collect filtrate in a clean pail. After filtering is complete, place -200 mesh into sample jar and collect 2 litres of filtrate in two 1 litre sample jars.

**A28.** If this is a double scrub test, repeat steps A19 through A27. Note, for step A19, split out 100 grams maximum for moisture determination.



**General Road Map of Sample Prep, Size Analysis, and Attrition Scrubbing**



**APPENDIX D**

**INITIAL CHARACTERIZATION DATA FOR  
TREATABILITY STUDY TEST DATA**

**Moss-American Site  
Milwaukee, Wisconsin**

**Initial Characterization Data for  
Treatability Study Test Matrix**

**(Predesign Task 16 - Bioslurry and Soil  
Washing Phase I Treatability Evaluation)**

**4 November 1992**

**(Amended January 1993)**

**Table 1**

**Summary of Test Pit Composite Samples  
Evaluated for Selection of  
Treatability Test Matrix**

<b>Composite Sample</b>	<b>Test Pits Sampled to Form Composite</b>	<b>Total CPAH Concentration (mg/kg)</b>
S01	TP12, TP13, TP14, and TP15	57.4
S02	TP8	506.7
S03	TP3	197.4
S04	TP12, TP13, TP14, TP15, TP8, TP3	122.8

**Notes:**

- Composite samples "S02" and "S03" were selected as the treatability study test matrix designated as "TT-TS01" (Bioshurry) and "BRG-TS01" (Soil Washing).
- A second soil washing treatability study test matrix was formulated by compositing samples from test pits designated as TP4, TP5, TP6, TP11, TP12, and TP15. This test matrix is designated as "BRG-TS02".



**Table 2**

**Summary of Bioslurry and Soil Washing  
Treatability Study Sample Chemical Characterization  
Moss-American Site  
Milwaukee, Wisconsin**

Parameter	Units	Sample Designation		
		IT-TS01	BRG-TS01	BRG-TS02
% Solids	%	65.4	58.8	85.1
Total Organic Carbon	%	6.1	6.6	6.2
pH	pH Units	6.9	7.1	NA
<b>PURGEABLE AROMATICS</b>				
Benzene	ug/kg	ND	ND	ND
Ethylbenzene	ug/kg	ND	ND	ND
Toluene	ug/kg	ND	ND	ND
Xylene (total)	ug/kg	ND	ND	ND

NA - Not applicable (parameter not analyzed).  
ND - Analyzed-not detected.

**Table 2**

**Summary of Bioslurry and Soil Washing  
Treatability Study Sample Chemical Characterization  
Moss-American Site  
Milwaukee, Wisconsin  
(Continued)**

Parameter	Units	Sample Designation		
		IT-TS01	BRG-TS01	BRG-TS02
<b>PAH</b>				
Naphthalene	ug/kg	23,000	30,000	57,000
Acenaphthylene	ug/kg	180,000	170,000	120,000
Acenaphthene	ug/kg	130,000	83,000	18,000
Fluorene	ug/kg	34,000	23,000	2,300 <sup>(1)</sup>
Phenanthrene	ug/kg	120,000	87,000	16,000
Anthracene	ug/kg	220,000	220,000	5,800
Fluoranthene	ug/kg	320,000	210,000	38,000
Pyrene	ug/kg	180,000	160,000	24,000
Benzo(a)anthracene	ug/kg	30,000	27,000	3,700
Chrysene	ug/kg	96,000	100,000	12,000
Benzo(b)fluoranthrene	ug/kg	33,000	48,000	12,000
Benzo(k)fluoranthrene	ug/kg	9,000	4,100	3,600
Benzo(a)pyrene	ug/kg	34,000	36,000	8,300
Dibenzo(a,b)anthracene	ug/kg	8,900	8,600	610
Benzo(ghi)perylene	ug/kg	12,000	11,000	10,000
Indeno(1,2,3-cd)pyrene	ug/kg	11,000	10,000	9,100
<b>Total PAH</b>	<b>mg/kg</b>	<b>1,440.9</b>	<b>1,227.7</b>	<b>340.41</b>
<b>Total CPAH</b>	<b>mg/kg</b>	<b>233.9</b>	<b>244.7</b>	<b>59.31</b>

NA - Not applicable (parameter not analyzed)

<sup>(1)</sup> - Analyzed-not detected at the detection limit of 4,700 µg/kg. For purposes of calculating total PAH/CPAHs, one-half the detection limit has been reported.

**Table 3**

**Geotechnical Tests Performed, Reference Methods and Test Numbers**

Test Parameter	Method <sup>1</sup>
Grain Size by Sieve and Hydrometer	D 421/422
Liquid and Plastic Limits	D 4318
Total Porosity	D 854/2937
Natural Moisture Content	D 2216

**WESTON ENVIRONMENTAL TECHNOLOGY LABORATORY**

**GEOTECHNICAL TESTING DATA AND RESULTS**

<b>PROJECT</b>	Moss American-Kerr McGee	<b>PROJECT SAMPLE I.D.</b>	Moss Amor-TS01	<b>PROJECT ANALYST</b>	SPM
<b>JOB NUMBER</b>	9200X011	<b>ETL SAMPLE NUMBER</b>	001	<b>QA/QC ANALYST</b>	RWF
<b>W. O. NUMBER</b>	02687-007-001	<b>DATE RECEIVED</b>	9/21/92	<b>DATE COMPLETED</b>	10/18/92

<b>PARTICLE SIZE DISTRIBUTION</b>		
<b>(U. S. Standard Sieve Size)</b>	<b>Diameter mm</b>	<b>% Finer</b>
3"	75.00	100.0
1 1/2"	37.50	100.0
3/4"	19.00	98.7
3/8"	9.500	84.2
#4	4.750	75.5
#10	2.000	65.8
#20	0.850	55.9
#50	0.300	44.7
#100	0.150	37.4
#200	0.075	32.9
<b>HYDROMETER</b>	0.0497	27.0
	0.0380	24.4
	0.0280	21.9
	0.0193	16.1
	0.0144	13.6
	0.0104	10.2
	0.0074	9.4
	0.0053	7.7
	0.0038	6.0
	0.0027	4.4
0.0018	3.5	
0.0011	2.7	

<b>EFFECTIVE SIZES</b>	
<b>% Finer</b>	<b>Diameter mm</b>
60	1.328
30	NA
10	NA
<b>Uniformity Coefficient</b>	<b>Gradation Coefficient</b>
NA	NA

<b>NATURAL MOISTURE CONTENT, % dry basis</b>
85.6

<b>SPECIFIC GRAVITY</b>
2.24

<b>SAMPLE DESCRIPTION</b>
dark brown (gravelly silty SAND) with 24% gravel and 33% silt, also contained organics (bark)
<b>Unified Soil Classification System (USCS) Group Symbol</b>
SM

<b>INDEX PROPERTIES</b>		
<b>% moisture dry basis</b>		
<b>Liquid Limit</b>	<b>Plastic Limit</b>	<b>Plasticity Index</b>
non-plastic, non-cohesive		

<b>BULK UNIT WEIGHT (disturbed, uncompactd)</b>		
<b>wet g/cc</b>	<b>wet pcf</b>	<b>dry pcf</b>
0.96	59.6	32.1

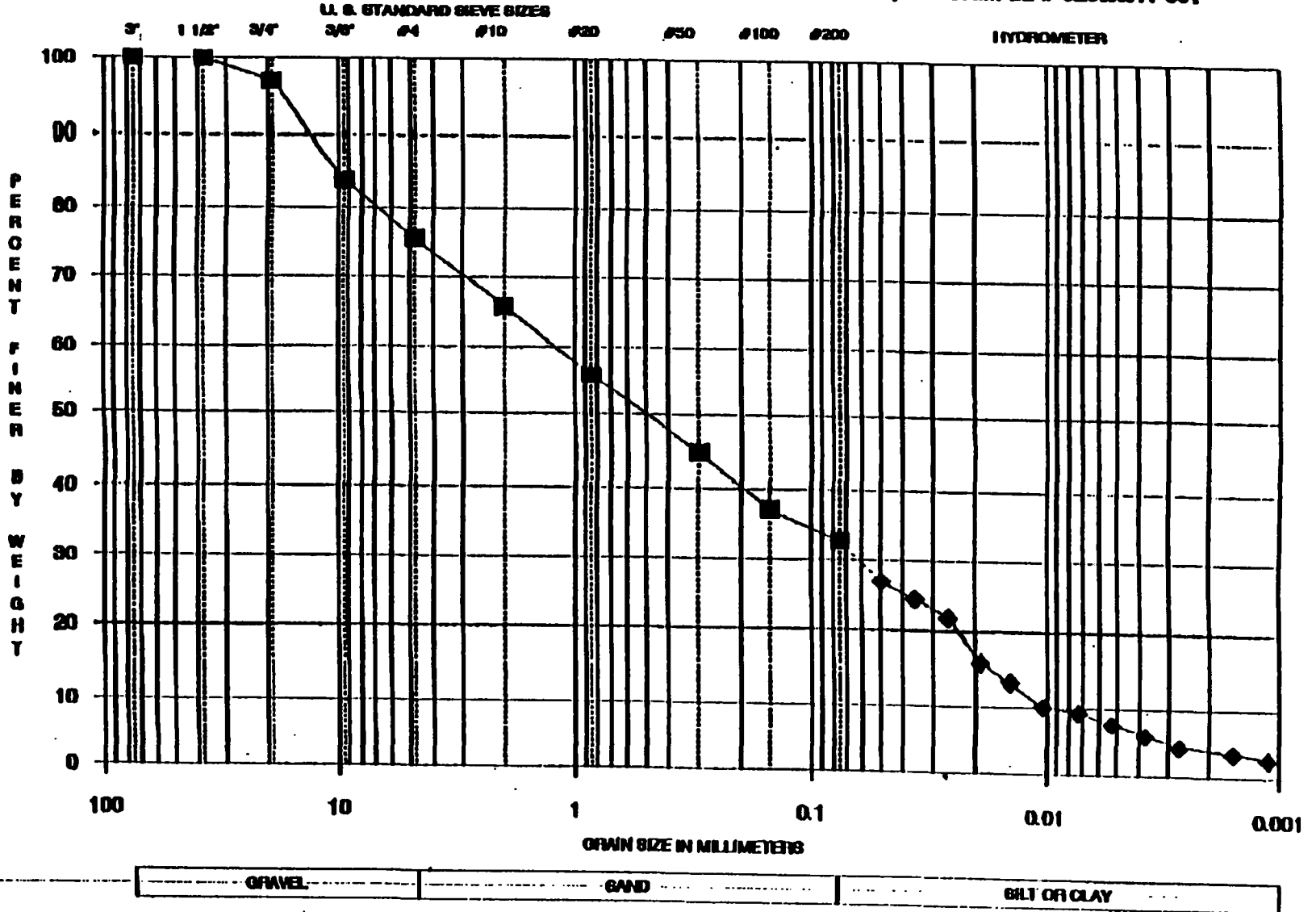
<b>POROSITY</b>		
<b>Void Ratio</b>	<b>Porosity, %</b>	<b>Saturation, %</b>
3.359	77.1	57.2

**NOTES**

NA - NOT APPLICABLE

WESTON ENVIRONMENTAL TECHNOLOGY LABORATORY

PARTICLE-SIZE DISTRIBUTION CURVE FOR  
MOSS AMERICAN-KERR MCGEE PROJECT SAMPLE MOSS AMER-TS01, ETL SAMPLE # 82060011-001



**WESTON ENVIRONMENTAL TECHNOLOGY LABORATORY**

**GEOTECHNICAL TESTING DATA AND RESULTS**

<b>PROJECT</b>	KERR McGEE	<b>PROJECT SAMPLE I.D.</b>	BRG-TSO2	<b>PROJECT ANALYST</b>	SPM
<b>JOB NUMBER</b>	82100004	<b>ETL SAMPLE NUMBER</b>	001	<b>QA/QC ANALYST</b>	RWF
<b>W. O. NUMBER</b>	02687-007-001	<b>DATE RECEIVED</b>	10/26/82	<b>DATE COMPLETED</b>	11/08/82

**PARTICLE SIZE DISTRIBUTION**

U. S. Standard Sieve Size	Diameter mm	% Finer
3"	75.00	100.0
1 1/2"	37.50	100.0
3/4"	19.00	100.0
3/8"	9.500	95.4
#4	4.750	83.1
#10	2.000	67.7
#20	0.850	55.0
#50	0.300	41.8
#100	0.150	34.4
#200	0.075	30.1
<b>HYDROMETER</b>	0.0502	23.2
	0.0360	21.9
	0.0262	17.4
	0.0187	15.5
	0.0140	11.7
	0.0100	10.7
	0.0072	8.9
	0.0051	5.9
	0.0036	5.9
	0.0026	4.0
0.0014	3.1	
0.0011	2.1	

**EFFECTIVE SIZES**

% Finer	Diameter mm
60	1.304
90	NA
100	NA
<b>Uniformity Coefficient</b>	<b>Gradation Coefficient</b>
NA	NA

**NATURAL MOISTURE CONTENT**

% dry basis	% wet basis
97.1	27.1

**TOTAL SOLIDS**

% by weight
72.9

**SPECIFIC GRAVITY**

2.37
------

**SAMPLE DESCRIPTION**

Brown gravelly silty SAND with 17% gravel and 30% silt of slight plasticity

Unified Soil Classification System (USCS)  
Group Symbol

SM

**INDEX PROPERTIES**

% moisture dry basis		
Liquid Limit	Plastic Limit	Plasticity Index
44.8	30.2	6.4

**BULK UNIT WEIGHT (disturbed, uncompactd)**

wet g/cc	wet pcf	dry pcf
1.1	70.5	51.4

**POROSITY**

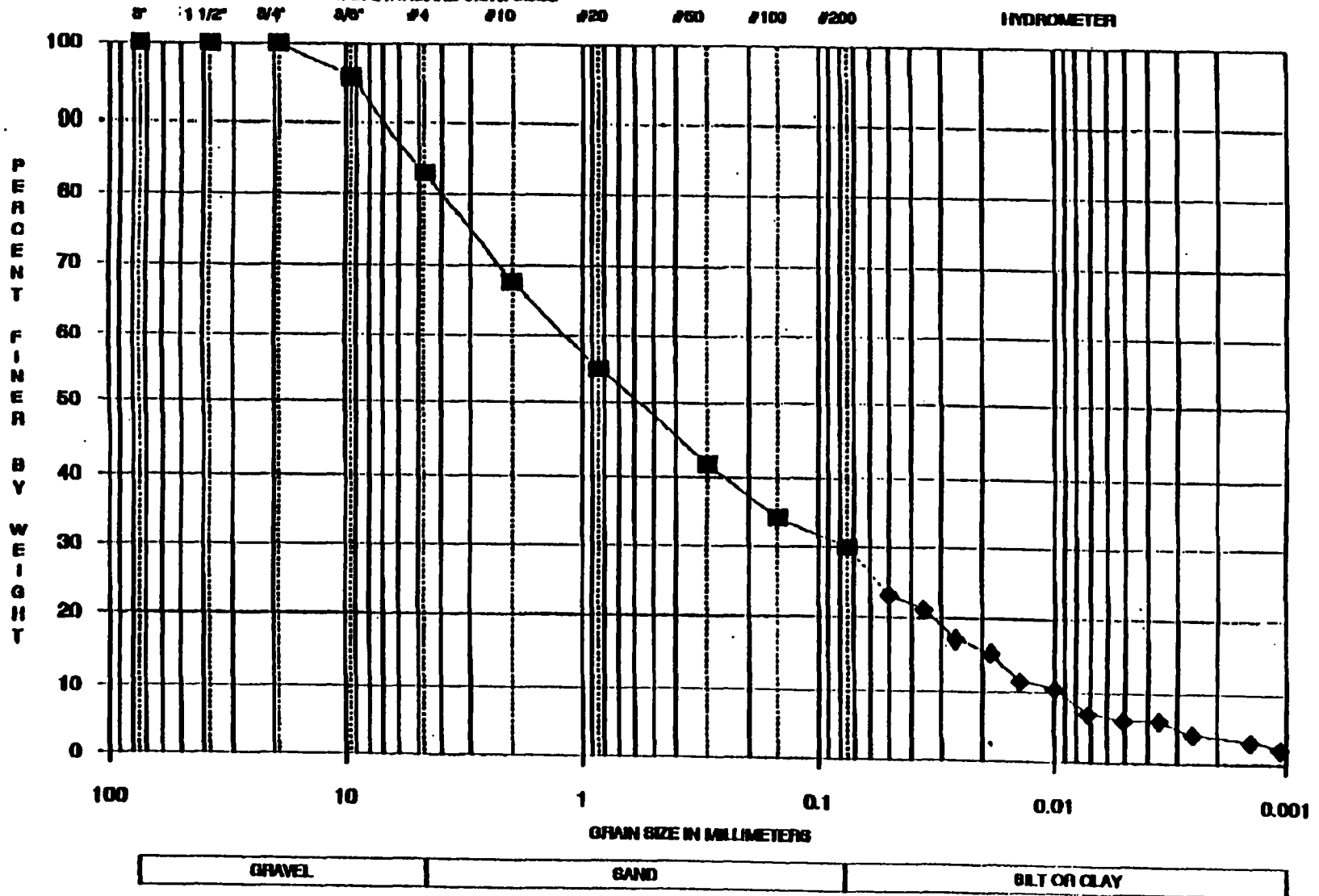
Void Ratio	Porosity, %	Saturation, %
1.9	65.3	46.9

**NOTES**

NA - NOT APPLICABLE

WESTON ENVIRONMENTAL TECHNOLOGY LABORATORY

PARTICLE-SIZE DISTRIBUTION CURVE FOR  
 KERR-MCGEE PROJECT SAMPLE BRQ-TSO2, ETL SAMPLE # 9210X004-001  
 U. S. STANDARD SIEVE SIZES





# BERGMANN USA

1550 AIRPORT ROAD  
 GALLATIN, TN 37066  
 Phone (615)230-2100  
 Fax (615)230-2101

05/12/93 10:45 AM

Client: MOSS-AMERICAN SITE  
 Location: WASTE MATERIAL  
 Sample of: BRG-TS01  
 Sp. Gr. of Solids: 2.6  
 Total Sample Weight: 0 Pounds 0 Ounces  
 Less Tare Weight: 0 Grams  
 Wet Sample Weight: 0.00 Grams  
 Total Dry Weight Solids: 0 Grams  
 Percent Solids (by wt.): ERR (by wt) ERR (by vol)  
 Wt. of Sieved Sample: 537.25 Grams

US MESH	TYLER MESH	MICRON	INDIV. WEIGHT	INDIV. % RETAINE	CUM. % RETAINE	CUM. % PASSING
4	4	4760	0.00	0.00%	0.00%	100.00%
6	6	3360	0.00	0.00%	0.00%	100.00%
8	8	2380	0.00	0.00%	0.00%	100.00%
12	10	1700	154.67	28.79%	28.79%	71.21%
16	14	1180	0.00	0.00%	28.79%	71.21%
20	20	841	0.00	0.00%	28.79%	71.21%
30	28	595	101.49	18.89%	47.68%	52.32%
40	35	420	0.00	0.00%	47.68%	52.32%
50	48	297	29.76	5.54%	53.22%	46.78%
70	65	212	0.00	0.00%	53.22%	46.78%
100	100	149	65.60	12.21%	65.43%	34.57%
140	150	106	0.00	0.00%	65.43%	34.57%
200	200	74	15.15	2.82%	68.25%	31.75%
270	270	53	0.00	0.00%	68.25%	31.75%
325	325	45	31.92	5.94%	74.19%	25.81%
400	400	38	0.00	0.00%	74.19%	25.81%
500	500	25	0.00	0.00%	74.19%	25.81%
635	635	20	0.00	0.00%	74.19%	25.81%
PAN	PAN	0	138.66	25.81%	100.00%	0.00%





# BERGMANN USA

1550 AIRPORT ROAD  
 GALLATIN, TN 37066  
 Phone (615)230-2100  
 Fax (615)230-2101

05/12/93 10:40 AM

Client: MOSS-AMERICAN SITE  
 Location: WASTE MATERIAL  
 Sample of: BRG-TS02  
 Sp. Gr. of Solids: 2.6  
 Total Sample Weight: 0 Pounds 0 Ounces  
 Less Tare Weight: 0 Grams  
 Wet Sample Weight: 0.00 Grams  
 Total Dry Weight Solids: 0 Grams  
 Percent Solids (by wt.): ERR (by wt) ERR (by vol)  
 Wt. of Sieved Sample: 560.55 Grams

US MESH	TYLER MESH	MICRON	INDIV. WEIGHT	INDIV. % RETAINE	CUM. % RETAINE	CUM. % PASSING
4	4	4760	0.00	0.00%	0.00%	100.00%
6	6	3360	0.00	0.00%	0.00%	100.00%
8	8	2380	0.00	0.00%	0.00%	100.00%
12	10	1700	133.00	23.73%	23.73%	76.27%
16	14	1180	0.00	0.00%	23.73%	76.27%
20	20	841	0.00	0.00%	23.73%	76.27%
30	28	595	120.03	21.41%	45.14%	54.86%
40	35	420	0.00	0.00%	45.14%	54.86%
50	48	297	68.90	12.29%	57.43%	42.57%
70	65	212	0.00	0.00%	57.43%	42.57%
100	100	149	53.87	9.61%	67.04%	32.96%
140	150	106	0.00	0.00%	67.04%	32.96%
200	200	74	37.74	6.73%	73.77%	26.23%
270	270	53	0.00	0.00%	73.77%	26.23%
325	325	45	17.32	3.09%	76.86%	23.14%
400	400	38	0.00	0.00%	76.86%	23.14%
500	500	25	0.00	0.00%	76.86%	23.14%
635	635	20	0.00	0.00%	76.86%	23.14%
PAN	PAN	0	129.69	23.14%	100.00%	0.00%

**APPENDIX E**

**PRODUCT AND MSDS INFORMATION SHEETS**



# MONTGOMERY CHEMICAL

## MARINE & INDUSTRIAL CHEMICALS

# PRODUCT INFORMATION SHEET

## MONCOSOLVE 210

### Specifications: THIS PRODUCT IS UNIQUE

Oder:	Pleasant citrus odor
Emulsifiers:	Yes
Water Content (as is):	NONE
Free Caustic	None
Free acid:	None
Enzymes:	None
Solvent type:	Terpenes (Alpha Pinene, Sabinene, Myrcene, Limonene, Octane and some high & low boilers > 2.5%)
Effect on Beneficial Digestive Bacteria In Sewage Systems	None
Biodegradable solvent:	Yes
Flash point:	Moncosolve 210, 145 °F
FACTS THAT FAVOR MONCOSOLVE 210	No petroleum solvents, food or medical type solvent used No chlorinated solvents No ortho dichlorinated products No acid No caustic Non-corrosive to metal pipes, not for most plastic pipes

Major use is for degreasing with improved safety and to be environmentally non-polluting. Major areas of use are food plants, sewage plants, industrial cleaning, drain maintenance, oil refineries and commercial cleaning soil remediation, silicone and adhesive removal.

### WARNINGS

USE IN A WELL VENTILATED AREA. HARMFUL IF SWALLOWED! CONTACT WITH SKIN OR EYES CAN CAUSE IRRITATION! KEEP OUT OF THE REACH OF CHILDREN! Do not store or use near open flame or high heat. If allergic reaction should occur consult a physician at once. FIRST AID: EYES: Immediately wash eyes with water for at least 15 minutes. Seek medical attention as soon as possible. SKIN: Wash with soap and water, apply lotion if irritation continues. INHALATION: Remove to fresh air, give oxygen if needed, or artificial respiration to maintain breathing. INGESTION: Wash out mouth and other contacted parts with water. Never give anything to an unconscious person. If conscious give one or two glasses of water and induce vomiting. If vomiting occurs spontaneously, keep head below hips to prevent aspiration of liquid into the lungs. Place head between the knees before beginning of self induction and induction should be supervised. Get medical attention at once.

Moncosolve 210 is based on a 100% natural organic solvent that is formulated in a very different way than other products for one-step degreasing and deodorizing. The unique part of this is that it is not a petroleum distillate and has special additives to greatly improve performance! The major problem of petroleum solvent use is that of environmental impact of waste disposal. This new approach is the first effective formulation alternative to effectively replace the older solvent systems. This product replaces a very large number of solvent cleaners used by industry, and in particular makes possible the cleaning of many oils not previously considered possible.

#### APPLICATION, DOSAGE AND CONTROL

**For Road and Roof Equipment: Oil, Tar & Asphalt:** For asphalt, bituminous asphalt and plastic cement apply undiluted to surface by spray, foam or mop. Allow 3 to 5 minutes for penetration, agitate as needed and rinse off with high pressure. Use in parts washers and reclaim oil and good solvent is used again and again, just let the solvent sit and decant oils off and use again and again. Dispose of oil in an approved manner.

**Commercial Spotting: Fabric, Rug & Upholstery Degreasing:** Apply with a cloth or sponge to soiled area, let stand for 2 minutes and blot off, wash in normal manner. For use in commercial washers use 10 oz per each 75 lbs of fabric in the first wash for 5 min. at 90 degrees and follow with a regular detergent in hot water. Pre-spotter for extraction cleaning.

**Commercial Food Plants: USDA APPROVED FOR FOOD PLANT USE:** Use on kitchen vents, greasefilter and adhesive box sealers, for degreasing of bearings on high temperature ovens, kettles and vats, food elevators and transport equipment. Spray all of the surface or dip in tank and soak for 5 min. remove and flush off, steam or pressure rinse.

**Tire Mark Remover:** Soak area with diluted solution and agitate, let stand for 2 minutes and flush to drain or vacuum up. Will also remove rubber and plastic burns and food varnish from common grills and pans.

**Tankwagons and Pipelines: (Roplex Emulsion type)** Spray on and let stand for 2 minutes then pressure hose off. Circulate rinse water under pressure in any pipe for at least 5 minutes before using to effectively rinse.

**Soil Remediation:** Wash soil in a 100% solution, agitate for 10 minutes and flood to overflow the container removing the light oils and drain vessel to remove the real heavy oils. Then wash with water and drain to tank for bio degradation. Reuse solution after decanting. Dispose of oils in an approved manner only. Soil is then sun dried and returned after inspection. This is also effective on metal parts and chips contaminated with silicone, oils and many DDT type pesticides which use special oils as binders.

# Montgomery Chemical Co

# Moncosolve 210

Moncosolve 210 is based on a 100% natural organic solvent for one-step degreasing and deodorizing. The unique part of this is that it is not a petroleum distillate! The major problem of petroleum solvent use is that of environmental impact of waste disposal. This new approach is the first effective formulation alternative to effectively replace the older solvent systems. This one product group replaces a very large number of solvent cleaners used by industry, natural solvent systems for commercial cleaning.

**Use Instructions:**

**Tar & Asphalt;** For asphalt, bitumen asphalt/plastic cement apply undiluted to surface by spray, foam or mop. Allow 3 to 5 minutes for penetration, agitate as needed and rinse off with high pressure.

**Fabric, Rug & Upholstery Degreasing;** Apply with a cloth or sponge to soiled area, let stand for 2 minutes and blot off, wash in normal manner. For use in commercial washers use 10 oz per each 75 lbs of fabric in the first wash for 5 min. at 90 degrees and follow with a regular detergent in hot water. Always pretest fabric. To remove chewing gum, soak area and let stand for 3 min. and scrap up gum and repeat for final details of gum.

**Kitchen Vent Grease Filters;** Spray all of the surface or dip in tank and soak for 5 min. remove and flush off, steam or pressure rinse.

**Tire Mark Remover;** Soak area with diluted solution and agitate, let stand for 2 minutes and flush to drain or vacuum up.

**Garbage Truck and Dumpster Cleaning;** Mix one to two gallons with 20 gallons of water and spray or foam on surface, let stand or agitate as needed for 2 to 5 minutes and pressure rinse off.

**Paint;** For use with fresh paint clean up of brushes, put 8 oz in a quart bottle with the paint brush to be cleaned, work concentrate into brush and wash brush out in warm water, repeat if paint has dried on in some areas extending soak time. Save solution in the bottle. Works on oil and latex paints.

Gloucester City NJ 08030

5 gal

Material Safety Data Sheet

Identity: MONCOSOLVE 210 INDCO MONCOSOLVE 210 Page 1

Section I - Manufacturer's Information

INDCO Inc. Emergency Phone Number: (609) 456-6100
N. Railroad & Essex Sts. Information Phone Number: (609) 456-6100
Gloucester City, N.J. 08030 Updated: 08/14/1988

Section II - Hazardous Ingredients/Identity Information

Hazardous Components CAS Number OSHA PEL ACGIH TLV %
\*\*\*\*\* NO HAZARDOUS COMPONENTS \*\*\*\*\*

Section IIa - Regulatory Information

DOT Proper Shipping Name:

NA

DOT Class: NONE

DOT Number: NA

RCLA Status:

NA

CERLA Status:

NA

SARA/Title III - CERLA List:

Mild Cleaning Comp

Material Name CAS Number % Reportable Quantity

SARA/Title III - Toxic Chemical List:

NA

Material Name CAS Number % Reportable Quantity

TSCA Inventory Status: All components listed on TSCA Inventory.

Section III - Physical/Chemical Characteristics

Boiling Point: > 212.0 F Specific Gravity (H2O=1): 0.8650
Vapor Pressure (mm Hg): NA Melting Point: NA
Vapor Density (air=1): NA Evaporation Rate (water=1):> 1.00
Solubility in Water: pH: 7.00
Complete

Appearance and Odor:

Yellow - Orange clear liquid
Citrus blend odor, orange predominates.

Section IV - Fire and Explosion Hazard Data

Flash Point: > 140.0 F Flammable Limits LEL: NA UEL: NA
Method Used:

Identity: MONCOSOLVE 210

INDCO

MONCOSOLVE 210

Page

TOC

Extinguishing Media:CO<sub>2</sub>, Water, Foam, Dry ChemicalSpecial Fire Fighting Procedures:

Protective clothing and pressure-demand, self-contained breathing apparatus should be worn by firefighters in areas where these products are stored, especially in a confined area.

Unusual Fire and Explosion Hazards:

NONE SPECIAL

 =====  
 Section V - Reactivity Data  
 =====
Stability: StableConditions to Avoid:

NA

Incompatibility (Materials to Avoid):

Strong acids and oxidizing agents

Hazardous Decomposition or Byproducts:CO, CO<sub>2</sub>, plus misc. unknowns in small amounts.Hazardous Polymerization: May Not OccurConditions to Avoid:

NA

 =====  
 Section VI - Health Hazard Data  
 =====
Route(s) of Entry:

Inhalation? Moderate

Skin? Moderate

Ingestion? Moderate

Health Hazards (Acute and Chronic):

Acute and chronic health hazards are difficult to accurately assess for mixtures. In general see the first aid section for acute effects and long term effects would have to be derived from these immediate results. Specific chronic effects can be studied from the individual hazardous chemicals as indicated under Section II as the best guess without extensive laboratory studies.

Carcinogenicity:

NTP? None known IARC Monographs? None known OSHA Regulated? None known

Signs and Symptoms of Exposure:

Skin contact will cause itching and redness. Eyes will start to feel a strong burning sensation, as will mucous membranes.

Medical Conditions Generally Aggravated by Exposure:

A knowledge of the available toxicology information and of the physical properties of the material suggests that exposure is unlikely to aggravate existing medical conditions. However, due to the widely varying uses and personal exposures possible, an individual will have to evaluate his/her particular situation.

Emergency and First Aid Procedures:

EYES: Wash with water for 15 minutes, see a doctor.

SKIN: Wash with water, apply skin lotion if redness persists.

OTHER: Wash mouth and other areas with water.

See a doctor if ingested.

INGESTION: Wash out mouth and other contacted parts with water.

Never give anything to an unconscious person. If conscious give one or two glasses of water and.....

## INDUCE VOMITING BY:

-Place finger at back of victim's throat, or



Identity: MONCOSOLVE 210 INDCO MONCOSOLVE 210 Page

=====  
 Keep in mind that often the use solution and the concentrate will have different safety precautions.

Other Precautions:

Launder contaminated clothing before re-use. Discard all contaminated gloves, boots, and other articles that can not be properly cleaned.

=====  
**Section VIII - Control Measures**  
 =====

Respiratory Protection (Specific Type):

Usually none needed.

Ventilation:

Local Exhaust:	Recommended	Special:	Recommended
Mechanical (General):	Recommended	Other:	None known

Protective Gloves:

Light rubber gloves for long use are recommended, i.e. Playtex type.

Eye Protection:

Safety glasses or chemical splash goggles are always recommended, as are eyewash fountains in all industrial processing areas.

Other Protective Clothing or Equipment:

Wear long sleeve shirts and pants. Launder dirty uniforms regularly. Wash or shower daily to maintain good cleanliness when in contact with various cleaning or water treating chemicals.

Work/Hygienic Practices:

Non-slip safety shoes with a splash apron are good practices to follow.  
 ---Start Clean---Stay Clean---End Clean = Work Safely.

=====  
**Section IX - Documentary Information**  
 =====

Comments:

Section II Hazardous Material Section Percentage Key. If no hazardous chemicals are present then this section is not applicable.

Nil	->	0.0%	to	0.1%
Trace	->	0.1%	to	1.0%
Some	->	1.0%	to	5.0%
Minor Comp	->	5.0%	to	25.0%
Substantial	->	25.0%	to	50.0%
Major Comp	->	50.0%	to	100.0%

Substances listed in Section II are those identified as being present at a concentration of 1% or greater, or 0.1% if the substance is on the list of potential carcinogens cited in OSHA Hazard Communication Std.

If Section II does not contain any hazardous chemicals as presently defined in our applicable tables the message ....

\*\*\*\*\* NO HAZARDOUS CHEMICALS\*\*\*\*\*

.... will appear in this section above.

NOTE: For solid products, pH is taken of a 2% solution.

The information presented herein has been compiled from sources considered to be dependable and is accurate to the best of seller's knowledge, or has been generated to the best of our ability without extensive research beyond our understanding or economical feasibility. Seller makes no warranty whatsoever, expressed, implied or of merchantability of the product or of results obtained from this report.

If you determine that the data does not meet your needs or that



ATTN: SAFETY DIRECTOR  
BERGMANN USA  
PO BOX 535  
STAFFCRC SPGS CT C6C76

EMERGENCY PHONE 1-314-771-5765

DATE: 01/20/92  
CUST#: 3-C13-09140  
PO#: 892196

M A T E R I A L   S A F E T Y   D A T A   S H E E T   P A G E   1

IDENTIFICATION

PRODUCT #: L575C                      NAME: LAURYL SULFATE SODIUM  
CAS #: 151-21-3  
MF: C12H26O4S

SYNONYMS

AI3-00356 \* AKYPGSAL SDS \* AQUAREX ME \* AQUAREX METHYL \* AVIRCL 101 \*  
AVIROL 118 CONC \* BEROL 452 \* CARSONOL SLS \* CARSONOL SLS PASTE B \*  
CARSONOL SLS SPECIAL \* CONCO SULFATE WA \* CONCO SULFATE WA-12CO \*  
CONCO SULFATE WA-1245 \* CONCO SULFATE WAG \* CONCO SULFATE WAN \* CONCO  
SULFATE WAS \* CONCO SULFATE WN \* CYCLORYL 21 \* CYCLORYL 31 \* CYCLORYL  
580 \* CYCLORYL 585N \* DEHYDAG SULFATE GL EMULSION \* DEHYDAG SULPHATE  
GL EMULSION \* DETERGENT 66 \* DODECYL ALCOHOL, HYDROGEN SULFATE,  
SODIUM SALT \* DODECYL SODIUM SULFATE \* DODECYL SULFATE, SODIUM \* N-  
DODECYL SULFATE SODIUM \* DODECYL SULFATE, SODIUM SALT \* DREFT \*  
DUPONAL \* DUPONAL WAQE \* DUPONOL \* DUPONOL C \* DUPONOL ME \* DUPONOL  
METHYL \* DUPONOL QX \* DUPONOL WA \* DUPONOL WA DRY \* DUPONOL WAQ \*  
DUPONOL WAQA \* DUPONOL WAQE \* DUPONOL WAQM \* EMAL O \* EMAL 10 \*  
EMERSAL 6400 \* EMPICOL LPZ \* EMPICOL LS 30 \* EMPICOL LX 28 \*  
EMULSIFIER NO. 104 \* FINASOL OSR(SUB 2) \* GARDINOL \* HEXAMOL SLS \*  
INCRONAL SLS \* IRIUM \* JORDANOL SL-300 \* LANETTE WAX-S \* LAURYL SIRAN  
SODNY (CZECH) \* LAURYL SODIUM SULFATE \* LAURYL SULFATE, SODIUM SALT \*  
MAPROFIX 563 \* MAPROFIX LK \* MAPROFIX NEU \* MAPROFIX WAC \* MAPROFIX  
WAC-LA \* MELANOL CL \* MELANOL CL 30 \* MONODODECYL SODIUM SULFATE \*  
MONOGEN Y 100 \* MCNTOPOL LA PASTE \* NCI-C50191 \* NEUTRAZYME \* NIKKOL  
SLS \* OCORIPON AL 95 \* ORVUS WA PASTE \* P AND G EMULSIFIER 104 \*  
PERLANDROL L \* PRODUCT NO. 75 \* PRODUCT NO. 161 \* QUOLAC EX-UB \*  
REWOPCL NLS 3C \* RICHONOL A \* RICHONOL AF \* RICHONOL C \* SOS \*  
SINNOCON LS 95 \* SINNOCON LS 100 \* SINTAPON L \* SIPEX OP \* SIPEX SB \*  
SIPEX SC \* SIPEX SP \* SIPEX UB \* SIPON LS \* SIPON LS 100 \* SIPON LSB \*  
SIPON PD \* SIPON WD \* SLS \* SODIUM DODECYL SULFATE \* SODIUM N-  
DODECYL SULFATE \* SODIUM DODECYL SULPHATE \* SODIUM LAURYL SULFATE \*  
SODIUM LAURYL SULPHATE \* SODIUM MONODODECYL SULFATE \* SODIUM  
MONOLAURYL SULFATE \* SOLSOL NEEDLES \* STANDAPOL 112 CGNC \* STANDAPOL  
WA-AC \* STANDAPOL WAQ \* STANDAPOL WAQ SPECIAL \* STANDAPOL WAS 100 \*  
STEINAPCL NLS 90 \* STEPANOL ME \* STEPANOL ME DRY \* STEPANOL ME DRY AW  
\* STEPANOL METHYL \* STEPANOL METHYL DRY AW \* STEPANOL T 28 \* STEPANOL  
WA \* STEPANOL WA-100 \* STEPANOL WAC \* STEPANOL WA PASTE \* STEPANOL  
WAQ \* STERLING WA PASTE \* STERLING WAQ-CH \* STERLING WAQ-COSMETIC \*  
SULFETAL L 95 \* SULFOPON WA 1 \* SULFOPON WA 2 \* SULFOPON WA 3 \*  
SULFOPON WA 1 SPECIAL \* SULFOTEX WA \* SULFOTEX WALA \* SWASCOL 3L \*  
SWASCOL 4L \* SWASCOL 1P \* SYNTAPON \* SYNTAPON L \* SYNTAPON L PASTA  
(CZECH) \* TARAPON K 12 \* TEXAPON DL CONC. \* TEXAPON K12 \* TEXAPON K-  
1296 \* TEXAPON L 100 \* TEXAPON V HC \* TEXAPON V HC POWDER \* TEXAPON  
ZHC \* TEXAPON Z HIGH CONC. NEEDLES \* TREPENOL WA \* TVM 474 \* ULTRA  
SULFATE SL-1 \* WAQE \* WITCOLATE A \* WITCOLATE A POWDER \* WITCOLATE C \*

CONTINUED ON NEXT PAGE

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20127 - Milano  
Italia.

SIGMA CHEMIE  
P.O. Box 260  
CH-9470 Buchs  
Switzerland.

**M A T E R I A L   S A F E T Y   D A T A   S H E E T      P A G E   2**

CUST#: 3-G13-09140  
PO#: B92196

PRODUCT #: L5750  
CAS #: 151-21-3  
MF: C12H26O4S

NAME: LAURYL SULFATE SODIUM

**----- TOXICITY HAZARDS -----**

RTECS NO: WT1050000

SULFURIC ACID, MONOCODECYL ESTER, SODIUM SALT

**IRRITATION DATA**

SKN-HMN 250 MG/24H MLD  
SKN-HMN 25 MG/24H MLD  
SKN-MUS 25 MG/24H MOD  
SKN-DCG 25 MG/24H MLD  
SKN-RET 50 MG/24H SEV  
SKN-RET 25 MG/24H MOD  
SKN-RET 250 MG/24H MOD  
SKN-RET 10 MG/24H  
SKN-RET 50 MG/24H MLD  
EYE-RET 100 MG/24H MOD  
EYE-RET 250 UG MLC  
EYE-RET 2 MG  
EYE-RET 10 MG MOD  
SKN-PIG 25 MG/24H MLD  
SKN-GPG 25 MG/24H MLD

TXAPA9 31,481,75  
JSCCA5 23,371,72  
JSCCA5 23,371,72  
JSCCA5 23,371,72  
BIOFX\* 23-3/71  
JSCCA5 23,371,72  
TXAPA9 31,481,75  
DCTODJ 1,305,78  
TXAPA9 21,369,72  
28ZPAK -,305,72  
AROPAW 34,99,45  
DCTODJ 1,305,78  
TXAPA9 55,501,80  
JSCCA5 23,371,72  
JSCCA5 23,371,72

**TOXICITY DATA**

ORL-RAT LD50: 1288 MG/KG  
IPR-RAT LD50: 210 MG/KG  
IVN-RAT LD50: 118 MG/KG  
IPR-MUS LD50: 250 MG/KG  
IVN-MUS LD50: 118 MG/KG

FCTXAV 5,763,67  
PSTGAW 3,1,45  
JPMSAE 52,803,63  
JAPMA8 42,283,53  
JPMSAE 52,803,63

**REVIEWS, STANDARDS, AND REGULATIONS:**

EPA FIFRA 1988 PESTICIDE SUBJECT TO REGISTRATION OR RE-REGISTRATION  
FEREAC 54,4388,89  
NOHS 1974: HZD 81990; NIS 167; TNF 32028; NOS 113; TNE 388848  
NOES 1983: HZD 81990000; TNF 232; NIS 46312; NOS 170; TNE 886968; TFE 415360

EPA TSCA CHEMICAL INVENTORY, JUNE 1990  
EPA TSCA TEST SUBMISSION (TSCATS) DATA BASE, MARCH 1991

**TARGET ORGAN DATA**

BEHAVIORAL (SOMNOLENCE)  
BEHAVIORAL (CHANGE IN MOTOR ACTIVITY)  
VASCULAR (REGIONAL OR GENERAL ARTERIOLAR OR VENOUS DILATION)  
EFFECTS ON EMBRYO OR FETUS (FETOTOXICITY)

ONLY SELECTED REGISTRY OF TOXIC EFFECTS OF CHEMICAL SUBSTANCES (RTECS)

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Codex France.

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Switzerland.

M A T E R I A L   S A F E T Y   D A T A   S H E E T      P A G E    4

CUST#: 3-G13-09140  
PO#: B92196

PRODUCT #: L5750  
CAS #: 151-21-3  
MF: C12H26O4S

NAME: LAURYL SULFATE SODIUM

----- FIRE AND EXPLOSION HAZARD DATA -----

**EXTINGUISHING MEDIA**

WATER SPRAY.

CARBON DIOXIDE, DRY CHEMICAL POWDER OR APPROPRIATE FOAM.

**SPECIAL FIREFIGHTING PROCEDURES**

WEAR SELF-CONTAINED BREATHING APPARATUS AND PROTECTIVE CLOTHING TO  
PREVENT CONTACT WITH SKIN AND EYES.

**UNUSUAL FIRE AND EXPLOSION HAZARDS**

EMITS TOXIC FUMES UNDER FIRE CONDITIONS.

----- REACTIVITY DATA -----

**INCOMPATIBILITIES**

STRONG OXIDIZING AGENTS

HAZARDOUS COMBUSTION OR DECOMPOSITION PRODUCTS

TOXIC FUMES OF:

CARBON MONOXIDE, CARBON DIOXIDE

SULFUR OXIDES

----- SPILL OR LEAK PROCEDURES -----

**STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED:**

EVACUATE AREA.

WEAR SELF-CONTAINED BREATHING APPARATUS, RUBBER BOOTS AND HEAVY  
RUBBER GLOVES.

SWEEP UP, PLACE IN A BAG AND HOLD FOR WASTE DISPOSAL.

AVOID RAISING DUST.

VENTILATE AREA AND WASH SPILL SITE AFTER MATERIAL PICKUP IS COMPLETE.

**WASTE DISPOSAL METHOD**

DISSOLVE OR MIX THE MATERIAL WITH A COMBUSTIBLE SOLVENT AND BURN IN A  
CHEMICAL INCINERATOR EQUIPPED WITH AN AFTERBURNER AND SCRUBBER.

----- PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE -----

WEAR APPROPRIATE NIOSH/MSHA-APPROVED RESPIRATOR, CHEMICAL-RESISTANT  
GLOVES, SAFETY GOGGLES, OTHER PROTECTIVE CLOTHING.

USE ONLY IN A CHEMICAL FUME HOOD.

SAFETY SHOWER AND EYE BATH.

AVOID INHALATION.

DO NOT GET IN EYES, ON SKIN, ON CLOTHING.

AVOID PROLONGED OR REPEATED EXPOSURE.

WASH THOROUGHLY AFTER HANDLING.

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M A T E R I A L   S A F E T Y   D A T A   S H E E T      P A G E   5

CUST#: 3-013-09140  
PO#: 892196

PRODUCT #: L5750  
CAS #: 151-21-3  
MF: C12H26O4S

NAME: LAURYL SULFATE SODIUM

--- PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE ---

IRRITANT.  
STRONG SENSITIZER.  
KEEP TIGHTLY CLOSED.  
STORE IN A COOL DRY PLACE.  
LABEL PRECAUTIONARY STATEMENTS  
HARMFUL  
HARMFUL BY INHALATION AND IF SWALLOWED.  
MAY CAUSE SENSITIZATION BY INHALATION.  
IRRITATING TO EYES, RESPIRATORY SYSTEM AND SKIN.  
RISK OF SERIOUS DAMAGE TO EYES.  
IN CASE OF CONTACT WITH EYES, RINSE IMMEDIATELY WITH PLENTY OF  
WATER AND SEEK MEDICAL ADVICE.  
WEAR SUITABLE PROTECTIVE CLOTHING.  
DO NOT BREATHE DUST.

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# Occupational Health Guideline for Petroleum Distillates (Naphtha)

## INTRODUCTION

This guideline is intended as a source of information for employees, employers, physicians, industrial hygienists, and other occupational health professionals who may have a need for such information. It does not attempt to present all data; rather, it presents pertinent information and data in summary form.

## SUBSTANCE IDENTIFICATION

- Formula:  $C_6H_{14}$  -  $C_{10}H_{18}$  -  $C_{14}H_{22}$
- Synonyms: Petroleum naphtha; aliphatic petroleum naphtha; petroleum ether (95 to 115 C); naphtha, petroleum
- Appearance and odor: Colorless liquid with an odor like gasoline and kerosene.

## PERMISSIBLE EXPOSURE LIMIT (PEL)

The current OSHA standard for petroleum distillates is 500 parts of petroleum distillates per million parts of air (ppm) averaged over an eight-hour work shift. This may also be expressed as 2000 milligrams of petroleum distillates per cubic meter of air ( $mg/m^3$ ). NIOSH has recommended that the permissible exposure limit be reduced to 350  $mg/m^3$  averaged over a work shift of up to 10 hours per day, 40 hours per week.

## HEALTH HAZARD INFORMATION

### • Routes of exposure

Petroleum distillates can affect the body if they are inhaled, come in contact with the eyes or skin, or are swallowed.

### • Effects of overexposure

1. *Short-term Exposure:* Overexposure to petroleum distillates may cause dizziness, drowsiness, headache, and nausea. They may also cause irritation of the eyes, throat, and skin.

2. *Long-term Exposure:* Prolonged overexposure may cause drying and cracking of the skin.

3. *Reporting Signs and Symptoms:* A physician should be contacted if anyone develops any signs or symptoms and suspects that they are caused by exposure to petroleum distillates.

### • Recommended medical surveillance

The following medical procedures should be made available to each employee who is exposed to petroleum distillates at potentially hazardous levels:

1. *Initial Medical Screening:* Employees should be screened for history of certain medical conditions (listed below) which might place the employee at increased risk from petroleum distillates exposure.

—Skin disease: Petroleum distillates are skin defatting agents and can cause dermatitis on prolonged exposure. Persons with pre-existing skin disorders may be more susceptible to the effects of these agents.

—Chronic respiratory disease: In persons with impaired pulmonary function, especially those with obstructive airway diseases, the breathing of petroleum distillates might cause exacerbation of symptoms due to their irritant properties.

—Liver disease: Although petroleum distillates are not known as liver toxins in humans, the importance of this organ in the biotransformation and detoxification of foreign substances should be considered before exposing persons with impaired liver function.

—Kidney disease: Although petroleum distillates are not known as kidney toxins in humans, the importance of this organ in the elimination of toxic substances justifies special consideration in those with impaired renal function.

2. *Periodic Medical Examination:* Any employee developing the above-listed conditions should be referred for further medical examination.

### • Summary of toxicology

The vapors of petroleum distillates are mild narcotics and mucous membrane irritants. There have been few toxicologic studies, either on animals or man. While 4000 to 7000 ppm are tolerated for 1 hour by human subjects, symptoms of narcosis, such as dizziness and drowsiness, occur at those concentrations. Continuing

---

These recommendations reflect good industrial hygiene and medical surveillance practices and their implementation will assist in achieving an effective occupational health program. However, they may not be sufficient to achieve compliance with all requirements of OSHA regulations.

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES  
Public Health Service    Centers for Disease Control  
National Institute for Occupational Safety and Health

U.S. DEPARTMENT OF LABOR  
Occupational Safety and Health Administration

exposure may produce signs of inebriation, followed by headache or nausea. Exposure at 10,000 to 20,000 ppm is regarded as immediately hazardous to life. The higher boiling fractions may produce irritation of the eyes, nose, and throat in addition to symptoms of mild narcosis. The liquid is a defatting agent, and repeated or prolonged skin contact results in drying and cracking of the skin. No chronic systemic effects have been reported from widespread industrial use. If benzene is present in the distillate, however, the hazard of both acute and chronic poisoning is increased; the presence of elevated phenol in the urine is indicative of benzene exposure.

## CHEMICAL AND PHYSICAL PROPERTIES

### • Physical data

1. Molecular weight: 100 (approximately)
2. Boiling point (760 mm Hg): 30 to 127 C (86 to 260 F)
3. Specific gravity (water = 1): 0.74
4. Vapor density (air = 1 at boiling point of petroleum distillates): 3.4 (approximately)
5. Melting point: Data not available
6. Vapor pressure at 20 C (68 F): 40 mm Hg (approximately)
7. Solubility in water, g/100 g water at 20 C (68 F): 0.04 (approximately)
8. Evaporation rate (butyl acetate = 1): 10 (approximately)

### • Reactivity

1. Conditions contributing to instability: Heat
2. Incompatibilities: Contact with strong oxidizing agents may cause fires and explosions.
3. Hazardous decomposition products: Toxic gases and vapors (such as carbon monoxide) may be released in a fire involving petroleum distillates.
4. Special precautions: Petroleum distillates will attack some forms of plastics, rubber, and coatings.

### • Flammability

1. Flash point: -40 to 20 C (-40 to 68 F) (closed cup)
2. Autoignition temperature: 232 to 260 C (450 to 500 F)
3. Flammable limits in air, % by volume: Lower: 1; Upper: 6
4. Extinguishant: Foam, carbon dioxide, dry chemical

### • Warning properties

1. Odor Threshold: The odor thresholds of the main constituents of petroleum naphtha (i. e., heptane, octane, pentane, etc.) are below the individual permissible exposure limits.
2. Eye Irritation Level: According to Gafafer, the naphthas irritate the conjunctiva. The American Petroleum Institute states that irritation of the conjunctiva may occur "when the eyes are exposed to high vapor concentrations (of petroleum naphtha) in air. The irritation is mild and transitory." No quantitative information is available concerning the threshold of eye irritation,

however.

3. Evaluation of Warning Properties: Since the odor of each of the main constituents of petroleum naphtha is detectable at concentrations below the respective permissible exposure limits, petroleum naphtha is treated as a material with adequate warning properties.

## MONITORING AND MEASUREMENT PROCEDURES

### • General

Measurements to determine employee exposure are best taken so that the average eight-hour exposure is based on a single eight-hour sample or on two four-hour samples. Several short-time interval samples (up to 30 minutes) may also be used to determine the average exposure level. Air samples should be taken in the employee's breathing zone (air that would most nearly represent that inhaled by the employee).

### • Method

Sampling and analyses may be performed by collection of petroleum distillates vapors using an adsorption tube with subsequent desorption with carbon disulfide and gas chromatographic analysis. Also, detector tubes certified by NIOSH under 42 CFR Part 84 or other direct-reading devices calibrated to measure petroleum distillates may be used. An analytical method for petroleum distillates is in the *NIOSH Manual of Analytical Methods*, 2nd Ed., Vol. 3, 1977, available from the Government Printing Office, Washington, D.C. 20402 (GPO No. 017-033-00261-4).

## RESPIRATORS

- Good industrial hygiene practices recommend that engineering controls be used to reduce environmental concentrations to the permissible exposure level. However, there are some exceptions where respirators may be used to control exposure. Respirators may be used when engineering and work practice controls are not technically feasible, when such controls are in the process of being installed, or when they fail and need to be supplemented. Respirators may also be used for operations which require entry into tanks or closed vessels, and in emergency situations. If the use of respirators is necessary, the only respirators permitted are those that have been approved by the Mine Safety and Health Administration (formerly Mining Enforcement and Safety Administration) or by the National Institute for Occupational Safety and Health.
- In addition to respirator selection, a complete respiratory protection program should be instituted which includes regular training, maintenance, inspection, cleaning, and evaluation.

## PERSONAL PROTECTIVE EQUIPMENT

- Employees should be provided with and required to use impervious clothing, gloves, face shields (eight-inch

minimum), and other appropriate protective clothing necessary to prevent repeated or prolonged skin contact with liquid petroleum distillates.

- Clothing wet with liquid petroleum distillates should be placed in closed containers for storage until it can be discarded or until provision is made for the removal of petroleum distillates from the clothing. If the clothing is to be laundered or otherwise cleaned to remove the petroleum distillates, the person performing the operation should be informed of petroleum distillates' hazardous properties.
- Any clothing which becomes wet with liquid petroleum distillates should be removed immediately and not reworn until the petroleum distillates are removed from the clothing.
- Employees should be provided with and required to use splash-proof safety goggles where liquid petroleum distillates may contact the eyes.

## SANITATION

- Skin that becomes wet with liquid petroleum distillates should be promptly washed or showered with soap or mild detergent and water to remove any petroleum distillates.

## COMMON OPERATIONS AND CONTROLS

The following list includes some common operations in which exposure to petroleum distillates may occur and control methods which may be effective in each case:

Operation	Controls
Liberation during degreasing operations	General dilution ventilation; local exhaust ventilation; personal protective equipment
Use as solvents in rubber industry during manufacture of water-proof cloth, shoe adhesives, and rubber tires	General dilution ventilation; local exhaust ventilation; personal protective equipment
Use as extractants; use in preparation of paint, varnish, and lacquer as solvents, diluents, or thinners; use as solvents in pesticides	General dilution ventilation; local exhaust ventilation; personal protective equipment
Use during dry cleaning operations	General dilution ventilation; local exhaust ventilation; personal protective equipment

## EMERGENCY FIRST AID PROCEDURES

In the event of an emergency, institute first aid procedures and send for first aid or medical assistance.

### • Eye Exposure

If petroleum distillates get into the eyes, wash eyes immediately with large amounts of water, lifting the lower and upper lids occasionally. If irritation persists after washing, get medical attention. Contact lenses should not be worn when working with these chemicals.

### • Skin Exposure

If petroleum distillates get on the skin, promptly wash the contaminated skin using soap or mild detergent and water. If petroleum distillates soak through the clothing, remove the clothing immediately and wash the skin using soap or mild detergent and water. If irritation persists after washing, get medical attention.

### • Breathing

If a person breathes in large amounts of petroleum distillates, move the exposed person to fresh air at once. If breathing has stopped, perform artificial respiration. Keep the affected person warm and at rest. Get medical attention as soon as possible.

### • Swallowing

If petroleum distillates have been swallowed, do not induce vomiting. Get medical attention immediately.

### • Rescue

Move the affected person from the hazardous exposure. If the exposed person has been overcome, notify someone else and put into effect the established emergency rescue procedures. Do not become a casualty. Understand the facility's emergency rescue procedures and know the locations of rescue equipment before the need arises.

## SPILL, LEAK, AND DISPOSAL PROCEDURES

- Persons not wearing protective equipment and clothing should be restricted from areas of spills or leaks until cleanup has been completed.

- If petroleum distillates are spilled or leaked, the following steps should be taken:

1. Remove all ignition sources.
2. Ventilate area of spill or leak.
3. For small quantities, absorb on paper towels. Evaporate in a safe place (such as a fume hood). Allow sufficient time for evaporating vapors to completely clear the hood ductwork. Burn the paper in a suitable location away from combustible materials. Large quantities can be collected and atomized in a suitable combustion chamber. Petroleum distillates should not be allowed to enter a confined space, such as a sewer, because of the possibility of an explosion.

- Waste disposal method:

Petroleum distillates may be disposed of by atomizing in a suitable combustion chamber.

## REFERENCES

- American Industrial Hygiene Association: "Petroleum Naphtha," *Hygienic Guide Series*, Detroit, Michigan, 1969.
- American Petroleum Institute: "Petroleum Distillates," *API Toxicological Reviews*, New York.
- Browning, E.: *Toxicity and Metabolism of Industrial Solvents*, Elsevier, New York, 1965.
- Deichmann, W. B., and Gerarde, H. W.: *Toxicology of Drugs and Chemicals*, Academic Press, New York, 1969.
- Gafafer, W. M. (ed.): "Occupational Diseases: A Guide to Their Recognition," U.S. Public Health Service Publication No. 1097, 1964.
- Gleason, M. N., Gosselin, R. E., Hodge, H. C., and Smith, R. P.: *Clinical Toxicology of Commercial Products* (3rd ed.), Williams and Wilkins, Baltimore, 1969.
- Grant, W. M.: *Toxicology of the Eye* (2nd ed.), C. C. Thomas, Springfield, Illinois, 1974.
- Pagnotto, L. D., et al.: "Industrial Benzene Exposure from Petroleum Naphtha: I. Rubber Coating Industry," *American Industrial Hygiene Association Journal*, 22:417-421, 1961.
- Patty, F. A. (ed.): *Toxicology*, Vol. II of *Industrial Hygiene and Toxicology* (2nd ed. rev.), Interscience, New York, 1963.
- Sax, N. I.: *Dangerous Properties of Industrial Materials* (3rd ed.), Van Nostrand Reinhold, New York, 1968.

## RESPIRATORY PROTECTION FOR PETROLEUM DISTILLATES (NAPHTHA)

Condition	Minimum Respiratory Protection* Required Above 500 ppm
Vapor Concentration	
1000 ppm or less	A chemical cartridge respirator with a full facepiece and an organic vapor cartridge(s).
5000 ppm or less	A gas mask with a chin-style organic vapor canister.
10,000 ppm or less	A gas mask with a front- or back-mounted organic vapor canister. Any supplied-air respirator with a full facepiece, helmet, or hood. Any self-contained breathing apparatus with a full facepiece.
Greater than 10,000 ppm or entry and escape from unknown concentrations	Self-contained breathing apparatus with a full facepiece operated in pressure-demand or other positive pressure mode.  A combination respirator which includes a Type C supplied-air respirator with a full facepiece operated in pressure-demand or other positive pressure or continuous-flow mode and an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive pressure mode.
Fire Fighting	Self-contained breathing apparatus with a full facepiece operated in pressure-demand or other positive pressure mode.
Escape	Any gas mask providing protection against organic vapors. Any escape self-contained breathing apparatus.

\*Only NIOSH-approved or MSHA-approved equipment should be used.



**APPENDIX F**

**LANCASTER LABORATORIES, INC. CORRESPONDENCE**

May 4, 1993

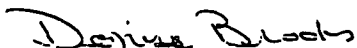
Mr. Ric Travor  
Bergman USA  
1550 Airport Road  
Gallatin, TN 37066-3739

Dear Ric:

As you requested, here is a letter of explanation for the Moss American A11 - A15 samples on which we missed PAH and BTEX analyses. The samples that you collected were received at the laboratory on February 24. A chain of custody for these samples was not included. I spoke with Eric Lindeau at Bergman USA and we discussed what analyses were required for these samples. However, due to a laboratory error, the samples were not scheduled for the correct analyses.

We apologize for any problems this oversight may have caused. We will make every effort to schedule your samples correctly in the future.

Sincerely,



Denise Brooks  
Client Services  
Environmental Sciences

DB/jmw





MAR 17 1993

March 11, 1993

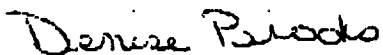
Mr. Ric Travor  
Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

Dear Ric:

As you requested on March 8, 1993, I am writing to inform you that we did not receive enough soil to perform the BTEX analysis on samples B13PB, B14PB, and B15PB. The Polynuclear Aromatic Hydrocarbons (PAHs) and moisture analyses were completed with the amount of sample that we received.

Please call me at (717) 656-2301, Ext. 520 if you have further questions.

Sincerely,



Denise Brooks  
Client Services  
Environmental Sciences

DB/car



**APPENDIX G**

**RAW LABORATORY DATA  
LANCASTER LABORATORIES, INC.**



**BERGMANN USA**

***Raw Data Package for  
Initial Soils Washing Protocol***

**BENCH-SCALE SOILS WASHING**

**TREATABILITY STUDY OF**

**MOSS-AMERICAN SITE MATERIAL**

***Prepared for:***

***Kerr-M'Kee Corporation  
Kerr-M'Kee Center  
Oklahoma City, OK***

***Under Contract to:***

***Roy F. Weston, Inc.  
Three Hawthorne Parkway, Suite 400  
Vernon Hills, Illinois 60061***

***June 25, 1993***



1934448-82

Chain of Custody

Please print. Instructions on reverse side correspond with circled numbers.

Client: BERGMANN U.S.A. Acct. #: \_\_\_\_\_

Project Name/#: MOSS-AMERICAN SITE

Project Manager: BO TRAINER P.O. #: \_\_\_\_\_

Sampler: \_\_\_\_\_ Quote #: \_\_\_\_\_

Matrix: (4)

Analyses Requested: (5) PAH, DTC, BTEX

For LLI use only  
FSC: \_\_\_\_\_  
SCR #: 1015290

Sample Identification	Date Collected	Time Collected	Grab (1)	Composite	Matrix (4)			Total # of Containers	Analyses Requested (5)						Remarks (6)	
					Soil	Water	Other		PAH	DTC	BTEX					
A7 LOG			X			X		2	X							
A2 LOG			X			X		2	X							
A3 LOG			X			X		2	X							
A4 LOG			X			X		2	X							
A5 LOG			X			X		2	X							

*Samples were received at 8C 2/24/93*

Turnaround time requested (please circle): Normal  Rush

(Rush TAT is subject to LLI approval and surcharge.)

Rush results requested by (please circle): \_\_\_\_\_

Fax Fax #: \_\_\_\_\_

Phone Phone #: \_\_\_\_\_

Data package options (please circle if requested):

QC Summary  
Tier I (NJ) Site-specific QC required? Yes No  
Tier II (NJ) (If yes, indicate QC sample and submit triplicate volume.)

EPA CLP Data Package Chain of Custody required?  
Yes No

Relinquished by:	Date	Time	Received by:	Date	Time (7)
<u>B. J. L.</u>	<u>2/1/93</u>	<u>1100</u>			

*MR Bragg 2/24/93 132*

Please print. Instructions on reverse side correspond with circled numbers.

Client: BERGMANN U.S. Airt. #: \_\_\_\_\_

Project Name/#: MOSS-AMERICAN SITE

Project Manager: RIC TRAINER P.O. #: \_\_\_\_\_

Sampler: \_\_\_\_\_ Quote #: \_\_\_\_\_

Matrix: 4

Analyses Requested: 5 (PAH, OLG, BTEX)

For LLI use only  
FSC: \_\_\_\_\_  
SCR #: 1045290

Sample Identification	Date Collected	Time Collected	Grab	Composite	Matrix			Total # of Containers	Analyses Requested						Remarks	
					Soil	Water	Other		PAH	OLG	BTEX					
A1LP			X			X		2	X							
A2LP			X			X		2	X							
A3LP			X			X		2	X							
A4LP			X			X		2	X							
A5LP			X			X		2	X							
A1FPB			X		X			1	X	X						
A2FPB			X		X			1	X	X						
A3FPB			X		X			1	X	X						
A4FPB			X		X			1	X	X						
A5FPB			X		X			1	X	X						

*Samples were received at 8C 2/24/93 NAB*

Turnaround time requested (please circle): Normal Normal Rush

(Rush TAT is subject to LLI approval and surcharge.)

Rush results requested by (please circle): \_\_\_\_\_

Fax Fax #: \_\_\_\_\_

Phone Phone #: \_\_\_\_\_

Data package options (please circle if requested):

QC Summary  
Tier I (NJ) \_\_\_\_\_  
Tier II (NJ) \_\_\_\_\_  
EPA CLP \_\_\_\_\_

Site-specific QC required? Yes No  
(If yes, indicate QC sample and submit triplicate volume.)

Data Package Chain of Custody required?  
(es) \_\_\_\_\_

Relinquished by: _____	Date: _____	Time: _____	Received by: _____	Date: _____	Time: _____
Relinquished by: _____	Date: _____	Time: _____	Received by: _____	Date: _____	Time: _____
Relinquished by: _____	Date: _____	Time: _____	Received by: _____	Date: _____	Time: _____
Relinquished by: _____	Date: _____	Time: _____	Received by: _____	Date: _____	Time: _____
Relinquished by: _____	Date: _____	Time: _____	Received for LLI by: _____	Date: _____	Time: _____

*N. la e. l. 95 by 13*



**Lancaster Laboratories**  
Where quality is a science.

7126

1934448-82 Chain of Custody

Please print. Instructions on reverse side correspond with circled numbers.

Client: BERGMANN U.S.A. Acct. #: \_\_\_\_\_  
 Project Name/#: MOSS-AMERICAN SITE  
 Project Manager: RIC TRAINER P.O. #: \_\_\_\_\_  
 Sampler: \_\_\_\_\_ Quote #: \_\_\_\_\_

Matrix: \_\_\_\_\_  
 Analyses Requested: \_\_\_\_\_  
 For LLI use only  
 FSC: \_\_\_\_\_  
 SCR #: 1015250

Sample Identification	Date Collected	Time Collected	Grab	Composite	Matrix			Total # of Containers	Analyses Requested			Remarks
					Soil	Water	Other		PAH	Oil	BTEX	
A1CPB			X		X			1	X		X	
A1CO			X		X			1		X		
A2CPB			X		X			1	X		X	
A2CO			X		X			1		X		
A3CPB			X		X			1	X		X	
A3CO			X		X			1		X		
A4CPB			X		X			1	X		X	Samples were received at 8C 01/24/93 1775
A4CO			X		X			1		X		
A5CPB			X		X			1	X		X	
A5CO			X		X			1		X		

Turnaround time requested (please circle): Normal Rush  
 (Rush TAT is subject to LLI approval and surcharge.)

Rush results requested by (please circle): \_\_\_\_\_

Fax Fax #: \_\_\_\_\_

Phone Phone #: \_\_\_\_\_

Data package options (please circle if requested):

QC Summary Tier I (NJ) Tier II (NJ) EPA CLP

Site-specific QC required? Yes No  
 (If yes, indicate QC sample and submit triplicate volume.)

Data Package Chain of Custody required? Yes No

Relinquished by: <u>B. Ansh</u>	Date: <u>2/4/93</u>	Time: <u>1100</u>	Received by: _____	Date: _____	Time: _____
Relinquished by: _____	Date: _____	Time: _____	Received by: _____	Date: _____	Time: _____
Relinquished by: _____	Date: _____	Time: _____	Received by: _____	Date: _____	Time: _____
Relinquished by: _____	Date: _____	Time: _____	Received by: _____	Date: _____	Time: _____
Relinquished by: _____	Date: _____	Time: _____	Received for LLI by: <u>Marianne Bragg</u>	Date: <u>2/4/93</u>	Time: <u>1300</u>



Please print. Instructions on reverse side correspond with circled numbers.

Client: BERGMANN U.S.A. Acct. #: \_\_\_\_\_

Project Name/#: MOSS-AMERICAN SITE

Project Manager: RIC TRAVER P.O. #: \_\_\_\_\_

Sampler: ERIC LINDENU Quote #: \_\_\_\_\_

Sample Identification	Date Collected	Time Collected	Grab	Compositure	Matrix				Total # of Containers	Analyses Requested							Remarks	
					Soil	Water	Other			PAH	BTEX	OIL-GREASE						
<u>B1CPB</u> <u>MONGO-HIGH COARSE TAIL, BTEX</u>	<u>2/26</u>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>				<u>1</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>							
<u>B2CPB</u>	<u>2/26</u>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>				<u>1</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>							
<u>B3CPB</u>	<u>2/26</u>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>				<u>1</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>							
<u>B4CPB</u>	<u>2/26</u>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>				<u>1</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>							<u>Temp of vial samples upon receipt = 10°C</u>
<u>B5CPB</u>	<u>2/26</u>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>				<u>1</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>							<u>upon receipt = 10°C</u>
<u>B1LB</u>	<u>2/26</u>		<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>			<u>2</u>		<input checked="" type="checkbox"/>							<u>All other bottles received at 13°C</u>
<u>B2LB</u>	<u>2/26</u>		<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>			<u>2</u>		<input checked="" type="checkbox"/>							<u>DUH</u>
<u>B3LB</u>	<u>2/26</u>		<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>			<u>2</u>		<input checked="" type="checkbox"/>							<u>3/2/93</u>
<u>B4LB</u>	<u>2/26</u>		<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>			<u>2</u>		<input checked="" type="checkbox"/>							
<u>B5LB</u>	<u>2/26</u>		<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>			<u>2</u>		<input checked="" type="checkbox"/>							

Turnaround time requested (please circle): Normal  Rush   
(Rush TAT is subject to LLI approval and surcharge.)

Rush results requested by (please circle):

Fax Fax #: \_\_\_\_\_

Phone Phone #: \_\_\_\_\_

Data package options (please circle if requested):

QC Summary  
Tier I (NJ)  
Tier II (NJ)  
EPA CLP

Site-specific QC required? Yes  No   
(If yes, indicate QC sample and submit triplicate volume.)

Data Package Chain of Custody required?  
Yes  No

Relinquished by	Date	Time	Received by	Date	Time
<u>B. Traver</u>	<u>2/26</u>	<u>1100</u>			

2/26 11:00 3/2/93 13:11

Please print. Instructions on reverse side correspond with circled numbers.

Client: <u>BERGMANN U.S.A</u> Acct. #: _____ Project Name/#: <u>MOSS-AMERICAN SITE</u> Project Manager: <u>RIC TRAINER</u> P.O. #: _____ Sampler: <u>ERIC LINDENAU</u> Quote #: _____				Matrix <input checked="" type="checkbox"/>		(5) Analyses Requested					For LLI use only FSC: _____ SCR #: <u>1045290</u>	
Sample Identification	Date Collected	Time Collected	Grab	Composite	Soil	Water	Other	Total # of Containers	PAH	BTEX	OIL + GREASE	Remarks
B1LP	2/26		X			X		2	X			
B2LP	2/26		X			X		2	X			
B3LP	2/26		X			X		2	X			
B4LP	2/26		X			X		2	X			
B5LP	2/26		X			X		2	X			
B1LOG	2/26		X			X		2		X		
B2LOG	2/26		X			X		2		X		
B3LOG	2/26		X			X		2		X		
B4LOG	2/26		X			X		2		X		
B5LOG	2/26		X			X		2		X		
Turnaround time requested (please circle): Normal Rush (Rush TAT is subject to LLI approval and surcharge.) Rush results requested by (please circle): Fax Fax #: _____ Phone Phone #: _____				Relinquished by: <u>B. Arch</u> Date: <u>2/5/83</u> Time: <u>1100</u> Relinquished by: _____ Date: _____ Time: _____ <del>Relinquished by: _____ Date: _____ Time: _____</del> <del>Relinquished by: _____ Date: _____ Time: _____</del> Relinquished by: _____ Date: _____ Time: _____ Relinquished by: _____ Date: _____ Time: _____		Received by: _____ Date: _____ Time: _____ Received by: _____ Date: _____ Time: _____ <del>Received by: _____ Date: _____ Time: _____</del> <del>Received by: _____ Date: _____ Time: _____</del> Received for LLI by: <u>Rough</u> Date: <u>3/2/83</u> Time: <u>1340</u>						
Data package options (please circle if requested): QC Summary Site-specific QC required? Yes No Tier I (NJ) (If yes, indicate QC sample and submit triplicate volume.) Tier II (NJ) EPA CLP Data Package Chain of Custody required? Yes No												



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Where quality is a science.

Chain of Custody

Please print. Instructions on reverse side correspond with circled numbers.

Client: <u>BEREMANN U.S.A.</u> Acct. # : _____		Matrix		Analyses Requested					For LLI use only	
Project Name/# : <u>MOSS AMERICAN SITE</u>		4		5 PAH BTEX C1-H-CREASE					FSC: _____	
Project Manager: <u>RIO TRAYER</u> P.O. # : _____		Soil							SCR #: <u>1045290</u>	
Sampler: <u>ERIC LINDEN</u> Quote # : _____		Water							Other	
6		3		Total # of Containers		6				
Sample Identification		Date Collected	Time Collected	Grab	Composite	Soil	Water	Other	Total # of Containers	Remarks
<u>B1C0</u>		<u>9/26</u>		X		X			1	
<u>B2C0</u>		<u>9/26</u>		X		X			1	
<u>B3C0</u>		<u>9/26</u>		X		X			1	
<u>B4C0</u>		<u>9/26</u>		X		X			1	
<u>B5C0</u>		<u>9/26</u>		X		X			1	
<u>B1F0</u>		<u>9/26</u>		X		X			1	
<u>B2F0</u>		<u>9/26</u>		X		X			1	
<u>B3F0</u>		<u>9/26</u>		X		X			1	
<u>B4F0</u>		<u>9/26</u>		X		X			1	
<u>B5F0</u>		<u>9/26</u>		X		X			1	

Turnaround time requested (please circle): Normal <input type="checkbox"/> Rush <input type="checkbox"/>		Relinquished by:		Date	Time	Received by:	Date	Time
(Rush TAT is subject to LLI approval and surcharge.)		<u>B. Ash</u>		<u>9/26</u>	<u>1106</u>			
Rush results requested by (please circle):		Relinquished by:		Date	Time	Received by:	Date	Time
Fax Fax # : _____								
Phone Phone # : _____		Relinquished by:		Date	Time	Received by:	Date	Time
8		Relinquished by:		Date	Time	Received by:	Date	Time
Data package options (please circle if requested):		Relinquished by:		Date	Time	Received by:	Date	Time
QC Summary	Site-specific QC required? Yes No	Relinquished by:		Date	Time	Received for LLI by:	Date	Time
Tier I (NJ)	(If yes, indicate QC sample and submit triplicate volume.)					<u>1/2</u>	<u>1/26</u>	<u>1106</u>
Tier II (NJ)								
EPA CLP	Data Package Chain of Custody required?						<u>9/26</u>	<u>1106</u>
	Yes No							

Please print. Instructions on reverse side correspond with circled numbers.

Client: <u>BERGMANN U.S.A.</u> Acct. # : _____		Matrix		Analyses Requested										For LLI use only						
Project Name/# : <u>MOSS-AMERICAN SITE</u>		④		PAH GULF GREASE BTEX										FSC: _____						
Project Manager: <u>RIC TRAVER</u> P.O. # : _____		Soil												SCR #: <u>1045816</u>						
Sampler: <u>ERIC LINDEAU</u> Quote # : _____		Water																		
Sample Identification		Date Collected	Time Collected	① Grab	Composite	Soil	Water	Other	Total # of Containers											Remarks
B11PB		2/27		X		X			1	X	X									
B12PB		2/27			X	X			1	X	X									
B13PB		2/27		X		X			1	X	X									
B14PB		2/27		X		X			1	X	X									
B15PB		2/27		X		X			1	X	X									
A17PBO		2/27		X		X			1	X	X	X								
B17PBO		2/27		X		X			1	X	X	X								
B16PB		2/27			X	X			1	X	X									

⑦ Turnaround time requested (please circle): Normal Rush  
(Rush TAT is subject to LLI approval and surcharge.)

Rush results requested by (please circle):

Fax Fax # : \_\_\_\_\_

Phone Phone # : \_\_\_\_\_

⑧ Data package options (please circle if requested):

QC Summary	Site-specific QC required? Yes No
Tier I (NJ)	(If yes, indicate QC sample and submit triplicate volume.)
Tier II (NJ)	
EPA CLP	Data Package Chain of Custody required? Yes No

Relinquished by:	Date	Time	Received by:	Date	Time
<i>Jane M. Wilco</i>	2/26/03	16:00			
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received for LLI by:	Date	Time
			<i>Doug Hoodless</i>	2/27/03	1340



09:47:39 369679  
ASR000 D 1 35  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1934473  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

All Grab Soil Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

A: 1/4" x 10MESA

**ANALYSIS**

**RESULT**

**LIMIT OF**

Moisture

AS RECEIVED

QUANTITATION

LAB CODE

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.

Oil and Grease

0.33 % by wt.

0.01

023606500

PAH's in Solids (SW846/8310)

attached

186222500

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301  
249 07426 0.00 030200

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer E. Hess, B.S.  
Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations.





09:47:39 369679  
ASR000 D 1 35  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1934473  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

All Grab Soil Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

ANALYSIS	RESULT	LIMIT OF	LAB CODE
	DRY WT. BASIS	QUANTITATION	
Moisture *AS RECEIVED*	1.2 % by wt.	0.5	011100000
"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.			
Oil and Grease	0.33 % by wt.	0.01	023600000
PAH's in Solids (SW846/8310)	attached		186200000

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer E. Hess, B.S.  
Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations.





09:47:41 369679  
ASR000 D 1 35  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1934473  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

All Grab Soil Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

	RESULT AS RECEIVED	UNIT	LIMIT OF QUANTITATION	LAB CODE
PAH's in Solids (SW846/8310)				
Naphthalene	< 20.	mg/kg	20.	329600000N
Acenaphthylene	< 4.	mg/kg	4.	329700000N
Acenaphthene	< 7.	mg/kg	7.	329800000N
Fluorene	< 2.	mg/kg	2.	329900000N
Phenanthrene	< 8.	mg/kg	8.	330000000N
Anthracene	< 5.	mg/kg	5.	330100000N
Fluoranthene	30.	mg/kg	10.	330200000N
Pyrene	40.	mg/kg	10.	330300000N
Benzo(a)anthracene	6.	mg/kg	1.	330400000N
Chrysene	< 10.	mg/kg	10.	330500000N
Benzo(b)fluoranthene	18.	mg/kg	1.	330600000N
Benzo(k)fluoranthene	7.	mg/kg	1.	330700000N
Benzo(a)pyrene	15.	mg/kg	1.	330800000N
Dibenzo(a,h)anthracene	< 1.	mg/kg	1.	330900000N
Benzo(g,h,i)perylene	19.	mg/kg	3.	331000000N
Indeno(1,2,3-cd)pyrene	< 6.	mg/kg	6.	331100000N

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ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer B. Hess, B.S.  
Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations.





09:47:41 369679  
ASR000 D 1 35  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1934473  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

All Grab Soil Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

PAH's in Solids (SW846/8310)	RESULT DRY WT. BASIS	LIMIT OF QUANTITATION	LAB CODE
Naphthalene	< 20. mg/kg	20.	329600000N
Acenaphthylene	< 4. mg/kg	4.	329700000N
Acenaphthene	< 7. mg/kg	7.	329800000N
Fluorene	< 2. mg/kg	2.	329900000N
Phenanthrene	< 8. mg/kg	8.	330000000N
Anthracene	< 5. mg/kg	5.	330100000N
Fluoranthene	30. mg/kg	10.	330200000N
Pyrene	40. mg/kg	10.	330300000N
Benzo(a)anthracene	6. mg/kg	1.	330400000N
Chrysene	< 10. mg/kg	10.	330500000N
Benzo(b)fluoranthene	18. mg/kg	1.	330600000N
Benzo(k)fluoranthene	7. mg/kg	1.	330700000N
Benzo(a)pyrene	15. mg/kg	1.	330800000N
Dibenzo(a,h)anthracene	< 1. mg/kg	1.	330900000N
Benzo(g,h,i)perylene	20. mg/kg	3.	331000000N
Indeno(1,2,3-cd)pyrene	< 6. mg/kg	6.	331100000N

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301.

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer E. Hess, B.S.  
Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations.







09:47:44 369679  
ASR000 D 1 35  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1934474  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

A12 Grab Soil Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

**A: 10 x 50 mesh**

**ANALYSIS**

	RESULT AS RECEIVED		LIMIT OF QUANTITATION	LAB CODE
Moisture	1.4	% by wt.	0.5	011101200
Oil and Grease	0.38	% by wt.	0.01	023606500

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301  
249 07426 0.00 007700

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer B. Hess, B.S.  
Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations.





09:47:44 369679  
ASR000 D 1 35  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1934474  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

A12 Grab Soil Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

ANALYSIS	RESULT	LIMIT OF	LAB CODE
	DRY WT. BASIS	QUANTITATION	
Moisture *AS RECEIVED*	1.4 % by wt.	0.5	011100000
"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.			
Oil and Grease	0.38 % by wt.	0.01	023600000

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer E. Hess, B.S.  
Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations.





09:47:47 369679  
ASR000 D 1 35  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1934475  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

A13 Grab Soil Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

**A: 50 x 100 mesh**

**ANALYSIS**

RESULT AS RECEIVED	UNIT	LIMIT OF QUANTITATION	LAB CODE
Moisture	2.2 % by wt.	0.5	011101200
Oil and Grease	0.54 % by wt.	0.01	023606500

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301  
249 07426 0.00 007700

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer B. Hess, B.S.  
Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations.





09:47:47 369679  
ASR000 D 1 35  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1934475  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

A13 Grab Soil Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

ANALYSIS	RESULT	LIMIT OF	LAB CODE
	DRY WT. BASIS	QUANTITATION	
Moisture *AS RECEIVED*	2.2 % by wt.	0.5	011100000
"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.			
Oil and Grease	0.55 % by wt.	0.01	023600000

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ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer E. Hess, B.S.  
Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations.





09:47:49 369679  
ASR000 D 1 35  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1934476  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

A14 Grab Soil Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

**A: 100 x 200 MESH**

**ANALYSIS**

RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
Moisture 2.6 % by wt.	0.5	011101200
Oil and Grease 1.13 % by wt.	0.01	023606500

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.

Oil and Grease

1.13 % by wt.

0.01 023606500

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ATTN: Mr. Ric Travor

Questions? Contact Environmental Client Services at (717) 656-2301  
249 07426 0.00 007700

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Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer E. Hess, B.S.  
Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations.





**Lancaster Laboratories**

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09:47:49 369679  
ASR000 D 1 35  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1934476  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

A14 Grab Soil Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

ANALYSIS	RESULT	LIMIT OF	LAB CODE
	DRY WT. BASIS	QUANTITATION	
Moisture *AS RECEIVED*	2.6 % by wt.	0.5	011100000
"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.			
Oil and Grease	1.16 % by wt.	0.01	023600000

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ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301

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Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer E. Hess, B.S.  
Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations.





09:47:52 369679  
ASR000 D 1 35  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1934477  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

A15 Grab Soil Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

**A: 200 x 325 MESH**  
**0 MESH**

**ANALYSIS**

RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
2.4 % by wt.	0.5	011101200
0.80 % by wt.	0.01	023606500

Moisture  
"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.

Oil and Grease

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ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301  
249 07426 0.00 007700

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Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer K. Hess, B.S.  
Group Leader Pesticides/PCBs

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*Where quality is a science.*

09:47:52 369679  
ASR000 D 1 35  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1934477  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

A15 Grab Soil Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

ANALYSIS	RESULT	LIMIT OF	LAB CODE
	DRY WT. BASIS	QUANTITATION	
Moisture *AS RECEIVED*	2.4 % by wt.	0.5	011100000
"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.			
Oil and Grease	0.82 % by wt.	0.01	023600000

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ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer B. Hess, B.S.  
Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations.







07:04:49 370255  
ASR000 D 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1936860  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/27/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

A17P80 Grab Soil Sample  
Moss - American Site

**R: 200 x 0 MESH**

**ANALYSIS**

Moisture

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.

Oil and Grease

PAH's in Solids (SW846/8310)

BTEX Scan (8020)

**RESULT  
AS RECEIVED**

93.9 % by wt.

0.55 % by wt.

attached

attached

**LIMIT OF  
QUANTITATION**

0.5

0.01

**LAB CODE**

011101200

023606500

186222500

221308500

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ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301  
528 07426 15.00 040200

Respectfully Submitted  
Lancaster Laboratories, Inc.

Bethany A. Ebling, B.S.  
Group Leader, Water Quality



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

See reverse side for explanation of symbols and abbreviations.





07:04:49 370255  
ASR000 D 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1936860  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/27/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

A17PBO Grab Soil Sample  
Moss - American Site

ANALYSIS	RESULT	LIMIT OF QUANTITATION	LAB CODE
Moisture *AS RECEIVED*	93.9 % by wt.	0.5	011100000
"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.			
Oil and Grease	9.1 % by wt.	0.2	023600000
PAH's in Solids (SW846/8310)	attached		186222500
BTEX Scan (8020)	attached		221322500

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ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Bethany A. Ebling, B.S.  
Group Leader, Water Quality

See reverse side for explanation of symbols and abbreviations.





07:04:50 370255  
ASR000 D 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1936860  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/27/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

A17PBO Grab Soil Sample  
Moss - American Site

	RESULT		LIMIT OF	LAB CODE
	AS RECEIVED		QUANTITATION	
PAH's in Solids (SW846/8310)				
Naphthalene	< 20.	mg/kg	20.	329600000N
Acenaphthylene	< 20.	mg/kg	20.	329700000N
Acenaphthene	< 20.	mg/kg	20.	329800000N
Fluorene	< 20.	mg/kg	20.	329900000N
Phenanthrene	< 7.	mg/kg	7.	330000000N
Anthracene	< 5.	mg/kg	5.	330100000N
Fluoranthene	10.	mg/kg	2.	330200000N
Pyrene	18.	mg/kg	2.	330300000N
Benzo(a)anthracene	2.1	mg/kg	0.5	330400000N
Chrysene	3.	mg/kg	1.	330500000N
Benzo(b)fluoranthene	9.	mg/kg	1.	330600000N
Benzo(k)fluoranthene	3.	mg/kg	1.	330700000N
Benzo(a)pyrene	5.	mg/kg	1.	330800000N
Dibenzo(a,h)anthracene	< 1.	mg/kg	1.	330900000N
Benzo(g,h,i)perylene	8.	mg/kg	3.	331000000N
Indeno(1,2,3-cd)pyrene	17.	mg/kg	3.	331100000N

Due to interfering peaks on the chromatogram, the values reported represent the lowest quantitation limits obtainable.

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ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer B. Hess, B.S.  
Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations.





07:04:50 370255  
ASR000 D 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1936860  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/27/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

A17PBO Grab Soil Sample  
Moss - American Site

	RESULT		LIMIT OF	LAB CODE
	DRY WT. BASIS		QUANTITATION	
PAH's in Solids (SW846/8310)				
Naphthalene	< 300.	mg/kg	300.	329600000N
Acenaphthylene	< 300.	mg/kg	300.	329700000N
Acenaphthene	< 300.	mg/kg	300.	329800000N
Fluorene	< 300.	mg/kg	300.	329900000N
Phenanthrene	< 100.	mg/kg	100.	330000000N
Anthracene	< 80.	mg/kg	80.	330100000N
Fluoranthene	160.	mg/kg	30.	330200000N
Pyrene	290.	mg/kg	30.	330300000N
Benzo(a)anthracene	34.	mg/kg	8.	330400000N
Chrysene	60.	mg/kg	20.	330500000N
Benzo(b)fluoranthene	140.	mg/kg	20.	330600000N
Benzo(k)fluoranthene	60.	mg/kg	20.	330700000N
Benzo(a)pyrene	80.	mg/kg	20.	330800000N
Dibenzo(a,h)anthracene	< 20.	mg/kg	20.	330900000N
Benzo(g,h,i)perylene	130.	mg/kg	50.	331000000N
Indeno(1,2,3-cd)pyrene	270.	mg/kg	50.	331100000N

Due to interfering peaks on the chromatogram, the values reported represent the lowest quantitation limits obtainable.

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ATTN: Mr. Ric Travov

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer E. Hess, B.S.  
Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations.





07:04:53 370255  
ASR000 D 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1936860  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/27/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

A17PBO Grab Soil Sample  
Moss - American Site

	RESULT		LIMIT OF	LAB CODE
	AS RECEIVED		QUANTITATION	
BTEX Scan (8020)				
Benzene	< 6.	ug/kg	6.	260300000N
Toluene	130.	ug/kg	5.	260400000N
Ethylbenzene	44.	ug/kg	5.	260600000N
o-Xylene	27.	ug/kg	5.	260800000N
m-Xylene	81.	ug/kg	5.	260900000N
p-Xylene	50.	ug/kg	5.	261000000N

Due to interferences from the sample matrix, the limit of quantitation for the benzene determination was increased.

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ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Delwyn K. Schumacher, B.S.  
Group Leader, ExpressLAB

See reverse side for explanation of symbols and abbreviations.





07:04:53 370255  
ASR000 D 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1936860  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/27/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

A17PBO Grab Soil Sample  
Moss - American Site

	RESULT		LIMIT OF	LAB CODE
	DRY WT. BASIS		QUANTITATION	
BTEX Scan (8020)				
Benzene	< 100.	ug/kg	100.	260300000N
Toluene	2,100.	ug/kg	80.	260400000N
Ethylbenzene	720.	ug/kg	80.	260600000N
o-Xylene	440.	ug/kg	80.	260800000N
m-Xylene	1,300.	ug/kg	80.	260900000N
p-Xylene	820.	ug/kg	80.	261000000N

Due to interferences from the sample matrix, the limit of quantitation for the benzene determination was increased.

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ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301

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Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Delwyn K. Schumacher, B.S.  
Group Leader, ExpressLAB

See reverse side for explanation of symbols and abbreviations.





09:45:15 369679  
ASR000 D 1 35  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1934448  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

ALCPB Grab Soil Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

**A: DOUBLE H<sub>2</sub>O - CORRS**

**ANALYSIS**

**RESULT  
AS RECEIVED**

**LIMIT OF  
QUANTITATION**

**LAB CODE**

Moisture

0.5 % by wt.

0.5

011101200

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.

PAH's in Solids (SW846/8310)

attached

186222500

BTEX Scan (8020)

attached

221308500

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental Client Services at (717) 656-2301 249 07426 15.00 033700  
Respectfully Submitted Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer E. Hess, B.S.  
Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations.





09:45:15 369679  
ASR000 D 1 35  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1934448  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

ALCPB Grab Soil Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

ANALYSIS	RESULT	LIMIT OF	LAB CODE
	DRY WT. BASIS	QUANTITATION	
Moisture *AS RECEIVED*	0.5 % by wt.	0.5	011100000
"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.			
PAH's in Solids (SW846/8310)	attached		186200000
BTEX Scan (8020)	attached		221300000

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ATTN: Mr. Ric Travor

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Client Services at (717) 656-2301

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Lancaster Laboratories, Inc.



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Lancaster, PA 17601-5994  
717-656-2301

Jenifer K. Hess, B.S.  
Group Leader Pesticides/PCBs

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100  
300





09:45:20 369679  
ASR000 D 1 35  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1934448  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

AlCPB Grab Soil Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

	RESULT		LIMIT OF	LAB CODE
	AS RECEIVED		QUANTITATION	
PAH's in Solids (SW846/8310)				
Naphthalene	< 30.	mg/kg	30.	329600000N
Acenaphthylene	< 20.	mg/kg	20.	329700000N
Acenaphthene	< 20.	mg/kg	20.	329800000N
Fluorene	< 20.	mg/kg	20.	329900000N
Phenanthrene	8.	mg/kg	5.	330000000N
Anthracene	< 5.	mg/kg	5.	330100000N
Fluoranthene	12.	mg/kg	2.	330200000N
Pyrene	13.	mg/kg	2.	330300000N
Benzo(a)anthracene	2.6	mg/kg	0.1	330400000N
Chrysene	3.	mg/kg	1.	330500000N
Benzo(b)fluoranthene	4.3	mg/kg	0.2	330600000N
Benzo(k)fluoranthene	1.8	mg/kg	0.2	330700000N
Benzo(a)pyrene	2.4	mg/kg	0.2	330800000N
Dibenzo(a,h)anthracene	< 0.2	mg/kg	0.2	330900000N
Benzo(g,h,i)perylene	3.6	mg/kg	0.5	331000000N
Indeno(1,2,3-cd)pyrene	1.2	mg/kg	0.5	331100000N

Due to interfering peaks on the chromatogram, the values reported represent the lowest quantitation limits obtainable.

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ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer E. Hess, B.S.  
Group Leader Pesticides/PCBs

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09:45:20 369679  
 ASR000 D 1 35  
 07426 0

Bergmann USA  
 1550 Airport Road  
 Gallatin, TN 37066-3739

LLI Sample No. SW 1934448  
 Date Reported 3/26/93  
 Date Submitted 2/24/93  
 Discard Date 4/10/93

AICPB Grab Soil Sample  
 Moss-American Site

Time Collected  
 P.O. B93-420  
 Rel.

	RESULT		LIMIT OF	LAB CODE
	DRY WT. BASIS		QUANTITATION	
PAH's in Solids (SW846/8310)				
Naphthalene	< 30.	mg/kg	30.	329600000N
Acenaphthylene	< 20.	mg/kg	20.	329700000N
Acenaphthene	< 20.	mg/kg	20.	329800000N
Fluorene	< 20.	mg/kg	20.	329900000N
Phenanthrene	8.	mg/kg	5.	330000000N
Anthracene	< 5.	mg/kg	5.	330100000N
Fluoranthene	12.	mg/kg	2.	330200000N
Pyrene	13.	mg/kg	2.	330300000N
Benzo(a)anthracene	2.6	mg/kg	0.1	330400000N
Chrysene	3.	mg/kg	1.	330500000N
Benzo(b)fluoranthene	4.3	mg/kg	0.2	330600000N
Benzo(k)fluoranthene	1.8	mg/kg	0.2	330700000N
Benzo(a)pyrene	2.4	mg/kg	0.2	330800000N
Dibenzo(a,h)anthracene	< 0.2	mg/kg	0.2	330900000N
Benzo(g,h,i)perylene	3.6	mg/kg	0.5	331000000N
Indeno(1,2,3-cd)pyrene	1.2	mg/kg	0.5	331100000N

Due to interfering peaks on the chromatogram, the values reported represent the lowest quantitation limits obtainable.

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ATTN: Mr. Ric Travor

Questions? Contact Environmental  
 Client Services at (717) 656-2301

Respectfully Submitted  
 Lancaster Laboratories, Inc.



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 2425 New Holland Pike  
 Lancaster, PA 17601-5994  
 717-656-2301

Jenifer B. Hess, B.S.  
 Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations.



**Lancaster Laboratories***Where quality is a science.*09:45:27 369679  
ASR000 D 1 35  
07426 0Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739LLI Sample No. SW 1934448  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93AICPB Grab Soil Sample  
Moss-American SiteTime Collected  
P.O. B93-420  
Rel.

BTEX Scan (8020)	RESULT		LIMIT OF QUANTITATION	LAB CODE
	AS RECEIVED			
Benzene	< 20.	ug/kg	20.	260300000N
Toluene	2,100.	ug/kg	5.	260400000N
Ethylbenzene	150.	ug/kg	5.	260600000N
o-Xylene	110.	ug/kg	5.	260800000N
m-Xylene	320.	ug/kg	5.	260900000N
p-Xylene	160.	ug/kg	5.	261000000N

Due to interferences from the sample matrix, the limit of quantitation for the benzene determination was increased.

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301Respectfully Submitted  
Lancaster Laboratories, Inc.Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301Delwyn K. Schumacher, B.S.  
Group Leader, ExpressLAB

See reverse side for explanation of symbols and abbreviations.





09:45:27 369679  
ASR000 D 1 35  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1934448  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

ALCPB Grab Soil Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

	RESULT		LIMIT OF	LAB CODE
	DRY WT. BASIS		QUANTITATION	
BTEX Scan (8020)				
Benzene	< 20.	ug/kg	20.	260300000N
Toluene	2,100.	ug/kg	5.	260400000N
Ethylbenzene	150.	ug/kg	5.	260600000N
o-Xylene	110.	ug/kg	5.	260800000N
m-Xylene	320.	ug/kg	5.	260900000N
p-Xylene	160.	ug/kg	5.	261000000N

Due to interferences from the sample matrix, the limit of quantitation for the benzene determination was increased.

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301.

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Delwyn K. Schumacher, B.S.  
Group Leader, ExpressLAB

See reverse side for explanation of symbols and abbreviations.





09:45:35 369679  
ASR000 D 1 35  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1934449  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

AlCO Grab Soil Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

ANALYSIS	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
Moisture "Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.	0.8 % by wt.	0.5	011101200
Oil and Grease	0.10 % by wt.	0.01	023606500

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301  
249 07426 0.00 007700

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer E. Hess, B.S.  
Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations.





09:45:35 369679  
ASR000 D 1 35  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1934449  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

AlCO Grab Soil Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

ANALYSIS	RESULT	LIMIT OF	LAB CODE
	DRY WT. BASIS	QUANTITATION	
Moisture *AS RECEIVED*	0.8 % by wt.	0.5	011100000
"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.			
Oil and Grease	0.10 % by wt.	0.01	023600000

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ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer E. Hess, B.S.  
Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations.





09:45:41 369679  
ASR000 D 1 35  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1934450  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

A2CPB Grab Soil Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

**A: High Monco - Contam**

ANALYSIS	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
Moisture	< 0.5 % by wt.	0.5	011101200
"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.			
PAH's in Solids (SW846/8310)	attached		186222500
BTEX Scan (8020)	attached		221308500

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301  
249 07426 15.00 033700

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer E. Hess, B.S.  
Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations.





## Lancaster Laboratories

Where quality is a science.

09:45:44 369679  
ASR000 D 1 35  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1934450  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

A2CPB Grab Soil Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

	RESULT		LIMIT OF	LAB CODE
	AS RECEIVED		QUANTITATION	
PAH's in Solids (SW846/8310)				
Naphthalene	< 30.	mg/kg	30.	329600000N
Acenaphthylene	< 20.	mg/kg	20.	329700000N
Acenaphthene	< 20.	mg/kg	20.	329800000N
Fluorene	< 20.	mg/kg	20.	329900000N
Phenanthrene	9.	mg/kg	5.	330000000N
Anthracene	< 5.	mg/kg	5.	330100000N
Fluoranthene	14.	mg/kg	2.	330200000N
Pyrene	17.	mg/kg	2.	330300000N
Benzo(a)anthracene	3.4	mg/kg	0.1	330400000N
Chrysene	< 1.	mg/kg	1.	330500000N
Benzo(b)fluoranthene	5.5	mg/kg	0.2	330600000N
Benzo(k)fluoranthene	2.3	mg/kg	0.2	330700000N
Benzo(a)pyrene	3.0	mg/kg	0.2	330800000N
Dibenzo(a,h)anthracene	< 0.2	mg/kg	0.2	330900000N
Benzo(g,h,i)perylene	< 5.	mg/kg	5.	331000000N
Indeno(1,2,3-cd)pyrene	1.5	mg/kg	0.5	331100000N

Due to interfering peaks on the chromatogram, the values reported represent the lowest quantitation limits obtainable.

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ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer E. Hess, B.S.  
Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations.







09:45:46 369679  
ASR000 D 1 35  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1934450  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

A2CPB Grab Soil Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

	RESULT		LIMIT OF	LAB CODE
	AS RECEIVED		QUANTITATION	
BTEX Scan (8020)				
Benzene	240.	ug/kg	5.	260300000N
Toluene	3,300.	ug/kg	5.	260400000N
Ethylbenzene	350.	ug/kg	5.	260600000N
o-Xylene	300.	ug/kg	5.	260800000N
m-Xylene	810.	ug/kg	5.	260900000N
p-Xylene	360.	ug/kg	5.	261000000N

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ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Highland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Delwyn K. Schumacher, B.S.  
Group Leader, ExpressLAB

See reverse side for explanation of symbols and abbreviations.





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09:45:47 369679  
ASR000 D 1 35  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1934451  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

A2C0 Grab Soil Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

ANALYSIS	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
Moisture	0.6 % by wt.	0.5	011101200
"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.			
Oil and Grease	0.09 % by wt.	0.01	023606500

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301  
249 07426 0.00 007700

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer E. Hess, B.S.  
Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations.





09:45:47.369679  
ASR000 D 1 35  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1934451  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

A2C0 Grab Soil Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

ANALYSIS	RESULT	LIMIT OF	LAB CODE
	DRY WT. BASIS	QUANTITATION	
Moisture *AS RECEIVED*	0.6 % by wt.	0.5	011100000
"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.			
Oil and Grease	0.09 % by wt.	0.01	023600000

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ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301

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Lancaster, PA 17601-5994  
717-656-2301

Jenifer E. Hess, B.S.  
Group Leader Pesticides/PCBs

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09:45:49 369679  
ASR000 D 1 35  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1934452  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

A3CPB Grab Soil Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

**A: Low Monco - Coates**

ANALYSIS  
Moisture

RESULT  
AS RECEIVED  
0.6 % by wt.

LIMIT OF  
QUANTITATION LAB CODE  
0.5 011101200

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.

PAH's in Solids (SW846/8310)  
BTEX Scan (8020)

attached 186222500  
attached 221308500

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301  
249 07426 15.00 033700

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer E. Hess, B.S.  
Group Leader Pesticides/PCBs

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09:45:49 369679  
ASR000 D 1 35  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1934452  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

A3CPB Grab Soil Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

ANALYSIS	RESULT	LIMIT OF	LAB CODE
	DRY WT. BASIS	QUANTITATION	
Moisture *AS RECEIVED*	0.6 % by wt.	0.5	011100000
"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.			
PAH's in Solids (SW846/8310)	attached		186200000
BTEX Scan (8020)	attached		221300000

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ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301

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Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

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See reverse side for explanation of symbols and abbreviations.





09:45:50 369679  
ASR000 D. 1 35  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1934452  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

A3CPB Grab Soil Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

	RESULT		LIMIT OF	LAB CODE
	AS RECEIVED		QUANTITATION	
PAH's in Solids (SW846/8310)				
Naphthalene	< 30. mg/kg		30.	329600000N
Acenaphthylene	< 20. mg/kg		20.	329700000N
Acenaphthene	< 20. mg/kg		20.	329800000N
Fluorene	< 20. mg/kg		20.	329900000N
Phenanthrene	10. mg/kg		5.	330000000N
Anthracene	< 5. mg/kg		5.	330100000N
Fluoranthene	17. mg/kg		2.	330200000N
Pyrene	19. mg/kg		2.	330300000N
Benzo(a)anthracene	3.9 mg/kg		0.1	330400000N
Chrysene	5. mg/kg		1.	330500000N
Benzo(b)fluoranthene	4.9 mg/kg		0.2	330600000N
Benzo(k)fluoranthene	2.1 mg/kg		0.2	330700000N
Benzo(a)pyrene	2.8 mg/kg		0.2	330800000N
Dibenzo(a,h)anthracene	< 0.2 mg/kg		0.2	330900000N
Benzo(g,h,i)perylene	3.7 mg/kg		0.5	331000000N
Indeno(1,2,3-cd)pyrene	1.3 mg/kg		0.5	331100000N

Due to interfering peaks on the chromatogram, the values reported represent the lowest quantitation limits obtainable.

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ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer E. Hess, B.S.  
Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations.





09:45:50 369679  
ASR000 D 1 35  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1934452  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

A3CPB Grab Soil Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

	RESULT		LIMIT OF	LAB CODE
	DRY WT. BASIS		QUANTITATION	
PAH's in Solids (SW846/8310)				
Naphthalene	< 30. mg/kg		30.	329600000N
Acenaphthylene	< 20. mg/kg		20.	329700000N
Acenaphthene	< 20. mg/kg		20.	329800000N
Fluorene	< 20. mg/kg		20.	329900000N
Phenanthrene	10. mg/kg		5.	330000000N
Anthracene	< 5. mg/kg		5.	330100000N
Fluoranthene	17. mg/kg		2.	330200000N
Pyrene	19. mg/kg		2.	330300000N
Benzo(a)anthracene	3.9 mg/kg		0.1	330400000N
Chrysene	5. mg/kg		1.	330500000N
Benzo(b)fluoranthene	5.0 mg/kg		0.2	330600000N
Benzo(k)fluoranthene	2.1 mg/kg		0.2	330700000N
Benzo(a)pyrene	2.8 mg/kg		0.2	330800000N
Dibenzo(a,h)anthracene	< 0.2 mg/kg		0.2	330900000N
Benzo(g,h,i)perylene	3.7 mg/kg		0.5	331000000N
Indeno(1,2,3-cd)pyrene	1.3 mg/kg		0.5	331100000N

Due to interfering peaks on the chromatogram, the values reported represent the lowest quantitation limits obtainable.

1 COPY TO Bergmann USA

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Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



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2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer E. Hess, B.S.  
Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations.





09:45:54 369679  
ASR000 D 1 35  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1934452  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

A3CPB Grab Soil Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

	RESULT		LIMIT OF	LAB CODE
	AS RECEIVED		QUANTITATION	
BTEX Scan (8020)				
Benzene	< 20.	ug/kg	20.	260300000N
Toluene	2,000.	ug/kg	5.	260400000N
Ethylbenzene	150.	ug/kg	5.	260600000N
o-Xylene	110.	ug/kg	5.	260800000N
m-Xylene	340.	ug/kg	5.	260900000N
p-Xylene	170.	ug/kg	5.	261000000N

Due to interferences from the sample matrix, the limit of quantitation for the benzene determination was increased.

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ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client-Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Delwyn K. Schumacher, B.S.  
Group Leader, ExpressLAB

See reverse side for explanation of symbols and abbreviations.







09:45:54 369679  
ASR000 D 1 35  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1934452  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

A3CPB Grab Soil Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

	RESULT		LIMIT OF	LAB CODE
	DRY WT.	BASIS	QUANTITATION	
BTEX Scan (8020)				
Benzene	< 20.	ug/kg	20.	260300000N
Toluene	2,000.	ug/kg	5.	260400000N
Ethylbenzene	150.	ug/kg	5.	260600000N
o-Xylene	110.	ug/kg	5.	260800000N
m-Xylene	340.	ug/kg	5.	260900000N
p-Xylene	170.	ug/kg	5.	261000000N

Due to interferences from the sample matrix, the limit of quantitation for the benzene determination was increased.

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Delwyn K. Schumacher, B.S.  
Group Leader, ExpressLAB

See reverse side for explanation of symbols and abbreviations.





09:45:56 369679  
ASR000 D 1 35  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1934453  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

A3C0 Grab Soil Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

ANALYSIS	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
Moisture "Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.	0.7 % by wt.	0.5	011101200
Oil and Grease	0.10 % by wt.	0.01	023606500

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301  
249 07426 0.00 007700

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer E. Hess, B.S.  
Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations.





09:45:56 369679  
ASR000 D 1 35  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1934453  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

A3C0 Grab Soil Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

ANALYSIS	RESULT	LIMIT OF	LAB CODE
	DRY WT. BASIS	QUANTITATION	
Moisture *AS RECEIVED*	0.7 % by wt.	0.5	011100000
"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.			
Oil and Grease	0.10 % by wt.	0.01	023600000

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ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer B. Hess, B.S.  
Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations.





09:45:58 369679  
ASR000 D 1 35  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1934454  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

A4CPB Grab Soil Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

**A: HIGH LAURYL - COARSE**

ANALYSIS	RESULT AS RECEIVED	UNIT	LIMIT OF QUANTITATION	LAB CODE
Moisture	1.9	% by wt.	0.5	011101200
"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.				
PAH's in Solids (SW846/8310)		attached		186222500
BTEX Scan (8020)		attached		221308500

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301  
249 07426 15.00 033700

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer E. Hess, B.S.  
Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations.





09:45:58 369679  
ASR000 D 1 35  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1934454  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

A4CPB Grab Soil Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

ANALYSIS	RESULT DRY WT. BASIS	LIMIT OF QUANTITATION	LAB CODE
Moisture *AS RECEIVED*	1.9 % by wt.	0.5	011100000
"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.			
PAH's in Solids (SW846/8310)	attached		186200000
BTEX Scan (8020)	attached		221300000

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental Client Services at (717) 656-2301. Respectfully Submitted Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer E. Hess, B.S.  
Group Leader Pesticides/PCBs

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09:46:00 369679  
ASR000 D 1 35  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1934454  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

A4CPB Grab Soil Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

PAH's in Solids (SW846/8310)	RESULT AS RECEIVED	UNIT	LIMIT OF QUANTITATION	LAB CODE
Naphthalene	< 40.	mg/kg	40.	329600000N
Acenaphthylene	< 20.	mg/kg	20.	329700000N
Acenaphthene	< 20.	mg/kg	20.	329800000N
Fluorene	< 20.	mg/kg	20.	329900000N
Phenanthrene	14.	mg/kg	5.	330000000N
Anthracene	< 5.	mg/kg	5.	330100000N
Fluoranthene	18.	mg/kg	2.	330200000N
Pyrene	19.	mg/kg	2.	330300000N
Benzo(a)anthracene	3.9	mg/kg	0.1	330400000N
Chrysene	5.	mg/kg	1.	330500000N
Benzo(b)fluoranthene	5.5	mg/kg	0.2	330600000N
Benzo(k)fluoranthene	2.4	mg/kg	0.2	330700000N
Benzo(a)pyrene	3.0	mg/kg	0.2	330800000N
Dibenzo(a,h)anthracene	< 0.2	mg/kg	0.2	330900000N
Benzo(g,h,i)perylene	< 5.	mg/kg	5.	331000000N
Indeno(1,2,3-cd)pyrene	1.3	mg/kg	0.5	331100000N

Due to interfering peaks on the chromatogram, the values reported represent the lowest quantitation limits obtainable.

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer B. Hess, B.S.  
Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations.





09:46:05 369679  
ASR000 D 1 35  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1934454  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

A4CPB Grab Soil Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

	RESULT		LIMIT OF	
BTEX Scan (8020)	AS RECEIVED		QUANTITATION	LAB CODE
Benzene	< 20.	ug/kg	20.	260300000N
Toluene	1,600.	ug/kg	5.	260400000N
Ethylbenzene	140.	ug/kg	5.	260600000N
o-Xylene	100.	ug/kg	5.	260800000N
m-Xylene	310.	ug/kg	5.	260900000N
p-Xylene	160.	ug/kg	5.	261000000N

Due to interferences from the sample matrix, the limit of quantitation for the benzene determination was increased.

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ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Delwyn K. Schumacher, B.S.  
Group Leader, ExpressLAB

See reverse side for explanation of symbols and abbreviations.





09:46:05 369679  
ASR000 D 1 35  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1934454  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

A4CPB Grab Soil Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

	RESULT		LIMIT OF	LAB CODE
	DRY WT. BASIS		QUANTITATION	
BTEX Scan (8020)				
Benzene	< 20.	ug/kg	20.	260300000N
Toluene	1,600.	ug/kg	5.	260400000N
Ethylbenzene	150.	ug/kg	5.	260600000N
o-Xylene	100.	ug/kg	5.	260800000N
m-Xylene	320.	ug/kg	5.	260900000N
p-Xylene	160.	ug/kg	5.	261000000N

Due to interferences from the sample matrix, the limit of quantitation for the benzene determination was increased.

1 COPY TO Bergmann USA

ATTN: Mr. Ric. Travor.

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
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Lancaster, PA 17601-5994  
717-656-2301

Delwyn K. Schumacher, B.S.  
Group Leader, ExpressLAB

See reverse side for explanation of symbols and abbreviations.







09:46:07 369679  
ASR000 D 1 35  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1934455  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

A4CO Grab Soil Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

**A: HIGH LAUREL - COARSE**

**ANALYSIS**

RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
Moisture 2.2 % by wt.	0.5	011101200
Oil and Grease 0.11 % by wt.	0.01	023606500

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301  
249 07426 0.00 007700

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer E. Hess, B.S.  
Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations.





09:46:07 369679  
ASR000 D 1 35  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1934455  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

A4C0 Grab Soil Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

ANALYSIS	RESULT	LIMIT OF	LAB CODE
	DRY WT. BASIS	QUANTITATION	
Moisture *AS RECEIVED*	2.2 % by wt.	0.5	011100000
"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.			
Oil and Grease	0.12 % by wt.	0.01	023600000

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ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301

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Group Leader Pesticides/PCBs

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09:46:09 369679  
ASR000 D 1 35  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1934456  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

A5CPB Grab Soil Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

**A: LOW LAUREL - COARSE**

ANALYSIS	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
Moisture	1.0 % by wt.	0.5	011101200
"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.			
PAH's in Solids (SW846/8310)	attached		186222500
BTEX Scan (8020)	attached		221308500

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ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301  
249 07426 15.00 033700

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Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer E. Hess, B.S.  
Group Leader Pesticides/PCBs

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09:46:09 369679  
ASR000 D 1 35  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1934456  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

A5CPB Grab Soil Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

ANALYSIS	RESULT	LIMIT OF QUANTITATION	LAB CODE
Moisture *AS RECEIVED*	1.0 % by wt.	0.5	011100000
"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.			
PAH's in Solids (SW846/8310)	attached		186200000
BTEX Scan (8020)	attached		221300000

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ATTN: Mr. Ric Travor

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Client Services at (717) 656-2301

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09:46:12 369679  
ASR000 D 1 35  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1934456  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

A5CPB Grab Soil Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

PAH's in Solids (SW846/8310)	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
Naphthalene	40. mg/kg	20.	329600000N
Acenaphthylene	< 20. mg/kg	20.	329700000N
Acenaphthene	< 20. mg/kg	20.	329800000N
Fluorene	< 20. mg/kg	20.	329900000N
Phenanthrene	12. mg/kg	5.	330000000N
Anthracene	< 5. mg/kg	5.	330100000N
Fluoranthene	16. mg/kg	2.	330200000N
Pyrene	18. mg/kg	2.	330300000N
Benzo(a)anthracene	3.3 mg/kg	0.1	330400000N
Chrysene	4. mg/kg	1.	330500000N
Benzo(b)fluoranthene	5.6 mg/kg	0.2	330600000N
Benzo(k)fluoranthene	2.3 mg/kg	0.2	330700000N
Benzo(a)pyrene	3.3 mg/kg	0.2	330800000N
Dibenzo(a,h)anthracene	< 0.2 mg/kg	0.2	330900000N
Benzo(g,h,i)perylene	< 5. mg/kg	5.	331000000N
Indeno(1,2,3-cd)pyrene	1.4 mg/kg	0.5	331100000N

Due to interfering peaks on the chromatogram, the values reported represent the lowest quantitation limits obtainable.

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



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2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer B. Hess, B.S.  
Group Leader Pesticides/PCBs

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**Lancaster Laboratories**  
*Where quality is a science.*

09:46:12 369679  
ASR000 D 1 35  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1934456  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

A5CPB Grab Soil Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

	RESULT		LIMIT OF	LAB CODE
	DRY WT. BASIS		QUANTITATION	
PAH's in Solids (SW846/8310)				
Naphthalene	40.	mg/kg	20.	329600000N
Acenaphthylene	< 20.	mg/kg	20.	329700000N
Acenaphthene	< 20.	mg/kg	20.	329800000N
Fluorene	< 20.	mg/kg	20.	329900000N
Phenanthrene	12.	mg/kg	5.	330000000N
Anthracene	< 5.	mg/kg	5.	330100000N
Fluoranthene	16.	mg/kg	2.	330200000N
Pyrene	18.	mg/kg	2.	330300000N
Benzo(a)anthracene	3.3	mg/kg	0.1	330400000N
Chrysene	4.	mg/kg	1.	330500000N
Benzo(b)fluoranthene	5.6	mg/kg	0.2	330600000N
Benzo(k)fluoranthene	2.4	mg/kg	0.2	330700000N
Benzo(a)pyrene	3.3	mg/kg	0.2	330800000N
Dibenzo(a,h)anthracene	< 0.2	mg/kg	0.2	330900000N
Benzo(g,h,i)perylene	< 5.	mg/kg	5.	331000000N
Indeno(1,2,3-cd)pyrene	1.5	mg/kg	0.5	331100000N

Due to interfering peaks on the chromatogram, the values reported represent the lowest quantitation limits obtainable.

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09:46:17 369679  
ASR000 D 1 35  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1934456  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

A5CPB Grab Soil Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

BTEX Scan (8020)	RESULT		LIMIT OF QUANTITATION	LAB CODE
	AS RECEIVED			
Benzene	< 20.	ug/kg	20.	260300000N
Toluene	1,400.	ug/kg	5.	260400000N
Ethylbenzene	130.	ug/kg	5.	260600000N
o-Xylene	100.	ug/kg	5.	260800000N
m-Xylene	300.	ug/kg	5.	260900000N
p-Xylene	160.	ug/kg	5.	261000000N

Due to interferences from the sample matrix, the limit of quantitation for the benzene determination was increased.

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ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301

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2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Delwyn K. Schumacher, B.S.  
Group Leader, ExpressLAB

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09:46:17 369679  
ASR000 D 1 35  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1934456  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

A5CPB Grab Soil Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

	RESULT		LIMIT OF	LAB CODE
	DRY WT. BASIS		QUANTITATION	
BTEX Scan (8020)				
Benzene	< 20.	ug/kg	20.	260300000N
Toluene	1,400.	ug/kg	5.	260400000N
Ethylbenzene	130.	ug/kg	5.	260600000N
o-Xylene	100.	ug/kg	5.	260800000N
m-Xylene	310.	ug/kg	5.	260900000N
p-Xylene	160.	ug/kg	5.	261000000N

Due to interferences from the sample matrix, the limit of quantitation for the benzene determination was increased.

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ATTN: Mr. Ric Travor

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Lancaster, PA 17601-5994  
717-656-2301

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Group Leader, ExpressLAB

See reverse side for explanation of symbols and abbreviations.







09:46:19 369679  
ASR000 D 1 35  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1934457  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

A5C0 Grab Soil Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

ANALYSIS	RESULT AS RECEIVED		LIMIT OF QUANTITATION	LAB CODE
Moisture	5.5	% by wt.	0.5	011101200
"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.				
Oil and Grease	0.12	% by wt.	0.01	023606500

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ATTN: Mr. Ric Travor

Questions? Contact Environmental Client Services at (717) 656-2301  
249 07426 0.00 007700

Respectfully Submitted  
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Lancaster, PA 17601-5994  
717-656-2301

Jenifer E. Hess, B.S.  
Group Leader Pesticides/PCBs

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09:46:19 369679  
ASR000 D 1 35  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1934457  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

A5C0 Grab Soil Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

ANALYSIS	RESULT	LIMIT OF	LAB CODE
	DRY WT. BASIS	QUANTITATION	
Moisture *AS RECEIVED*	5.5 % by wt.	0.5	011100000
"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.			
Oil and Grease	0.13 % by wt.	0.01	023600000

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ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301

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717-656-2301

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Group Leader Pesticides/PCBs

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09:46:43 369679  
ASR000 D 1 35  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1934463  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

AIFFB Grab Soil Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

**A: DOUBLE H<sub>2</sub>O - FINES**

**ANALYSIS**

RESULT	AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
--------	-------------	-----------------------	----------

Moisture

2.8 % by wt.

0.5 011101200

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.

PAH's in Solids (SW846/8310)

attached

186222500

BTEX Scan (8020)

attached

221308500

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301  
249 07426 15.00 033700

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer E. Hess, B.S.  
Group Leader Pesticides/PCBs

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09:46:43 369679  
ASR000 D 1 35  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1934463  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

AIFFB Grab Soil Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

ANALYSIS	RESULT	LIMIT OF QUANTITATION	LAB CODE
Moisture *AS RECEIVED*	DRY WT. BASIS 2.8 % by wt.	0.5	011100000
"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.			
PAH's in Solids (SW846/8310)	attached		186200000
BTEX Scan (8020)	attached		221300000

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer B. Hess, B.S.  
Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations.





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09:46:46 369679  
ASR000 D 1 35  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1934463  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

AlFPB Grab Soil Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

PAH's in Solids (SW846/8310)	RESULT AS RECEIVED	UNIT	LIMIT OF QUANTITATION	LAB CODE
Naphthalene	< 200.	mg/kg	200.	329600000N
Acenaphthylene	< 60.	mg/kg	60.	329700000N
Acenaphthene	< 60.	mg/kg	60.	329800000N
Fluorene	< 60.	mg/kg	60.	329900000N
Phenanthrene	40.	mg/kg	20.	330000000N
Anthracene	< 20.	mg/kg	20.	330100000N
Fluoranthene	52.	mg/kg	6.	330200000N
Pyrene	55.	mg/kg	6.	330300000N
Benzo(a)anthracene	11.	mg/kg	0.3	330400000N
Chrysene	13.	mg/kg	3.	330500000N
Benzo(b)fluoranthene	19.	mg/kg	0.6	330600000N
Benzo(k)fluoranthene	7.8	mg/kg	0.6	330700000N
Benzo(a)pyrene	12.	mg/kg	0.6	330800000N
Dibenzo(a,h)anthracene	< 1.	mg/kg	1.	330900000N
Benzo(g,h,i)perylene	17.	mg/kg	2.	331000000N
Indeno(1,2,3-cd)pyrene	5.	mg/kg	2.	331100000N

Due to interfering peaks on the chromatogram, the values reported represent the lowest quantitation limits obtainable.

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



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2425 New Holland Pike  
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717-656-2301

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Group Leader Pesticides/PCBs

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09:46:46 369679  
ASR000 D 1 35  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1934463  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

AIFPB Grab Soil Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

	RESULT		LIMIT OF	LAB CODE
	DRY WT. BASIS		QUANTITATION	
PAH's in Solids (SW846/8310)				
Naphthalene	< 200.	mg/kg	200.	329600000N
Acenaphthylene	< 60.	mg/kg	60.	329700000N
Acenaphthene	< 60.	mg/kg	60.	329800000N
Fluorene	< 60.	mg/kg	60.	329900000N
Phenanthrene	40.	mg/kg	20.	330000000N
Anthracene	< 20.	mg/kg	20.	330100000N
Fluoranthene	54.	mg/kg	6.	330200000N
Pyrene	57.	mg/kg	6.	330300000N
Benzo(a)anthracene	11.	mg/kg	0.3	330400000N
Chrysene	13.	mg/kg	3.	330500000N
Benzo(b)fluoranthene	19.	mg/kg	0.6	330600000N
Benzo(k)fluoranthene	8.0	mg/kg	0.6	330700000N
Benzo(a)pyrene	13.	mg/kg	0.6	330800000N
Dibenzo(a,h)anthracene	< 1.	mg/kg	1.	330900000N
Benzo(g,h,i)perylene	17.	mg/kg	2.	331000000N
Indeno(1,2,3-cd)pyrene	6.	mg/kg	2.	331100000N

Due to interfering peaks on the chromatogram, the values reported represent the lowest quantitation limits obtainable.

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer E. Hess, B.S.  
Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations.





09:46:51 369679  
ASR000 D 1 35  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1934463  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

AlFPB Grab Soil Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

	RESULT		LIMIT OF	LAB CODE
	AS RECEIVED		QUANTITATION	
BTEX Scan (8020)				
Benzene	< 300.	ug/kg	300.	260300000N
Toluene	800,000.	ug/kg	100.	260400000N
Ethylbenzene	5,100.	ug/kg	50.	260600000N
o-Xylene	3,200.	ug/kg	50.	260800000N
m-Xylene	10,000.	ug/kg	50.	260900000N
p-Xylene	5,600.	ug/kg	50.	261000000N

Due to interferences from the sample matrix, the limit of quantitation for the benzene determination was increased.

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ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
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Lancaster, PA 17601-5994  
717-656-2301

Delwyn K. Schumacher, B.S.  
Group Leader, ExpressLAB

See reverse side for explanation of symbols and abbreviations.





09:46:51 369679  
ASR000 D 1 35  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1934463  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

AIFFB Grab Soil Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

	RESULT		LIMIT OF	
	DRY WT. BASIS		QUANTITATION	LAB CODE
BTEX Scan (8020)				
Benzene	< 300.	ug/kg	300.	260300000N
Toluene	830,000.	ug/kg	100.	260400000N
Ethylbenzene	5,300.	ug/kg	50.	260600000N
o-Xylene	3,300.	ug/kg	50.	260800000N
m-Xylene	11,000.	ug/kg	50.	260900000N
p-Xylene	5,800.	ug/kg	50.	261000000N

Due to interferences from the sample matrix, the limit of quantitation for the benzene determination was increased.

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ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301

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Lancaster, PA 17601-5994  
717-656-2301

Delwyn K. Schumacher, B.S.  
Group Leader, ExpressLAB

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09:46:54 369679  
ASR000 D 1 35  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1934464  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

A2FPB Grab Soil Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

**A: HIGH MONO - FINES**

**ANALYSIS**

RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
3.9 % by wt.	0.5	011101200

Moisture

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.

PAH's in Solids (SW846/8310)

attached

186222500

BTEX Scan (8020)

attached

221308500

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ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301  
249 07426 15.00 033700

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer E. Hess, B.S.  
Group Leader Pesticides/PCBs

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09:46:54 369679  
ASR000 D 1 35  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1934464  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

A2FPB Grab Soil Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

ANALYSIS	RESULT	LIMIT OF	LAB CODE
	DRY WT. BASIS	QUANTITATION	
Moisture *AS RECEIVED*	3.9 % by wt.	0.5	011100000
"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.			
PAH's in Solids (SW846/8310)	attached		186200000
BTEX Scan (8020)	attached		221300000

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ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301

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2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer B. Hess, B.S.  
Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations.





09:46:56 369679  
ASR000 D 1 35  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1934464  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

A2FPB Grab Soil Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

	RESULT		LIMIT OF	LAB CODE
	AS RECEIVED		QUANTITATION	
PAH's in Solids (SW846/8310)				
Naphthalene	< 90. mg/kg		90.	329600000N
Acenaphthylene	< 20. mg/kg		20.	329700000N
Acenaphthene	< 20. mg/kg		20.	329800000N
Fluorene	< 20. mg/kg		20.	329900000N
Phenanthrene	20. mg/kg		5.	330000000N
Anthracene	< 6. mg/kg		6.	330100000N
Fluoranthene	30. mg/kg		10.	330200000N
Pyrene	26. mg/kg		2.	330300000N
Benzo(a)anthracene	7.1 mg/kg		0.1	330400000N
Chrysene	< 10. mg/kg		10.	330500000N
Benzo(b)fluoranthene	18. mg/kg		1.	330600000N
Benzo(k)fluoranthene	7. mg/kg		1.	330700000N
Benzo(a)pyrene	16. mg/kg		1.	330800000N
Dibenzo(a,h)anthracene	< 2. mg/kg		2.	330900000N
Benzo(g,h,i)perylene	25. mg/kg		0.5	331000000N
Indeno(1,2,3-cd)pyrene	8.7 mg/kg		0.5	331100000N

Due to interfering peaks on the chromatogram, the values reported represent the lowest quantitation limits obtainable.

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ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer E. Hess, B.S.  
Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations.





09:46:56 369679  
ASR000 D 1 35  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1934464  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

A2FPB Grab Soil Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

	RESULT		LIMIT OF	LAB CODE
	DRY WT. BASIS		QUANTITATION	
PAH's in Solids (SW846/8310)				
Naphthalene	< 90. mg/kg		90.	329600000N
Acenaphthylene	< 20. mg/kg		20.	329700000N
Acenaphthene	< 20. mg/kg		20.	329800000N
Fluorene	< 20. mg/kg		20.	329900000N
Phenanthrene	21. mg/kg		5.	330000000N
Anthracene	< 6. mg/kg		6.	330100000N
Fluoranthene	30. mg/kg		10.	330200000N
Pyrene	27. mg/kg		2.	330300000N
Benzo(a)anthracene	7.4 mg/kg		0.1	330400000N
Chrysene	< 10. mg/kg		10.	330500000N
Benzo(b)fluoranthene	19. mg/kg		1.	330600000N
Benzo(k)fluoranthene	8. mg/kg		1.	330700000N
Benzo(a)pyrene	16. mg/kg		1.	330800000N
Dibenzo(a,h)anthracene	< 2. mg/kg		2.	330900000N
Benzo(g,h,i)perylene	26. mg/kg		0.5	331000000N
Indeno(1,2,3-cd)pyrene	9.1 mg/kg		0.5	331100000N

Due to interfering peaks on the chromatogram, the values reported represent the lowest quantitation limits obtainable.

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ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer E. Hess, B.S.  
Group Leader Pesticides/PCBs

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09:47:03 369679  
ASR000 D 1 35  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1934464  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

A2FPB Grab Soil Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

	RESULT		LIMIT OF	
	AS RECEIVED		QUANTITATION	LAB CODE
BTEX Scan (8020)				
Benzene	< 300.	ug/kg	300.	260300000N
Toluene	20,000.	ug/kg	100.	260400000N
Ethylbenzene	1,400.	ug/kg	100.	260600000N
o-Xylene	1,200.	ug/kg	100.	260800000N
m-Xylene	4,400.	ug/kg	100.	260900000N
p-Xylene	1,700.	ug/kg	100.	261000000N

Due to interferences from the sample matrix, the limit of quantitation for the benzene determination was increased.

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ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Delwyn K. Schumacher, B.S.  
Group Leader, ExpressLAB

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09:47:03 369679  
ASR000 D 1 35  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1934464  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

A2FPB Grab Soil Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

BTEX Scan (8020)	RESULT		LIMIT OF QUANTITATION	LAB CODE
	DRY WT. BASIS			
Benzene	< 300.	ug/kg	300.	260300000N
Toluene	21,000.	ug/kg	100.	260400000N
Ethylbenzene	1,400.	ug/kg	100.	260600000N
o-Xylene	1,300.	ug/kg	100.	260800000N
m-Xylene	4,500.	ug/kg	100.	260900000N
p-Xylene	1,700.	ug/kg	100.	261000000N

Due to interferences from the sample matrix, the limit of quantitation for the benzene determination was increased.

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ATTN: Mr. Ric Travor

Questions? Contact Environmental Client Services at (717) 656-2301

Respectfully Submitted Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Delwyn K. Schumacher, B.S.  
Group Leader, ExpressLAB

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09:47:07 369679  
ASR000 D 1 35  
07426. 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1934465  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

A3FPB Grab Soil Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

**A: Low Monco - FINBS**

ANALYSIS	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
Moisture	3.2 % by wt.	0.5	011101200
"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.			
PAH's in Solids (SW846/8310)	attached		186222500
BTEX Scan (8020)	attached		221308500

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ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301  
249 07426 15.00 033700

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer R. Hess, B.S.  
Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations.





09:47:07 369679  
ASR000 D 1 35  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1934465  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

A3FPB Grab Soil Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

ANALYSIS	RESULT	LIMIT OF	LAB CODE
	DRY WT. BASIS	QUANTITATION	
Moisture *AS RECEIVED*	3.2 % by wt.	0.5	011100000
"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.			
PAH's in Solids (SW846/8310)	attached		186200000
BTEX Scan (8020)	attached		221300000

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Lancaster, PA 17601-5994  
717-656-2301

Jenifer E. Hess, B.S.  
Group Leader Pesticides/PCBs

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09:47:10 369679  
ASR000 D 1 35  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1934465  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

A3FPB Grab Soil Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

	RESULT		LIMIT OF	LAB CODE
	AS RECEIVED		QUANTITATION	
PAH's in Solids (SW846/8310).				
Naphthalene	< 70.	mg/kg	70.	329600000N
Acenaphthylene	< 20.	mg/kg	20.	329700000N
Acenaphthene	< 20.	mg/kg	20.	329800000N
Fluorene	< 20.	mg/kg	20.	329900000N
Phenanthrene	16.	mg/kg	5.	330000000N
Anthracene	< 10.	mg/kg	10.	330100000N
Fluoranthene	30.	mg/kg	10.	330200000N
Pyrene	23.	mg/kg	2.	330300000N
Benzo(a)anthracene	5.2	mg/kg	0.1	330400000N
Chrysene	< 10.	mg/kg	10.	330500000N
Benzo(b)fluoranthene	18.	mg/kg	1.	330600000N
Benzo(k)fluoranthene	7.	mg/kg	1.	330700000N
Benzo(a)pyrene	14.	mg/kg	1.	330800000N
Dibenzo(a,h)anthracene	< 2.	mg/kg	2.	330900000N
Benzo(g,h,i)perylene	21.	mg/kg	2.	331000000N
Indeno(1,2,3-cd)pyrene	7.6	mg/kg	0.5	331100000N

Due to interfering peaks on the chromatogram, the values reported represent the lowest quantitation limits obtainable.

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ATTN: Mr. Ric Travor

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Lancaster, PA 17601-5994  
717-656-2301

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Group Leader Pesticides/PCBs

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09:47:10 369679  
ASR000 D 1 35  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1934465  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

A3FPB Grab Soil Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

	RESULT		LIMIT OF	LAB CODE
	DRY WT. BASIS		QUANTITATION	
PAH's in Solids (SW846/8310)				
Naphthalene	< 70.	mg/kg	70.	329600000N
Acenaphthylene	< 20.	mg/kg	20.	329700000N
Acenaphthene	< 20.	mg/kg	20.	329800000N
Fluorene	< 20.	mg/kg	20.	329900000N
Phenanthrene	16.	mg/kg	5.	330000000N
Anthracene	< 10.	mg/kg	10.	330100000N
Fluoranthene	30.	mg/kg	10.	330200000N
Pyrene	24.	mg/kg	2.	330300000N
Benzo(a)anthracene	5.4	mg/kg	0.1	330400000N
Chrysene	< 10.	mg/kg	10.	330500000N
Benzo(b)fluoranthene	18.	mg/kg	1.	330600000N
Benzo(k)fluoranthene	7.	mg/kg	1.	330700000N
Benzo(a)pyrene	15.	mg/kg	1.	330800000N
Dibenzo(a,h)anthracene	< 2.	mg/kg	2.	330900000N
Benzo(g,h,i)perylene	22.	mg/kg	2.	331000000N
Indeno(1,2,3-cd)pyrene	7.8	mg/kg	0.5	331100000N

Due to interfering peaks on the chromatogram, the values reported represent the lowest quantitation limits obtainable.

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ATTN: Mr. Ric Travov

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
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2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer K. Hess, B.S.  
Group Leader Pesticides/PCBs

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09:47:16 369679  
ASR000 D 1 35  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1934465  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

A3FPB Grab Soil Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

BTEX Scan (8020)	RESULT		LIMIT OF QUANTITATION	LAB CODE
	AS RECEIVED			
Benzene	< 200.	ug/kg	200.	260300000N
Toluene	13,000.	ug/kg	100.	260400000N
Ethylbenzene	900.	ug/kg	100.	260600000N
o-Xylene	700.	ug/kg	100.	260800000N
m-Xylene	2,500.	ug/kg	100.	260900000N
p-Xylene	1,000.	ug/kg	100.	261000000N

Due to interferences from the sample matrix, the limit of quantitation for the benzene determination was increased.

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ATTN: Mr. Ric Travor

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Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



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2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Delwyn K. Schumacher, B.S.  
Group Leader, ExpressLAB

See reverse side for explanation of symbols and abbreviations.





09:47:16 369679  
ASR000 D 1 35  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1934465  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

A3FPB Grab Soil Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

BTEX Scan (8020)	RESULT		LIMIT OF QUANTITATION	LAB CODE
	DRY WT. BASIS			
Benzene	< 200.	ug/kg	200.	260300000N
Toluene	13,000.	ug/kg	100.	260400000N
Ethylbenzene	900.	ug/kg	100.	260600000N
o-Xylene	700.	ug/kg	100.	260800000N
m-Xylene	2,600.	ug/kg	100.	260900000N
p-Xylene	1,100.	ug/kg	100.	261000000N

Due to interferences from the sample matrix, the limit of quantitation for the benzene determination was increased.

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ATTN: Mr. Ric Travor

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Client Services at (717) 656-2301

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717-656-2301

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09:47:20 369679  
ASR000 D 1 35  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1934466  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

A4FPB Grab Soil Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

**A: HIGH LAUREYL-FINES**

ANALYSIS	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
Moisture	3.5 % by wt.	0.5	011101200
"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.			
PAH's in Solids (SW846/8310)	attached		186222500
BTEX Scan (8020)	attached		221308500

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ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301  
249 07426 15.00 033700

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer E. Hess, B.S.  
Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations.





09:47:20 369679  
ASR000 D 1 35  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1934466  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

A4FPB Grab Soil Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

ANALYSIS	RESULT	LIMIT OF	LAB CODE
	DRY WT. BASIS	QUANTITATION	
Moisture *AS RECEIVED*	3.5 % by wt.	0.5	011100000
"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.			
PAH's in Solids (SW846/8310)	attached		186200000
BTEX Scan (8020)	attached		221300000

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ATTN: Mr. Ric Travor

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Client Services at (717) 656-2301

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2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer E. Hess, B.S.  
Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations.





09:47:22 369679  
 ASR000 D 1 35  
 07426 0

Bergmann USA  
 1550 Airport Road  
 Gallatin, TN 37066-3739

LLI Sample No. SW 1934466  
 Date Reported 3/26/93  
 Date Submitted 2/24/93  
 Discard Date 4/10/93

A4FPB Grab Soil Sample  
 Moss-American Site

Time Collected  
 P.O. B93-420  
 Rel.

	RESULT AS RECEIVED		LIMIT OF QUANTITATION	LAB CODE
PAH's in Solids (SW846/8310)				
Naphthalene	< 70. mg/kg		70.	329600000N
Acenaphthylene	< 20. mg/kg		20.	329700000N
Acenaphthene	< 20. mg/kg		20.	329800000N
Fluorene	< 20. mg/kg		20.	329900000N
Phenanthrene	15. mg/kg		5.	330000000N
Anthracene	< 6. mg/kg		6.	330100000N
Fluoranthene	30. mg/kg		10.	330200000N
Pyrene	25. mg/kg		2.	330300000N
Benzo(a)anthracene	5.7 mg/kg		0.1	330400000N
Chrysene	< 10. mg/kg		10.	330500000N
Benzo(b)fluoranthene	19. mg/kg		1.	330600000N
Benzo(k)fluoranthene	7. mg/kg		1.	330700000N
Benzo(a)pyrene	16. mg/kg		1.	330800000N
Dibenzo(a,h)anthracene	< 2. mg/kg		2.	330900000N
Benzo(g,h,i)perylene	28. mg/kg		0.5	331000000N
Indeno(1,2,3-cd)pyrene	10. mg/kg		0.5	331100000N

Due to interfering peaks on the chromatogram, the values reported represent the lowest quantitation limits obtainable.

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental  
 Client Services at (717) 656-2301

Respectfully Submitted  
 Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
 2425 New Holland Pike  
 Lancaster, PA 17601-5994  
 717-656-2301

Jenifer B. Hess, B.S.  
 Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations.





09:47:22 369679  
ASR000 D 1 35  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1934466  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

A4FPB Grab Soil Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

	RESULT		LIMIT OF	LAB CODE
	DRY WT. BASIS		QUANTITATION	
PAH's in Solids (SW846/8310)				
Naphthalene	< 70. mg/kg		70.	329600000N
Acenaphthylene	< 20. mg/kg		20.	329700000N
Acenaphthene	< 20. mg/kg		20.	329800000N
Fluorene	< 20. mg/kg		20.	329900000N
Phenanthrene	15. mg/kg		5.	330000000N
Anthracene	< 6. mg/kg		6.	330100000N
Fluoranthene	30. mg/kg		10.	330200000N
Pyrene	26. mg/kg		2.	330300000N
Benzo(a)anthracene	5.9 mg/kg		0.1	330400000N
Chrysene	< 10. mg/kg		10.	330500000N
Benzo(b)fluoranthene	20. mg/kg		1.	330600000N
Benzo(k)fluoranthene	8. mg/kg		1.	330700000N
Benzo(a)pyrene	16. mg/kg		1.	330800000N
Dibenzo(a,h)anthracene	< 2. mg/kg		2.	330900000N
Benzo(g,h,i)perylene	29. mg/kg		0.5	331000000N
Indeno(1,2,3-cd)pyrene	11. mg/kg		0.5	331100000N

Due to interfering peaks on the chromatogram, the values reported represent the lowest quantitation limits obtainable.

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer E. Hess, B.S.  
Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations.







09:47:25 369679  
ASR000 D 1 35  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1934466  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

A4FPB Grab Soil Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

BTEX Scan (8020)	RESULT AS RECEIVED	UNIT	LIMIT OF QUANTITATION	LAB CODE
Benzene	< 200.	ug/kg	200.	260300000N
Toluene	12,000.	ug/kg	100.	260400000N
Ethylbenzene	700.	ug/kg	100.	260600000N
o-Xylene	600.	ug/kg	100.	260800000N
m-Xylene	1,800.	ug/kg	100.	260900000N
p-Xylene	900.	ug/kg	100.	261000000N

Due to interferences from the sample matrix, the limit of quantitation for the benzene determination was increased.

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Delwyn K. Schumacher, B.S.  
Group Leader, ExpressLAB

See reverse side for explanation of symbols and abbreviations.





09:47:25 369679  
ASR000 D 1 35  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1934466  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

A4FPB Grab Soil Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

	RESULT		LIMIT OF	LAB CODE
	DRY WT. BASIS		QUANTITATION	
BTEX Scan (8020)				
Benzene	< 200. ug/kg		200.	260300000N
Toluene	12,000. ug/kg		100.	260400000N
Ethylbenzene	800. ug/kg		100.	260600000N
o-Xylene	600. ug/kg		100.	260800000N
m-Xylene	1,800. ug/kg		100.	260900000N
p-Xylene	900. ug/kg		100.	261000000N

Due to interferences from the sample matrix, the limit of quantitation for the benzene determination was increased.

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Delwyn K. Schumacher, B.S.  
Group Leader, ExpressLAB

See reverse side for explanation of symbols and abbreviations.





09:47:28 369679  
ASR000 D 1 35  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1934467  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

A5FPB Grab Soil Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

**A: LOW LAUREL - FINES**

**ANALYSIS**

**RESULT  
AS RECEIVED**

**LIMIT OF  
QUANTITATION LAB CODE**

Moisture

5.2 % by wt.

0.5 011101200

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.

PAH's in Solids (SW846/8310)

attached

186222500

BTEX Scan (8020)

attached

221308500

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301  
249 07426 15.00 033700

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer E. Hess, B.S.  
Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations.





09:47:28 369679  
ASR000 D 1 35  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1934467  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

A5FPB Grab Soil Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

ANALYSIS	RESULT	LIMIT OF	LAB CODE
	DRY WT. BASIS	QUANTITATION	
Moisture *AS RECEIVED*	5.2 % by wt.	0.5	011100000
"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.			
PAH's in Solids (SW846/8310)	attached		186200000
BTEX Scan (8020)	attached		221300000

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ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer R. Hess, B.S.  
Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations.





09:47:29 369679  
ASR000 D 1 35  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1934467  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

A5FPB Grab Soil Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

	RESULT		LIMIT OF	LAB CODE
	AS RECEIVED		QUANTITATION	
PAH's in Solids (SW846/8310)				
Naphthalene	< 70.	mg/kg	70.	329600000N
Acenaphthylene	< 20.	mg/kg	20.	329700000N
Acenaphthene	< 20.	mg/kg	20.	329800000N
Fluorene	< 20.	mg/kg	20.	329900000N
Phenanthrene	15.	mg/kg	5.	330000000N
Anthracene	< 6.	mg/kg	6.	330100000N
Fluoranthene	30.	mg/kg	10.	330200000N
Pyrene	26.	mg/kg	2.	330300000N
Benzo(a)anthracene	5.8	mg/kg	0.1	330400000N
Chrysene	< 10.	mg/kg	10.	330500000N
Benzo(b)fluoranthene	19.	mg/kg	1.	330600000N
Benzo(k)fluoranthene	7.	mg/kg	1.	330700000N
Benzo(a)pyrene	17.	mg/kg	1.	330800000N
Dibenzo(a,h)anthracene	< 2.	mg/kg	2.	330900000N
Benzo(g,h,i)perylene	29.	mg/kg	0.5	331000000N
Indeno(1,2,3-cd)pyrene	11.	mg/kg	0.5	331100000N

Due to interfering peaks on the chromatogram, the values reported represent the lowest quantitation limits obtainable.

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer E. Hess, B.S.  
Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations.





09:47:29 369679  
ASR000 D 1 35  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1934467  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

A5FPB Grab Soil Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

	RESULT		LIMIT OF	LAB CODE
	DRY WT. BASIS		QUANTITATION	
PAH's in Solids (SW846/8310)				
Naphthalene	< 70.	mg/kg	70.	329600000N
Acenaphthylene	< 20.	mg/kg	20.	329700000N
Acenaphthene	< 20.	mg/kg	20.	329800000N
Fluorene	< 20.	mg/kg	20.	329900000N
Phenanthrene	16.	mg/kg	5.	330000000N
Anthracene	< 6.	mg/kg	6.	330100000N
Fluoranthene	30.	mg/kg	10.	330200000N
Pyrene	27.	mg/kg	2.	330300000N
Benzo(a)anthracene	6.1	mg/kg	0.1	330400000N
Chrysene	< 10.	mg/kg	10.	330500000N
Benzo(b)fluoranthene	20.	mg/kg	1.	330600000N
Benzo(k)fluoranthene	8.	mg/kg	1.	330700000N
Benzo(a)pyrene	18.	mg/kg	1.	330800000N
Dibenzo(a,h)anthracene	< 2.	mg/kg	2.	330900000N
Benzo(g,h,i)perylene	31.	mg/kg	0.5	331000000N
Indeno(1,2,3-cd)pyrene	11.	mg/kg	0.5	331100000N

Due to interfering peaks on the chromatogram, the values reported represent the lowest quantitation limits obtainable.

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



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2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer B. Hess, B.S.  
Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations.





09:47:32 369679  
ASR000 D 1 35  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1934467  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

A5FPB Grab Soil Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

	RESULT		LIMIT OF	LAB CODE
	AS RECEIVED		QUANTITATION	
BTEX Scan (8020)				
Benzene	< 100.	ug/kg	100.	260300000N
Toluene	11,000.	ug/kg	100.	260400000N
Ethylbenzene	700.	ug/kg	100.	260600000N
o-Xylene	500.	ug/kg	100.	260800000N
m-Xylene	1,600.	ug/kg	100.	260900000N
p-Xylene	800.	ug/kg	100.	261000000N

Due to interferences from the sample matrix, the limit of quantitation for the benzene determination was increased.

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Delwyn K. Schumacher, B.S.  
Group Leader, ExpressLAB

See reverse side for explanation of symbols and abbreviations.





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*Where quality is a science.*

09:47:32 369679  
ASR000 D 1 35  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No: SW 1934467  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

A5FPB Grab Soil Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

	RESULT		LIMIT OF	LAB CODE
	DRY WT. BASIS		QUANTITATION	
BTEX Scan (8020)				
Benzene	< 100.	ug/kg	100.	260300000N
Toluene	11,000.	ug/kg	100.	260400000N
Ethylbenzene	700.	ug/kg	100.	260600000N
o-Xylene	500.	ug/kg	100.	260800000N
m-Xylene	1,700.	ug/kg	100.	260900000N
p-Xylene	900.	ug/kg	100.	261000000N

Due to interferences from the sample matrix, the limit of quantitation for the benzene determination was increased.

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301.

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Delwyn K. Schumacher, B.S.  
Group Leader, ExpressLAB

See reverse side for explanation of symbols and abbreviations.







09:46:22 369679  
ASR000 D 1 35  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. WW 1934458  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

ALLP Grab Water Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

**A; DOUBLE H<sub>2</sub>O - FILTERED**

ANALYSIS  
PAH's in Water (SW846/8310)

RESULT  
AS RECEIVED  
attached

LIMIT OF  
QUANTITATION  
LAB CODE  
186120000

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301  
249 07426 0.00 020000

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer E. Hess, B.S.  
Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations.





09:46:23 369679  
ASR000 D 1 35  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. WW 1934458  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

AllP Grab Water Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

	RESULT		LIMIT OF	LAB CODE
PAH's in Water (SW846/8310)	AS RECEIVED		QUANTITATION	
Naphthalene	< 10. ug/l		10.	32800000N
Acenaphthylene	< 20. ug/l		20.	32810000N
Acenaphthene	< 20. ug/l		20.	32820000N
Fluorene	< 2. ug/l		2.	32830000N
Phenanthrene	< 2. ug/l		2.	32840000N
Anthracene	< 1. ug/l		1.	32850000N
Fluoranthene	< 0.5 ug/l		0.5	32860000N
Pyrene	< 2. ug/l		2.	32870000N
Benzo(a)anthracene	< 0.1 ug/l		0.1	32880000N
Chrysene	< 1. ug/l		1.	32890000N
Benzo(b)fluoranthene	< 0.2 ug/l		0.2	32900000N
Benzo(k)fluoranthene	< 0.1 ug/l		0.1	32910000N
Benzo(a)pyrene	< 0.2 ug/l		0.2	32920000N
Dibenzo(a,h)anthracene	< 0.2 ug/l		0.2	32930000N
Benzo(g,h,i)perylene	< 0.5 ug/l		0.5	32940000N
Indeno(1,2,3-cd)pyrene	< 0.5 ug/l		0.5	32950000N

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ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer B. Hess, B.S.  
Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations.





09:47:54 369679  
ASR000 D 1 35  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. WW 1934478  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

AllB Grab Water Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

**A**  
ANALYSIS  
BTEX Scan

RESULT  
AS RECEIVED  
attached

LIMIT OF  
QUANTITATION  
LAB CODE  
051608500

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301  
249 07426 0.00 008500

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer E. Hess, B.S.  
Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations.





09:47:55 369679  
ASR000 D 1 35  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. WW 1934478  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

AllB Grab Water Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
BTEX Scan			
Benzene	< 1. ug/l	1.	313300000N
Toluene	< 1. ug/l	1.	313400000N
o-Xylene	< 1. ug/l	1.	080800000N
m-Xylene	< 1. ug/l	1.	080900000N
p-Xylene	< 1. ug/l	1.	081000000N
Ethylbenzene	< 1. ug/l	1.	313500000N

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Judy A. Colello, B.S.  
Group Leader

See reverse side for explanation of symbols and abbreviations.





## Lancaster Laboratories

Where quality is a science.

09:47:34 369679  
ASR000 D 1 35  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. WW 1934468  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

ALOG Grab Water Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

ANALYSIS	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
Oil & Grease	< 5. mg/l	5.	023105500

The blank analyzed with this sample contained 2.4 mg/l of oil and grease.  
As directed in EPA method 413.1, the data reported above was corrected  
for the blank value.

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301  
249 07426 0.00 005500

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer B. Hess, B.S.  
Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations.





09:46:26 369679  
ASR000 D 1 35  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. WW 1934459  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

A2LP Grab Water Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

ANALYSIS  
PAH's in Water (SW846/8310)

RESULT  
AS RECEIVED  
attached

LIMIT OF  
QUANTITATION  
LAB CODE  
186120000

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301  
249 07426 0.00 020000

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer E. Hess, B.S.  
Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations.





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09:46:27 369679  
ASR000 D 1 35  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. WW 1934459  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

A2LP Grab Water Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

	RESULT		LIMIT OF	LAB CODE
	AS RECEIVED		QUANTITATION	
PAH's in Water (SW846/8310)				
Naphthalene	< 10. ug/l		10.	328000000N
Acenaphthylene	< 20. ug/l		20.	328100000N
Acenaphthene	< 20. ug/l		20.	328200000N
Fluorene	< 2. ug/l		2.	328300000N
Phenanthrene	< 2. ug/l		2.	328400000N
Anthracene	< 1. ug/l		1.	328500000N
Fluoranthene	< 0.5 ug/l		0.5	328600000N
Pyrene	< 2. ug/l		2.	328700000N
Benzo(a)anthracene	< 0.1 ug/l		0.1	328800000N
Chrysene	< 1. ug/l		1.	328900000N
Benzo(b)fluoranthene	< 0.2 ug/l		0.2	329000000N
Benzo(k)fluoranthene	< 0.1 ug/l		0.1	329100000N
Benzo(a)pyrene	< 0.2 ug/l		0.2	329200000N
Dibenzo(a,h)anthracene	< 0.2 ug/l		0.2	329300000N
Benzo(g,h,i)perylene	< 0.5 ug/l		0.5	329400000N
Indeno(1,2,3-cd)pyrene	< 0.5 ug/l		0.5	329500000N

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer E. Hess, B.S.  
Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations.





09:47:57 369679  
ASR000 D 1 35  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. WW 1934479  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

A2LB Grab Water Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

ANALYSIS  
BTEX Scan

RESULT  
AS RECEIVED  
attached

LIMIT OF  
QUANTITATION  
LAB CODE  
051608500

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301  
249 07426 0.00 008500

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer E. Hess, B.S.  
Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations.







09:47:58 369679  
ASR000 D 1 35  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. WV 1934479  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

A2LB Grab Water Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

	RESULT		LIMIT OF	LAB CODE
BTEX Scan	AS RECEIVED		QUANTITATION	
Benzene	< 10.	ug/l	10.	313300000N
Toluene	< 5.	ug/l	5.	313400000N
o-Xylene	< 1.	ug/l	1.	080800000N
m-Xylene	1.	ug/l	1.	080900000N
p-Xylene	< 1.	ug/l	1.	081000000N
Ethylbenzene	< 1.	ug/l	1.	313500000N

Due to the presence of interferences near their retention times, the normal reporting limits were not attained for benzene and toluene.

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Judy A. Colello, B.S.  
Group Leader

See reverse side for explanation of symbols and abbreviations.





09:47:35 369679  
ASR000 D 1 35  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. WW 1934469  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

A2LOG Grab Water Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

ANALYSIS	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
Oil & Grease	< 5. mg/l	5.	023105500

The blank analyzed with this sample contained 2.4 mg/l of oil and grease.  
As directed in EPA method 413.1, the data reported above was corrected  
for the blank value.

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301  
249 07426 0.00 005500

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer K. Hess, B.S.  
Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations.





09:46:29 369679  
ASR000 D 1 35  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. WW 1934460  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

A3LP Grab Water Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

ANALYSIS  
PAH's in Water (SW846/8310)

RESULT  
AS RECEIVED  
attached

LIMIT OF  
QUANTITATION  
LAB CODE  
186120000

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301  
249 07426 0.00 020000

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer E. Hess, B.S.  
Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations.





09:46:31 369679  
ASR000 D 1 35  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. WW 1934460  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

A3LP Grab Water Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

	RESULT		LIMIT OF	LAB CODE
	AS RECEIVED		QUANTITATION	
PAH's in Water (SW846/8310)				
Naphthalene	< 10.	ug/l	10.	328000000N
Acenaphthylene	< 20.	ug/l	20.	328100000N
Acenaphthene	< 20.	ug/l	20.	328200000N
Fluorene	< 2.	ug/l	2.	328300000N
Phenanthrene	< 2.	ug/l	2.	328400000N
Anthracene	< 1.	ug/l	1.	328500000N
Fluoranthene	< 0.5	ug/l	0.5	328600000N
Pyrene	< 2.	ug/l	2.	328700000N
Benzo(a)anthracene	< 0.1	ug/l	0.1	328800000N
Chrysene	< 1.	ug/l	1.	328900000N
Benzo(b)fluoranthene	< 0.2	ug/l	0.2	329000000N
Benzo(k)fluoranthene	< 0.1	ug/l	0.1	329100000N
Benzo(a)pyrene	< 0.2	ug/l	0.2	329200000N
Dibenzo(a,h)anthracene	< 0.2	ug/l	0.2	329300000N
Benzo(g,h,i)perylene	< 0.5	ug/l	0.5	329400000N
Indeno(1,2,3-cd)pyrene	< 0.5	ug/l	0.5	329500000N

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ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer E. Hess, B.S.  
Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations.





09:47:59 369679  
ASR000 D 1 35  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. WW 1934480  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

A3LB Grab Water Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

ANALYSIS  
BTEX Scan

RESULT  
AS RECEIVED  
attached

LIMIT OF  
QUANTITATION  
LAB CODE  
051608500

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301  
249 07426 0.00 008500

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer E. Hess, B.S.  
Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations.





09:48:00 369679  
ASR000 D 1 35  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. WW 1934480  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

A3LB Grab Water Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

	RESULT		LIMIT OF	LAB CODE
	AS RECEIVED		QUANTITATION	
BTEX Scan				
Benzene	< 5.	ug/l	5.	313300000N
Toluene	< 2.	ug/l	2.	313400000N
o-Xylene	< 1.	ug/l	1.	080800000N
m-Xylene	< 1.	ug/l	1.	080900000N
p-Xylene	< 1.	ug/l	1.	081000000N
Ethylbenzene	< 1.	ug/l	1.	313500000N

Due to the presence of interferences near their retention times, the normal reporting limits were not attained for benzene and toluene.

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Judy A. Colello, B.S.  
Group Leader

See reverse side for explanation of symbols and abbreviations.





09:47:36 369679  
ASR000 D 1 35  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. WW 1934470  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

A3LOG Grab Water Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

ANALYSIS	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
Oil & Grease	< 5. mg/l	5.	023105500
The blank analyzed with this sample contained 2.4 mg/l of oil and grease. As directed in EPA method 413.1, the data reported above was corrected for the blank value.			

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301  
249.07426 0.00 005500

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer E. Hess, B.S.  
Group Leader Pesticides/PCBs

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09:46:36 369679  
ASR000 D 1 35  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. WW 1934461  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

A4LP Grab Water Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

ANALYSIS  
PAH's in Water (SW846/8310)

RESULT	LIMIT OF	LAB CODE
AS RECEIVED	QUANTITATION	186120000
attached		

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301  
249 07426 0.00 020000

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer R. Hess, B.S.  
Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations.







09:46:37 369679  
ASR000 D 1 35  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. WW 1934461  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

A4LP Grab Water Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

PAH's in Water (SW846/8310)	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
Naphthalene	< 10. ug/l	10.	32800000N
Acenaphthylene	< 20. ug/l	20.	32810000N
Acenaphthene	< 20. ug/l	20.	32820000N
Fluorene	< 2. ug/l	2.	32830000N
Phenanthrene	< 2. ug/l	2.	32840000N
Anthracene	< 1. ug/l	1.	32850000N
Fluoranthene	< 0.5 ug/l	0.5	32860000N
Pyrene	< 2. ug/l	2.	32870000N
Benzo(a)anthracene	< 0.1 ug/l	0.1	32880000N
Chrysene	< 1. ug/l	1.	32890000N
Benzo(b)fluoranthene	< 0.2 ug/l	0.2	32900000N
Benzo(k)fluoranthene	< 0.1 ug/l	0.1	32910000N
Benzo(a)pyrene	< 0.2 ug/l	0.2	32920000N
Dibenzo(a,h)anthracene	< 0.2 ug/l	0.2	32930000N
Benzo(g,h,i)perylene	< 0.5 ug/l	0.5	32940000N
Indeno(1,2,3-cd)pyrene	< 0.5 ug/l	0.5	32950000N

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ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer B. Hess, B.S.  
Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations.





09:48:02 369679  
ASR000 D 1 35  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. WV 1934481  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

A4LB Grab Water Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

ANALYSIS  
BTEX Scan

RESULT  
AS RECEIVED  
attached

LIMIT OF  
QUANTITATION  
LAB CODE  
051608500

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301  
249 07426 0.00 008500

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer B. Hess, B.S.  
Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations.





09:48:03 369679  
ASR000 D 1 35  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. WW 1934481  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

A4LB Grab Water Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

BTEX Scan	RESULT		LIMIT OF QUANTITATION	LAB CODE
	AS RECEIVED			
Benzene	< 20.	ug/l	20.	313300000N
Toluene	< 5.	ug/l	5.	313400000N
o-Xylene	< 1.	ug/l	1.	080800000N
m-Xylene	1.	ug/l	1.	080900000N
p-Xylene	< 1.	ug/l	1.	081000000N
Ethylbenzene	< 1.	ug/l	1.	313500000N

Due to the presence of interferences near their retention time, the normal reporting limits were not attained for benzene and toluene.

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Judy A. Colello, B.S.  
Group Leader

See reverse side for explanation of symbols and abbreviations.





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*Where quality is a science.*

09:47:37 369679  
ASR000 D 1 35  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. WW 1934471  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

A4LOG Grab Water Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

ANALYSIS	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
Oil & Grease	< 5. mg/l	5.	023105500

The blank analyzed with this sample contained 2.4 mg/l of oil and grease.  
As directed in EPA method 413.1, the data reported above was corrected  
for the blank value.

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301  
249 07426 0.00 005500

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer E. Hess, B.S.  
Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations.





09:46:39 369679  
ASR000 D 1 35  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. WW 1934462  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

A5LP Grab Water Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

**ANALYSIS**  
PAH's in Water (SW846/8310)

**RESULT**  
AS RECEIVED attached

**LIMIT OF**  
QUANTITATION LAB CODE  
186120000

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301  
249 07426 0.00 020000

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer B. Hess, B.S.  
Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations.





09:46:40 369679  
ASR000 D 1 35  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. WW 1934462  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

A5LP Grab Water Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

	RESULT		LIMIT OF	LAB CODE
	AS RECEIVED		QUANTITATION	
PAH's in Water (SW846/8310)				
Naphthalene	< 10. ug/l		10.	328000000N
Acenaphthylene	< 20. ug/l		20.	328100000N
Acenaphthene	< 20. ug/l		20.	328200000N
Fluorene	< 2. ug/l		2.	328300000N
Phenanthrene	< 2. ug/l		2.	328400000N
Anthracene	< 1. ug/l		1.	328500000N
Fluoranthene	< 0.5 ug/l		0.5	328600000N
Pyrene	< 2. ug/l		2.	328700000N
Benzo(a)anthracene	< 0.1 ug/l		0.1	328800000N
Chrysene	< 1. ug/l		1.	328900000N
Benzo(b)fluoranthene	< 0.2 ug/l		0.2	329000000N
Benzo(k)fluoranthene	< 0.1 ug/l		0.1	329100000N
Benzo(a)pyrene	< 0.2 ug/l		0.2	329200000N
Dibenzo(a,h)anthracene	< 0.2 ug/l		0.2	329300000N
Benzo(g,h,i)perylene	< 0.5 ug/l		0.5	329400000N
Indeno(1,2,3-cd)pyrene	< 0.5 ug/l		0.5	329500000N

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ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer E. Hess, B.S.  
Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations.





09:48:06 369679  
ASR000 D 1 35  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. WW 1934482  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

A5LB Grab Water Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

ANALYSIS  
BTEX Scan

RESULT  
AS RECEIVED  
attached

LIMIT OF  
QUANTITATION  
LAB CODE  
051608500

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301  
249 07426 0.00 008500

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2300

Jenifer E. Hess, B.S.  
Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations.





09:48:07 369679  
ASR000 D 1 35  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. WW 1934482  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

A5LB Grab Water Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

	RESULT		LIMIT OF	LAB CODE
	AS RECEIVED		QUANTITATION	
BTEX Scan				
Benzene	< 20.	ug/l	20.	313300000N
Toluene	< 5.	ug/l	5.	313400000N
o-Xylene	< 1.	ug/l	1.	080800000N
m-Xylene	1.	ug/l	1.	080900000N
p-Xylene	< 1.	ug/l	1.	081000000N
Ethylbenzene	< 1.	ug/l	1.	313500000N

Due to the presence of interferents near their retention time, the normal reporting limits were not attained for benzene and toluene.

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Judy A. Colello, B.S.  
Group Leader

See reverse side for explanation of symbols and abbreviations.







## Lancaster Laboratories

Where quality is a science.

09:47:38 369679  
ASR000 D 1 35  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. WW 1934472  
Date Reported 3/26/93  
Date Submitted 2/24/93  
Discard Date 4/10/93

A5LOG Grab Water Sample  
Moss-American Site

Time Collected  
P.O. B93-420  
Rel.

ANALYSIS	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
Oil & Grease	< 5. mg/l	5.	023105500

The blank analyzed with this sample contained 2.4 mg/l of oil and grease.  
As directed in EPA method 413.1, the data reported above was corrected  
for the blank value.

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301  
249 07426 0.00 005500

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer E. Hess, B.S.  
Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations.





07:04:21 370255  
ASR000 D 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1936855  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/27/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

B11PB Grab Soil Sample  
Moss - American Site

B: 1/4" x 10 mesh

**ANALYSIS**  
Moisture

**RESULT**  
**AS RECEIVED**  
1.1 % by wt.

**LIMIT OF**  
**QUANTITATION** LAB CODE  
0.5 011101200

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.

PAH's in Solids (SW846/8310)  
BTEX Scan (8020)

attached 186222500  
attached 221308500

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301  
528 07426 15.00 033700

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Bethany A. Ebling, B.S.  
Group Leader, Water Quality

See reverse side for explanation of symbols and abbreviations.





07:04:21 370255  
ASR000 D 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1936855  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/27/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

B11PB Grab Soil Sample  
Moss - American Site

ANALYSIS	RESULT	LIMIT OF	LAB CODE
	DRY WT. BASIS	QUANTITATION	
Moisture *AS RECEIVED*	1.1 % by wt.	0.5	011100000
"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.			
PAH's in Solids (SW846/8310)	attached		186222500
BTEX Scan (8020)	attached		221322500

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

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Client Services at (717) 656-2301

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07:04:22 370255  
ASR000 D 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1936855  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/27/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

B11PB Grab Soil Sample  
Moss - American Site

	RESULT AS RECEIVED		LIMIT OF QUANTITATION	LAB CODE
PAH's in Solids (SW846/8310)				
Naphthalene	< 20. mg/kg		20.	329600000N
Acenaphthylene	< 20. mg/kg		20.	329700000N
Acenaphthene	< 20. mg/kg		20.	329800000N
Fluorene	< 20. mg/kg		20.	329900000N
Phenanthrene	35. mg/kg		5.	330000000N
Anthracene	< 8. mg/kg		8.	330100000N
Fluoranthene	100. mg/kg		10.	330200000N
Pyrene	81. mg/kg		2.	330300000N
Benzo(a)anthracene	25. mg/kg		0.5	330400000N
Chrysene	23. mg/kg		1.	330500000N
Benzo(b)fluoranthene	23. mg/kg		1.	330600000N
Benzo(k)fluoranthene	10. mg/kg		0.4	330700000N
Benzo(a)pyrene	18. mg/kg		0.4	330800000N
Dibenzo(a,h)anthracene	< 3. mg/kg		3.	330900000N
Benzo(g,h,i)perylene	5. mg/kg		1.	331000000N
Indeno(1,2,3-cd)pyrene	14. mg/kg		1.	331100000N

Due to interfering peaks on the chromatogram, the values reported represent the lowest quantitation limits obtainable.

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

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Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
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07:04:22 370255  
ASR000 D 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1936855  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/27/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

B11PB Grab Soil Sample  
Moss - American Site

	RESULT		LIMIT OF	LAB CODE
PAH's in Solids (SW846/8310)	DRY WT. BASIS		QUANTITATION	
Naphthalene	< 20.	mg/kg	20.	329600000N
Acenaphthylene	< 20.	mg/kg	20.	329700000N
Acenaphthene	< 20.	mg/kg	20.	329800000N
Fluorene	< 20.	mg/kg	20.	329900000N
Phenanthrene	35.	mg/kg	5.	330000000N
Anthracene	< 8.	mg/kg	8.	330100000N
Fluoranthene	100.	mg/kg	10.	330200000N
Pyrene	82.	mg/kg	2.	330300000N
Benzo(a)anthracene	25.	mg/kg	0.5	330400000N
Chrysene	23.	mg/kg	1.	330500000N
Benzo(b)fluoranthene	23.	mg/kg	1.	330600000N
Benzo(k)fluoranthene	10.	mg/kg	0.4	330700000N
Benzo(a)pyrene	19.	mg/kg	0.4	330800000N
Dibenzo(a,h)anthracene	< 3.	mg/kg	3.	330900000N
Benzo(g,h,i)perylene	5.	mg/kg	1.	331000000N
Indeno(1,2,3-cd)pyrene	14.	mg/kg	1.	331100000N

Due to interfering peaks on the chromatogram, the values reported represent the lowest quantitation limits obtainable.

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07426 0

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Gallatin, TN 37066-3739

LLI Sample No. SW 1936855  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/27/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

B11PB Grab Soil Sample  
Moss - American Site

	RESULT		LIMIT OF	
	AS RECEIVED		QUANTITATION	
				LAB CODE
BTEX Scan (8020)				
Benzene	< 20.	ug/kg	20.	260300000N
Toluene	1,200.	ug/kg	5.	260400000N
Ethylbenzene	120.	ug/kg	5.	260600000N
o-Xylene	86.	ug/kg	5.	260800000N
m-Xylene	230.	ug/kg	5.	260900000N
p-Xylene	130.	ug/kg	5.	261000000N

Due to interferences from the sample matrix, the limit of quantitation for the benzene determination was increased.

1 COPY TO Bergmann USA

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Respectfully Submitted  
Lancaster Laboratories, Inc.



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2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Delwyn K. Schumacher, B.S.  
Group Leader, ExpressLAB

See reverse side for explanation of symbols and abbreviations.





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07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1936855  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/27/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

B11PB Grab Soil Sample  
Moss - American Site

BTEX Scan (8020)	RESULT		LIMIT OF QUANTITATION	LAB CODE
	DRY WT. BASIS			
Benzene	< 20.	ug/kg	20.	260300000N
Toluene	1,300.	ug/kg	5.	260400000N
Ethylbenzene	120.	ug/kg	5.	260600000N
o-Xylene	87.	ug/kg	5.	260800000N
m-Xylene	230.	ug/kg	5.	260900000N
p-Xylene	130.	ug/kg	5.	261000000N

Due to interferences from the sample matrix, the limit of quantitation for the benzene determination was increased.

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717-656-2301

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Group Leader, ExpressLAB

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07:04:27 370255  
ASR000 D 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1936856  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/27/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

B12PB Composite Soil Sample  
Moss - American Site

B: 10 x 5 cm box

ANALYSIS

Moisture

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.

PAH's in Solids (SW846/8310)

BTEX Scan (8020)

RESULT

AS RECEIVED

8.5 % by wt.

LIMIT OF

QUANTITATION

0.5

LAB CODE

011101200

attached

186222500

attached

221308500

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301  
528 07426 15.00 033700

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Bethany A. Ebling, B.S.  
Group Leader, Water Quality

See reverse side for explanation of symbols and abbreviations.







# Lancaster Laboratories

*Where quality is a science.*

07:04:27 370255  
ASR000 D 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1936856  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/27/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

B12PB Composite Soil Sample  
Moss - American Site

ANALYSIS	RESULT	LIMIT OF	LAB CODE
	DRY WT. BASIS	QUANTITATION	
Moisture *AS RECEIVED*	8.5 % by wt.	0.5	011100000
"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.			
PAH's in Solids (SW846/8310)	attached		186222500
BTEX Scan (8020)	attached		221322500

1 COPY TO Bergmann USA

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2425 New Holland Pike  
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717-656-2301

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07:04:28 370255  
 ASR000 D 1 39  
 07426 0

Bergmann USA  
 1550 Airport Road  
 Gallatin, TN 37066-3739

LLI Sample No. SW 1936856  
 Date Reported 4/ 1/93  
 Date Submitted 3/ 2/93  
 Discard Date 4/16/93  
 Collected 2/27/93 by EL  
 Time Collected  
 P.O. B93-420  
 Rel.

B12PB Composite Soil Sample  
 Moss - American Site

	RESULT		LIMIT OF	LAB CODE
	AS RECEIVED		QUANTITATION	
PAH's in Solids (SW846/8310)				
Naphthalene	< 20. mg/kg		20.	32960000N
Acenaphthylene	< 20. mg/kg		20.	32970000N
Acenaphthene	< 20. mg/kg		20.	32980000N
Fluorene	< 20. mg/kg		20.	32990000N
Phenanthrene	< 50. mg/kg		50.	33000000N
Anthracene	< 20. mg/kg		20.	33010000N
Fluoranthene	120. mg/kg		20.	33020000N
Pyrene	110. mg/kg		20.	33030000N
Benzo(a)anthracene	34. mg/kg		1.	33040000N
Chrysene	40. mg/kg		10.	33050000N
Benzo(b)fluoranthene	52. mg/kg		2.	33060000N
Benzo(k)fluoranthene	22. mg/kg		2.	33070000N
Benzo(a)pyrene	43. mg/kg		2.	33080000N
Dibenzo(a,h)anthracene	< 3. mg/kg		3.	33090000N
Benzo(g,h,i)perylene	14. mg/kg		5.	33100000N
Indeno(1,2,3-cd)pyrene	36. mg/kg		5.	33110000N

Due to interfering peaks on the chromatogram, the values reported represent the lowest quantitation limits obtainable.

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 Client Services at (717) 656-2301.

Respectfully Submitted  
 Lancaster Laboratories, Inc.



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 Lancaster, PA 17601-5994  
 717-656-2301

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07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1936856  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/27/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

B12PB Composite Soil Sample  
Moss - American Site

	RESULT		LIMIT OF	LAB CODE
	DRY WT. BASIS		QUANTITATION	
PAH's in Solids (SW846/8310)				
Naphthalene	< 20. mg/kg		20.	329600000N
Acenaphthylene	< 20. mg/kg		20.	329700000N
Acenaphthene	< 20. mg/kg		20.	329800000N
Fluorene	< 20. mg/kg		20.	329900000N
Phenanthrene	< 50. mg/kg		50.	330000000N
Anthracene	< 20. mg/kg		20.	330100000N
Fluoranthene	130. mg/kg		20.	330200000N
Pyrene	120. mg/kg		20.	330300000N
Benzo(a)anthracene	37. mg/kg		1.	330400000N
Chrysene	40. mg/kg		10.	330500000N
Benzo(b)fluoranthene	57. mg/kg		2.	330600000N
Benzo(k)fluoranthene	24. mg/kg		2.	330700000N
Benzo(a)pyrene	47. mg/kg		2.	330800000N
Dibenzo(a,h)anthracene	< 3. mg/kg		3.	330900000N
Benzo(g,h,i)perylene	15. mg/kg		5.	331000000N
Indeno(1,2,3-cd)pyrene	39. mg/kg		5.	331100000N

Due to interfering peaks on the chromatogram, the values reported represent the lowest quantitation limits obtainable.

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07:04:34 370255  
ASR000 D 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1936856  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/27/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

B12PB Composite Soil Sample  
Moss - American Site

BTEX Scan (8020)	RESULT		LIMIT OF QUANTITATION	LAB CODE
	AS RECEIVED			
Benzene	< 40.	ug/kg	40.	260300000N
Toluene	1,600.	ug/kg	5.	260400000N
Ethylbenzene	150.	ug/kg	5.	260600000N
o-Xylene	140.	ug/kg	5.	260800000N
m-Xylene	370.	ug/kg	5.	260900000N
p-Xylene	200.	ug/kg	5.	261000000N

Due to interferences from the sample matrix, the limit of quantitation for the benzene determination was increased.

1 COPY TO Bergmann USA

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Delwyn K. Schumacher, B.S.  
Group Leader, ExpressLAB

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07:04:34 370255  
ASR000 D 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1936856  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/27/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

B12PB Composite Soil Sample  
Moss - American Site

	RESULT		LIMIT OF	
BTEX Scan (8020)	DRY WT. BASIS		QUANTITATION	LAB CODE
Benzene	< 40.	ug/kg	40.	260300000N
Toluene	1,700.	ug/kg	5.	260400000N
Ethylbenzene	170.	ug/kg	5.	260600000N
o-Xylene	150.	ug/kg	5.	260800000N
m-Xylene	410.	ug/kg	5.	260900000N
p-Xylene	220.	ug/kg	5.	261000000N

Due to interferences from the sample matrix, the limit of quantitation for the benzene determination was increased.

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07:04:37 370255  
ASR000 D 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1936857  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/27/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

B13PB Grab Soil Sample  
Moss - American Site

**B: Soxhlet**

ANALYSIS  
Moisture

RESULT  
AS RECEIVED  
2.0 % by wt.

LIMIT OF  
QUANTITATION LAB CODE  
0.5 011101200

"Moisture" represents the loss in weight of the sample after oven drying at  
103 - 105 degrees Celsius.

PAH's in Solids (SW846/8310)

attached

186222500

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301  
528 07426 0.00 023700

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717-656-2301

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Group Leader, Water Quality

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07:04:37 370255  
ASR000 D 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1936857  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/27/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

B13PB Grab Soil Sample  
Moss - American Site

### ANALYSIS

Moisture \*AS RECEIVED\*

"Moisture" represents the loss in weight of the sample after oven drying at  
103 - 105 degrees Celsius.

PAH's in Solids (SW846/8310)

RESULT	LIMIT OF	LAB CODE
DRY WT. BASIS	QUANTITATION	
2.0 % by wt.	0.5	011100000

attached

186222500

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travov

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07:04:38 370255  
ASR000 D 1 39  
07426 0

Bergmann USA  
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Gallatin, TN 37066-3739

LLI Sample No. SW 1936857  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/27/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

B13PB Grab Soil Sample  
Moss - American Site

	RESULT		LIMIT OF	LAB CODE
	AS RECEIVED		QUANTITATION	
PAH's in Solids (SW846/8310)				
Naphthalene	< 20. mg/kg		20.	329600000N
Acenaphthylene	< 20. mg/kg		20.	329700000N
Acenaphthene	< 20. mg/kg		20.	329800000N
Fluorene	< 20. mg/kg		20.	329900000N
Phenanthrene	< 20. mg/kg		20.	330000000N
Anthracene	< 7. mg/kg		7.	330100000N
Fluoranthene	90. mg/kg		10.	330200000N
Pyrene	40. mg/kg		20.	330300000N
Benzo(a)anthracene	30. mg/kg		0.5	330400000N
Chrysene	20. mg/kg		10.	330500000N
Benzo(b)fluoranthene	51. mg/kg		1.	330600000N
Benzo(k)fluoranthene	20. mg/kg		1.	330700000N
Benzo(a)pyrene	51. mg/kg		1.	330800000N
Dibenzo(a,h)anthracene	< 4. mg/kg		4.	330900000N
Benzo(g,h,i)perylene	9. mg/kg		5.	331000000N
Indeno(1,2,3-cd)pyrene	27. mg/kg		5.	331100000N

Due to interfering peaks on the chromatogram, the values reported represent the lowest quantitation limits obtainable.

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Lancaster, PA 17601-5994  
717-656-2301

Jenifer E. Hess, B.S.  
Group Leader Pesticides/PCBs

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07:04:38 370255  
ASR000 D 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1936857  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/27/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

B13PB Grab Soil Sample  
Moss - American Site

	RESULT		LIMIT OF	LAB CODE
	DRY WT. BASIS		QUANTITATION	
PAH's in Solids (SW846/8310)				
Naphthalene	< 20. mg/kg		20.	329600000N
Acenaphthylene	< 20. mg/kg		20.	329700000N
Acenaphthene	< 20. mg/kg		20.	329800000N
Fluorene	< 20. mg/kg		20.	329900000N
Phenanthrene	< 20. mg/kg		20.	330000000N
Anthracene	< 7. mg/kg		7.	330100000N
Fluoranthene	90. mg/kg		10.	330200000N
Pyrene	40. mg/kg		20.	330300000N
Benzo(a)anthracene	31. mg/kg		0.5	330400000N
Chrysene	20. mg/kg		10.	330500000N
Benzo(b)fluoranthene	52. mg/kg		1.	330600000N
Benzo(k)fluoranthene	20. mg/kg		1.	330700000N
Benzo(a)pyrene	52. mg/kg		1.	330800000N
Dibenzo(a,h)anthracene	< 4. mg/kg		4.	330900000N
Benzo(g,h,i)perylene	9. mg/kg		5.	331000000N
Indeno(1,2,3-cd)pyrene	27. mg/kg		5.	331100000N

Due to interfering peaks on the chromatogram, the values reported represent the lowest quantitation limits obtainable.

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer E. Hess, B.S.  
Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations.





## Lancaster Laboratories

Where quality is a science.

07:04:41 370255  
ASR000 D 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1936858  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/27/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

B14PB Grab Soil Sample  
Moss - American Site

B: 100 x 200 mg

### ANALYSIS

Moisture

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.

PAH's in Solids (SW846/8310)

### RESULT

AS RECEIVED

92.6 % by wt.

### LIMIT OF

QUANTITATION

0.5

LAB CODE

011101200

attached

186222500

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301  
528 07426 0.00 023700

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Bethany A. Ebling, B.S.  
Group Leader, Water Quality

See reverse side for explanation of symbols and abbreviations.





07:04:41 370255  
ASR000 D 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1936858  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/27/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

B14PB Grab Soil Sample  
Moss - American Site

ANALYSIS	RESULT	LIMIT OF	LAB CODE
	DRY WT. BASIS	QUANTITATION	
Moisture *AS RECEIVED*	92.6 % by wt.	0.5	011100000
"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.			
PAH's in Solids (SW846/8310)	attached		186222500

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Bethany A. Ebling, B.S.  
Group Leader, Water Quality

See reverse side for explanation of symbols and abbreviations.





07:04:42 370255  
ASR000 D 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1936858  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/27/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

B14PB Grab Soil Sample  
Moss - American Site

	RESULT AS RECEIVED		LIMIT OF QUANTITATION	LAB CODE
PAH's in Solids (SW846/8310)				
Naphthalene	< 20. mg/kg		20.	329600000N
Acenaphthylene	< 20. mg/kg		20.	329700000N
Acenaphthene	< 20. mg/kg		20.	329800000N
Fluorene	< 20. mg/kg		20.	329900000N
Phenanthrene	< 20. mg/kg		20.	330000000N
Anthracene	< 9. mg/kg		9.	330100000N
Fluoranthene	90. mg/kg		10.	330200000N
Pyrene	55. mg/kg		2.	330300000N
Benzo(a)anthracene	22. mg/kg		0.1	330400000N
Chrysene	28. mg/kg		5.	330500000N
Benzo(b)fluoranthene	45. mg/kg		1.	330600000N
Benzo(k)fluoranthene	18. mg/kg		1.	330700000N
Benzo(a)pyrene	43. mg/kg		1.	330800000N
Dibenzo(a,h)anthracene	< 5. mg/kg		5.	330900000N
Benzo(g,h,i)perylene	10. mg/kg		3.	331000000N
Indeno(1,2,3-cd)pyrene	31. mg/kg		3.	331100000N

Due to interfering peaks on the chromatogram, the values reported represent the lowest quantitation limits obtainable.

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ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer E. Hess, B.S.  
Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations.





07:04:42 370255  
ASR000 D 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1936858  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/27/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

B14PB Grab Soil Sample  
Moss - American Site

	RESULT		LIMIT OF	LAB CODE
	DRY WT. BASIS		QUANTITATION	
PAH's in Solids (SW846/8310)				
Naphthalene	< 300.	mg/kg	300.	329600000N
Acenaphthylene	< 300.	mg/kg	300.	329700000N
Acenaphthene	< 300.	mg/kg	300.	329800000N
Fluorene	< 300.	mg/kg	300.	329900000N
Phenanthrene	< 300.	mg/kg	300.	330000000N
Anthracene	< 100.	mg/kg	100.	330100000N
Fluoranthene	1,200.	mg/kg	100.	330200000N
Pyrene	740.	mg/kg	30.	330300000N
Benzo(a)anthracene	300.	mg/kg	1.	330400000N
Chrysene	380.	mg/kg	70.	330500000N
Benzo(b)fluoranthene	610.	mg/kg	10.	330600000N
Benzo(k)fluoranthene	240.	mg/kg	10.	330700000N
Benzo(a)pyrene	580.	mg/kg	10.	330800000N
Dibenzo(a,h)anthracene	< 70.	mg/kg	70.	330900000N
Benzo(g,h,i)perylene	140.	mg/kg	40.	331000000N
Indeno(1,2,3-cd)pyrene	410.	mg/kg	40.	331100000N

Due to interfering peaks on the chromatogram, the values reported represent the lowest quantitation limits obtainable.

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ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer E. Hess, B.S.  
Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations.





07:04:45 370255  
ASR000 D 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1936859  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/27/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

B15PB Grab Soil Sample  
Moss - American Site

**B: 200 x 325 mgH**

**ANALYSIS**

Moisture

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.

PAH's in Solids (SW846/8310)

RESULT  
AS RECEIVED

85.6 % by wt.

LIMIT OF  
QUANTITATION

0.5

LAB CODE

011101200

attached

186222500

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301  
528 07426 0.00 023700

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Bethany A. Ebling, B.S.  
Group Leader, Water Quality

See reverse side for explanation of symbols and abbreviations.





07:04:45 370255  
ASR000 D 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1936859  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/27/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

B15PB Grab Soil Sample  
Moss - American Site

ANALYSIS	RESULT	LIMIT OF	LAB CODE
	DRY WT. BASIS	QUANTITATION	
Moisture <b>*AS RECEIVED*</b>	85.6 % by wt.	0.5	011100000
"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.			
PAH's in Solids (SW846/8310)	attached		186222500

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental Client Services at (717) 656-2301

Respectfully Submitted Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Bethany A. Ebling, B.S.  
Group Leader, Water Quality

See reverse side for explanation of symbols and abbreviations.





**Lancaster Laboratories**  
Where quality is a science.

07:04:46 370255  
ASR000 D 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

B15PB Grab Soil Sample  
Moss - American Site

LLI Sample No. SW 1936859  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/27/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

	RESULT		LIMIT OF	LAB CODE
	AS RECEIVED		QUANTITATION	
PAH's in Solids (SW846/8310)				
Naphthalene	< 20.	mg/kg	20.	329600000N
Acenaphthylene	< 20.	mg/kg	20.	329700000N
Acenaphthene	< 20.	mg/kg	20.	329800000N
Fluorene	< 20.	mg/kg	20.	329900000N
Phenanthrene	< 20.	mg/kg	20.	330000000N
Anthracene	< 7.	mg/kg	7.	330100000N
Fluoranthene	70.	mg/kg	10.	330200000N
Pyrene	47.	mg/kg	2.	330300000N
Benzo(a)anthracene	18.	mg/kg	0.1	330400000N
Chrysene	23.	mg/kg	5.	330500000N
Benzo(b)fluoranthene	34.	mg/kg	1.	330600000N
Benzo(k)fluoranthene	13.	mg/kg	1.	330700000N
Benzo(a)pyrene	22.	mg/kg	1.	330800000N
Dibenzo(a,h)anthracene	< 4.	mg/kg	4.	330900000N
Benzo(g,h,i)perylene	8.	mg/kg	3.	331000000N
Indeno(1,2,3-cd)pyrene	22.	mg/kg	3.	331100000N

Due to interfering peaks on the chromatogram, the values reported represent the lowest quantitation limits obtainable.

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer E. Hess, B.S.  
Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations.







07:04:46 370255  
 ASR000 D 1 39  
 07426 0

Bergmann USA  
 1550 Airport Road  
 Gallatin, TN 37066-3739

LLI Sample No. SW 1936859  
 Date Reported 4/ 1/93  
 Date Submitted 3/ 2/93  
 Discard Date 4/16/93  
 Collected 2/27/93 by EL  
 Time Collected  
 P.O. B93-420  
 Rel.

B15PB Grab Soil Sample  
 Moss - American Site

PAH's in Solids (SW846/8310)	RESULT		LIMIT OF QUANTITATION	LAB CODE
	DRY WT. BASIS			
Naphthalene	< 100.	mg/kg	100.	329600000N
Acenaphthylene	< 100.	mg/kg	100.	329700000N
Acenaphthene	< 100.	mg/kg	100.	329800000N
Fluorene	< 100.	mg/kg	100.	329900000N
Phenanthrene	< 100.	mg/kg	100.	330000000N
Anthracene	< 50.	mg/kg	50.	330100000N
Fluoranthene	490.	mg/kg	70.	330200000N
Pyrene	330.	mg/kg	10.	330300000N
Benzo(a)anthracene	130.	mg/kg	0.7	330400000N
Chrysene	160.	mg/kg	30.	330500000N
Benzo(b)fluoranthene	230.	mg/kg	7.	330600000N
Benzo(k)fluoranthene	87.	mg/kg	7.	330700000N
Benzo(a)pyrene	150.	mg/kg	7.	330800000N
Dibenzo(a,h)anthracene	< 30.	mg/kg	30.	330900000N
Benzo(g,h,i)perylene	50.	mg/kg	20.	331000000N
Indeno(1,2,3-cd)pyrene	150.	mg/kg	20.	331100000N

Due to interfering peaks on the chromatogram, the values reported represent the lowest quantitation limits obtainable.

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental  
 Client Services at (717) 656-2301

Respectfully Submitted  
 Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
 2425 New Holland Pike  
 Lancaster, PA 17601-5994  
 717-656-2301

Jenifer E. Hess, B.S.  
 Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations.





07:05:01 370255  
ASR000 D 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1936862  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/27/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

B16PBO Composite Soil Sample  
Moss - American Site

**3: - 325 moist**

**ANALYSIS**

Moisture

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.

PAH's in Solids (SW846/8310)

BTEX Scan (8020)

**RESULT  
AS RECEIVED**

18.9 % by wt.

**LIMIT OF  
QUANTITATION**

0.5

**LAB CODE**

011101200

attached

186222500

attached

221308500

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301  
528 07426 15.00 033700

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Bethany A. Ebling, B.S.  
Group Leader, Water Quality

See reverse side for explanation of symbols and abbreviations.





07:05:01 370255  
ASR000 D 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1936862  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/27/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

B16PBO Composite Soil Sample  
Moss - American Site

ANALYSIS	RESULT	LIMIT OF	LAB CODE
	DRY WT. BASIS	QUANTITATION	
Moisture *AS RECEIVED*	18.9 % by wt.	0.5	011100000
"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.			
PAH's in Solids (SW846/8310)	attached		186222500
BTEX Scan (8020)	attached		221322500

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ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



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2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Bethany A. Ebling, B.S.  
Group Leader, Water Quality

See reverse side for explanation of symbols and abbreviations.





07:05:03 370255  
ASR000 D 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1936862  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/27/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

B16PBO Composite Soil Sample  
Moss - American Site

	RESULT		LIMIT OF	LAB CODE
	AS RECEIVED		QUANTITATION	
PAH's in Solids (SW846/8310)				
Naphthalene	< 20.	mg/kg	20.	329600000N
Acenaphthylene	< 20.	mg/kg	20.	329700000N
Acenaphthene	< 20.	mg/kg	20.	329800000N
Fluorene	< 20.	mg/kg	20.	329900000N
Phenanthrene	< 5.	mg/kg	5.	330000000N
Anthracene	< 5.	mg/kg	5.	330100000N
Fluoranthene	20.	mg/kg	10.	330200000N
Pyrene	17.	mg/kg	2.	330300000N
Benzo(a)anthracene	10.	mg/kg	0.5	330400000N
Chrysene	20.	mg/kg	10.	330500000N
Benzo(b)fluoranthene	26.	mg/kg	1.	330600000N
Benzo(k)fluoranthene	12.	mg/kg	1.	330700000N
Benzo(a)pyrene	21.	mg/kg	1.	330800000N
Dibenzo(a,h)anthracene	< 4.	mg/kg	4.	330900000N
Benzo(g,h,i)perylene	7.	mg/kg	5.	331000000N
Indeno(1,2,3-cd)pyrene	21.	mg/kg	3.	331100000N

Due to interfering peaks on the chromatogram, the values reported represent the lowest quantitation limits obtainable.

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travov

Questions? Contact Environmental  
Client Services at (717) 656-2301.

Respectfully Submitted  
Lancaster Laboratories, Inc.



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2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer E. Hess, B.S.  
Group Leader Pesticides/PCBs

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07:05:03 370255  
ASR000 D 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1936862  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/27/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

B16PBO Composite Soil Sample  
Moss - American Site

	RESULT		LIMIT OF	LAB CODE
	DRY WT. BASIS		QUANTITATION	
PAH's in Solids (SW846/8310)				
Naphthalene	< 20.	mg/kg	20.	329600000N
Acenaphthylene	< 20.	mg/kg	20.	329700000N
Acenaphthene	< 20.	mg/kg	20.	329800000N
Fluorene	< 20.	mg/kg	20.	329900000N
Phenanthrene	< 6.	mg/kg	6.	330000000N
Anthracene	< 6.	mg/kg	6.	330100000N
Fluoranthene	30.	mg/kg	10.	330200000N
Pyrene	21.	mg/kg	2.	330300000N
Benzo(a)anthracene	12.	mg/kg	0.6	330400000N
Chrysene	20.	mg/kg	10.	330500000N
Benzo(b)fluoranthene	32.	mg/kg	1.	330600000N
Benzo(k)fluoranthene	15.	mg/kg	1.	330700000N
Benzo(a)pyrene	26.	mg/kg	1.	330800000N
Dibenzo(a,h)anthracene	< 5.	mg/kg	5.	330900000N
Benzo(g,h,i)perylene	9.	mg/kg	6.	331000000N
Indeno(1,2,3-cd)pyrene	26.	mg/kg	4.	331100000N

Due to interfering peaks on the chromatogram, the values reported represent the lowest quantitation limits obtainable.

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ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



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2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer E. Hess, B.S.  
Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations.





07:05:05 370255  
ASR000 D 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1936862  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/27/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

B16PBO Composite Soil Sample  
Moss - American Site

	RESULT		LIMIT OF	LAB CODE
	AS RECEIVED		QUANTITATION	
BTEX Scan (8020)				
Benzene	< 30.	ug/kg	30.	260300000N
Toluene	1,800.	ug/kg	5.	260400000N
Ethylbenzene	130.	ug/kg	5.	260600000N
o-Xylene	99.	ug/kg	5.	260800000N
m-Xylene	250.	ug/kg	5.	260900000N
p-Xylene	130.	ug/kg	5.	261000000N

Due to interferences from the sample matrix, the limit of quantitation for the benzene determination was increased.

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ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Delwyn K. Schumacher, B.S.  
Group Leader, ExpressLAB

See reverse side for explanation of symbols and abbreviations.





07:05:05 370255  
ASR000 D 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1936862  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/27/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

B16P80 Composite Soil Sample  
Moss - American Site

	RESULT		LIMIT OF	LAB CODE
	DRY WT. BASIS		QUANTITATION	
BTEX Scan (8020)				
Benzene	< 40.	ug/kg	40.	260300000N
Toluene	2,200.	ug/kg	6.	260400000N
Ethylbenzene	160.	ug/kg	6.	260600000N
o-Xylene	120.	ug/kg	6.	260800000N
m-Xylene	300.	ug/kg	6.	260900000N
p-Xylene	160.	ug/kg	6.	261000000N

Due to interferences from the sample matrix, the limit of quantitation for the benzene determination was increased.

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Delvyn K. Schumacher, B.S.  
Group Leader, ExpressLAB

See reverse side for explanation of symbols and abbreviations.





07:04:54 370255  
ASR000 D 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1936861  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/27/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

B17PBO Grab Soil Sample  
Moss - American Site

**B: -200m SW**

ANALYSIS  
Moisture

RESULT  
AS RECEIVED  
35.1 % by wt.

LIMIT OF  
QUANTITATION LAB CODE  
0.5 011101200

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.

Oil and Grease  
PAH's in Solids (SW846/8310)  
BTEX Scan (8020)

0.69 % by wt.  
attached  
attached

0.01 023606500  
186222500  
221308500

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301  
528 07426 15.00 040200

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Bethany A. Ebling, B.S.  
Group Leader, Water Quality







07:04:54 370255  
ASR000 D 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1936861  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/27/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

B17PBO Grab Soil Sample  
Moss - American Site

ANALYSIS	RESULT	LIMIT OF	LAB CODE
	DRY WT. BASIS	QUANTITATION	
Moisture *AS RECEIVED*	35.1 % by wt.	0.5	011100000
"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.			
Oil and Grease	1.07 % by wt.	0.02	023600000
PAH's in Solids (SW846/8310)	attached		186222500
BTEX Scan (8020)	attached		221322500

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Bethany A. Ebling, B.S.  
Group Leader, Water Quality

See reverse side for explanation of symbols and abbreviations.





07:04:56 370255  
ASR000 D 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1936861  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/27/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

B17PBO Grab Soil Sample  
Moss - American Site

	RESULT AS RECEIVED		LIMIT OF QUANTITATION	LAB CODE
PAH's in Solids (SW846/8310)				
Naphthalene	< 20. mg/kg		20.	329600000N
Acenaphthylene	< 20. mg/kg		20.	329700000N
Acenaphthene	< 20. mg/kg		20.	329800000N
Fluorene	< 20. mg/kg		20.	329900000N
Phenanthrene	< 5. mg/kg		5.	330000000N
Anthracene	< 5. mg/kg		5.	330100000N
Fluoranthene	9. mg/kg		2.	330200000N
Pyrene	7. mg/kg		2.	330300000N
Benzo(a)anthracene	3.2 mg/kg		0.1	330400000N
Chrysene	6. mg/kg		5.	330500000N
Benzo(b)fluoranthene	14. mg/kg		1.	330600000N
Benzo(k)fluoranthene	5. mg/kg		1.	330700000N
Benzo(a)pyrene	12. mg/kg		1.	330800000N
Dibenzo(a,h)anthracene	< 2. mg/kg		2.	330900000N
Benzo(g,h,i)perylene	4. mg/kg		3.	331000000N
Indeno(1,2,3-cd)pyrene	11. mg/kg		3.	331100000N

Due to interfering peaks on the chromatogram, the values reported represent the lowest quantitation limits obtainable.

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ATTN: Mr. Ric Travlor

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer E. Hess, B.S.  
Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations.





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*Where quality is a science.*

07:04:56 370255  
ASR000 D 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1936861  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/27/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

B17PBO Grab Soil Sample  
Moss - American Site

	RESULT		LIMIT OF	LAB CODE
	DRY WT. BASIS		QUANTITATION	
PAH's in Solids (SW846/8310)				
Naphthalene	< 30.	mg/kg	30.	329600000N
Acenaphthylene	< 30.	mg/kg	30.	329700000N
Acenaphthene	< 30.	mg/kg	30.	329800000N
Fluorene	< 30.	mg/kg	30.	329900000N
Phenanthrene	< 8.	mg/kg	8.	330000000N
Anthracene	< 8.	mg/kg	8.	330100000N
Fluoranthene	15.	mg/kg	3.	330200000N
Pyrene	11.	mg/kg	3.	330300000N
Benzo(a)anthracene	5.0	mg/kg	0.2	330400000N
Chrysene	9.	mg/kg	8.	330500000N
Benzo(b)fluoranthene	21.	mg/kg	2.	330600000N
Benzo(k)fluoranthene	8.	mg/kg	2.	330700000N
Benzo(a)pyrene	18.	mg/kg	2.	330800000N
Dibenzo(a,h)anthracene	< 3.	mg/kg	3.	330900000N
Benzo(g,h,i)perylene	6.	mg/kg	5.	331000000N
Indeno(1,2,3-cd)pyrene	17.	mg/kg	5.	331100000N

Due to interfering peaks on the chromatogram, the values reported represent the lowest quantitation limits obtainable.

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer B. Hess, B.S.  
Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations.





07:04:59 370255  
ASR000 D 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1936861  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/27/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

B17PBO Grab Soil Sample  
Moss - American Site

	RESULT AS RECEIVED		LIMIT OF QUANTITATION	LAB CODE
BTEX Scan (8020)				
Benzene	< 5.	ug/kg	5.	260300000N
Toluene	5.	ug/kg	5.	260400000N
Ethylbenzene	< 5.	ug/kg	5.	260600000N
o-Xylene	< 5.	ug/kg	5.	260800000N
m-Xylene	< 5.	ug/kg	5.	260900000N
p-Xylene	< 5.	ug/kg	5.	261000000N

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ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Delwyn K. Schumacher, B.S.  
Group Leader, ExpressLAB

See reverse side for explanation of symbols and abbreviations.





07:03:16 370255  
ASR000 D 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1936825  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/26/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

BICPB Grab Soil Sample  
Moss - American Site  
~~XXXXXXXXXXXX~~; COARSE  
B: DOUBLE H<sub>2</sub>O

	RESULT		LIMIT OF	LAB CODE
	AS RECEIVED		QUANTITATION	
PAH's in Solids (SW846/8310)				
Naphthalene	< 20.	mg/kg	20.	329600000N
Acenaphthylene	< 20.	mg/kg	20.	329700000N
Acenaphthene	< 20.	mg/kg	20.	329800000N
Fluorene	< 20.	mg/kg	20.	329900000N
Phenanthrene	29.	mg/kg	5.	330000000N
Anthracene	< 10.	mg/kg	10.	330100000N
Fluoranthene	50.	mg/kg	10.	330200000N
Pyrene	45.	mg/kg	2.	330300000N
Benzo(a)anthracene	11.	mg/kg	0.5	330400000N
Chrysene	16.	mg/kg	5.	330500000N
Benzo(b)fluoranthene	15.	mg/kg	1.	330600000N
Benzo(k)fluoranthene	6.	mg/kg	1.	330700000N
Benzo(a)pyrene	15.	mg/kg	1.	330800000N
Dibenzo(a,h)anthracene	< 2.	mg/kg	2.	330900000N
Benzo(g,h,i)perylene	< 4.	mg/kg	4.	331000000N
Indeno(1,2,3-cd)pyrene	12.	mg/kg	3.	331100000N

Due to interfering peaks on the chromatogram, the values reported represent the lowest quantitation limits obtainable.

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ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer E. Hess, B.S.  
Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations.







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07:03:19 370255  
ASR000 D 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1936825  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/26/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

BICPB Grab Soil Sample  
Moss - American Site

	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
BTEX Scan. (8020)			
Benzene	< 5. ug/kg	5.	260300000N
Toluene	8. ug/kg	5.	260400000N
Ethylbenzene	< 5. ug/kg	5.	260600000N
o-Xylene	< 5. ug/kg	5.	260800000N
m-Xylene	13. ug/kg	5.	260900000N
p-Xylene	< 5. ug/kg	5.	261000000N

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ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Delwyn K. Schumacher, B.S.  
Group Leader, ExpressLAB

See reverse side for explanation of symbols and abbreviations.





07:03:19 370255  
ASR000 D 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1936825  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/26/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

BICPB Grab Soil Sample  
Moss - American Site

3- ~~XXXXXXXXXXXX~~; COARSE  
DOUBLE H2O

BTEX Scan (8020)

Benzene

Toluene

Ethylbenzene

o-Xylene

m-Xylene

p-Xylene

RESULT		LIMIT OF	LAB CODE
DRY WT. BASIS		QUANTITATION	
< 6.	ug/kg	6.	260300000N
10.	ug/kg	6.	260400000N
< 6.	ug/kg	6.	260600000N
< 6.	ug/kg	6.	260800000N
15.	ug/kg	6.	260900000N
< 6.	ug/kg	6.	261000000N

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ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Delwyn K. Schumacher, B.S.  
Group Leader, ExpressLAB

See reverse side for explanation of symbols and abbreviations.







07:03:20 370255  
ASR000 D 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1936826  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/26/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

B2CPB Grab Soil Sample  
Moss - American Site

**B: MONOSOLV - HIGH; COARSE**

**ANALYSIS**

Moisture

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.

PAH's in Solids (SW846/8310)

BTEX Scan (8020)

**RESULT**  
**AS RECEIVED**  
19.1 % by wt.

**LIMIT OF**  
**QUANTITATION** 0.5  
**LAB CODE** 011101200

attached

186222500

attached

221308500

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301  
528 07426 15.00 033700

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Bethany A. Ebling, B.S.  
Group Leader, Water Quality

See reverse side for explanation of symbols and abbreviations.





07:03:20 370255  
ASR000 D 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1936826  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/26/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

B2CPB Grab Soil Sample  
Moss - American Site

ANALYSIS	RESULT	LIMIT OF	LAB CODE
	DRY WT. BASIS	QUANTITATION	
Moisture *AS RECEIVED*	19.1 % by wt.	0.5	011100000
"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.			
PAH's in Solids (SW846/8310)	attached		186222500
BTEX Scan (8020)	attached		221322500

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ATTN: Mr. Ric Travor

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Client Services at (717) 656-2301

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2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Bethany A. Ebling, B.S.  
Group Leader, Water Quality

See reverse side for explanation of symbols and abbreviations.





07:03:21 370255  
ASR000 D 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1936826  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/26/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

B2CPB Grab Soil Sample  
Moss - American Site

	RESULT		LIMIT OF	LAB CODE
	AS RECEIVED		QUANTITATION	
PAH's in Solids (SW846/8310)				
Naphthalene	< 20.	mg/kg	20.	329600000N
Acenaphthylene	< 20.	mg/kg	20.	329700000N
Acenaphthene	< 20.	mg/kg	20.	329800000N
Fluorene	< 20.	mg/kg	20.	329900000N
Phenanthrene	18.	mg/kg	5.	330000000N
Anthracene	< 5.	mg/kg	5.	330100000N
Fluoranthene	40.	mg/kg	10.	330200000N
Pyrene	32.	mg/kg	2.	330300000N
Benzo(a)anthracene	8.0	mg/kg	0.5	330400000N
Chrysene	12.	mg/kg	5.	330500000N
Benzo(b)fluoranthene	12.	mg/kg	1.	330600000N
Benzo(k)fluoranthene	5.	mg/kg	1.	330700000N
Benzo(a)pyrene	12.	mg/kg	1.	330800000N
Dibenzo(a,h)anthracene	< 2.	mg/kg	2.	330900000N
Benzo(g,h,i)perylene	3.	mg/kg	3.	331000000N
Indeno(1,2,3-cd)pyrene	10.	mg/kg	3.	331100000N

Due to interfering peaks on the chromatogram, the values reported represent the lowest quantitation limits obtainable.

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer B. Hess, B.S.  
Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations.





07:03:21 370255  
ASR000 D 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1936826  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/26/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

B2CPB Grab Soil Sample  
Moss - American Site  
**B: MONOSUBS - NACH; COARSE**

PAH's in Solids (SW846/8310)  
Naphthalene  
Acenaphthylene  
Acenaphthene  
Fluorene  
Phenanthrene  
Anthracene  
Fluoranthene  
Pyrene  
Benzo(a)anthracene  
Chrysene  
Benzo(b)fluoranthene  
Benzo(k)fluoranthene  
Benzo(a)pyrene  
Dibenzo(a,h)anthracene  
Benzo(g,h,i)perylene  
Indeno(1,2,3-cd)pyrene

RESULT	DRY WT. BASIS	LIMIT OF QUANTITATION	LAB CODE
< 20.	mg/kg	20.	329600000N
< 20.	mg/kg	20.	329700000N
< 20.	mg/kg	20.	329800000N
< 20.	mg/kg	20.	329900000N
22.	mg/kg	6.	330000000N
< 6.	mg/kg	6.	330100000N
40.	mg/kg	10.	330200000N
40.	mg/kg	2.	330300000N
9.9	mg/kg	0.6	330400000N
14.	mg/kg	6.	330500000N
14.	mg/kg	1.	330600000N
6.	mg/kg	1.	330700000N
15.	mg/kg	1.	330800000N
< 2.	mg/kg	2.	330900000N
< 4.	mg/kg	4.	331000000N
12.	mg/kg	4.	331100000N

Due to interfering peaks on the chromatogram, the values reported represent the lowest quantitation limits obtainable.

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ATTN: Mr. Ric Travor

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2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer R. Hess, B.S.  
Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations.





07:03:24 370255  
ASR000 D 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1936826  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/26/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

B2CPB Grab Soil Sample  
Moss - American Site

	RESULT AS RECEIVED		LIMIT OF QUANTITATION	LAB CODE
BTEX Scan (8020)				
Benzene	< 5.	ug/kg	5.	260300000N
Toluene	13.	ug/kg	5.	260400000N
Ethylbenzene	< 5.	ug/kg	5.	260600000N
o-Xylene	11.	ug/kg	5.	260800000N
m-Xylene	150.	ug/kg	5.	260900000N
p-Xylene	< 20.	ug/kg	20.	261000000N

Due to interferences from the sample matrix, the limit of quantitation for the p-xylene determination was increased.

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ATTN: Mr. Ric Travon

Questions? Contact Environmental  
Client Services at (717) 656-2301

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2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Delwyn K. Schumacher, B.S.  
Group Leader, ExpressLAB

See reverse side for explanation of symbols and abbreviations.





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Where quality is a science.

07:03:24 370255  
ASR000 D. 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1936826  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/26/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

B2CPB Grab Soil Sample  
Moss - American Site

**B: Moncosolve-Hard; Coarse**

BTEX Scan (8020)

	RESULT		LIMIT OF	LAB CODE
	DRY WT. BASIS		QUANTITATION	
Benzene	< 6.	ug/kg	6.	260300000N
Toluene	15.	ug/kg	6.	260400000N
Ethylbenzene	< 6.	ug/kg	6.	260600000N
o-Xylene	13.	ug/kg	6.	260800000N
m-Xylene	190.	ug/kg	6.	260900000N
p-Xylene	< 20.	ug/kg	20.	261000000N

Due to interferences from the sample matrix, the limit of quantitation for the p-xylene determination was increased.

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ATTN: Mr. Ric Travor

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Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Delwyn K. Schumacher, B.S.  
Group Leader, ExpressLAB

See reverse side for explanation of symbols and abbreviations.





07:03:26 370255  
ASR000 D 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1936827  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/26/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

B3CPB Grab Soil Sample  
Moss - American Site

**B: Monosolve - Low; Coarse**

ANALYSIS	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
Moisture	16.4 % by wt.	0.5	011101200
"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.			
PAH's in Solids (SW846/8310)	attached		186222500
BTEX Scan (8020)	attached		221308500

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ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301  
528 07426 15.00 033700

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Bethany A. Ebling, B.S.  
Group Leader, Water Quality

See reverse side for explanation of symbols and abbreviations.





07:03:26 370255  
ASR000 D 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1936827  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/26/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

B3CPB Grab Soil Sample  
Moss - American Site

ANALYSIS	RESULT	LIMIT OF	LAB CODE
	DRY WT. BASIS	QUANTITATION	
Moisture *AS RECEIVED*	16.4 % by wt.	0.5	011100000
"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.			
PAH's in Solids (SW846/8310)	attached		186222500
BTEX Scan (8020)	attached		221322500

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Bethany A. Ebling, B.S.  
Group Leader, Water Quality

See reverse side for explanation of symbols and abbreviations.







07:03:27 370255  
ASR000 D 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1936827  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/26/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

B3CPB Grab Soil Sample  
Moss - American Site

	RESULT		LIMIT OF	LAB CODE
	AS RECEIVED		QUANTITATION	
PAH's in Solids (SW846/8310)				
Naphthalene	< 20. mg/kg		20.	329600000N
Acenaphthylene	< 20. mg/kg		20.	329700000N
Acenaphthene	< 20. mg/kg		20.	329800000N
Fluorene	< 20. mg/kg		20.	329900000N
Phenanthrene	21. mg/kg		5.	330000000N
Anthracene	< 6. mg/kg		6.	330100000N
Fluoranthene	40. mg/kg		10.	330200000N
Pyrene	37. mg/kg		2.	330300000N
Benzo(a)anthracene	10. mg/kg		0.5	330400000N
Chrysene	14. mg/kg		5.	330500000N
Benzo(b)fluoranthene	14. mg/kg		1.	330600000N
Benzo(k)fluoranthene	6. mg/kg		1.	330700000N
Benzo(a)pyrene	15. mg/kg		1.	330800000N
Dibenzo(a,h)anthracene	< 2. mg/kg		2.	330900000N
Benzo(g,h,i)perylene	3. mg/kg		3.	331000000N
Indeno(1,2,3-cd)pyrene	11. mg/kg		3.	331100000N

Due to interfering peaks on the chromatogram, the values reported represent the lowest quantitation limits obtainable.

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Lancaster Laboratories, Inc.



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Lancaster, PA 17601-5994  
717-656-2301

Jenifer K. Hess, B.S.  
Group Leader Pesticides/PCBs

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07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1936827  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/26/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

B3CPB Grab Soil Sample  
Moss - American Site

**B: Moncosolvs - Low; CoAF3B**

PAH's in Solids (SW846/8310)	RESULT DRY WT. BASIS	LIMIT OF QUANTITATION	LAB CODE
Naphthalene	< 20. mg/kg	20.	329600000N
Acenaphthylene	< 20. mg/kg	20.	329700000N
Acenaphthene	< 20. mg/kg	20.	329800000N
Fluorene	< 20. mg/kg	20.	329900000N
Phenanthrene	25. mg/kg	6.	330000000N
Anthracene	< 7. mg/kg	7.	330100000N
Fluoranthene	50. mg/kg	10.	330200000N
Pyrene	44. mg/kg	2.	330300000N
Benzo(a)anthracene	12. mg/kg	0.6	330400000N
Chrysene	17. mg/kg	6.	330500000N
Benzo(b)fluoranthene	17. mg/kg	1.	330600000N
Benzo(k)fluoranthene	8. mg/kg	1.	330700000N
Benzo(a)pyrene	18. mg/kg	1.	330800000N
Dibenzo(a,h)anthracene	< 2. mg/kg	2.	330900000N
Benzo(g,h,i)perylene	< 4. mg/kg	4.	331000000N
Indeno(1,2,3-cd)pyrene	13. mg/kg	4.	331100000N

Due to interfering peaks on the chromatogram, the values reported represent the lowest quantitation limits obtainable.

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Respectfully Submitted  
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Lancaster, PA 17601-5994  
717-656-2301

Jenifer E. Hess, B.S.  
Group Leader Pesticides/PCBs

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ASR000 D 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1936827  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/26/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

B3CPB Grab Soil Sample  
Moss - American Site

	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
BTEX Scan (8020)			
Benzene	< 5. ug/kg	5.	260300000N
Toluene	11. ug/kg	5.	260400000N
Ethylbenzene	< 5. ug/kg	5.	260600000N
o-Xylene	< 5. ug/kg	5.	260800000N
m-Xylene	18. ug/kg	5.	260900000N
p-Xylene	< 5. ug/kg	5.	261000000N

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Client Services at (717) 656-2301

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Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Highland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Delwyn K. Schumacher, B.S.  
Group Leader, ExpressLAB

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07:03:31 370255  
ASR000 D 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1936827  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/26/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

B3CPB Grab Soil Sample  
Moss - American Site  
**B: Monocyclic - Low; CoARSE**

**BTEX Scan (8020)**

Benzene

Toluene

Ethylbenzene

o-Xylene

m-Xylene

p-Xylene

RESULT	DRY WT. BASIS	LIMIT OF QUANTITATION	LAB CODE
< 6.	ug/kg	6.	260300000N
13.	ug/kg	6.	260400000N
< 6.	ug/kg	6.	260600000N
< 6.	ug/kg	6.	260800000N
21.	ug/kg	6.	260900000N
< 6.	ug/kg	6.	261000000N

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717-656-2301

Delwyn K. Schumacher, B.S.  
Group Leader, ExpressLAB

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07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

B4CPB Grab Soil Sample  
Moss - American Site

**B: LAURYL SULFATE - HIGH; COARSE**

LLI Sample No. SW 1936828  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/26/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

ANALYSIS	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
Moisture	20.3 % by wt.	0.5	011101200
"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.			
PAH's in Solids (SW846/8310)	attached		186222500
BTEX Scan (8020)	attached		221308500

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ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301  
528 07426 15.00 033700

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Lancaster, PA 17601-5994  
717-656-2301

Bethany A. Ebling, B.S.  
Group Leader, Water Quality

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07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1936828  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/26/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

B4CPB Grab Soil Sample  
Moss - American Site

ANALYSIS	RESULT	LIMIT OF	LAB CODE
	DRY WT. BASIS	QUANTITATION	
Moisture *AS RECEIVED*	20.3 % by wt.	0.5	011100000
"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.			
PAH's in Solids (SW846/8310)	attached		186222500
BTEX Scan (8020)	attached		221322500

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07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1936828  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/26/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

B4CPB Grab Soil Sample  
Moss - American Site

	RESULT AS RECEIVED		LIMIT OF QUANTITATION	LAB CODE
PAH's in Solids (SW846/8310)				
Naphthalene	< 20. mg/kg		20.	329600000N
Acenaphthylene	< 20. mg/kg		20.	329700000N
Acenaphthene	< 20. mg/kg		20.	329800000N
Fluorene	< 20. mg/kg		20.	329900000N
Phenanthrene	17. mg/kg		5.	330000000N
Anthracene	< 5. mg/kg		5.	330100000N
Fluoranthene	30. mg/kg		10.	330200000N
Pyrene	27. mg/kg		2.	330300000N
Benzo(a)anthracene	7.1 mg/kg		0.5	330400000N
Chrysene	11. mg/kg		5.	330500000N
Benzo(b)fluoranthene	11. mg/kg		1.	330600000N
Benzo(k)fluoranthene	5. mg/kg		1.	330700000N
Benzo(a)pyrene	12. mg/kg		1.	330800000N
Dibenzo(a,h)anthracene	< 2. mg/kg		2.	330900000N
Benzo(g,h,i)perylene	3. mg/kg		3.	331000000N
Indeno(1,2,3-cd)pyrene	9. mg/kg		3.	331100000N

Due to interfering peaks on the chromatogram, the values reported represent the lowest quantitation limits obtainable.

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ATTN: Mr. Ric Travor

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Client Services at (717) 656-2301

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Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer E. Hess, B.S.  
Group Leader Pesticides/PCBs

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ASR000 D 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
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LLI Sample No. SW 1936828  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/26/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

B4CPB Grab Soil Sample  
Moss - American Site

### B: LAURYL SULFATE - HIGH; COARSE

#### PAH's in Solids (SW846/8310)

	RESULT		LIMIT OF	LAB CODE
	DRY WT. BASIS		QUANTITATION	
Naphthalene	< 30. mg/kg		30.	329600000N
Acenaphthylene	< 30. mg/kg		30.	329700000N
Acenaphthene	< 30. mg/kg		30.	329800000N
Fluorene	< 30. mg/kg		30.	329900000N
Phenanthrene	22. mg/kg		6.	330000000N
Anthracene	< 6. mg/kg		6.	330100000N
Fluoranthene	40. mg/kg		10.	330200000N
Pyrene	34. mg/kg		3.	330300000N
Benzo(a)anthracene	8.9 mg/kg		0.6	330400000N
Chrysene	14. mg/kg		6.	330500000N
Benzo(b)fluoranthene	13. mg/kg		1.	330600000N
Benzo(k)fluoranthene	6. mg/kg		1.	330700000N
Benzo(a)pyrene	15. mg/kg		1.	330800000N
Dibenzo(a,h)anthracene	< 3. mg/kg		3.	330900000N
Benzo(g,h,i)perylene	< 4. mg/kg		4.	331000000N
Indeno(1,2,3-cd)pyrene	11. mg/kg		4.	331100000N

Due to interfering peaks on the chromatogram, the values reported represent the lowest quantitation limits obtainable.

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Lancaster, PA 17601-5994  
717-656-2301

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07:03:37 370255  
ASR000 D 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1936828  
Date Reported 4/1/93  
Date Submitted 3/2/93  
Discard Date 4/16/93  
Collected 2/26/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

B4CPB Grab Soil Sample  
Moss - American Site

**BTEX Scan (8020)**

Benzene  
Toluene  
Ethylbenzene  
o-Xylene  
m-Xylene  
p-Xylene

RESULT	
AS RECEIVED	
< 5.	ug/kg
10.	ug/kg
< 5.	ug/kg
< 5.	ug/kg
15.	ug/kg
< 5.	ug/kg

LIMIT OF	
QUANTITATION	LAB CODE
5.	260300000N
5.	260400000N
5.	260600000N
5.	260800000N
5.	260900000N
5.	261000000N

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Lancaster, PA 17601-5994  
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Group Leader, ExpressLAB

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07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1936828  
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Discard Date 4/16/93  
Collected 2/26/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

B4CPB Grab Soil Sample  
Moss - American Site

**B: LAURYL SULFATE HIGH; COARSE**

BTEX Scan (8020)

Benzene  
Toluene  
Ethylbenzene  
o-Xylene  
m-Xylene  
p-Xylene

RESULT	DRY WT. BASIS	LIMIT OF QUANTITATION	LAB CODE
< 6.	ug/kg	6.	260300000N
12.	ug/kg	6.	260400000N
< 6.	ug/kg	6.	260600000N
< 6.	ug/kg	6.	260800000N
19.	ug/kg	6.	260900000N
< 6.	ug/kg	6.	261000000N

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07:03:38 370255  
ASR000 D 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1936829  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/26/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

B5CPB Grab Soil Sample  
Moss - American Site

**B: LAURYL SULFATE - Low; Coarse**

**ANALYSIS**

Moisture

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.

PAH's in Solids (SW846/8310)

BTEX Scan (8020)

**RESULT**

AS RECEIVED

14.8 % by wt.

**LIMIT OF**

QUANTITATION

0.5

LAB CODE

011101200

attached

186222500

attached

221308500

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ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301  
528 07426 15.00 033700

Respectfully Submitted  
Lancaster Laboratories, Inc.



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2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Bethany A. Ebling, B.S.  
Group Leader, Water Quality

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07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1936829  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/26/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

B5CPB Grab Soil Sample  
Moss - American Site

ANALYSIS	RESULT	LIMIT OF	LAB CODE
	DRY WT. BASIS	QUANTITATION	
Moisture *AS RECEIVED*	14.8 % by wt.	0.5	011100000
"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.			
PAH's in Solids (SW846/8310)	attached		186222500
BTEX Scan (8020)	attached		221322500

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07:03:40 370255  
ASR000 D 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1936829  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/26/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

B5CPB Grab Soil Sample  
Moss - American Site

	RESULT AS RECEIVED		LIMIT OF QUANTITATION	LAB CODE
PAH's in Solids (SW846/8310)				
Naphthalene	< 20. mg/kg		20.	329600000N
Acenaphthylene	< 20. mg/kg		20.	329700000N
Acenaphthene	< 20. mg/kg		20.	329800000N
Fluorene	< 20. mg/kg		20.	329900000N
Phenanthrene	21. mg/kg		5.	330000000N
Anthracene	< 6. mg/kg		6.	330100000N
Fluoranthene	50. mg/kg		10.	330200000N
Pyrene	37. mg/kg		2.	330300000N
Benzo(a)anthracene	13. mg/kg		0.5	330400000N
Chrysené	13. mg/kg		5.	330500000N
Benzo(b)fluoranthene	17. mg/kg		1.	330600000N
Benzo(k)fluoranthene	7. mg/kg		1.	330700000N
Benzo(a)pyrene	14. mg/kg		1.	330800000N
Dibenzo(a,h)anthracene	< 2. mg/kg		2.	330900000N
Benzo(g,h,i)perylene	3. mg/kg		3.	331000000N
Indeno(1,2,3-cd)pyrene	10. mg/kg		3.	331100000N

Due to interfering peaks on the chromatogram, the values reported represent the lowest quantitation limits obtainable.

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ATTN: Mr. Ric Travor

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Client Services at (717) 656-2301

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Lancaster Laboratories, Inc.



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717-656-2301

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Group Leader Pesticides/PCBs

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07:03:40 370255  
ASR000 D 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1936829  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/26/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

B5PCPB Grab Soil Sample  
Moss - American Site

**B: LAURYL SULFATE - LOW; COARSE**

	RESULT		LIMIT OF	LAB CODE
PAH's in Solids (SW846/8310)	DRY WT. BASIS		QUANTITATION	
Naphthalene	< 20. mg/kg		20.	329600000N
Acenaphthylene	< 20. mg/kg		20.	329700000N
Acenaphthene	< 20. mg/kg		20.	329800000N
Fluorene	< 20. mg/kg		20.	329900000N
Phenanthrene	25. mg/kg		6.	330000000N
Anthracene	< 7. mg/kg		7.	330100000N
Fluoranthene	60. mg/kg		10.	330200000N
Pyrene	43. mg/kg		2.	330300000N
Benzo(a)anthracene	15. mg/kg		0.6	330400000N
Chrysene	16. mg/kg		6.	330500000N
Benzo(b)fluoranthene	20. mg/kg		1.	330600000N
Benzo(k)fluoranthene	8. mg/kg		1.	330700000N
Benzo(a)pyrene	16. mg/kg		1.	330800000N
Dibenzo(a,h)anthracene	< 2. mg/kg		2.	330900000N
Benzo(g,h,i)perylene	4. mg/kg		4.	331000000N
Indeno(1,2,3-cd)pyrene	12. mg/kg		4.	331100000N

Due to interfering peaks on the chromatogram, the values reported represent the lowest quantitation limits obtainable.

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ATTN: Mr. Ric Travor

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Jenifer E. Hess, B.S.  
Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations.





07:03:43 370255  
ASR000 D 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1936829  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/26/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

B5CPB Grab Soil Sample  
Moss - American Site

	RESULT	LIMIT OF	LAB CODE
	AS RECEIVED	QUANTITATION	
BTEX Scan (8020)			
Benzene	< 5. ug/kg	5.	260300000N
Toluene	11. ug/kg	5.	260400000N
Ethylbenzene	< 5. ug/kg	5.	260600000N
o-Xylene	< 5. ug/kg	5.	260800000N
m-Xylene	16. ug/kg	5.	260900000N
p-Xylene	< 5. ug/kg	5.	261000000N

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ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Delwyn K. Schumacher, B.S.  
Group Leader, ExpressLAB

See reverse side for explanation of symbols and abbreviations.





07:03:43 370255  
ASR000 D 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1936829  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/26/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

B5CPB Grab Soil Sample  
Moss - American Site

**B: LAUREYL SULFATE - Low ; COMBSS**

BTEX Scan (8020)

Benzene  
Toluene  
Ethylbenzene  
o-Xylene  
m-Xylene  
p-Xylene

RESULT	
DRY WT. BASIS	
< 6.	ug/kg
13.	ug/kg
< 6.	ug/kg
< 6.	ug/kg
18.	ug/kg
< 6.	ug/kg

LIMIT OF	
QUANTITATION	
	LAB CODE
6.	260300000N
6.	260400000N
6.	260600000N
6.	260800000N
6.	260900000N
6.	261000000N

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ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301

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Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Delwyn K. Schumacher, B.S.  
Group Leader, ExpressLAB

See reverse side for explanation of symbols and abbreviations.







07:04:11 370255  
ASR000 D 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1936845  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/26/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

BICO Grab Soil Sample  
Moss - American Site

ANALYSIS	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
Moisture	19.2 % by wt.	0.5	011101200
"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.			
Oil and Grease	0.41 % by wt.	0.01	023606500

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ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301  
528 07426 0.00 007700

Respectfully Submitted  
Lancaster Laboratories, Inc.

Bethany A. Ebling, B.S.  
Group Leader, Water Quality



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

See reverse side for explanation of symbols and abbreviations.





07:04:11 370255  
ASR000 D 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1936845  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/26/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

BICO Grab Soil Sample  
Moss - American Site

**ANALYSIS**

Moisture \*AS RECEIVED\*

"Moisture" represents the loss in weight of the sample after oven drying at  
103 - 105 degrees Celsius.

Oil and Grease

RESULT	LIMIT OF	LAB CODE
DRY WT. BASIS	QUANTITATION	
19.2 % by wt.	0.5	011100000
0.51 % by wt.	0.01	023600000

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ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301

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Lancaster Laboratories, Inc.



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2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Bethany A. Ebling, B.S.  
Group Leader, Water Quality

See reverse side for explanation of symbols and abbreviations.





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07:04:12 370255  
ASR000 D 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1936846  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/26/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

B2C0 Grab Soil Sample  
Moss - American Site

ANALYSIS	RESULT AS RECEIVED		LIMIT OF QUANTITATION	LAB CODE
Moisture	16.2	% by wt.	0.5	011101200
"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.				
Oil and Grease	0.46	% by wt.	0.01	023606500

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ATTN: Mr. Ric Travor

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528 07426 0.00 007700

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2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Bethany A. Ebling, B.S.  
Group Leader, Water Quality

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07:04:12 370255  
ASR000 D. 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample.No. SW 1936846  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/26/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

B2C0 Grab Soil Sample  
Moss - American Site

ANALYSIS	RESULT DRY WT. BASIS	LIMIT OF QUANTITATION	LAB CODE
Moisture *AS RECEIVED* "Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.	16.2 % by wt.	0.5	011100000
Oil and Grease	0.55 % by wt.	0.01	023600000

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Client Services at (717) 656-2301

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Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Bethany A. Ebling, B.S.  
Group Leader, Water Quality

See reverse side for explanation of symbols and abbreviations.





07:04:13 370255  
ASR000 D 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1936847  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/26/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

B3C0 Grab Soil Sample  
Moss - American Site

ANALYSIS	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
Moisture	14.7 % by wt.	0.5	011101200
"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.			
Oil and Grease	0.52 % by wt.	0.01	023606500

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ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301  
528 07426 0.00 007700

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2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Bethany A. Ebling, B.S.  
Group Leader, Water Quality

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07:04:13 370255  
ASR000 D 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1936847  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/26/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

B3C0 Grab Soil Sample  
Moss - American Site

ANALYSIS	RESULT	LIMIT OF	LAB CODE
	DRY WT. BASIS	QUANTITATION	
Moisture *AS RECEIVED*	14.7 % by wt.	0.5	011100000
"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.			
Oil and Grease	0.61 % by wt.	0.01	023600000

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717-656-2301

Bethany A. Ebling, B.S.  
Group Leader, Water Quality

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07:04:14 370255  
ASR000 D 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1936848  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/26/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

B4C0 Grab Soil Sample  
Moss - American Site

ANALYSIS	RESULT AS RECEIVED		LIMIT OF QUANTITATION	LAB CODE
Moisture	18.2	% by wt.	0.5	011101200
"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.				
Oil and Grease	0.59	% by wt.	0.01	023606500

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Client Services at (717) 656-2301  
528 07426 0.00 007700

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Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Bethany A. Ebling, B.S.  
Group Leader, Water Quality

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07:04:14 370255  
ASR000 D 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1936848  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/26/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

B4C0 Grab Soil Sample  
Moss - American Site

ANALYSIS	RESULT	LIMIT OF	LAB CODE
	DRY WT. BASIS	QUANTITATION	
Moisture *AS RECEIVED*	18.2 % by wt.	0.5	011100000
"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.			
Oil and Grease	0.72 % by wt.	0.01	023600000

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ATTN: Mr. Ric Travor

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Client Services at (717) 656-2301

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Lancaster, PA 17601-5994  
717-656-2301

Bethany A. Ebling, B.S.  
Group Leader, Water Quality

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07:04:15 370255  
ASR000 D 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1936849  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/26/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

B5C0 Grab Soil Sample  
Moss - American Site

ANALYSIS	RESULT AS RECEIVED		LIMIT OF QUANTITATION	LAB CODE
Moisture	15.8	% by wt.	0.5	011101200
"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.				
Oil and Grease	0.52	% by wt.	0.01	023606500

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ATTN: Mr. Ric Travor

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Client Services at (717) 656-2301  
528 07426 0.00 007700

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Lancaster, PA 17601-5994  
717-656-2301

Bethany A. Ebling, B.S.  
Group Leader, Water Quality

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07:04:15 370255  
ASR000 D 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

B5C0 Grab Soil Sample  
Moss - American Site

LLI Sample No. SW 1936849  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/26/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

ANALYSIS	RESULT	LIMIT OF	LAB CODE
	DRY WT. BASIS	QUANTITATION	
Moisture *AS RECEIVED*	15.8 % by wt.	0.5	011100000
"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.			
Oil and Grease	0.62 % by wt.	0.01	023600000

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ATTN: Mr. Ric Travor

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Client Services at (717) 656-2301

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Lancaster, PA 17601-5994  
717-656-2301

Bethany A. Ebling, B.S.  
Group Leader, Water Quality

See reverse side for explanation of symbols and abbreviations.





07:03:54 370255  
ASR000 D 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. WW 1936835  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/26/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

BILP Grab Water Sample  
Moss - American Site

**B: DOUBLE H<sub>2</sub>O ; FILTRATE**

ANALYSIS  
PAH's in Water (SW846/8310)

RESULT  
AS RECEIVED  
attached

LIMIT OF  
QUANTITATION  
LAB CODE  
186120000

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ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301  
528 07426 0.00 020000

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Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Bethany A. Ebling, B.S.  
Group Leader, Water Quality

See reverse side for explanation of symbols and abbreviations.





07:03:55 370255  
 ASR000 D 1 39  
 07426 0

Bergmann USA  
 1550 Airport Road  
 Gallatin, TN 37066-3739

LLI Sample No. WW 1936835  
 Date Reported 4/ 1/93  
 Date Submitted 3/ 2/93  
 Discard Date 4/16/93  
 Collected 2/26/93 by EL  
 Time Collected  
 P.O. B93-420  
 Rel.

BILP Grab Water Sample  
 Moss - American Site

**B: DOUBLE H<sub>2</sub>O; FILTERED**

PAH's in Water (SW846/8310)

	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
Naphthalene	< 10. ug/l	10.	328000000N
Acenaphthylene	< 20. ug/l	20.	328100000N
Acenaphthene	< 20. ug/l	20.	328200000N
Fluorene	< 2. ug/l	2.	328300000N
Phenanthrene	< 2. ug/l	2.	328400000N
Anthracene	< 1. ug/l	1.	328500000N
Fluoranthene	1.2 ug/l	0.5	328600000N
Pyrene	< 2. ug/l	2.	328700000N
Benzo(a)anthracene	< 0.1 ug/l	0.1	328800000N
Chrysene	< 1. ug/l	1.	328900000N
Benzo(b)fluoranthene	0.8 ug/l	0.2	329000000N
Benzo(k)fluoranthene	< 0.1 ug/l	0.1	329100000N
Benzo(a)pyrene	0.7 ug/l	0.2	329200000N
Dibenzo(a,h)anthracene	< 0.2 ug/l	0.2	329300000N
Benzo(g,h,i)perylene	< 0.5 ug/l	0.5	329400000N
Indeno(1,2,3-cd)pyrene	< 0.5 ug/l	0.5	329500000N

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ATTN: Mr. Ric Travor

Questions? Contact Environmental  
 Client Services at (717) 656-2301

Respectfully Submitted  
 Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
 2425 New England Pike  
 Lancaster, PA 17601-5994  
 717-656-2301

Jenifer E. Hess, B.S.  
 Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations.





07:03:44 370255  
ASR000 D 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. WV 1936830  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/26/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

BILB Grab Water Sample  
Moss - American Site

~~B: SOURCE~~ DOUBT H<sub>2</sub>O; FILTERED

ANALYSIS  
BTEX Scan

RESULT  
AS RECEIVED  
attached

LIMIT OF  
QUANTITATION  
LAB CODE  
051608500

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ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301  
528 07426 0.00 008500

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Bethany A. Ebling, B.S.  
Group Leader, Water Quality

See reverse side for explanation of symbols and abbreviations.





## Lancaster Laboratories

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07:03:45 370255  
ASR000 D I 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. WW 1936830  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/26/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

B1LB Grab Water Sample  
Moss - American Site

**B: DOUBLE H<sub>2</sub>O; FILTERED**

	RESULT		LIMIT OF	LAB CODE
	AS RECEIVED		QUANTITATION	
BTEX Scan				
Benzene	< 10.	ug/l	10.	313300000N
Toluene	28.	ug/l	1.	313400000N
o-Xylene	< 1.	ug/l	1.	080800000N
m-Xylene	1.	ug/l	1.	080900000N
p-Xylene	< 1.	ug/l	1.	081000000N
Ethylbenzene	< 1.	ug/l	1.	313500000N

Due to the presence of an interferent near its retention time, the normal reporting limit was not attained for benzene.

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ATTN: Mr. Ric Travor

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Client Services at (717) 656-2301

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Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Judy A. Colello, B.S.  
Group Leader

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07:04:06 370255  
ASR000 D 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. WW 1936840  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/26/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

BILOG Grab Water Sample  
Moss - American Site

**B. DOUBLE H<sub>2</sub>O; FILTRATE**

**ANALYSIS**

Oil & Grease

**RESULT**  
**AS RECEIVED**  
< 5. mg/l

**LIMIT OF**  
**QUANTITATION** LAB CODE  
5. 023105500

The blank analyzed with this sample contained .7 mg/l of oil and grease.  
As directed in EPA method 413.1, the data reported above was corrected  
for the blank value.

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ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301  
528 07426 0.00 005500

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Bethany A. Ebling, B.S.  
Group Leader, Water Quality

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07:03:57 370255  
ASR000 D 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. WW 1936836  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/26/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

B2LP Grab Water Sample  
Moss - American Site

**B: MONCOSOLVB-HIGH; FLTRATE**

ANALYSIS  
PAH's in Water (SW846/8310)

RESULT  
AS RECEIVED  
attached

LIMIT OF  
QUANTITATION  
LAB CODE  
186120000

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ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301  
528 07426 0.00 020000

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Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Bethany A. Ebling, B.S.  
Group Leader, Water Quality

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Where quality is a science.

07:03:58 370255  
ASR000 D 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. WW 1936836  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/26/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

B2LP Grab Water Sample  
Moss - American Site

**B: MONOCOMBS - HIGH; FILTRATS**

PAH's in Water (SW846/8310)	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
Naphthalene	< 10. ug/l	10.	328000000N
Acenaphthylene	< 20. ug/l	20.	328100000N
Acenaphthene	< 20. ug/l	20.	328200000N
Fluorene	< 3. ug/l	3.	328300000N
Phenanthrene	< 2. ug/l	2.	328400000N
Anthracene	< 2. ug/l	2.	328500000N
Fluoranthene	10. ug/l	0.5	328600000N
Pyrene	< 8. ug/l	8.	328700000N
Benzo(a)anthracene	3.0 ug/l	0.1	328800000N
Chrysene	< 20. ug/l	20.	328900000N
Benzo(b)fluoranthene	7.0 ug/l	0.2	329000000N
Benzo(k)fluoranthene	2.4 ug/l	0.1	329100000N
Benzo(a)pyrene	6.1 ug/l	0.2	329200000N
Dibenzo(a,h)anthracene	< 0.6 ug/l	0.6	329300000N
Benzo(g,h,i)perylene	5.5 ug/l	0.5	329400000N
Indeno(1,2,3-cd)pyrene	2.1 ug/l	0.5	329500000N

Due to interfering peaks on the chromatogram, the values reported represent the lowest quantitation limits obtainable.

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer B. Hess, B.S.  
Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations.





## Lancaster Laboratories

Where quality is a science.

07:03:46 370255  
ASR000 D 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

B2LB Grab Water Sample  
Moss - American Site

**B: MONOSOLV-HIGH; FILTERED**

ANALYSIS  
BTEX Scan

1 COPY TO Bergmann USA

LLI Sample No. WW 1936831  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/26/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

RESULT  
AS RECEIVED  
attached

LIMIT OF  
QUANTITATION  
LAB CODE  
051608500

ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301  
528 07426 0.00 008500

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Bethany A. Ebling, B.S.  
Group Leader, Water Quality

See reverse side for explanation of symbols and abbreviations.





07:03:47 370255  
ASR000 D 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. WV 1936831  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/26/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

B2LB Grab Water Sample  
Moss - American Site

**B: MONOCOMBS-HIGH; FILTRATE**

BTEX Scan	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
Benzene	< 20. ug/l	20.	313300000N
Toluene	24. ug/l	1.	313400000N
o-Xylene	< 1. ug/l	1.	080800000N
m-Xylene	< 1. ug/l	1.	080900000N
p-Xylene	< 1. ug/l	1.	081000000N
Ethylbenzene	< 1. ug/l	1.	313500000N

Due to the presence of an interferent near its retention time, the normal reporting limit was not attained for benzene.

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.

Judy A. Colello, B.S.  
Group Leader



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

See reverse side for explanation of symbols and abbreviations.





07:04:07 370255  
ASR000 D 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. WW 1936841  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/26/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

B2LOG Grab Water Sample  
Moss - American Site

**B: MONOSOLV-B-HIGH; FILTRATE**

**ANALYSIS**

**Oil & Grease**

The blank analyzed with this sample contained .7 mg/l of oil and grease.  
As directed in EPA method 413.1, the data reported above was corrected  
for the blank value.

RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
6. mg/l	5.	023105500

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301  
528 07426 0.00 005500

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Bethany A. Ebling, B.S.  
Group Leader, Water Quality

See reverse side for explanation of symbols and abbreviations.





07:03:59 370255  
ASR000 D 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. WW 1936837  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/26/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

B3LP Grab Water Sample  
Moss - American Site

**B: Moncosolve - Low; FILTERS**

ANALYSIS  
PAH's in Water (SW846/8310)

RESULT  
AS RECEIVED  
attached

LIMIT OF  
QUANTITATION  
LAB CODE  
186120000

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301  
528 07426 0.00 020000

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Bethany A. Ebling, B.S.  
Group Leader, Water Quality

See reverse side for explanation of symbols and abbreviations.





**Lancaster Laboratories**  
Where quality is a science.

07:04:00 370255  
ASR000 D 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. WW 1936837  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/26/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

B3LP Grab Water Sample  
Moss - American Site

**B: MONSOLVLS-LOW; FILTRATE**

PAH's in Water (SW846/8310)	RESULT AS RECEIVED	UNIT	LIMIT OF QUANTITATION	LAB CODE
Naphthalene	< 10.	ug/l	10.	32800000N
Acenaphthylene	< 20.	ug/l	20.	32810000N
Acenaphthene	< 20.	ug/l	20.	32820000N
Fluorene	< 2.	ug/l	2.	32830000N
Phenanthrene	< 2.	ug/l	2.	32840000N
Anthracene	< 1.	ug/l	1.	32850000N
Fluoranthene	4.6	ug/l	0.5	32860000N
Pyrene	< 4.	ug/l	4.	32870000N
Benzo(a)anthracene	1.3	ug/l	0.1	32880000N
Chrysene	< 8.	ug/l	8.	32890000N
Benzo(b)fluoranthene	2.9	ug/l	0.2	32900000N
Benzo(k)fluoranthene	1.1	ug/l	0.1	32910000N
Benzo(a)pyrene	2.7	ug/l	0.2	32920000N
Dibenzo(a,h)anthracene	< 0.2	ug/l	0.2	32930000N
Benzo(g,h,i)perylene	2.3	ug/l	0.5	32940000N
Indeno(1,2,3-cd)pyrene	1.0	ug/l	0.5	32950000N

Due to interfering peaks on the chromatogram, the values reported represent the lowest quantitation limits obtainable.

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travov

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer E. Hess, B.S.  
Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations.





## Lancaster Laboratories

Where quality is a science.

07:03:48 370255  
ASR000 D 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

B3LB Grab Water Sample  
Moss - American Site

**B: Moncosolve - Low; FILTRATE**

ANALYSIS  
BTEX Scan

1 COPY TO Bergmann USA

LLI Sample No. WW 1936832  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/26/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

RESULT  
AS RECEIVED  
attached

LIMIT OF  
QUANTITATION  
LAB CODE  
051608500

ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301  
528 07426 0.00 008500

Respectfully Submitted  
Lancaster Laboratories, Inc.

Bethany A. Ebling, B.S.  
Group Leader, Water Quality



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

See reverse side for explanation of symbols and abbreviations.





07:03:49 370255  
ASR000 D 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. WW 1936832  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/26/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

B3LB Grab Water Sample  
Moss - American Site

**B: Monocoulms - Low; Filtrate**

BTEX Scan	RESULT AS RECEIVED	UNIT	LIMIT OF QUANTITATION	LAB CODE
Benzene	< 20.	ug/l	20.	313300000N
Toluene	24.	ug/l	1.	313400000N
o-Xylene	< 1.	ug/l	1.	080800000N
m-Xylene	< 1.	ug/l	1.	080900000N
p-Xylene	< 1.	ug/l	1.	081000000N
Ethylbenzene	< 1.	ug/l	1.	313500000N

Due to the presence of an interferent near its retention time, the normal reporting limit was not attained for benzene.

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Judy A. Colello, B.S.  
Group Leader

See reverse side for explanation of symbols and abbreviations.







**Lancaster Laboratories**  
*Where quality is a science.*

07:04:08 370255  
ASR000 D 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. WW 1936842  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/26/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

B3LOG Grab Water Sample  
Moss - American Site

**B: MONOSOLVE - LOW; FILTERATE**

**ANALYSIS**

Oil & Grease

**RESULT**  
**AS RECEIVED**  
< 5. mg/l

**LIMIT OF**  
**QUANTITATION**    **LAB CODE**  
5.                    023105500

The blank analyzed with this sample contained .7 mg/l of oil and grease.  
As directed in EPA method 413.1, the data reported above was corrected  
for the blank value.

1 COPY TO    Bergmann USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301  
528 07426    0.00    005500

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Bethany A. Ebling, B.S.  
Group Leader, Water Quality

See reverse side for explanation of symbols and abbreviations.





## Lancaster Laboratories

Where quality is a science.

07:04:02 370255  
ASR000 D 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. WW 1936838  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/26/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

B4LP Grab Water Sample  
Moss - American Site

**B: LAUREYL SULFATE - HIGH; FILTRATE**

ANALYSIS  
PAH's in Water (SW846/8310)

RESULT  
AS RECEIVED  
attached

LIMIT OF  
QUANTITATION  
LAB CODE  
186120000

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301  
528 07426 0.00 020000

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Bethany A. Ebling, B.S.  
Group Leader, Water Quality

See reverse side for explanation of symbols and abbreviations.





**Lancaster Laboratories**  
Where quality is a science.

07:04:03 370255  
ASR000 D 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. WW 1936838  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/26/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

B4LP Grab Water Sample  
Moss - American Site

**B: LAURYL SULFATE - HIGH; FILTERED**

PAH's in Water (SW846/8310)

	RESULT		LIMIT OF	LAB CODE
	AS RECEIVED		QUANTITATION	
Naphthalene	< 10.	ug/l	10.	32800000N
Acenaphthylene	< 20.	ug/l	20.	32810000N
Acenaphthene	< 20.	ug/l	20.	32820000N
Fluorene	< 2.	ug/l	2.	32830000N
Phenanthrene	< 2.	ug/l	2.	32840000N
Anthracene	< 1.	ug/l	1.	32850000N
Fluoranthene	1.1	ug/l	0.5	32860000N
Pyrene	< 2.	ug/l	2.	32870000N
Benzo(a)anthracene	< 0.1	ug/l	0.1	32880000N
Chrysene	< 1.	ug/l	1.	32890000N
Benzo(b)fluoranthene	0.5	ug/l	0.2	32900000N
Benzo(k)fluoranthene	< 0.1	ug/l	0.1	32910000N
Benzo(a)pyrene	0.4	ug/l	0.2	32920000N
Dibenzo(a,h)anthracene	< 0.2	ug/l	0.2	32930000N
Benzo(g,h,i)perylene	< 0.5	ug/l	0.5	32940000N
Indeno(1,2,3-cd)pyrene	< 0.5	ug/l	0.5	32950000N

1 COPY TO Bergmann. USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301.

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer E. Hess, B.S.  
Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations.





07:03:50 370255  
ASR000 D 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. WW 1936833  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/26/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

B4LB Grab Water Sample  
Moss - American Site

**B: LAUREL SULFATE - HIGH; FILTERED**

ANALYSIS  
BTEX Scan

RESULT  
AS RECEIVED  
attached

LIMIT OF  
QUANTITATION  
LAB CODE  
051608500

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301  
528 07426 0.00 008500

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Bethany A. Ebling, B.S.  
Group Leader, Water Quality

See reverse side for explanation of symbols and abbreviations.





**Lancaster Laboratories**  
Where quality is a science.

07:03:51 370255  
ASR000 D 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. WW 1936833  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/26/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

B4LB Grab Water Sample  
Moss - American Site

**B: LAUREYL SULFATE - HIGH; FILTERED**

	RESULT		LIMIT OF	LAB CODE
	AS RECEIVED		QUANTITATION	
BTEX Scan				
Benzene	< 10.	ug/l	10.	313300000N
Toluene	30.	ug/l	10.	313400000N
o-Xylene	< 10.	ug/l	10.	080800000N
m-Xylene	< 10.	ug/l	10.	080900000N
p-Xylene	< 10.	ug/l	10.	081000000N
Ethylbenzene	< 10.	ug/l	10.	313500000N

Due to excessive foaming of the sample, normal reporting limits were not attained.

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Judy A. Colello, B.S.  
Group Leader

See reverse side for explanation of symbols and abbreviations.





**Lancaster Laboratories**  
Where quality is a science.

07:04:09 370255  
ASR000 D 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. WW 1936843  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/26/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

B4LOG Grab Water Sample  
Moss - American Site

**B: LAURYL SULFATE - HIGH; FILTRATE**

**ANALYSIS**

Oil & Grease

**RESULT  
AS RECEIVED**

< 5. mg/l

**LIMIT OF  
QUANTITATION LAB CODE**  
5. 023105500

The blank analyzed with this sample contained .7 mg/l of oil and grease.  
As directed in EPA method 413.1, the data reported above was corrected  
for the blank value.

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301  
528 07426 0.00 005500

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Bethany A. Ebling, B.S.  
Group Leader, Water Quality

See reverse side for explanation of symbols and abbreviations.





07:04:04 370255  
ASR000 D 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. WW 1936839  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/26/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

B5LP Grab Water Sample  
Moss - American Site

**ANALYSIS**  
PAH's in Water (SW846/8310)

**RESULT**  
AS RECEIVED attached

**LIMIT OF**  
QUANTITATION LAB CODE  
186120000

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301  
528 07426 0.00 020000

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Bethany A. Ebling, B.S.  
Group Leader, Water Quality

See reverse side for explanation of symbols and abbreviations.





07:03:52 370255  
ASR000 D 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. WW 1936834  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/26/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

B5LB Grab Water Sample  
Moss - American Site

**B: LAURYL SULFATE - LOW; FILTRATE**

ANALYSIS  
BTEX Scan

RESULT  
AS RECEIVED  
attached

LIMIT OF  
QUANTITATION  
LAB CODE  
051608500

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301  
528 07426 0.00 008500

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Bethany A. Ebling, B.S.  
Group Leader, Water Quality

See reverse side for explanation of symbols and abbreviations.







**Lancaster Laboratories**  
*Where quality is a science.*

07:03:53 370255  
ASR000 D 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. WW 1936834  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/26/93 by EL  
Time Collected:  
P.O. B93-420  
Rel.

B5LB Grab Water Sample  
Moss - American Site

**3: LAURYL SULFATE - LOW; FILTRATE**

BTEX Scan  
Benzene  
Toluene  
o-Xylene  
m-Xylene  
p-Xylene  
Ethylbenzene

RESULT		LIMIT OF	
AS RECEIVED		QUANTITATION	LAB CODE
< 10.	ug/l	10.	313300000N
30.	ug/l	10.	313400000N
< 10.	ug/l	10.	080800000N
< 10.	ug/l	10.	080900000N
< 10.	ug/l	10.	081000000N
< 10.	ug/l	10.	313500000N

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Highland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Judy A. Colello, B.S.  
Group Leader

See reverse side for explanation of symbols and abbreviations.





**Lancaster Laboratories**  
Where quality is a science.

07:04:05 370255  
ASR000 D 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. WW 1936839  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/26/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

B5LP Grab Water Sample  
Moss - American Site

**B: LAURYL SULFATE - LOW; FILTERATE**

PAH's in Water (SW846/8310)

	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
Naphthalene	< 10. ug/l	10.	32800000N
Acenaphthylene	< 20. ug/l	20.	32810000N
Acenaphthene	< 20. ug/l	20.	32820000N
Fluorene	< 2. ug/l	2.	32830000N
Phenanthrene	< 2. ug/l	2.	32840000N
Anthracene	< 1. ug/l	1.	32850000N
Fluoranthene	2.0 ug/l	0.5	32860000N
Pyrene	< 2. ug/l	2.	32870000N
Benzo(a)anthracene	< 0.1 ug/l	0.1	32880000N
Chrysene	< 1. ug/l	1.	32890000N
Benzo(b)fluoranthene	0.8 ug/l	0.2	32900000N
Benzo(k)fluoranthene	< 0.1 ug/l	0.1	32910000N
Benzo(a)pyrene	0.7 ug/l	0.2	32920000N
Dibenzo(a,h)anthracene	< 0.2 ug/l	0.2	32930000N
Benzo(g,h,i)perylene	0.6 ug/l	0.5	32940000N
Indeno(1,2,3-cd)pyrene	0.5 ug/l	0.5	32950000N

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer B. Hess, B.S.  
Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations.



Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. WW 1936844  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/26/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

B5LOG Grab Water Sample  
Moss - American Site

ANALYSIS	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
Oil & Grease	6. mg/l	5.	023105500

The blank analyzed with this sample contained .7 mg/l of oil and grease.  
As directed in EPA method 413.1, the data reported above was corrected  
for the blank value.

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301  
528 07426 0.00 005500

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Bethany A. Ebling, B.S.  
Group Leader, Water Quality





07:04:59 370255  
ASR000 D 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1936861  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/27/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

B17PBO Grab Soil Sample  
Moss - American Site

	RESULT	LIMIT OF	LAB CODE
	DRY WT. BASIS	QUANTITATION	
BTEX Scan (8020)			
Benzene	< 8. ug/kg	8.	260300000N
Toluene	8. ug/kg	8.	260400000N
Ethylbenzene	< 8. ug/kg	8.	260600000N
o-Xylene	< 8. ug/kg	8.	260800000N
m-Xylene	< 8. ug/kg	8.	260900000N
p-Xylene	< 8. ug/kg	8.	261000000N

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Delwyn K. Schumacher, B.S.  
Group Leader, ExpressLAB

See reverse side for explanation of symbols and abbreviations.





07:04:16 370255  
ASR000 D 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1936850  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/26/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

B1F0 Grab Soil Sample  
Moss - American Site

ANALYSIS	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
Moisture	49.8 % by wt.	0.5	011101200
"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.			
Oil and Grease	1.31 % by wt.	0.01	023606500

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301  
528 07426 0.00 007700

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Bethany A. Ebling, B.S.  
Group Leader, Water Quality

See reverse side for explanation of symbols and abbreviations.





**Lancaster Laboratories**  
*Where quality is a science.*

07:04:16 370255  
ASR000 D 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1936850  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/26/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

B1F0 Grab Soil Sample  
Moss - American Site

ANALYSIS	RESULT	LIMIT OF	LAB CODE
	DRY WT. BASIS	QUANTITATION	
Moisture *AS RECEIVED*	49.8 % by wt.	0.5	011100000
"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.			
Oil and Grease	2.60 % by wt.	0.02	023600000

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Bethany A. Ebling, B.S.  
Group Leader, Water Quality

See reverse side for explanation of symbols and abbreviations.





**Lancaster Laboratories**  
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07:04:17 370255  
ASR000 D 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1936851  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/26/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

B2FO Grab Soil Sample  
Moss - American Site

ANALYSIS	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
Moisture	48.4 % by wt.	0.5	011101200
"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.			
Oil and Grease	1.53 % by wt.	0.01	023606500

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301  
528 07426 0.00 007700

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Bethany A. Ebling, B.S.  
Group Leader, Water Quality

See reverse side for explanation of symbols and abbreviations.





**Lancaster Laboratories**  
*Where quality is a science.*

07:04:17 370255  
ASR000 D 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1936851  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/26/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

B2F0 Grab Soil Sample  
Moss - American Site

ANALYSIS	RESULT	LIMIT OF	LAB CODE
	DRY WT. BASIS	QUANTITATION	
Moisture *AS RECEIVED*	48.4 % by wt.	0.5	011100000
"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.			
Oil and Grease	2.96 % by wt.	0.02	023600000

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ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Bethany A. Ebling, B.S.  
Group Leader, Water Quality

See reverse side for explanation of symbols and abbreviations.







07:04:18 370255  
ASR000 D 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1936852  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/26/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

B3F0 Grab Soil Sample  
Moss - American Site

ANALYSIS	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
Moisture	55.8 % by wt.	0.5	011101200
"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.			
Oil and Grease	1.35 % by wt.	0.01	023606500

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301  
528 07426 0.00 007700

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Bethany A. Ebling, B.S.  
Group Leader, Water Quality

See reverse side for explanation of symbols and abbreviations.





07:04:18 370255  
ASR000 D 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1936852  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/26/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

B3F0 Grab Soil Sample  
Moss - American Site

ANALYSIS	RESULT	LIMIT OF	LAB CODE
	DRY WT. BASIS	QUANTITATION	
Moisture *AS RECEIVED*	55.8 % by wt.	0.5	011100000
"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.			
Oil and Grease	3.06 % by wt.	0.02	023600000

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Bethany A. Ebling, B.S.  
Group Leader, Water Quality

See reverse side for explanation of symbols and abbreviations.





**Lancaster Laboratories**  
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07:04:19 370255  
ASR000 D 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

B4F0 Grab Soil Sample  
Moss - American Site

LLI Sample No. SW 1936853  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/26/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

ANALYSIS	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
Moisture "Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.	39.9 % by wt.	0.5	011101200
Oil and Grease	1.65 % by wt.	0.01	023606500

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301  
528 07426 0.00 007700

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Bethany A. Ebling, B.S.  
Group Leader, Water Quality

See reverse side for explanation of symbols and abbreviations.





07:04:19 370255  
ASR000 D 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1936853  
Date Reported : 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/26/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

B4F0 Grab Soil Sample  
Moss - American Site

ANALYSIS	RESULT	LIMIT OF	LAB CODE
	DRY WT. BASIS	QUANTITATION	
Moisture *AS RECEIVED*	39.9 % by wt.	0.5	011100000
"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.			
Oil and Grease	2.75 % by wt.	0.02	023600000

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Bethany A. Ebling, B.S.  
Group Leader, Water Quality

See reverse side for explanation of symbols and abbreviations.





**Lancaster Laboratories**  
*Where quality is a science.*

07:04:20 370255  
ASR000 D 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1936854  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/26/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

B5F0 Grab Soil Sample  
Moss - American Site

ANALYSIS	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
Moisture "Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.	49.2 % by wt.	0.5	011101200
Oil and Grease	1.50 % by wt.	0.01	023606500

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301  
528 07426 0.00 007700

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Bethany A. Ebling, B.S.  
Group Leader, Water Quality

See reverse side for explanation of symbols and abbreviations.





07:04:20 370255  
ASR000 D 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1936854  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/26/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

B5F0 Grab Soil Sample  
Moss - American Site

ANALYSIS	RESULT	LIMIT OF QUANTITATION	LAB CODE
Moisture *AS RECEIVED*	49.2 % by wt.	0.5	011100000
"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.			
Oil and Grease	2.96 % by wt.	0.02	023600000

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental Client Services at (717) 656-2301

Respectfully Submitted Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Bethany A. Ebling, B.S.  
Group Leader, Water Quality

See reverse side for explanation of symbols and abbreviations.





07:03:14 370255  
ASR000 D 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1936825  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/26/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

BICPB Grab Soil Sample  
Moss - American Site  
3: ~~XXXXXXXXXX~~; COARSE  
Bottle # 70

**ANALYSIS**

Moisture

"Moisture" represents the loss in weight of the sample after oven drying at  
103 - 105 degrees Celsius.

PAH's in Solids (SW846/8310)

BTEX Scan (8020)

RESULT AS RECEIVED	UNIT	LIMIT OF QUANTITATION	LAB CODE
18.6	% by wt.	0.5	011101200
			186222500
			221308500

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental  
Client Services at (717) 656-2301  
528 07426 15.00 033700

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Bethany A. Ebling, B.S.  
Group Leader, Water Quality

See reverse side for explanation of symbols and abbreviations.





07:03:14 370255  
ASR000 D 1 39  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1936825  
Date Reported 4/ 1/93  
Date Submitted 3/ 2/93  
Discard Date 4/16/93  
Collected 2/26/93 by EL  
Time Collected  
P.O. B93-420  
Rel.

BICPB Grab Soil Sample  
Moss - American Site

ANALYSIS	RESULT	LIMIT OF QUANTITATION	LAB CODE
Moisture *AS RECEIVED*	18.6 % by wt.	0.5	011100000
"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.			
PAH's in Solids (SW846/8310)	attached		186222500
BTEX Scan (8020)	attached		221322500

1 COPY TO Bergmann USA

ATTN: Mr. Ric Travor

Questions? Contact Environmental Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Bethany A. Ebling, B.S.  
Group Leader, Water Quality

See reverse side for explanation of symbols and abbreviations.





**APPENDIX G (cont'd)**

**RAW LABORATORY DATA  
LANCASTER LABORATORIES, INC.  
(OPTIMIZED SOIL WASHING EVALUATION)**

## Lancaster Laboratories, Inc.

## Limits of Quantitation

Parameter	Water	Water	Soil	Soil
	(ug/L)	(ug/l)	Sediment (ug/kg)	Sediment (mg/kg)
	Method	Method	Method	Method
<b>PAHs</b>	8270	8310	8270	8310
Naphthalene	10 (1J)	10	330 (30J)	2 (0.2J)
Acenaphthylene	10 (1J)	20	330 (30J)	2 (0.3J)
Acenaphthene	10 (1J)	20	330 (30J)	2 (0.4J)
Fluorene	10 (1J)	2	330 (30J)	2
Phenanthrene	10 (1J)	2	330 (30J)	0.5
Anthracene	10 (1J)	1	330 (30J)	0.5 (0.003J)
Fluoranthene	10 (1J)	0.5	330 (30J)	0.2
Pyrene	10 (1J)	2	330 (30J)	0.2
Benzo(a)anthracene	10 (1J)	0.1	330 (30J)	0.01
Chrysene	10 (1J)	1	330 (30J)	0.1
Benzo (b)fluoranthene	10 (1J)	0.2	330 (30J)	0.02 (.008J)
Benzo(k)fluoranthene	10 (1J)	0.1	330 (30J)	0.02 (.004J)
Benzo(a)pyrene	10 (1J)	0.2	330 (30J)	0.02 (0.005J)
Indeno(1,2,3-cd)pyrene	10 (1J)	0.5	330 (30J)	0.05
Dibenz(a,h)anthracene	10 (1J)	1	330 (30J)	0.02
Benzo(g,h,i)perylene	10 (1J)	0.5	330 (30J)	0.05

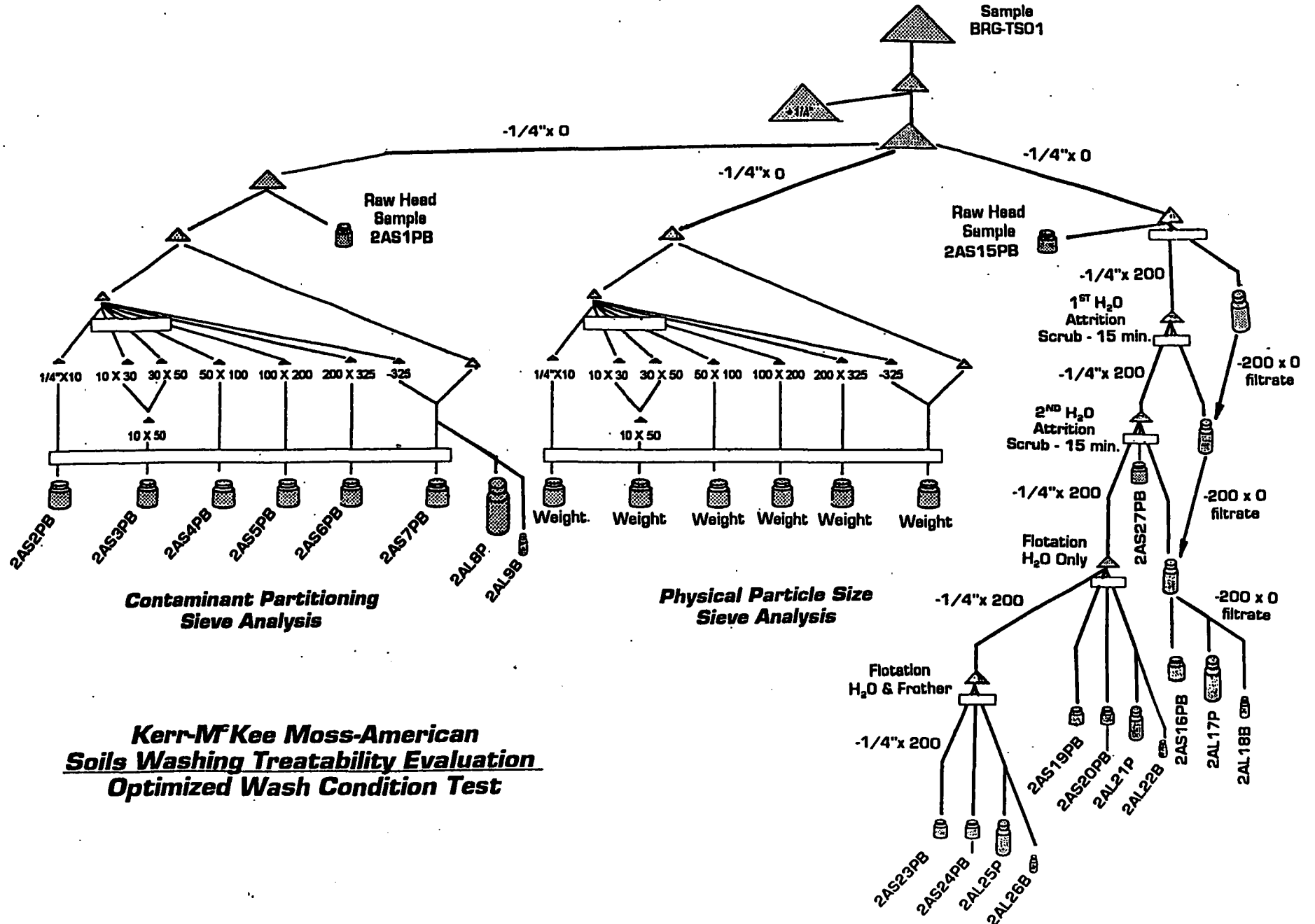
J values are estimated values for those compounds detected below the LOQ but above the MDL.

The limits given for Method 8310 waters are the limits of quantitation (LOQ). J values can be reported for values between the Method Detection Limit (MDL) and the LOQ which will meet your Acceptable Reporting Limits from Table 2. J values are not shown on the above table.

The limits given for Method 8310 soils reflect J values where necessary to meet the Acceptable Reporting Limits on Table 2.

The LOQs given for soil and sediment are given for an "as received" basis. LOQs reported on samples will be calculated and reported on a dry weight basis for each sample.

Sample  
BRG-TS01



**Kerr-McKee Moss-American**  
**Soils Washing Treatability Evaluation**  
**Optimized Wash Condition Test**

MAR 17 1993

March 11, 1993

Mr. Ric Travor  
Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

Dear Ric:

As you requested on March 8, 1993, I am writing to inform you that we did not receive enough soil to perform the BTEX analysis on samples B13PB, B14PB, and B15PB. The Polynuclear Aromatic Hydrocarbons (PAHs) and moisture analyses were completed with the amount of sample that we received.

Please call me at (717) 656-2301, Ext. 520 if you have further questions.

Sincerely,

*Denise Brooks*

Denise Brooks  
Client Services  
Environmental Sciences

DB/car







For LLI Use Only

Acct. # \_\_\_\_\_ Sample # \_\_\_\_\_

Please print. Instructions on reverse side correspond with circled numbers.

Client: BERGMANN USA Acct. #: 07426  
 Project Name/#: MOSS - AMERICAN PWSID #: \_\_\_\_\_  
 Project Manager: RIC TRAYER P.O. #: \_\_\_\_\_  
 Sampler: KYLE OLMSTEAD Quote #: \_\_\_\_\_  
 State where sample was collected: GALLATIN, TN

For LLI use only

FSC: \_\_\_\_\_

SCR #: 1047597

Temperature of samples upon receipt (6)

Sample Identification	Date Collected	Time Collected	PAH	BTEX	Total # of Containers	PAH	BTEX	Remarks	Temperature of samples upon receipt (6)
2AS1PB	5/10		X	X	1	X	X	BRG-TSOI RAW HEAD SAMPLE	2°C
2AS2PB	5/10		X	X	1	X	X	1/4" x 10	
2AS3PB	5/10		X	X	1	X	X	10 x 50	
2AS4PB	5/10		X	X	1	X	X	50 x 100	
2AS5PB	5/10		X	X	1	X	X	100 x 200	
2AS6PB	5/10		X	X	1	X	X	200 x 325	
2AS7PB	5/10		X	X	1	X	X	325 x 0	
2A8P	5/10		X	X	1	X		FILTRATE	
2A9B	5/10		X	X	1	X		FILTRATE	

Turnaround Time Requested (please circle): Normal  **Rush**  (Rush IAT is subject to LLI approval and surcharge.)  
 Date results are needed: \_\_\_\_\_  
 Rush results requested by (please circle): Phone  Fax   
 Phone #: (615) 230-7217  
 Fax #: (615) 452-5525

Relinquished by: <u>Michael Porter</u>	Date	Time	Received by:	Date	Time
Relinquished by: _____	_____	_____	Received by:	_____	_____
Relinquished by: _____	_____	_____	Received by:	_____	_____
Relinquished by: _____	_____	_____	Received for LLI by: <u>Doug Hoodlum</u>	_____	_____

Data Package Options (please circle if requested):

QC Summary Tier I (NJ) _____ Tier II (NJ) _____ EPA CLP _____ GLP _____	Site-specific QC required? Yes No _____ (If yes, indicate QC sample and submit triplicate volume.) Data Package Internal Chain of Custody required? Yes No _____
----------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------------------------------------------------------------------------

SDG Complete? Yes No \_\_\_\_\_









10:51:13 378078  
ASR000 D 2 24  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1967030  
Date Reported 5/21/93  
Date Submitted 5/12/93  
Discard Date 7/21/93  
Collected 5/10/93 by KO  
Time Collected  
P.O.  
Rel.

2AS15PB Grab Soil Sample  
Moss - American

ANALYSIS	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
PAH's in Solids (SW846/8310)	attached		186200000 *
Moisture	27.2 % by wt.	0.5	211100000 *
"Moisture" represents the loss in weight of the sample after drying with an infrared lamp at 150 degrees Celsius.			
BTEX Scan (8020)	attached		221300000 *

1 COPY TO Bergmann USA  
1 COPY TO Data Package Group

ATTN: Mr. Ric Traver

Questions? Contact Environmental  
Client Services at (717) 656-2301  
126 07426 0.00 000000

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer B. Hess, B.S.  
Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations.





10:51:13 378078  
ASR000 D 2 24  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1967030  
Date Reported 5/21/93  
Date Submitted 5/12/93  
Discard Date 7/21/93  
Collected 5/10/93 by K0  
Time Collected  
P.O.  
Rel.

2AS15PB Grab Soil Sample  
Moss - American

ANALYSIS	RESULT DRY WT. BASIS	LIMIT OF QUANTITATION	LAB CODE
PAH's in Solids (SW846/8310)	attached		186200000 *
Moisture *AS RECEIVED*	27.2 % by wt.	0.5	211100000 *
"Moisture" represents the loss in weight of the sample after drying with an infrared lamp at 150 degrees Celsius.			
BTEX Scan (8020)	attached		221300000 *

1 COPY TO Bergmann USA  
1 COPY TO Data Package Group

ATTN: Mr. Ric Traver

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer E. Hess, B.S.  
Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations.





10:51:16 378078  
ASR000 D 2 24  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1967030  
Date Reported 5/21/93  
Date Submitted 5/12/93  
Discard Date 7/21/93  
Collected 5/10/93 by KO  
Time Collected  
P.O.  
Rel.

2AS15PB Grab Soil Sample  
Moss - American

S15PB SDG# MOS01-01 PAH's in Solids (SW846/8310)	RESULT AS RECEIVED	UNIT	LIMIT OF QUANTITATION	LAB CODE
Naphthalene	< 3.	mg/kg	3.	329600000N
Acenaphthylene	< 4.	mg/kg	4.	329700000N
Acenaphthene	7.	mg/kg	4.	329800000N
Fluorene	< 4.	mg/kg	4.	329900000N
Phenanthrene	5.	mg/kg	5.	330000000N
Anthracene	< 2.	mg/kg	2.	330100000N
Fluoranthene	9.	mg/kg	2.	330200000N
Pyrene	9.	mg/kg	2.	330300000N
Benzo(a)anthracene	2.2	mg/kg	0.1	330400000N
Chrysene	3.	mg/kg	1.	330500000N
Benzo(b)fluoranthene	5.3	mg/kg	0.2	330600000N
Benzo(k)fluoranthene	2.2	mg/kg	0.4	330700000N
Benzo(a)pyrene	3.3	mg/kg	0.4	330800000N
Dibenzo(a,h)anthracene	< 0.4	mg/kg	0.4	330900000N
Benzo(g,h,i)perylene	2.	mg/kg	1.	331000000N
Indeno(1,2,3-cd)pyrene	6.	mg/kg	1.	331100000N

Due to interfering peaks on the chromatogram, the values reported represent the lowest quantitation limits obtainable.

1 COPY TO Bergmann USA  
1 COPY TO Data Package Group

ATTN: Mr. Ric Traver

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer E. Hess, B.S.  
Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations.



Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1967030  
Date Reported 5/21/93  
Date Submitted 5/12/93  
Discard Date 7/21/93  
Collected 5/10/93 by KO  
Time Collected  
P.O.  
Rel.

2AS15PB Grab Soil Sample  
Moss - American

S15PB SDG# MOS01-01 PAH's in Solids (SW846/8310)	RESULT DRY WT. BASIS	LIMIT OF QUANTITATION	LAB CODE
Naphthalene	< 4. mg/kg	4.	329600000N
Acenaphthylene	< 5. mg/kg	5.	329700000N
Acenaphthene	9. mg/kg	5.	329800000N
Fluorene	< 5. mg/kg	5.	329900000N
Phenanthrene	7. mg/kg	7.	330000000N
Anthracene	< 3. mg/kg	3.	330100000N
Fluoranthene	12. mg/kg	3.	330200000N
Pyrene	12. mg/kg	3.	330300000N
Benzo(a)anthracene	3.0 mg/kg	0.1	330400000N
Chrysene	5. mg/kg	1.	330500000N
Benzo(b)fluoranthene	7.3 mg/kg	0.3	330600000N
Benzo(k)fluoranthene	3.0 mg/kg	0.5	330700000N
Benzo(a)pyrene	4.5 mg/kg	0.5	330800000N
Dibenzo(a,h)anthracene	< 0.5 mg/kg	0.5	330900000N
Benzo(g,h,i)perylene	3. mg/kg	1.	331000000N
Indeno(1,2,3-cd)pyrene	8. mg/kg	1.	331100000N

Due to interfering peaks on the chromatogram, the values reported represent the lowest quantitation limits obtainable.

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ATTN: Mr. Ric Traver

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer E. Hess, B.S.  
Group Leader Pesticides/PCBs





**Lancaster Laboratories**  
*Where quality is a science.*

10:51:24 378078  
ASR000 D 2 24  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1967030  
Date Reported 5/21/93  
Date Submitted 5/12/93  
Discard Date 7/21/93  
Collected 5/10/93 by KO  
Time Collected  
P.O.  
Rel.

2AS15PB Grab Soil Sample  
Moss - American

S15PB SDG# MOS01-01  
BTEX Scan (8020)

	RESULT		LIMIT OF	
	AS RECEIVED		QUANTITATION	LAB CODE
Benzene	< 5.	ug/kg	5.	260300000N
Toluene	13.	ug/kg	5.	260400000N
Ethylbenzene	< 5.	ug/kg	5.	260600000N
o-Xylene	< 5.	ug/kg	5.	260800000N
m-Xylene	8.	ug/kg	5.	260900000N
p-Xylene	< 5.	ug/kg	5.	261000000N

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ATTN: Mr. Ric Traver

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Client Services at (717) 656-2301

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Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Delwyn K. Schumacher, B.S.  
Group Leader, ExpressLAB

See reverse side for explanation of symbols and abbreviations.





10:51:24 378078  
ASR000 D 2 24  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1967030  
Date Reported 5/21/93  
Date Submitted 5/12/93  
Discard Date 7/21/93  
Collected 5/10/93 by KO  
Time Collected  
P.O.  
Rel.

2AS15PB Grab Soil Sample  
Moss - American

S15PB SDG# MOS01-01  
BTEX Scan (8020)  
Benzene  
Toluene  
Ethylbenzene  
o-Xylene  
m-Xylene  
p-Xylene

RESULT	DRY WT. BASIS	LIMIT OF QUANTITATION	LAB CODE
< 7.	ug/kg	7.	260300000N
18.	ug/kg	7.	260400000N
< 7.	ug/kg	7.	260600000N
< 7.	ug/kg	7.	260800000N
11.	ug/kg	7.	260900000N
< 7.	ug/kg	7.	261000000N

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ATTN: Mr. Ric Traver

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Client Services at (717) 656-2301

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2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Delwyn K. Schumacher, B.S.  
Group Leader, ExpressLAB

See reverse side for explanation of symbols and abbreviations.





**Lancaster Laboratories**  
*Where quality is a science.*

10:51:29 378078  
ASR000 D 2 24  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1967031  
Date Reported 5/21/93  
Date Submitted 5/12/93  
Discard Date 7/21/93  
Collected 5/10/93 by K0  
Time Collected  
P.O.  
Rel.

2AS16PB Grab Soil Sample  
Moss - American

S16PB SDG# MOS01-02  
ANALYSIS

PAH's in Solids (SW846/8310)  
Moisture

"Moisture" represents the loss in weight of the sample after drying with an infrared lamp at 150 degrees Celsius.

BTEX Scan (8020)

RESULT  
AS RECEIVED

attached  
% by wt.

44.3

LIMIT OF  
QUANTITATION

0.5

LAB CODE

186200000 \*

211100000 \*

attached

221300000 \*

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ATTN: Mr. Ric Traver

Questions? Contact Environmental  
Client Services at (717) 656-2301  
126 07426 0.00 000000

Respectfully Submitted  
Lancaster Laboratories, Inc.

Jenifer E. Hess, B.S.  
Group Leader Pesticides/PCBs



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

See reverse side for explanation of symbols and abbreviations.





10:51:29 378078  
ASR000 D 2 24  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1967031  
Date Reported 5/21/93  
Date Submitted 5/12/93  
Discard Date 7/21/93  
Collected 5/10/93 by K0  
Time Collected  
P.O.  
Rel.

2AS16PB Grab Soil Sample  
Moss - American

S16PB SDG# MOS01-02  
ANALYSIS

RESULT	LIMIT OF	LAB CODE
DRY WT. BASIS	QUANTITATION	
attached		186200000 *
44.3 % by wt.	0.5	211100000 *
attached		221300000 *

PAH's in Solids (SW846/8310)

Moisture \*AS RECEIVED\*

"Moisture" represents the loss in weight of the sample after drying with an infrared lamp at 150 degrees Celsius.

BTEX Scan (8020)

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ATTN: Mr. Ric Traver

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Client Services at (717) 656-2301

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Lancaster, PA 17601-5994  
717-656-2301

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Group Leader Pesticides/PCBs

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10:51:32 378078  
ASR000 D 2 24  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1967031  
Date Reported 5/21/93  
Date Submitted 5/12/93  
Discard Date 7/21/93  
Collected 5/10/93 by KO  
Time Collected  
P.O.  
Rel.

2AS16PB Grab Soil Sample  
Moss - American

S16PB SDG# MOS01-02  
PAH's in Solids (SW846/8310)

	RESULT AS RECEIVED		LIMIT OF QUANTITATION	LAB CODE
Naphthalene	< 3.	mg/kg	3.	329600000N
Acenaphthylene	< 5.	mg/kg	5.	329700000N
Acenaphthene	12.	mg/kg	4.	329800000N
Fluorene	< 4.	mg/kg	4.	329900000N
Phenanthrene	5.	mg/kg	5.	330000000N
Anthracene	< 2.	mg/kg	2.	330100000N
Fluoranthene	8.	mg/kg	2.	330200000N
Pyrene	8.	mg/kg	2.	330300000N
Benzo(a)anthracene	2.0	mg/kg	0.1	330400000N
Chrysene	4.	mg/kg	1.	330500000N
Benzo(b)fluoranthene	8.6	mg/kg	0.8	330600000N
Benzo(k)fluoranthene	2.9	mg/kg	0.2	330700000N
Benzo(a)pyrene	6.4	mg/kg	0.2	330800000N
Dibenzo(a,h)anthracene	< 0.8	mg/kg	0.8	330900000N
Benzo(g,h,i)perylene	3.6	mg/kg	0.5	331000000N
Indeno(1,2,3-cd)pyrene	9.4	mg/kg	0.5	331100000N

Due to interfering peaks on the chromatogram, the values reported represent the lowest quantitation limits obtainable.

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ATTN: Mr. Ric Traver

Questions? Contact Environmental  
Client Services at (717) 656-2301

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Lancaster, PA 17601-5994  
717-656-2301

Jenifer B. Hess, B.S.  
Group Leader Pesticides/PCBs

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10:51:32 378078  
ASR000 D 2 24  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1967031  
Date Reported 5/21/93  
Date Submitted 5/12/93  
Discard Date 7/21/93  
Collected 5/10/93 by KO  
Time Collected  
P.O.  
Rel.

2AS16PB Grab Soil Sample  
Moss - American

S16PB SDG# MOS01-02  
PAH's in Solids (SW846/8310)

	RESULT		LIMIT OF	LAB CODE
	DRY WT. BASIS		QUANTITATION	
Naphthalene	< 5.	mg/kg	5.	329600000N
Acenaphthylene	< 9.	mg/kg	9.	329700000N
Acenaphthene	22.	mg/kg	7.	329800000N
Fluorene	< 7.	mg/kg	7.	329900000N
Phenanthrene	9.	mg/kg	9.	330000000N
Anthracene	< 4.	mg/kg	4.	330100000N
Fluoranthene	15.	mg/kg	4.	330200000N
Pyrene	14.	mg/kg	4.	330300000N
Benzo(a)anthracene	3.6	mg/kg	0.2	330400000N
Chrysene	7.	mg/kg	2.	330500000N
Benzo(b)fluoranthene	15.	mg/kg	1.	330600000N
Benzo(k)fluoranthene	5.2	mg/kg	0.4	330700000N
Benzo(a)pyrene	11.	mg/kg	0.4	330800000N
Dibenzo(a,h)anthracene	< 1.	mg/kg	1.	330900000N
Benzo(g,h,i)perylene	6.5	mg/kg	0.9	331000000N
Indeno(1,2,3-cd)pyrene	17.	mg/kg	0.9	331100000N

Due to interfering peaks on the chromatogram, the values reported represent the lowest quantitation limits obtainable.

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Client Services at (717) 656-2301

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10:51:35 378078  
ASR000 D 2 24  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1967031  
Date Reported 5/21/93  
Date Submitted 5/12/93  
Discard Date 7/21/93  
Collected 5/10/93 by K0  
Time Collected  
P.O.  
Rel.

2AS16PB Grab Soil Sample  
Moss - American

S16PB SDG# MOS01-02  
BTEX Scan (8020)

	RESULT	
	AS RECEIVED	
Benzene	< 5.	ug/kg
Toluene	26.	ug/kg
Ethylbenzene	7.	ug/kg
o-Xylene	8.	ug/kg
m-Xylene	30.	ug/kg
p-Xylene	10.	ug/kg

	LIMIT OF	LAB CODE
	QUANTITATION	
	5.	260300000N
	5.	260400000N
	5.	260600000N
	5.	260800000N
	5.	260900000N
	5.	261000000N

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2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Delwyn K. Schumacher, B.S.  
Group Leader, ExpressLAB

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10:51:35 378078  
ASR000 D 2 24  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1967031  
Date Reported 5/21/93  
Date Submitted 5/12/93  
Discard Date 7/21/93  
Collected 5/10/93 by KO  
Time Collected  
P.O.  
Rel.

2AS16PB Grab Soil Sample  
Moss - American

S16PB SDG# MOS01-02  
BTEX Scan (8020)

Benzene  
Toluene  
Ethylbenzene  
o-Xylene  
m-Xylene  
p-Xylene

RESULT	
DRY WT. BASIS	
< 9.	ug/kg
46.	ug/kg
13.	ug/kg
14.	ug/kg
54.	ug/kg
18.	ug/kg

LIMIT OF QUANTITATION		LAB CODE
9.		260300000N
9.		260400000N
9.		260600000N
9.		260800000N
9.		260900000N
9.		261000000N

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Client Services at (717) 656-2301

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2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

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Group Leader, ExpressLAB

See reverse side for explanation of symbols and abbreviations.





10:51:37 378078  
ASR000 D 2 24  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. WW 1967032  
Date Reported 5/21/93  
Date Submitted 5/12/93  
Discard Date 7/21/93  
Collected 5/10/93 by KO  
Time Collected  
P.O.  
Rel.

2AL17P Grab Water Sample  
Moss - American

AL17P SDG# MOS01-03  
ANALYSIS  
PAH's in Water (SW846/8310)

RESULT  
AS RECEIVED  
attached

LIMIT OF  
QUANTITATION  
LAB CODE  
186120000 \*

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ATTN: Mr. Ric Traver

Questions? Contact Environmental  
Client Services at (717) 656-2301  
126 07426 0.00 020000

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Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer B. Hess, B.S.  
Group Leader Pesticides/PCBs

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10:51:38 378078  
ASR000 D 2 24  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. WW 1967032  
Date Reported 5/21/93  
Date Submitted 5/12/93  
Discard Date 7/21/93  
Collected 5/10/93 by KO  
Time Collected  
P.O.  
Rel.

2AL17P Grab Water Sample  
Moss - American

AL17P SDG# MOS01-03 PAH's in Water (SW846/8310)	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
Naphthalene	< 20. ug/l	20.	328000000N
Acenaphthylene	< 40. ug/l	40.	328100000N
Acenaphthene	< 40. ug/l	40.	328200000N
Fluorene	< 4. ug/l	4.	328300000N
Phenanthrene	< 4. ug/l	4.	328400000N
Anthracene	< 2. ug/l	2.	328500000N
Fluoranthene	< 1. ug/l	1.	328600000N
Pyrene	< 4. ug/l	4.	328700000N
Benzo(a)anthracene	< 0.2 ug/l	0.2	328800000N
Chrysene	< 2. ug/l	2.	328900000N
Benzo(b)fluoranthene	< 0.4 ug/l	0.4	329000000N
Benzo(k)fluoranthene	< 0.2 ug/l	0.2	329100000N
Benzo(a)pyrene	< 0.4 ug/l	0.4	329200000N
Dibenzo(a,h)anthracene	< 0.4 ug/l	0.4	329300000N
Benzo(g,h,i)perylene	< 1. ug/l	1.	329400000N
Indeno(1,2,3-cd)pyrene	< 1. ug/l	1.	329500000N

Due to insufficient sample size, we were unable to report our usual quantitation limits. The values reported represent the lowest quantitation limits obtainable.

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ATTN: Mr. Ric Traver

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Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer E. Hess, B.S.  
Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations.





10:51:40 378078  
ASR000 D 2 24  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. WW 1967033  
Date Reported 5/21/93  
Date Submitted 5/12/93  
Discard Date 7/21/93  
Collected 5/10/93 by KO  
Time Collected  
P.O.  
Rel.

2AL18B Grab Water Sample  
Moss - American

AL18B SDG# MOS01-04  
ANALYSIS  
BTEX Scan

RESULT  
AS RECEIVED  
attached

LIMIT OF  
QUANTITATION  
LAB CODE  
051608500 \*

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1 COPY TO Data Package Group

ATTN: Mr. Ric Traver

Questions? Contact Environmental  
Client Services at (717) 656-2301  
126 07426 0.00 008500

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer E. Hess, B.S.  
Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations.





# Lancaster Laboratories

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10:51:41 378078  
ASR000 D 2 24  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. WW 1967033  
Date Reported 5/21/93  
Date Submitted 5/12/93  
Discard Date 7/21/93  
Collected 5/10/93 by KO  
Time Collected  
P.O.  
Rel.

2AL18B Grab Water Sample  
Moss - American

AL18B SDG# MOS01-04

BTEX Scan

Benzene  
Toluene  
o-Xylene  
m-Xylene  
p-Xylene  
Ethylbenzene

RESULT	
AS RECEIVED	
< 1.	ug/l
2.	ug/l
< 1.	ug/l
< 1.	ug/l
< 1.	ug/l
< 1.	ug/l
< 1.	ug/l

LIMIT OF		LAB CODE
QUANTITATION		
1.	313300000N	
1.	313400000N	
1.	080800000N	
1.	080900000N	
1.	081000000N	
1.	313500000N	

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Questions? Contact Environmental  
Client Services at (717) 656-2301

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Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Judy A. Colello, B.S.  
Group Leader

See reverse side for explanation of symbols and abbreviations.







10:51:43 378078  
ASR000 D 2 24  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1967034  
Date Reported 5/21/93  
Date Submitted 5/12/93  
Discard Date 7/21/93  
Collected 5/10/93 by K0  
Time Collected  
P.O.  
Rel.

2AS19PB Grab Soil Sample  
Moss - American

ANALYSIS	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
PAH's in Solids (SW846/8310)	attached		186200000 *
Moisture	3.8 % by wt.	0.5	211100000 *
"Moisture" represents the loss in weight of the sample after drying with an infrared lamp at 150 degrees Celsius.			
BTEX Scan (8020)	attached		221300000 *

1 COPY TO Bergmann USA  
1 COPY TO Data Package Group

ATTN: Mr. Ric Traver

Questions? Contact Environmental  
Client Services at (717) 656-2301  
126 07426 0.00 000000

Respectfully Submitted  
Lancaster Laboratories, Inc.

Jenifer B. Hess, B.S.  
Group Leader Pesticides/PCBs



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

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10:51:43 378078  
ASR000 D 2 24  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1967034  
Date Reported 5/21/93  
Date Submitted 5/12/93  
Discard Date 7/21/93  
Collected 5/10/93 by K0  
Time Collected  
P.O.  
Rel.

2AS19PB Grab Soil Sample  
Moss - American

S19PB SDG# MOS01-05  
ANALYSIS

RESULT	LIMIT OF	LAB CODE
DRY WT. BASIS	QUANTITATION	
attached		186200000 *
3.8 % by wt.	0.5	211100000 *
attached		221300000 *

PAH's in Solids (SW846/8310)  
Moisture \*AS RECEIVED\*  
"Moisture" represents the loss in weight of the sample after drying with an infrared lamp at 150 degrees Celsius.  
BTEX Scan (8020)

1 COPY TO Bergmann USA  
1 COPY TO Data Package Group

ATTN: Mr. Ric Traver

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer E. Hess, B.S.  
Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations.





**Lancaster Laboratories**  
*Where quality is a science.*

10:51:46 378078  
ASR000 D 2 24  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1967034  
Date Reported 5/21/93  
Date Submitted 5/12/93  
Discard Date 7/21/93  
Collected 5/10/93 by KO  
Time Collected  
P.O.  
Rel.

2AS19PB Grab Soil Sample  
Moss - American

S19PB SDG# MOS01-05  
PAH's in Solids (SW846/8310)  
Naphthalene  
Acenaphthylene  
Acenaphthene  
Fluorene  
Phenanthrene  
Anthracene  
Fluoranthene  
Pyrene  
Benzo(a)anthracene  
Chrysene  
Benzo(b)fluoranthene  
Benzo(k)fluoranthene  
Benzo(a)pyrene  
Dibenzo(a,h)anthracene  
Benzo(g,h,i)perylene  
Indeno(1,2,3-cd)pyrene

RESULT  
AS RECEIVED  
< 5. mg/kg  
< 3. mg/kg  
< 4. mg/kg  
< 2. mg/kg  
11. mg/kg  
< 5. mg/kg  
16. mg/kg  
14. mg/kg  
3.6 mg/kg  
4. mg/kg  
5.2 mg/kg  
2.4 mg/kg  
3.5 mg/kg  
< 0.3 mg/kg  
< 2. mg/kg  
4. mg/kg

LIMIT OF  
QUANTITATION  
5.  
3.  
4.  
2.  
5.  
5.  
4.  
2.  
0.1  
1.  
0.2  
0.2  
0.4  
0.3  
2.  
1.  
LAB CODE  
329600000N  
329700000N  
329800000N  
329900000N  
330000000N  
330100000N  
330200000N  
330300000N  
330400000N  
330500000N  
330600000N  
330700000N  
330800000N  
330900000N  
331000000N  
331100000N

Due to interfering peaks on the chromatogram, the values reported represent the lowest quantitation limits obtainable.

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ASR000 D 2 24  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1967034  
Date Reported 5/21/93  
Date Submitted 5/12/93  
Discard Date 7/21/93  
Collected 5/10/93 by KO  
Time Collected  
P.O.  
Rel.

2AS19PB Grab Soil Sample  
Moss - American

S19PB SDG# MOS01-05  
PAH's in Solids (SW846/8310)  
Naphthalene  
Acenaphthylene  
Acenaphthene  
Fluorene  
Phenanthrene  
Anthracene  
Fluoranthene  
Pyrene  
Benzo(a)anthracene  
Chrysene  
Benzo(b)fluoranthene  
Benzo(k)fluoranthene  
Benzo(a)pyrene  
Dibenzo(a,h)anthracene  
Benzo(g,h,i)perylene  
Indeno(1,2,3-cd)pyrene

RESULT  
DRY WT. BASIS  
< 5. mg/kg  
< 3. mg/kg  
< 4. mg/kg  
< 2. mg/kg  
12. mg/kg  
< 5. mg/kg  
17. mg/kg  
15. mg/kg  
3.7 mg/kg  
4. mg/kg  
5.4 mg/kg  
2.5 mg/kg  
3.6 mg/kg  
< 0.3 mg/kg  
< 2. mg/kg  
4. mg/kg

LIMIT OF  
QUANTITATION  
5.  
3.  
4.  
2.  
5.  
5.  
4.  
2.  
0.1  
1.  
0.2  
0.2  
0.4  
0.3  
2.  
1.  
LAB CODE  
32960000N  
32970000N  
32980000N  
32990000N  
33000000N  
33010000N  
33020000N  
33030000N  
33040000N  
33050000N  
33060000N  
33070000N  
33080000N  
33090000N  
33100000N  
33110000N

Due to interfering peaks on the chromatogram, the values reported represent the lowest quantitation limits obtainable.

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717-656-2301

Jenifer B. Hess, B.S.  
Group Leader Pesticides/PCBs

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10:51:50 378078  
ASR000 D 2 24  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1967034  
Date Reported 5/21/93  
Date Submitted 5/12/93  
Discard Date 7/21/93  
Collected 5/10/93 by K0  
Time Collected  
P.O.  
Rel.

2AS19PB Grab Soil Sample  
Moss - American

S19PB SDG# MOS01-05  
BTEX Scan (8020)

Benzene

Toluene

Ethylbenzene

o-Xylene

m-Xylene

p-Xylene

RESULT  
AS RECEIVED

< 5. ug/kg

33. ug/kg

15. ug/kg

17. ug/kg

30. ug/kg

24. ug/kg

LIMIT OF  
QUANTITATION

5. 260300000N

5. 260400000N

5. 260600000N

5. 260800000N

5. 260900000N

5. 261000000N

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Lancaster, PA 17601-5994  
717-656-2301

Delwyn K. Schumacher, B.S.  
Group Leader, ExpressLAB

See reverse side for explanation of symbols and abbreviations.





10:51:50 378078  
ASR000 D 2 24  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1967034  
Date Reported 5/21/93  
Date Submitted 5/12/93  
Discard Date 7/21/93  
Collected 5/10/93 by KO  
Time Collected  
P.O.  
Rel.

2AS19PB Grab Soil Sample  
Moss - American

S19PB SDG# MOS01-05  
BTEX Scan (8020)

Benzene

Toluene

Ethylbenzene

o-Xylene

m-Xylene

p-Xylene

RESULT	UNIT
DRY WT. BASIS	
< 5.	ug/kg
35.	ug/kg
16.	ug/kg
18.	ug/kg
31.	ug/kg
25.	ug/kg

LIMIT OF QUANTITATION	LAB CODE
5.	260300000N
5.	260400000N
5.	260600000N
5.	260800000N
5.	260900000N
5.	261000000N

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Client Services at (717) 656-2301

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Lancaster, PA 17601-5994  
717-656-2301

Delwyn K. Schumacher, B.S.  
Group Leader, ExpressLAB

See reverse side for explanation of symbols and abbreviations.





10:51:55 378078  
ASR000 D 2 24  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1967035  
Date Reported 5/21/93  
Date Submitted 5/12/93  
Discard Date 7/21/93  
Collected 5/10/93 by K0  
Time Collected  
P.O.  
Rel.

2AS20PB Grab Soil Sample  
Moss - American

ANALYSIS	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
S20PB SDG# MOS01-06			
PAH's in Solids (SW846/8310)	attached		186200000 *
Moisture	1.9 % by wt.	0.5	211100000 *
"Moisture" represents the loss in weight of the sample after drying with an infrared lamp at 150 degrees Celsius.			
BTEX Scan (8020)	attached		221300000 *

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Client Services at (717) 656-2301  
126 07426 0.00 000000

Respectfully Submitted  
Lancaster Laboratories, Inc.

Jenifer E. Hess, B.S.  
Group Leader Pesticides/PCBs



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

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10:51:55 378078  
ASR000 D 2 24  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1967035  
Date Reported 5/21/93  
Date Submitted 5/12/93  
Discard Date 7/21/93  
Collected 5/10/93 by KO  
Time Collected  
P.O.  
Rel.

2AS20PB Grab Soil Sample  
Moss - American

ANALYSIS	RESULT DRY WT. BASIS	LIMIT OF QUANTITATION	LAB CODE
PAH's in Solids (SW846/8310)	attached		186200000 *
Moisture *AS RECEIVED*	1.9 % by wt.	0.5	211100000 *
"Moisture" represents the loss in weight of the sample after drying with an infrared lamp at 150 degrees Celsius.			
BTEX Scan (8020)	attached		221300000 *

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10:52:05 378078  
ASR000 D 2 24  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1967035  
Date Reported 5/21/93  
Date Submitted 5/12/93  
Discard Date 7/21/93  
Collected 5/10/93 by KO  
Time Collected  
P.O.  
Rel.

2AS20PB Grab Soil Sample  
Moss - American

S20PB SDG# MOS01-06  
PAH's in Solids (SW846/8310)  
Naphthalene  
Acenaphthylene  
Acenaphthene  
Fluorene  
Phenanthrene  
Anthracene  
Fluoranthene  
Pyrene  
Benzo(a)anthracene  
Chrysene  
Benzo(b)fluoranthene  
Benzo(k)fluoranthene  
Benzo(a)pyrene  
Dibenzo(a,h)anthracene  
Benzo(g,h,i)perylene  
Indeno(1,2,3-cd)pyrene

RESULT  
AS RECEIVED  
< 20. mg/kg  
< 30. mg/kg  
< 20. mg/kg  
< 20. mg/kg  
50. mg/kg  
< 50. mg/kg  
70. mg/kg  
50. mg/kg  
14. mg/kg  
20. mg/kg  
19. mg/kg  
10. mg/kg  
13. mg/kg  
< 2. mg/kg  
6. mg/kg  
18. mg/kg

LIMIT OF  
QUANTITATION  
20.  
30.  
20.  
20.  
5.  
50.  
20.  
20.  
1.  
10.  
2.  
2.  
2.  
2.  
5.  
5.  
LAB CODE  
329600000N  
329700000N  
329800000N  
329900000N  
330000000N  
330100000N  
330200000N  
330300000N  
330400000N  
330500000N  
330600000N  
330700000N  
330800000N  
330900000N  
331000000N  
331100000N

Due to interfering peaks on the chromatogram, the values reported represent the lowest quantitation limits obtainable.

Due to insufficient sample size, we were unable to report our usual quantitation limits. The values reported represent the lowest quantitation limits obtainable.

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717-656-2301

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10:52:05 378078  
ASR000 D 2 24  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1967035  
Date Reported 5/21/93  
Date Submitted 5/12/93  
Discard Date 7/21/93  
Collected 5/10/93 by KO  
Time Collected  
P.O.  
Rel.

2AS20PB Grab Soil Sample  
Moss. - American

S20PB SDG# MOS01-06 PAH's in Solids (SW846/8310)	RESULT DRY WT. BASIS	LIMIT OF QUANTITATION	LAB CODE
Naphthalene	< 20. mg/kg	20.	329600000N
Acenaphthylene	< 30. mg/kg	30.	329700000N
Acenaphthene	< 20. mg/kg	20.	329800000N
Fluorene	< 20. mg/kg	20.	329900000N
Phenanthrene	51. mg/kg	5.	330000000N
Anthracene	< 50. mg/kg	50.	330100000N
Fluoranthene	70. mg/kg	20.	330200000N
Pyrene	50. mg/kg	20.	330300000N
Benzo(a)anthracene	14. mg/kg	1.	330400000N
Chrysene	20. mg/kg	10.	330500000N
Benzo(b)fluoranthene	19. mg/kg	2.	330600000N
Benzo(k)fluoranthene	10. mg/kg	2.	330700000N
Benzo(a)pyrene	13. mg/kg	2.	330800000N
Dibenzo(a,h)anthracene	< .2. mg/kg	2.	330900000N
Benzo(g,h,i)perylene	6. mg/kg	5.	331000000N
Indeno(1,2,3-cd)pyrene	18. mg/kg	5.	331100000N

Due to interfering peaks on the chromatogram, the values reported represent the lowest quantitation limits obtainable.

Due to insufficient sample size, we were unable to report our usual quantitation limits. The values reported represent the lowest quantitation limits obtainable.

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10:52:12 378078  
ASR000 D 2 24  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1967035  
Date Reported 5/21/93  
Date Submitted 5/12/93  
Discard Date 7/21/93  
Collected 5/10/93 by KO  
Time Collected  
P.O.  
Rel.

2AS20PB Grab Soil Sample  
Moss - American

S20PB SDG# MOS01-06  
BTEX Scan (8020)

	RESULT		LIMIT OF	LAB CODE
	AS RECEIVED		QUANTITATION	
Benzene	< 30.	ug/kg	30.	260300000N
Toluene	1,300.	ug/kg	30.	260400000N
Ethylbenzene	370.	ug/kg	30.	260600000N
o-Xylene	500.	ug/kg	30.	260800000N
m-Xylene	730.	ug/kg	30.	260900000N
p-Xylene	510.	ug/kg	30.	261000000N

The limits of quantitation for BTEX were increased due to insufficient sample volume.

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Group Leader, ExpressLAB

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10:52:12 378078  
ASR000 D 2 24  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1967035  
Date Reported 5/21/93  
Date Submitted 5/12/93  
Discard Date 7/21/93  
Collected 5/10/93 by KO  
Time Collected  
P.O.  
Rel.

2AS20PB Grab Soil Sample  
Moss - American

	RESULT		LIMIT OF	LAB CODE
	DRY WT. BASIS		QUANTITATION	
S20PB SDG# MOS01-06				
BTEX Scan (8020)				
Benzene	< 30.	ug/kg	30.	260300000N
Toluene	1,400.	ug/kg	30.	260400000N
Ethylbenzene	370.	ug/kg	30.	260600000N
o-Xylene	510.	ug/kg	30.	260800000N
m-Xylene	740.	ug/kg	30.	260900000N
p-Xylene	520.	ug/kg	30.	261000000N

The limits of quantitation for BTEX were increased due to insufficient sample volume.

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Client Services at (717) 656-2301

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Lancaster, PA 17601-5994  
717-656-2301

Delwyn K. Schumacher, B.S.  
Group Leader, ExpressLAB

See reverse side for explanation of symbols and abbreviations.





10:52:18 378078  
ASR000 D 2 24  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. WW 1967036  
Date Reported 5/21/93  
Date Submitted 5/12/93  
Discard Date 7/21/93  
Collected 5/10/93 by K0  
Time Collected  
P.O.  
Rel.

2AL21P Grab Water Sample  
Moss - American

AL21P SDG# MOS01-07  
ANALYSIS  
PAH's in Water (SW846/8310)

RESULT  
AS RECEIVED  
attached

LIMIT OF  
QUANTITATION  
LAB CODE  
186120000 \*

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ATTN: Mr. Ric Traver

Questions? Contact Environmental  
Client Services at (717) 656-2301  
126 07426 0.00 020000

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Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer B. Hess, B.S.  
Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations.





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10:52:20 378078  
ASR000 D 2 24  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. WW 1967036  
Date Reported 5/21/93  
Date Submitted 5/12/93  
Discard Date 7/21/93  
Collected 5/10/93 by KO  
Time Collected  
P.O.  
Rel.

2AL21P Grab Water Sample  
Moss - American

AL21P SDG# MOS01-07 PAH's in Water (SW846/8310)	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
Naphthalene	< 20. ug/l	20.	328000000N
Acenaphthylene	< 40. ug/l	40.	328100000N
Acenaphthene	< 40. ug/l	40.	328200000N
Fluorene	< 4. ug/l	4.	328300000N
Phenanthrene	< 4. ug/l	4.	328400000N
Anthracene	< 2. ug/l	2.	328500000N
Fluoranthene	< 1. ug/l	1.	328600000N
Pyrene	< 4. ug/l	4.	328700000N
Benzo(a)anthracene	< 0.2 ug/l	0.2	328800000N
Chrysene	< 2. ug/l	2.	328900000N
Benzo(b)fluoranthene	< 0.4 ug/l	0.4	329000000N
Benzo(k)fluoranthene	< 0.2 ug/l	0.2	329100000N
Benzo(a)pyrene	< 0.4 ug/l	0.4	329200000N
Dibenzo(a,h)anthracene	< 0.4 ug/l	0.4	329300000N
Benzo(g,h,i)perylene	< 1. ug/l	1.	329400000N
Indeno(1,2,3-cd)pyrene	< 1. ug/l	1.	329500000N

Due to insufficient sample size, we were unable to report our usual quantitation limits. The values reported represent the lowest quantitation limits obtainable.

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ATTN: Mr. Ric Traver

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer E. Hess, B.S.  
Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations.





**Lancaster Laboratories**  
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10:52:23 378078  
ASR000 D 2 24  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. WW 1967037  
Date Reported 5/21/93  
Date Submitted 5/12/93  
Discard Date 7/21/93  
Collected 5/10/93 by KO  
Time Collected  
P.O.  
Rel.

2AL22B Grab Water Sample  
Moss - American

AL22B SDG# MOS01-08  
ANALYSIS  
BTEX Scan

RESULT  
AS RECEIVED  
attached

LIMIT OF  
QUANTITATION  
LAB CODE  
051608500 \*

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1 COPY TO Data Package Group

ATTN: Mr. Ric Traver

Questions? Contact Environmental  
Client Services at (717) 656-2301  
126 07426 0.00 008500

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer B. Hess, B.S.  
Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations.





10:52:25 378078  
ASR000 D 2 24  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1967038  
Date Reported 5/21/93  
Date Submitted 5/12/93  
Discard Date 7/21/93  
Collected 5/10/93 by K0  
Time Collected  
P.O.  
Rel.

2AS23PB Grab Soil Sample  
Moss - American

S23PB SDG# MOS01-09  
ANALYSIS

RESULT  
DRY WT. BASIS  
attached  
27.7 % by wt.

LIMIT OF  
QUANTITATION  
LAB CODE  
186200000 \*  
211100000 \*

PAH's in Solids (SW846/8310)

Moisture \*AS RECEIVED\*

"Moisture" represents the loss in weight of the sample after drying with an infrared lamp at 150 degrees Celsius.

BTEX Scan (8020)

attached

221300000 \*

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1 COPY TO Data Package Group

ATTN: Mr. Ric Traver

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer E. Hess, B.S.  
Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations.







10:52:27 378078  
ASR000 D 2 24  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1967038  
Date Reported 5/21/93  
Date Submitted 5/12/93  
Discard Date 7/21/93  
Collected 5/10/93 by KO  
Time Collected  
P.O.  
Rel.

2AS23PB Grab Soil Sample  
Moss - American

	RESULT		LIMIT OF	LAB CODE
	AS RECEIVED		QUANTITATION	
S23PB SDG# MOS01-09				
PAH's in Solids (SW846/8310)				
Naphthalene	< 2.	mg/kg	2.	329600000N
Acenaphthylene	< 2.	mg/kg	2.	329700000N
Acenaphthene	< 2.	mg/kg	2.	329800000N
Fluorene	< 2.	mg/kg	2.	329900000N
Phenanthrene	4.0	mg/kg	0.5	330000000N
Anthracene	0.7	mg/kg	0.5	330100000N
Fluoranthene	7.	mg/kg	2.	330200000N
Pyrene	6.	mg/kg	2.	330300000N
Benzo(a)anthracene	1.7	mg/kg	0.1	330400000N
Chrysene	2.	mg/kg	1.	330500000N
Benzo(b)fluoranthene	2.5	mg/kg	0.2	330600000N
Benzo(k)fluoranthene	1.2	mg/kg	0.2	330700000N
Benzo(a)pyrene	1.6	mg/kg	0.2	330800000N
Dibenzo(a,h)anthracene	< 0.2	mg/kg	0.2	330900000N
Benzo(g,h,i)perylene	< 0.7	mg/kg	0.7	331000000N
Indeno(1,2,3-cd)pyrene	2.1	mg/kg	0.5	331100000N

Due to interfering peaks on the chromatogram, the values reported represent the lowest quantitation limits obtainable.

1 COPY TO Bergmann USA  
1 COPY TO Data Package Group

ATTN: Mr. Ric Traver

Questions? Contact Environmental  
Client Services at (717) 656-2301

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P.O.  
Rel.

2AS23PB Grab Soil Sample  
Moss - American

S23PB SDG# MOS01-09 PAH's in Solids (SW846/8310)	RESULT DRY WT. BASIS	LIMIT OF QUANTITATION	LAB CODE
Naphthalene	< 3. mg/kg	3.	329600000N
Acenaphthylene	< 3. mg/kg	3.	329700000N
Acenaphthene	< 3. mg/kg	3.	329800000N
Fluorene	< 3. mg/kg	3.	329900000N
Phenanthrene	5.5 mg/kg	0.7	330000000N
Anthracene	0.9 mg/kg	0.7	330100000N
Fluoranthene	10. mg/kg	3.	330200000N
Pyrene	8. mg/kg	3.	330300000N
Benzo(a)anthracene	2.4 mg/kg	0.1	330400000N
Chrysene	3. mg/kg	1.	330500000N
Benzo(b)fluoranthene	3.5 mg/kg	0.3	330600000N
Benzo(k)fluoranthene	1.7 mg/kg	0.3	330700000N
Benzo(a)pyrene	2.2 mg/kg	0.3	330800000N
Dibenzo(a,h)anthracene	< 0.3 mg/kg	0.3	330900000N
Benzo(g,h,i)perylene	< 1.0 mg/kg	1.0	331000000N
Indeno(1,2,3-cd)pyrene	2.9 mg/kg	0.7	331100000N

Due to interfering peaks on the chromatogram, the values reported represent the lowest quantitation limits obtainable.

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07426 0

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1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1967038  
Date Reported 5/21/93  
Date Submitted 5/12/93  
Discard Date 7/21/93  
Collected 5/10/93 by KO  
Time Collected  
P.O.  
Rel.

2AS23PB Grab Soil Sample  
Moss - American

S23PB SDG# MOS01-09  
BTEX Scan (8020)

Benzene  
Toluene  
Ethylbenzene  
o-Xylene  
m-Xylene  
p-Xylene

RESULT AS RECEIVED	UNIT	LIMIT OF QUANTITATION	LAB CODE
< 5.	ug/kg	5.	260300000N
6.	ug/kg	5.	260400000N
< 5.	ug/kg	5.	260600000N
33.	ug/kg	5.	260800000N
44.	ug/kg	5.	260900000N
23.	ug/kg	5.	261000000N

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Group Leader, ExpressLAB

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2AS23PB Grab Soil Sample  
Moss - American

S23PB SDG# MOS01-09  
BTEX Scan (8020)  
Benzene  
Toluene  
Ethylbenzene  
o-Xylene  
m-Xylene  
p-Xylene

RESULT	DRY WT. BASIS	LIMIT OF QUANTITATION	LAB CODE
< 7.	ug/kg	7.	260300000N
8.	ug/kg	7.	260400000N
< 7.	ug/kg	7.	260600000N
45.	ug/kg	7.	260800000N
61.	ug/kg	7.	260900000N
32.	ug/kg	7.	261000000N

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ASR000 D 2 24  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1967039  
Date Reported 5/21/93  
Date Submitted 5/12/93  
Discard Date 7/21/93  
Collected 5/10/93 by KO  
Time Collected  
P.O.  
Rel.

2AS24PB Grab Soil Sample  
Moss - American

S24PB SDG# MOS01-10  
ANALYSIS

RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
attached		186200000 *
5.2 % by wt.	0.5	211100000 *
attached		221300000 *

PAH's in Solids (SW846/8310)  
Moisture

"Moisture" represents the loss in weight of the sample after drying with an infrared lamp at 150 degrees Celsius.

BTEX Scan (8020)

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126 07426 0.00 000000

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ASR000 D 2 24  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1967039  
Date Reported 5/21/93  
Date Submitted 5/12/93  
Discard Date 7/21/93  
Collected 5/10/93 by KO  
Time Collected  
P.O.  
Rel.

2AS24PB Grab Soil Sample  
Moss - American

ANALYSIS	RESULT	DRY WT. BASIS	LIMIT OF QUANTITATION	LAB CODE
PAH's in Solids (SW846/8310)		attached		186200000 *
Moisture *AS RECEIVED*	5.2	% by wt.	0.5	211100000 *
"Moisture" represents the loss in weight of the sample after drying with an infrared lamp at 150 degrees Celsius.				
BTEX Scan (8020)		attached		221300000 *

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07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1967039  
Date Reported 5/21/93  
Date Submitted 5/12/93  
Discard Date 7/21/93  
Collected 5/10/93 by KO  
Time Collected  
P.O.  
Rel.

2AS24PB Grab Soil Sample  
Moss - American

S24PB SDG# MOS01-10 PAH's in Solids (SW846/8310)	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
Naphthalene	< 50. mg/kg	50.	329600000N
Acenaphthylene	< 20. mg/kg	20.	329700000N
Acenaphthene	< 20. mg/kg	20.	329800000N
Fluorene	< 20. mg/kg	20.	329900000N
Phenanthrene	70. mg/kg	50.	330000000N
Anthracene	< 50. mg/kg	50.	330100000N
Fluoranthene	70. mg/kg	20.	330200000N
Pyrene	70. mg/kg	20.	330300000N
Benzo(a)anthracene	16. mg/kg	1.	330400000N
Chrysene	20. mg/kg	10.	330500000N
Benzo(b)fluoranthene	22. mg/kg	2.	330600000N
Benzo(k)fluoranthene	10. mg/kg	2.	330700000N
Benzo(a)pyrene	14. mg/kg	2.	330800000N
Dibenzo(a,h)anthracene	< 2. mg/kg	2.	330900000N
Benzo(g,h,i)perylene	< 6. mg/kg	6.	331000000N
Indeno(1,2,3-cd)pyrene	17. mg/kg	5.	331100000N

Due to interfering peaks on the chromatogram, the values reported represent the lowest quantitation limits obtainable.

Due to insufficient sample size, we were unable to report our usual quantitation limits. The values reported represent the lowest quantitation limits obtainable.

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P.O.  
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2AS24PB Grab Soil Sample  
Moss - American

S24PB SDG# MOS01-10  
PAH's in Solids (SW846/8310)

	RESULT	LIMIT OF	LAB CODE
	DRY WT. BASIS	QUANTITATION	
Naphthalene	< 50. mg/kg	50.	329600000N
Acenaphthylene	< 20. mg/kg	20.	329700000N
Acenaphthene	< 20. mg/kg	20.	329800000N
Fluorene	< 20. mg/kg	20.	329900000N
Phenanthrene	70. mg/kg	50.	330000000N
Anthracene	< 50. mg/kg	50.	330100000N
Fluoranthene	80. mg/kg	20.	330200000N
Pyrene	70. mg/kg	20.	330300000N
Benzo(a)anthracene	17. mg/kg	1.	330400000N
Chrysene	20. mg/kg	10.	330500000N
Benzo(b)fluoranthene	23. mg/kg	2.	330600000N
Benzo(k)fluoranthene	10. mg/kg	2.	330700000N
Benzo(a)pyrene	14. mg/kg	2.	330800000N
Dibenzo(a,h)anthracene	< 2. mg/kg	2.	330900000N
Benzo(g,h,i)perylene	< 6. mg/kg	6.	331000000N
Indeno(1,2,3-cd)pyrene	18. mg/kg	5.	331100000N

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# Lancaster Laboratories

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ASR000 D 2 24  
07426 0

Bergmann USA  
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LLI Sample No. SW 1967039  
Date Reported 5/21/93  
Date Submitted 5/12/93  
Discard Date 7/21/93  
Collected 5/10/93 by KO  
Time Collected  
P.O.  
Rel.

2AS24PB Grab Soil Sample  
Moss - American

S24PB SDG# MOS01-10  
BTEX Scan (8020)

	RESULT AS RECEIVED		LIMIT OF QUANTITATION	LAB CODE
Benzene	< 20.	ug/kg	20.	260300000N
Toluene	580.	ug/kg	20.	260400000N
Ethylbenzene	540.	ug/kg	20.	260600000N
o-Xylene	660.	ug/kg	20.	260800000N
m-Xylene	930.	ug/kg	20.	260900000N
p-Xylene	510.	ug/kg	20.	261000000N

Due to interferences from the sample matrix, the limits of quantitation for the BTEX determination were increased.

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07426 0

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Date Submitted 5/12/93  
Discard Date 7/21/93  
Collected 5/10/93 by KO  
Time Collected  
P.O.  
Rel.

2AS24PB Grab Soil Sample  
Moss - American

S24PB SDG# MOS01-10  
BTEX Scan (8020)

Benzene  
Toluene  
Ethylbenzene  
o-Xylene  
m-Xylene  
p-Xylene

RESULT	
DRY WT. BASIS	
< 20.	ug/kg
610.	ug/kg
570.	ug/kg
700.	ug/kg
980.	ug/kg
540.	ug/kg

LIMIT OF QUANTITATION	LAB CODE
20.	260300000N
20.	260400000N
20.	260600000N
20.	260800000N
20.	260900000N
20.	261000000N

Due to interferences from the sample matrix, the limits of quantitation for the BTEX determination were increased.

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10:52:47 378078  
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07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1967040  
Date Reported 5/21/93  
Date Submitted 5/12/93  
Discard Date 7/21/93  
Collected 5/10/93 by KO  
Time Collected  
P.O.  
Rel.

2AS1PB Grab Soil Sample  
Moss - American

AS1PB SDG# MOS01-11 ANALYSIS	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
PAH's in Solids (SW846/8310)	attached		186200000
Moisture	19.9 % by wt.	0.5	211100000
"Moisture" represents the loss in weight of the sample after drying with an infrared lamp at 150 degrees Celsius.			
BTEX Scan (8020)	attached		221300000

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126 07426 0.00 000000

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07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN. 37066-3739

LLI Sample No. SW 1967040  
Date Reported 5/21/93  
Date Submitted 5/12/93  
Discard Date 7/21/93  
Collected 5/10/93 by KO  
Time Collected  
P.O.  
Rel.

2AS1PB Grab Soil Sample  
Moss. - American

ANALYSIS	RESULT DRY WT. BASIS	LIMIT OF QUANTITATION	LAB CODE
PAH's in Solids (SW846/8310)	attached		186200000 *
Moisture *AS RECEIVED*	19.9 % by wt.	0.5	211100000 *
"Moisture" represents the loss in weight of the sample after drying with an infrared lamp at 150 degrees Celsius.			
BTEX Scan (8020)	attached		221300000 *

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Collected 5/10/93 by KO  
Time Collected  
P.O.  
Rel.

2AS1PB Grab Soil Sample  
Moss - American

AS1PB SDG# MOS01-11 PAH's in Solids (SW846/8310)	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
Naphthalene	< 20. mg/kg	20.	329600000N
Acenaphthylene	< 20. mg/kg	20.	329700000N
Acenaphthene	< 20. mg/kg	20.	329800000N
Fluorene	< 20. mg/kg	20.	329900000N
Phenanthrene	< 5. mg/kg	5.	330000000N
Anthracene	< 5. mg/kg	5.	330100000N
Fluoranthene	< 20. mg/kg	20.	330200000N
Pyrene	< 20. mg/kg	20.	330300000N
Benzo(a)anthracene	3. mg/kg	1.	330400000N
Chrysene	< 10. mg/kg	10.	330500000N
Benzo(b)fluoranthene	11. mg/kg	2.	330600000N
Benzo(k)fluoranthene	4. mg/kg	2.	330700000N
Benzo(a)pyrene	8. mg/kg	2.	330800000N
Dibenzo(a,h)anthracene	< 2. mg/kg	2.	330900000N
Benzo(g,h,i)perylene	< 5. mg/kg	5.	331000000N
Indeno(1,2,3-cd)pyrene	13. mg/kg	5.	331100000N

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Time Collected  
P.O.  
Rel.

2AS1PB Grab Soil Sample  
Moss - American

AS1PB SDG# MOS01-11 PAH's in Solids (SW846/8310)	RESULT DRY WT. BASIS	LIMIT OF QUANTITATION	LAB CODE
Naphthalene	< 20. mg/kg	20.	329600000N
Acenaphthylene	< 20. mg/kg	20.	329700000N
Acenaphthene	< 20. mg/kg	20.	329800000N
Fluorene	< 20. mg/kg	20.	329900000N
Phenanthrene	< 6. mg/kg	6.	330000000N
Anthracene	< 6. mg/kg	6.	330100000N
Fluoranthene	< 20. mg/kg	20.	330200000N
Pyrene	< 20. mg/kg	20.	330300000N
Benzo(a)anthracene	4. mg/kg	1.	330400000N
Chrysene	< 10. mg/kg	10.	330500000N
Benzo(b)fluoranthene	13. mg/kg	2.	330600000N
Benzo(k)fluoranthene	5. mg/kg	2.	330700000N
Benzo(a)pyrene	10. mg/kg	2.	330800000N
Dibenzo(a,h)anthracene	< 2. mg/kg	2.	330900000N
Benzo(g,h,i)perylene	< 6. mg/kg	6.	331000000N
Indeno(1,2,3-cd)pyrene	16. mg/kg	6.	331100000N

Due to interfering peaks on the chromatogram, the values reported represent the lowest quantitation limits obtainable.

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Group Leader Pesticides/PCBs

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**Lancaster Laboratories**  
Where quality is a science.

10:52:52 378078  
ASR000 D 2 24  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1967040  
Date Reported 5/21/93  
Date Submitted 5/12/93  
Discard Date 7/21/93  
Collected 5/10/93 by KO  
Time Collected  
P.O.  
Rel.

2AS1PB Grab Soil Sample  
Moss - American

AS1PB SDG# MOS01-11  
BTEX Scan (8020)

	RESULT		LIMIT OF	LAB CODE
	AS RECEIVED		QUANTITATION	
Benzene	< 5.	ug/kg	5.	260300000N
Toluene	16.	ug/kg	5.	260400000N
Ethylbenzene	< 5.	ug/kg	5.	260600000N
o-Xylene	< 40.	ug/kg	40.	260800000N
m-Xylene	39.	ug/kg	5.	260900000N
p-Xylene	20.	ug/kg	5.	261000000N

Due to interferences from the sample matrix, the limit of quantitation for the o-xylene determination was increased.

1 COPY TO Bergmann USA  
1 COPY TO Data Package Group

ATTN: Mr. Ric Traver

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Delwyn K. Schumacher, B.S.  
Group Leader, ExpressLAB

See reverse side for explanation of symbols and abbreviations.





10:52:52 378078  
ASR000 D 2 24  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1967040  
Date Reported 5/21/93  
Date Submitted 5/12/93  
Discard Date 7/21/93  
Collected 5/10/93 by KO  
Time Collected  
P.O.  
Rel.

2AS1PB Grab Soil Sample  
Moss - American

AS1PB SDG# MOS01-11  
BTEX Scan (8020)

	RESULT		LIMIT OF	LAB CODE
	DRY WT. BASIS		QUANTITATION	
Benzene	< 6.	ug/kg	6.	260300000N
Toluene	20.	ug/kg	6.	260400000N
Ethylbenzene	< 6.	ug/kg	6.	260600000N
o-Xylene	< 50.	ug/kg	50.	260800000N
m-Xylene	48.	ug/kg	6.	260900000N
p-Xylene	25.	ug/kg	6.	261000000N

Due to interferences from the sample matrix, the limit of quantitation for the o-xylene determination was increased.

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Lancaster, PA 17601-5994  
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10:52:54 378078  
ASR000 D 2 24  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1967041  
Date Reported 5/21/93  
Date Submitted 5/12/93  
Discard Date 7/21/93  
Collected 5/10/93 by KO  
Time Collected  
P.O.  
Rel.

2AS2PB Grab Soil Sample  
Moss - American

AS2PB SDG# MOS01-12  
ANALYSIS

PAH's in Solids (SW846/8310)

Moisture

"Moisture" represents the loss in weight of the sample after drying with an infrared lamp at 150 degrees Celsius.

BTEX Scan (8020)

RESULT  
AS RECEIVED

attached

1.4 % by wt.

LIMIT OF  
QUANTITATION

0.5

LAB CODE

186200000 \*

211100000 \*

attached

221300000 \*

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ATTN: Mr. Ric Traver

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Client Services at (717) 656-2301  
126.07426 0.00 000000

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2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer R. Hess, B.S.  
Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations.





10:52:54 378078  
ASR000 D 2 24  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1967041  
Date Reported 5/21/93  
Date Submitted 5/12/93  
Discard Date 7/21/93  
Collected 5/10/93 by KO  
Time Collected  
P.O.  
Rel.

2AS2PB Grab Soil Sample  
Moss - American

AS2PB SDG# MOS01-12  
ANALYSIS

RESULT  
DRY WT. BASIS

LIMIT OF  
QUANTITATION

LAB CODE

PAH's in Solids (SW846/8310)

attached

186200000 \*

Moisture \*AS RECEIVED\*

1.4 % by wt.

0.5

211100000 \*

"Moisture" represents the loss in weight of the sample after drying with an infrared lamp at 150 degrees Celsius.

BTEX Scan (8020)

attached

221300000 \*

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1 COPY TO Data Package Group

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Client Services at (717) 656-2301

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10:52:55 378078  
ASR000 D 2 24  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1967041  
Date Reported 5/21/93  
Date Submitted 5/12/93  
Discard Date 7/21/93  
Collected 5/10/93 by KO  
Time Collected  
P.O.  
Rel.

2AS2PB Grab Soil Sample  
Moss - American

AS2PB SDG# MOS01-12 PAH's in Solids (SW846/8310)	RESULT AS RECEIVED	UNIT	LIMIT OF QUANTITATION	LAB CODE
Naphthalene	< 10.	mg/kg	10.	329600000N
Acenaphthylene	< 10.	mg/kg	10.	329700000N
Acenaphthene	< 10.	mg/kg	10.	329800000N
Fluorene	< 10.	mg/kg	10.	329900000N
Phenanthrene	17.	mg/kg	5.	330000000N
Anthracene	< 5.	mg/kg	5.	330100000N
Fluoranthene	30.	mg/kg	10.	330200000N
Pyrene	31.	mg/kg	2.	330300000N
Benzo(a)anthracene	14.	mg/kg	0.5	330400000N
Chrysene	15.	mg/kg	1.	330500000N
Benzo(b)fluoranthene	20.	mg/kg	1.	330600000N
Benzo(k)fluoranthene	10.	mg/kg	1.	330700000N
Benzo(a)pyrene	15.	mg/kg	1.	330800000N
Dibenzo(a,h)anthracene	3.	mg/kg	1.	330900000N
Benzo(g,h,i)perylene	6.	mg/kg	3.	331000000N
Indeno(1,2,3-cd)pyrene	19.	mg/kg	3.	331100000N

Due to interfering peaks on the chromatogram, the values reported represent the lowest quantitation limits obtainable.

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ATTN: Mr. Ric Traver

Questions? Contact Environmental  
Client Services at (717) 656-2301

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2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

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Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations.







10:52:59 378078  
ASR000 D 2 24  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1967041  
Date Reported 5/21/93  
Date Submitted 5/12/93  
Discard Date 7/21/93  
Collected 5/10/93 by KO  
Time Collected  
P.O.  
Rel.

2AS2PB Grab Soil Sample  
Moss - American

AS2PB SDG# MOS01-12  
BTEX Scan (8020)

Benzene  
Toluene  
Ethylbenzene  
o-Xylene  
m-Xylene  
p-Xylene

RESULT AS RECEIVED		LIMIT OF QUANTITATION	LAB CODE
< 10.	ug/kg	10.	260300000N
610.	ug/kg	10.	260400000N
100.	ug/kg	10.	260600000N
110.	ug/kg	10.	260800000N
170.	ug/kg	10.	260900000N
130.	ug/kg	10.	261000000N

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Lancaster, PA 17601-5994  
717-656-2301

Delwyn K. Schumacher, B.S.  
Group Leader, ExpressLAB

See reverse side for explanation of symbols and abbreviations.





10:52:59 378078  
ASR000 D 2 24  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1967041  
Date Reported 5/21/93  
Date Submitted 5/12/93  
Discard Date 7/21/93  
Collected 5/10/93 by KO  
Time Collected  
P.O.  
Rel.

2AS2PB Grab Soil Sample  
Moss - American

AS2PB SDG# MOS01-12  
BTEX Scan (8020)

Benzene  
Toluene  
Ethylbenzene  
o-Xylene  
m-Xylene  
p-Xylene

RESULT		LIMIT OF	LAB CODE
DRY WT. BASIS		QUANTITATION	
< 10.	ug/kg	10.	260300000N
620.	ug/kg	10.	260400000N
100.	ug/kg	10.	260600000N
110.	ug/kg	10.	260800000N
170.	ug/kg	10.	260900000N
130.	ug/kg	10.	261000000N

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Client Services at (717) 656-2301

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Lancaster, PA 17601-5994  
717-656-2301

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Group Leader, ExpressLAB

See reverse side for explanation of symbols and abbreviations.





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10:53:07 378078  
ASR000 D 2 24  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1967042  
Date Reported 5/21/93  
Date Submitted 5/12/93  
Discard Date 7/21/93  
Collected 5/10/93 by KO  
Time Collected  
P.O.  
Rel.

2AS3PB Grab Soil Sample  
Moss - American

AS3PB SDG# MOS01-13  
ANALYSIS

PAH's in Solids (SW846/8310)

Moisture

"Moisture" represents the loss in weight of the sample after drying with an infrared lamp at 150 degrees Celsius.

BTEX Scan (8020)

RESULT  
AS RECEIVED

attached

4.4 % by wt.

attached

LIMIT OF  
QUANTITATION

0.5

LAB CODE

186200000 \*

211100000 \*

221300000 \*

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1 COPY TO Data Package Group

ATTN: Mr. Ric Traver

Questions? Contact Environmental  
Client Services at (717) 656-2301  
126 07426 0.00 000000

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Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer E. Hess, B.S.  
Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations.





10:53:07 378078  
ASR000 D 2 24  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1967042  
Date Reported 5/21/93  
Date Submitted 5/12/93  
Discard Date 7/21/93  
Collected 5/10/93 by KO  
Time Collected  
P.O.  
Rel.

2AS3PB Grab Soil Sample  
Moss - American

AS3PB SDG# MOS01-13  
ANALYSIS

RESULT	LIMIT OF	LAB CODE
DRY WT. BASIS	QUANTITATION	
attached		186200000 *
4.4 % by wt.	0.5	211100000 *
attached		221300000 *

PAH's in Solids (SW846/8310)  
Moisture \*AS RECEIVED\*

"Moisture" represents the loss in weight of the sample after drying with an infrared lamp at 150 degrees Celsius.

BTEX Scan (8020)

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ATTN: Mr. Ric Traver

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Client Services at (717) 656-2301

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Lancaster, PA 17601-5994  
717-656-2301

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Group Leader Pesticides/PCBs

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10:53:14 378078  
ASR000 D 2 24  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1967042  
Date Reported 5/21/93  
Date Submitted 5/12/93  
Discard Date 7/21/93  
Collected 5/10/93 by KO  
Time Collected  
P.O.  
Rel.

2AS3PB Grab Soil Sample  
Moss - American

AS3PB SDG# MOS01-13  
PAH's in Solids (SW846/8310)

	RESULT		LIMIT OF	LAB CODE
	AS RECEIVED		QUANTITATION	
Naphthalene	< 4.	mg/kg	4.	329600000N
Acenaphthylene	< 10.	mg/kg	10.	329700000N
Acenaphthene	10.	mg/kg	10.	329800000N
Fluorene	< 10.	mg/kg	10.	329900000N
Phenanthrene	8.	mg/kg	5.	330000000N
Anthracene	< 5.	mg/kg	5.	330100000N
Fluoranthene	15.	mg/kg	4.	330200000N
Pyrene	14.	mg/kg	2.	330300000N
Benzo(a)anthracene	3.8	mg/kg	0.5	330400000N
Chrysene	6.	mg/kg	5.	330500000N
Benzo(b)fluoranthene	14.	mg/kg	0.8	330600000N
Benzo(k)fluoranthene	5.	mg/kg	1.	330700000N
Benzo(a)pyrene	11.	mg/kg	0.8	330800000N
Dibenzo(a,h)anthracene	< 1.	mg/kg	1.	330900000N
Benzo(g,h,i)perylene	4.	mg/kg	3.	331000000N
Indeno(1,2,3-cd)pyrene	12.	mg/kg	3.	331100000N

Due to interfering peaks on the chromatogram, the values reported represent the lowest quantitation limits obtainable.

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ATTN: Mr. Ric Traver

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2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

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Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations.





10:53:14 378078  
ASR000 D 2 24  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1967042  
Date Reported 5/21/93  
Date Submitted 5/12/93  
Discard Date 7/21/93  
Collected 5/10/93 by KO  
Time Collected  
P.O.  
Rel.

2AS3PB Grab Soil Sample  
Moss - American

AS3PB SDG# MOS01-13  
PAH's in Solids (SW846/8310)

	RESULT		LIMIT OF	LAB CODE
	DRY WT. BASIS		QUANTITATION	
Naphthalene	< 4.	mg/kg	4.	329600000N
Acenaphthylene	< 10.	mg/kg	10.	329700000N
Acenaphthene	10.	mg/kg	10.	329800000N
Fluorene	< 10.	mg/kg	10.	329900000N
Phenanthrene	9.	mg/kg	5.	330000000N
Anthracene	< 5.	mg/kg	5.	330100000N
Fluoranthene	15.	mg/kg	4.	330200000N
Pyrene	14.	mg/kg	2.	330300000N
Benzo(a)anthracene	4.0	mg/kg	0.5	330400000N
Chrysene	6.	mg/kg	5.	330500000N
Benzo(b)fluoranthene	14.	mg/kg	0.8	330600000N
Benzo(k)fluoranthene	5.	mg/kg	1.	330700000N
Benzo(a)pyrene	11.	mg/kg	0.8	330800000N
Dibenzo(a,h)anthracene	< 1.	mg/kg	1.	330900000N
Benzo(g,h,i)perylene	4.	mg/kg	3.	331000000N
Indeno(1,2,3-cd)pyrene	12.	mg/kg	3.	331100000N

Due to interfering peaks on the chromatogram, the values reported represent the lowest quantitation limits obtainable.

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717-656-2301

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Group Leader Pesticides/PCBs

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10:53:25 378078  
ASR000 D 2 24  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1967042  
Date Reported 5/21/93  
Date Submitted 5/12/93  
Discard Date 7/21/93  
Collected 5/10/93 by KO  
Time Collected  
P.O.  
Rel.

2AS3PB Grab Soil Sample  
Moss - American

AS3PB SDG# MOS01-13  
BTEX Scan (8020)

	RESULT AS RECEIVED		LIMIT OF QUANTITATION	LAB CODE
Benzene	< 5.	ug/kg	5.	260300000N
Toluene	330.	ug/kg	5.	260400000N
Ethylbenzene	58.	ug/kg	5.	260600000N
o-Xylene	76.	ug/kg	5.	260800000N
m-Xylene	140.	ug/kg	5.	260900000N
p-Xylene	85.	ug/kg	5.	261000000N

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717-656-2301

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10:53:25 378078  
ASR000 D 2 24  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1967042  
Date Reported 5/21/93  
Date Submitted 5/12/93  
Discard Date 7/21/93  
Collected 5/10/93 by KO  
Time Collected  
P.O.  
Rel.

2AS3PB Grab Soil Sample  
Moss - American

AS3PB SDG# MOS01-13  
BTEX Scan (8020)

Benzene  
Toluene  
Ethylbenzene  
o-Xylene  
m-Xylene  
p-Xylene

RESULT	UNIT	LIMIT OF QUANTITATION	LAB CODE
DRY WT. BASIS			
< 5.	ug/kg	5.	260300000N
350.	ug/kg	5.	260400000N
60.	ug/kg	5.	260600000N
79.	ug/kg	5.	260800000N
140.	ug/kg	5.	260900000N
89.	ug/kg	5.	261000000N

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Lancaster, PA 17601-5994  
717-656-2301

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Group Leader, ExpressLAB

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10:53:43 378078  
ASR000 D 2 24  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1967043  
Date Reported 5/21/93  
Date Submitted 5/12/93  
Discard Date 7/21/93  
Collected 5/10/93 by KO  
Time Collected  
P.O.  
Rel.

2AS4PB Grab Soil Sample  
Moss - American

AS4PB SDG# MOS01-14  
ANALYSIS

RESULT  
AS RECEIVED

LIMIT OF  
QUANTITATION

LAB CODE

PAH's in Solids (SW846/8310)

attached

186222500 \*

Moisture

8.1 % by wt.

0.5

211101200 \*

"Moisture" represents the loss in weight of the sample after drying with an infrared lamp at 150 degrees Celsius.

BTEX Scan (8020)

attached

221308500 \*

1 COPY TO Bergmann USA  
1 COPY TO Data Package Group

ATTN: Mr. Ric Traver

Questions? Contact Environmental  
Client Services at (717) 656-2301  
126 07426 15.00 033700

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Lancaster, PA 17601-5994  
717-656-2301

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Group Leader Pesticides/PCBs

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10:53:43 378078  
ASR000 D 2 24  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1967043  
Date Reported 5/21/93  
Date Submitted 5/12/93  
Discard Date 7/21/93  
Collected 5/10/93 by K0  
Time Collected  
P.O.  
Rel.

2AS4PB Grab Soil Sample  
Moss - American

AS4PB SDG# MOS01-14  
ANALYSIS

PAH's in Solids (SW846/8310)

Moisture \*AS RECEIVED\*

"Moisture" represents the loss in weight of the sample after drying with an infrared lamp at 150 degrees Celsius.

BTEX Scan (8020)

RESULT	LIMIT OF	LAB CODE
DRY WT. BASIS	QUANTITATION	
attached		186222500 *
8.1 % by wt.	0.5	211122500 *
attached		221322500 *

1 COPY TO Bergmann USA  
1 COPY TO Data Package Group

ATTN: Mr. Ric Traver

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2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer E. Hess, B.S.  
Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations.





10:53:45 378078  
ASR000 D 2 24  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1967043  
Date Reported 5/21/93  
Date Submitted 5/12/93  
Discard Date 7/21/93  
Collected 5/10/93 by KO  
Time Collected  
P.O.  
Rel.

2AS4PB Grab Soil Sample  
Moss - American

AS4PB SDG# MOS01-14 PAH's in Solids (SW846/8310)	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
Naphthalene	< 10. mg/kg	10.	329600000N
Acenaphthylene	< 10. mg/kg	10.	329700000N
Acenaphthene	20. mg/kg	10.	329800000N
Fluorene	< 10. mg/kg	10.	329900000N
Phenanthrene	< 10. mg/kg	10.	330000000N
Anthracene	< 5. mg/kg	5.	330100000N
Fluoranthene	17. mg/kg	4.	330200000N
Pyrene	20. mg/kg	10.	330300000N
Benzo(a)anthracene	4.1 mg/kg	0.5	330400000N
Chrysene	7. mg/kg	5.	330500000N
Benzo(b)fluoranthene	15. mg/kg	2.	330600000N
Benzo(k)fluoranthene	6. mg/kg	2.	330700000N
Benzo(a)pyrene	12. mg/kg	2.	330800000N
Dibenzo(a,h)anthracene	< 1. mg/kg	1.	330900000N
Benzo(g,h,i)perylene	7. mg/kg	3.	331000000N
Indeno(1,2,3-cd)pyrene	17. mg/kg	3.	331100000N

Due to interfering peaks on the chromatogram, the values reported represent the lowest quantitation limits obtainable.

1 COPY TO Bergmann USA  
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ATTN: Mr. Ric Traver

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer E. Hess, B.S.  
Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations.









## Lancaster Laboratories

Where quality is a science.

10:54:00 378078  
ASR000 D 2 24  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1967043  
Date Reported 5/21/93  
Date Submitted 5/12/93  
Discard Date 7/21/93  
Collected 5/10/93 by KO  
Time Collected  
P.O.  
Rel.

2AS4PB Grab Soil Sample  
Moss - American

AS4PB SDG# MOS01-14  
BTEX Scan (8020)

Benzene

Toluene

Ethylbenzene

o-Xylene

m-Xylene

p-Xylene

RESULT  
AS RECEIVED

< 5. ug/kg

180. ug/kg

53. ug/kg

60. ug/kg

100. ug/kg

78. ug/kg

LIMIT OF  
QUANTITATION

5. 260300000N

5. 260400000N

5. 260600000N

5. 260800000N

5. 260900000N

5. 261000000N

LAB CODE

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Lancaster, PA 17601-5994  
717-656-2301

Delwyn K. Schumacher, B.S.  
Group Leader, ExpressLAB

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10:54:00 378078  
ASR000 D 2 24  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1967043  
Date Reported 5/21/93  
Date Submitted 5/12/93  
Discard Date 7/21/93  
Collected 5/10/93 by KO  
Time Collected  
P.O.  
Rel.

2AS4PB Grab Soil Sample  
Moss - American

AS4PB SDG# MOS01-14  
BTEX Scan (8020)

RESULT	DRY WT. BASIS	LIMIT OF QUANTITATION	LAB CODE
Benzene	< 5. ug/kg	5.	260300000N
Toluene	190. ug/kg	5.	260400000N
Ethylbenzene	58. ug/kg	5.	260600000N
o-Xylene	66. ug/kg	5.	260800000N
m-Xylene	110. ug/kg	5.	260900000N
p-Xylene	85. ug/kg	5.	261000000N

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10:54:12 378078  
ASR000 D 2 24  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1967044  
Date Reported 5/21/93  
Date Submitted 5/12/93  
Discard Date 7/21/93  
Collected 5/10/93 by KO  
Time Collected  
P.O.  
Rel.

2AS5PB Grab Soil Sample  
Moss - American

AS5PB SDG# MOS01-15  
ANALYSIS

RESULT  
AS RECEIVED

LIMIT OF  
QUANTITATION

LAB CODE

PAH's in Solids (SW846/8310)

attached

186222500 \*

Moisture

5.9 % by wt.

0.5

211101200 \*

"Moisture" represents the loss in weight of the sample after drying with an infrared lamp at 150 degrees Celsius.

BTEX Scan (8020)

attached

221308500 \*

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Client Services at (717) 656-2301  
126 07426 15.00 033700

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Jenifer R. Hess, B.S.  
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10:54:12 378078  
ASR000 D 2 24  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1967044  
Date Reported 5/21/93  
Date Submitted 5/12/93  
Discard Date 7/21/93  
Collected 5/10/93 by KO  
Time Collected  
P.O.  
Rel.

2AS5PB Grab Soil Sample  
Moss - American

AS5PB SDG# MOS01-15 ANALYSIS	RESULT DRY WT. BASIS	LIMIT OF QUANTITATION	LAB CODE
PAH's in Solids (SW846/8310)	attached		186222500 *
Moisture *AS RECEIVED*	5.9 % by wt.	0.5	211122500 *
"Moisture" represents the loss in weight of the sample after drying with an infrared lamp at 150 degrees Celsius.			
BTEX Scan (8020)	attached		221322500 *

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10:54:17 378078  
ASR000 D 2 24  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1967044  
Date Reported 5/21/93  
Date Submitted 5/12/93  
Discard Date 7/21/93  
Collected 5/10/93 by K0  
Time Collected  
P.O.  
Rel.

2AS5PB Grab Soil Sample  
Moss - American

AS5PB SDG# MOS01-15 PAH's in Solids (SW846/8310)	RESULT AS RECEIVED	UNIT	LIMIT OF QUANTITATION	LAB CODE
Naphthalene	< 10.	mg/kg	10.	329600000N
Acenaphthylene	< 20.	mg/kg	20.	329700000N
Acenaphthene	< 20.	mg/kg	20.	329800000N
Fluorene	< 10.	mg/kg	10.	329900000N
Phenanthrene	14.	mg/kg	5.	330000000N
Anthracene	< 5.	mg/kg	5.	330100000N
Fluoranthene	20.	mg/kg	4.	330200000N
Pyrene	20.	mg/kg	10.	330300000N
Benzo(a)anthracene	4.4	mg/kg	0.5	330400000N
Chrysene	8.	mg/kg	5.	330500000N
Benzo(b)fluoranthene	18.	mg/kg	2.	330600000N
Benzo(k)fluoranthene	7.	mg/kg	2.	330700000N
Benzo(a)pyrene	14.	mg/kg	2.	330800000N
Dibenzo(a,h)anthracene	< 1.	mg/kg	1.	330900000N
Benzo(g,h,i)perylene	8.	mg/kg	3.	331000000N
Indeno(1,2,3-cd)pyrene	20.	mg/kg	3.	331100000N

Due to interfering peaks on the chromatogram, the values reported represent the lowest quantitation limits obtainable.

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Client Services at (717) 656-2301

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717-656-2301

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10:54:17 378078  
ASR000 D 2 24  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1967044  
Date Reported 5/21/93  
Date Submitted 5/12/93  
Discard Date 7/21/93  
Collected 5/10/93 by KO  
Time Collected  
P.O.  
Rel.

2AS5PB Grab Soil Sample  
Moss - American

AS5PB SDG# MOS01-15  
PAH's in Solids (SW846/8310)

	RESULT		LIMIT OF	LAB CODE
	DRY WT. BASIS		QUANTITATION	
Naphthalene	< 10. mg/kg		10.	329600000N
Acenaphthylene	< 20. mg/kg		20.	329700000N
Acenaphthene	< 20. mg/kg		20.	329800000N
Fluorene	< 10. mg/kg		10.	329900000N
Phenanthrene	14. mg/kg		5.	330000000N
Anthracene	< 5. mg/kg		5.	330100000N
Fluoranthene	21. mg/kg		4.	330200000N
Pyrene	20. mg/kg		10.	330300000N
Benzo(a)anthracene	4.7 mg/kg		0.5	330400000N
Chrysene	9. mg/kg		5.	330500000N
Benzo(b)fluoranthene	20. mg/kg		2.	330600000N
Benzo(k)fluoranthene	8. mg/kg		2.	330700000N
Benzo(a)pyrene	15. mg/kg		2.	330800000N
Dibenzo(a,h)anthracene	< 1. mg/kg		1.	330900000N
Benzo(g,h,i)perylene	9. mg/kg		3.	331000000N
Indeno(1,2,3-cd)pyrene	22. mg/kg		3.	331100000N

Due to interfering peaks on the chromatogram, the values reported represent the lowest quantitation limits obtainable.

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Group Leader Pesticides/PCBs

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10:54:29 378078  
ASR000 D 2 24  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1967044  
Date Reported 5/21/93  
Date Submitted 5/12/93  
Discard Date 7/21/93  
Collected 5/10/93 by KO  
Time Collected  
P.O.  
Rel.

2AS5PB Grab Soil Sample  
Moss - American

AS5PB SDG# MOS01-15  
BTEX Scan (8020)  
Benzene  
Toluene  
Ethylbenzene  
o-Xylene  
m-Xylene  
p-Xylene

RESULT AS RECEIVED	UNIT	LIMIT OF QUANTITATION	LAB CODE
< 5.	ug/kg	5.	260300000N
200.	ug/kg	5.	260400000N
< 5.	ug/kg	5.	260600000N
80.	ug/kg	5.	260800000N
120.	ug/kg	5.	260900000N
92.	ug/kg	5.	261000000N

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717-656-2301

Delwyn K. Schumacher, B.S.  
Group Leader, ExpressLAB

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10:54:29 378078  
ASR000 D 2 24  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1967044  
Date Reported 5/21/93  
Date Submitted 5/12/93  
Discard Date 7/21/93  
Collected 5/10/93 by K0  
Time Collected  
P.O.  
Rel.

2AS5PB Grab Soil Sample  
Moss - American

AS5PB SDG# MOS01-15  
BTEX Scan (8020)  
Benzene  
Toluene  
Ethylbenzene  
o-Xylene  
m-Xylene  
p-Xylene

RESULT	DRY WT. BASIS	LIMIT OF QUANTITATION	LAB CODE
< 5.	ug/kg	5.	260300000N
210.	ug/kg	5.	260400000N
< 5.	ug/kg	5.	260600000N
85.	ug/kg	5.	260800000N
120.	ug/kg	5.	260900000N
98.	ug/kg	5.	261000000N

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Lancaster, PA 17601-5994  
717-656-2301

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Group Leader, ExpressLAB

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10:54:33 378078  
ASR000 D 2 24  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1967045  
Date Reported 5/21/93  
Date Submitted 5/12/93  
Discard Date 7/21/93  
Collected 5/10/93 by KO  
Time Collected  
P.O.  
Rel.

2AS6PB Grab Soil Sample  
Moss - American

AS6PB SDG# MOS01-16  
ANALYSIS

PAH's in Solids (SW846/8310)

Moisture

"Moisture" represents the loss in weight of the sample after drying with an infrared lamp at 150 degrees Celsius.

BTEX Scan (8020)

RESULT  
AS RECEIVED

attached

2.3 % by wt.

attached

LIMIT OF  
QUANTITATION

0.5

LAB CODE

186222500 \*

211101200 \*

221308500 \*

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126 07426 15.00 033700

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2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer B. Hess, B.S.  
Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations.





10:54:33 378078  
ASR000 D 2 24  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1967045  
Date Reported 5/21/93  
Date Submitted 5/12/93  
Discard Date 7/21/93  
Collected 5/10/93 by KO  
Time Collected  
P.O.  
Rel.

2AS6PB Grab Soil Sample  
Moss - American

AS6PB SDG# MOS01-16  
ANALYSIS

PAH's in Solids (SW846/8310)

Moisture \*AS RECEIVED\*

"Moisture" represents the loss in weight of the sample after drying with an infrared lamp at 150 degrees Celsius.

BTEX Scan (8020)

RESULT  
DRY WT. BASIS  
attached  
2.3 % by wt.

LIMIT OF  
QUANTITATION  
LAB CODE  
186222500 \*  
211122500 \*

attached 221322500 \*

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717-656-2301

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10:54:43 378078  
ASR000 D 2 24  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1967045  
Date Reported 5/21/93  
Date Submitted 5/12/93  
Discard Date 7/21/93  
Collected 5/10/93 by KO  
Time Collected  
P.O.  
Rel.

2AS6PB Grab Soil Sample  
Moss - American

AS6PB SDG# MOS01-16  
PAH's in Solids (SW846/8310)  
Naphthalene  
Acenaphthylene  
Acenaphthene  
Fluorene  
Phenanthrene  
Anthracene  
Fluoranthene  
Pyrene  
Benzo(a)anthracene  
Chrysene  
Benzo(b)fluoranthene  
Benzo(k)fluoranthene  
Benzo(a)pyrene  
Dibenzo(a,h)anthracene  
Benzo(g,h,i)perylene  
Indeno(1,2,3-cd)pyrene

RESULT  
AS RECEIVED  
< 20. mg/kg  
< 20. mg/kg  
< 20. mg/kg  
< 20. mg/kg  
11. mg/kg  
< 5. mg/kg  
17. mg/kg  
4. mg/kg  
4. mg/kg  
< 10. mg/kg  
17. mg/kg  
6. mg/kg  
12. mg/kg  
< 4. mg/kg  
< 10. mg/kg  
20. mg/kg

LIMIT OF  
QUANTITATION  
20.  
20.  
20.  
20.  
5.  
5.  
2.  
2.  
1.  
10.  
2.  
2.  
2.  
4.  
10.  
10.  
LAB CODE  
329600000N  
329700000N  
329800000N  
329900000N  
330000000N  
330100000N  
330200000N  
330300000N  
330400000N  
330500000N  
330600000N  
330700000N  
330800000N  
330900000N  
331000000N  
331100000N

Due to interfering peaks on the chromatogram, the values reported represent the lowest quantitation limits obtainable.

Due to insufficient sample size, we were unable to report our usual quantitation limits. The values reported represent the lowest quantitation limits obtainable.

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10:54:43 378078  
ASR000 D 2 24  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1967045  
Date Reported 5/21/93  
Date Submitted 5/12/93  
Discard Date 7/21/93  
Collected 5/10/93 by KO  
Time Collected  
P.O.  
Rel.

2AS6PB Grab Soil Sample  
Moss - American

AS6PB SDG# MOS01-16 PAH's in Solids (SW846/8310)	RESULT DRY WT. BASIS	LIMIT OF QUANTITATION	LAB CODE
Naphthalene	< 20. mg/kg	20.	329600000N
Acenaphthylene	< 20. mg/kg	20.	329700000N
Acenaphthene	< 20. mg/kg	20.	329800000N
Fluorene	< 20. mg/kg	20.	329900000N
Phenanthrene	12. mg/kg	5.	330000000N
Anthracene	< 5. mg/kg	5.	330100000N
Fluoranthene	17. mg/kg	2.	330200000N
Pyrene	4. mg/kg	2.	330300000N
Benzo(a)anthracene	4. mg/kg	1.	330400000N
Chrysene	< 10. mg/kg	10.	330500000N
Benzo(b)fluoranthene	17. mg/kg	2.	330600000N
Benzo(k)fluoranthene	6. mg/kg	2.	330700000N
Benzo(a)pyrene	13. mg/kg	2.	330800000N
Dibenzo(a,h)anthracene	< 4. mg/kg	4.	330900000N
Benzo(g,h,i)perylene	< 10. mg/kg	10.	331000000N
Indeno(1,2,3-cd)pyrene	20. mg/kg	10.	331100000N

Due to interfering peaks on the chromatogram, the values reported represent the lowest quantitation limits obtainable.

Due to insufficient sample size, we were unable to report our usual quantitation limits. The values reported represent the lowest quantitation limits obtainable.

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10:55:09 378078  
ASR000 D 2 24  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1967045  
Date Reported 5/21/93  
Date Submitted 5/12/93  
Discard Date 7/21/93  
Collected 5/10/93 by KO  
Time Collected  
P.O.  
Rel.

2AS6PB Grab Soil Sample  
Moss - American

AS6PB SDG# MOS01-16  
BTEX Scan (8020)

Benzene

Toluene

Ethylbenzene

o-Xylene

m-Xylene

p-Xylene

RESULT		LIMIT OF	
AS RECEIVED		QUANTITATION	LAB CODE
< 30.	ug/kg	30.	260300000N
760.	ug/kg	30.	260400000N
< 30.	ug/kg	30.	260600000N
90.	ug/kg	30.	260800000N
150.	ug/kg	30.	260900000N
100.	ug/kg	30.	261000000N

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Group Leader, ExpressLAB

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ASR000 D 2 24  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1967045  
Date Reported 5/21/93  
Date Submitted 5/12/93  
Discard Date 7/21/93  
Collected 5/10/93 by KO  
Time Collected  
P.O.  
Rel.

2AS6PB Grab Soil Sample  
Moss - American

AS6PB SDG# MOS01-16  
BTEX Scan (8020)  
Benzene  
Toluene  
Ethylbenzene  
o-Xylene  
m-Xylene  
p-Xylene

RESULT		LIMIT OF	LAB CODE
DRY WT. BASIS		QUANTITATION	
< 30.	ug/kg	30.	260300000N
770.	ug/kg	30.	260400000N
< 30.	ug/kg	30.	260600000N
100.	ug/kg	30.	260800000N
150.	ug/kg	30.	260900000N
100.	ug/kg	30.	261000000N

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2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Delwyn K. Schumacher, B.S.  
Group Leader, ExpressLAB

See reverse side for explanation of symbols and abbreviations.





10:55:23 378078  
ASR000 D 2 24  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1967046  
Date Reported 5/21/93  
Date Submitted 5/12/93  
Discard Date 7/21/93  
Collected 5/10/93 by KO  
Time Collected  
P.O.  
Rel.

2AS7PB Grab Soil Sample  
Moss - American

AS7PB SDG# MOS01-17  
ANALYSIS

PAH's in Solids (SW846/8310)  
Moisture

"Moisture" represents the loss in weight of the sample after drying with an infrared lamp at 150 degrees Celsius.

BTEX Scan (8020)

RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
attached		186222500 *
8.3 % by wt.	0.5	211101200 *
attached		221308500 *

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ATTN: Mr. Ric Traver

Questions? Contact Environmental Client Services at (717) 656-2301  
126 07426 15.00 033700

Respectfully Submitted  
Lancaster Laboratories, Inc.

Jenifer E. Hess, B.S.  
Group Leader Pesticides/PCBs



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

See reverse side for explanation of symbols and abbreviations.





**Lancaster Laboratories**  
*Where quality is a science.*

10:55:23 378078  
ASR000 D 2 24  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1967046  
Date Reported 5/21/93  
Date Submitted 5/12/93  
Discard Date 7/21/93  
Collected 5/10/93 by KO  
Time Collected  
P.O.  
Rel.

2AS7PB Grab Soil Sample  
Moss - American

AS7PB SDG# MOS01-17  
ANALYSIS

PAH's in Solids (SW846/8310)  
Moisture \*AS RECEIVED\*

"Moisture" represents the loss in weight of the sample after drying with an infrared lamp at 150 degrees Celsius.

BTEX Scan (8020)

RESULT	LIMIT OF	LAB CODE
DRY WT. BASIS	QUANTITATION	
attached		186222500 *
8.3 % by wt.	0.5	211122500 *
attached		221322500 *

1 COPY TO Bergmann USA  
1 COPY TO Data Package Group

ATTN: Mr. Ric Traver

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer E. Hess, B.S.  
Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations.









10:55:33 378078  
ASR000 D 2 24  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1967046  
Date Reported 5/21/93  
Date Submitted 5/12/93  
Discard Date 7/21/93  
Collected 5/10/93 by KO  
Time Collected  
P.O.  
Rel.

2AS7PB Grab Soil Sample  
Moss - American

AS7PB SDG# MOS01-17 PAH's in Solids (SW846/8310)	RESULT DRY WT. BASIS	LIMIT OF QUANTITATION	LAB CODE
Naphthalene	< 2. mg/kg	2.	329600000N
Acenaphthylene	< 2. mg/kg	2.	329700000N
Acenaphthene	< 2. mg/kg	2.	329800000N
Fluorene	< 2. mg/kg	2.	329900000N
Phenanthrene	< 0.5 mg/kg	0.5	330000000N
Anthracene	< 0.5 mg/kg	0.5	330100000N
Fluoranthene	0.3 mg/kg	0.2	330200000N
Pyrene	< 0.2 mg/kg	0.2	330300000N
Benzo(a)anthracene	0.07 mg/kg	0.01	330400000N
Chrysene	0.1 mg/kg	0.1	330500000N
Benzo(b)fluoranthene	0.31 mg/kg	0.02	330600000N
Benzo(k)fluoranthene	0.10 mg/kg	0.02	330700000N
Benzo(a)pyrene	0.28 mg/kg	0.02	330800000N
Dibenzo(a,h)anthracene	< 0.2 mg/kg	0.2	330900000N
Benzo(g,h,i)perylene	< 0.5 mg/kg	0.5	331000000N
Indeno(1,2,3-cd)pyrene	0.49 mg/kg	0.05	331100000N

Due to interfering peaks on the chromatogram, the values reported represent the lowest quantitation limits obtainable.

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1 COPY TO Data Package Group

ATTN: Mr. Ric Traver

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer E. Hess, B.S.  
Group Leader Pesticides/PCBs





10:55:59 378078  
ASR000 D 2 24  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1967046  
Date Reported 5/21/93  
Date Submitted 5/12/93  
Discard Date 7/21/93  
Collected 5/10/93 by KO  
Time Collected  
P.O.  
Rel.

2AS7PB Grab Soil Sample  
Moss - American

AS7PB SDG# MOS01-17  
BTEX Scan (8020)  
Benzene  
Toluene  
Ethylbenzene  
o-Xylene  
m-Xylene  
p-Xylene

RESULT AS RECEIVED		LIMIT OF QUANTITATION	LAB CODE
< 5.	ug/kg	5.	260300000N
170.	ug/kg	5.	260400000N
< 5.	ug/kg	5.	260600000N
16.	ug/kg	5.	260800000N
27.	ug/kg	5.	260900000N
17.	ug/kg	5.	261000000N

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Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Delwyn K. Schumacher, B.S.  
Group Leader, ExpressLAB

See reverse side for explanation of symbols and abbreviations.





10:55:59 378078  
ASR000 D 2 24  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1967046  
Date Reported 5/21/93  
Date Submitted 5/12/93  
Discard Date 7/21/93  
Collected 5/10/93 by K0  
Time Collected  
P.O.  
Rel.

2AS7PB Grab Soil Sample  
Moss - American

AS7PB SDG# MOS01-17  
BTEX Scan (8020)  
Benzene  
Toluene  
Ethylbenzene  
o-Xylene  
m-Xylene  
p-Xylene

RESULT	UNIT	LIMIT OF QUANTITATION	LAB CODE
DRY WT. BASIS			
< 5.	ug/kg	5.	260300000N
180.	ug/kg	5.	260400000N
< 5.	ug/kg	5.	260600000N
18.	ug/kg	5.	260800000N
29.	ug/kg	5.	260900000N
18.	ug/kg	5.	261000000N

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ATTN: Mr. Ric Traver

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Client Services at (717) 656-2301

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Lancaster, PA 17601-5994  
717-656-2301

Delwyn K. Schumacher, B.S.  
Group Leader, ExpressLAB

See reverse side for explanation of symbols and abbreviations.





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10:56:07 378078  
ASR000 D 2 24  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. WW 1967047  
Date Reported 5/21/93  
Date Submitted 5/12/93  
Discard Date 7/21/93  
Collected 5/10/93 by KO  
Time Collected  
P.O.  
Rel.

2AL8P Grab Water Sample  
Moss - American

2AL8P SDG# MOS01-18  
ANALYSIS  
PAH's in Water (SW846/8310)

RESULT  
AS RECEIVED  
attached

LIMIT OF  
QUANTITATION LAB CODE  
186120000 \*

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ATTN: Mr. Ric Traver

Questions? Contact Environmental  
Client Services at (717) 656-2301  
126 07426 0.00 020000

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer K. Hess, B.S.  
Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations.







10:56:22 378078  
ASR000 D 2 24  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. WW 1967048  
Date Reported 5/21/93  
Date Submitted 5/12/93  
Discard Date 7/21/93  
Collected 5/10/93 by KO  
Time Collected  
P.O.  
Rel.

2AL9B Grab Water Sample  
Moss - American

2AL9B SDG# MOS01-19  
ANALYSIS  
BTEX Scan

RESULT	LIMIT OF	LAB CODE
AS RECEIVED	QUANTITATION	051608500 *
attached		

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1 COPY TO Data Package Group

ATTN: Mr. Ric Traver

Questions? Contact Environmental  
Client Services at (717) 656-2301  
126 07426 0.00 008500

Respectfully Submitted  
Lancaster Laboratories, Inc.

Jenifer E. Hess, B.S.  
Group Leader Pesticides/PCBs



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

See reverse side for explanation of symbols and abbreviations.





10:56:25 378078  
ASR000 D 2 24  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. WV 1967048  
Date Reported 5/21/93  
Date Submitted 5/12/93  
Discard Date 7/21/93  
Collected 5/10/93 by KO  
Time Collected  
P.O.  
Rel.

2AL9B Grab Water Sample  
Moss - American

2AL9B SDG# MOS01-19

BTEX Scan

Benzene  
Toluene  
o-Xylene  
m-Xylene  
p-Xylene  
Ethylbenzene

RESULT AS RECEIVED	UNIT	LIMIT OF QUANTITATION	LAB CODE
< 1.	ug/l	1.	313300000N
< 1.	ug/l	1.	313400000N
< 1.	ug/l	1.	080800000N
< 1.	ug/l	1.	080900000N
< 1.	ug/l	1.	081000000N
< 1.	ug/l	1.	313500000N

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ATTN: Mr. Ric Traver

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Judy A. Colello, B.S.  
Group Leader

See reverse side for explanation of symbols and abbreviations.







10:56:32 378078  
ASR000 D 2 24  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. WW 1967049  
Date Reported 5/21/93  
Date Submitted 5/12/93  
Discard Date 7/21/93  
Collected 5/10/93 by KO  
Time Collected  
P.O.  
Rel.

2AL25P Grab Water Sample  
Moss - American

AL25P SDG# MOS01-20  
ANALYSIS  
PAH's in Water (SW846/8310)

<b>RESULT</b>	<b>LIMIT OF</b>	<b>LAB CODE</b>
AS RECEIVED	QUANTITATION	186120000 *
attached		

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ATTN: Mr. Ric Traver

Questions? Contact Environmental  
Client Services at (717) 656-2301  
126 07426 0.00 020000

Respectfully Submitted  
Lancaster Laboratories, Inc.

Jenifer E. Hess, B.S.  
Group Leader Pesticides/PCBs



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

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10:56:40 378078  
ASR000 D 2 24  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. WW 1967049  
Date Reported 5/21/93  
Date Submitted 5/12/93  
Discard Date 7/21/93  
Collected 5/10/93 by K0  
Time Collected  
P.O.  
Rel.

2AL25P Grab Water Sample  
Moss - American

AL25P SDG# MOS01-20 PAH's in Water (SW846/8310)	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
Naphthalene	< 20. ug/l	20.	328000000N
Acenaphthylene	< 40. ug/l	40.	328100000N
Acenaphthene	< 40. ug/l	40.	328200000N
Fluorene	< 4. ug/l	4.	328300000N
Phenanthrene	< 4. ug/l	4.	328400000N
Anthracene	< 2. ug/l	2.	328500000N
Fluoranthene	< 1. ug/l	1.	328600000N
Pyrene	< 4. ug/l	4.	328700000N
Benzo(a)anthracene	< 0.2 ug/l	0.2	328800000N
Chrysene	< 2. ug/l	2.	328900000N
Benzo(b)fluoranthene	< 0.4 ug/l	0.4	329000000N
Benzo(k)fluoranthene	< 0.2 ug/l	0.2	329100000N
Benzo(a)pyrene	< 0.4 ug/l	0.4	329200000N
Dibenzo(a,h)anthracene	< 0.4 ug/l	0.4	329300000N
Benzo(g,h,i)perylene	< 1. ug/l	1.	329400000N
Indeno(1,2,3-cd)pyrene	< 1. ug/l	1.	329500000N

Due to insufficient sample size, we were unable to report our usual quantitation limits. The values reported represent the lowest quantitation limits obtainable.

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ATTN: Mr. Ric Traver

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.

Jenifer E. Hess, B.S.  
Group Leader Pesticides/PCBs



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

See reverse side for explanation of symbols and abbreviations.





10:57:00 378078  
ASR000 D 2 24  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. WW 1967050  
Date Reported 5/21/93  
Date Submitted 5/12/93  
Discard Date 7/21/93  
Collected 5/10/93 by KO  
Time Collected  
P.O.  
Rel.

2AL26B Grab Water Sample  
Moss - American

AL26B SDG# MOS01-21  
ANALYSIS  
BTEX Scan

RESULT AS RECEIVED attached  
LIMIT OF QUANTITATION  
LAB CODE 051608500 \*

1 COPY TO Bergmann USA  
1 COPY TO Data Package Group

ATTN: Mr. Ric Traver

Questions? Contact Environmental  
Client Services at (717) 656-2301  
126 07426 0.00 008500

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer B. Hess, B.S.  
Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations.





10:57:04 378078  
ASR000 D 2 24  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. WW 1967050  
Date Reported 5/21/93  
Date Submitted 5/12/93  
Discard Date 7/21/93  
Collected 5/10/93 by KO  
Time Collected  
P.O.  
Rel.

2AL26B Grab Water Sample  
Moss - American

AL26B SDG# MOS01-21

BTEX Scan

Benzene  
Toluene  
o-Xylene  
m-Xylene  
p-Xylene  
Ethylbenzene

RESULT AS RECEIVED	
2.	ug/l
21.	ug/l
58.	ug/l
45.	ug/l
14.	ug/l
16.	ug/l

LIMIT OF QUANTITATION	LAB CODE
1.	313300000N
1.	313400000N
1.	080800000N
1.	080900000N
1.	081000000N
1.	313500000N

1 COPY TO Bergmann USA  
1 COPY TO Data Package Group

ATTN: Mr. Ric Traver

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Judy A. Colello, B.S.  
Group Leader

See reverse side for explanation of symbols and abbreviations.





10:57:07 378078  
ASR000 D 2 24  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1967051  
Date Reported 5/21/93  
Date Submitted 5/12/93  
Discard Date 7/21/93  
Collected 5/10/93 by KO  
Time Collected  
P.O.  
Rel.

2AS27PB Grab Soil Sample  
Moss - American

S27PB SDG# MOS01-22  
ANALYSIS

RESULT  
AS RECEIVED

LIMIT OF  
QUANTITATION LAB CODE

PAH's in Solids (SW846/8310)  
Moisture

attached  
21.4 % by wt.

186222500 \*  
0.5 211101200 \*

"Moisture" represents the loss in weight of the sample after drying with an infrared lamp at 150 degrees Celsius.

BTEX Scan (8020)

attached

221308500 \*

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1 COPY TO Data Package Group

ATTN: Mr. Ric Traver

Questions? Contact Environmental  
Client Services at (717) 656-2301  
126 07426 15.00 033700

Respectfully Submitted  
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2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer B. Hess, B.S.  
Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations.





10:57:07 378078  
ASR000 D 2 24  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1967051  
Date Reported 5/21/93  
Date Submitted 5/12/93  
Discard Date 7/21/93  
Collected 5/10/93 by K0  
Time Collected  
P.O.  
Rel.

2AS27PB Grab Soil Sample  
Moss - American

S27PB SDG# MOS01-22  
ANALYSIS

RESULT	LIMIT OF	LAB CODE
DRY WT. BASIS	QUANTITATION	
attached		186222500 *
21.4 % by wt.	0.5	211122500 *
attached		221322500 *

PAH's in Solids (SW846/8310)  
Moisture \*AS RECEIVED\*

"Moisture" represents the loss in weight of the sample after drying with an infrared lamp at 150 degrees Celsius.

BTEX Scan (8020)

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Lancaster, PA 17601-5994  
717-656-2301

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# Lancaster Laboratories

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10:57:11 378078  
ASR000 D 2 24  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1967051  
Date Reported 5/21/93  
Date Submitted 5/12/93  
Discard Date 7/21/93  
Collected 5/10/93 by KO  
Time Collected  
P.O.  
Rel.

2AS27PB Grab Soil Sample  
Moss - American

S27PB SDG# MOS01-22

PAH's in Solids (SW846/8310)

	RESULT		LIMIT OF	LAB CODE
	AS RECEIVED		QUANTITATION	
Naphthalene	< 5.	mg/kg	5.	329600000N
Acenaphthylene	< 3.	mg/kg	3.	329700000N
Acenaphthene	< 4.	mg/kg	4.	329800000N
Fluorene	< 2.	mg/kg	2.	329900000N
Phenanthrene	8.	mg/kg	5.	330000000N
Anthracene	< 5.	mg/kg	5.	330100000N
Fluoranthene	11.	mg/kg	2.	330200000N
Pyrene	11.	mg/kg	2.	330300000N
Benzo(a)anthracene	2.4	mg/kg	0.1	330400000N
Chrysene	3.	mg/kg	1.	330500000N
Benzo(b)fluoranthene	4.1	mg/kg	0.2	330600000N
Benzo(k)fluoranthene	1.8	mg/kg	0.2	330700000N
Benzo(a)pyrene	2.5	mg/kg	0.2	330800000N
Dibenzo(a,h)anthracene	< 0.4	mg/kg	0.4	330900000N
Benzo(g,h,i)perylene	1.	mg/kg	1.	331000000N
Indeno(1,2,3-cd)pyrene	3.	mg/kg	1.	331100000N

Due to interfering peaks on the chromatogram, the values reported represent the lowest quantitation limits obtainable.

1 COPY TO Bergmann USA  
1 COPY TO Data Package Group

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**Lancaster Laboratories**  
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10:57:11 378078  
ASR000 D 2 24  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1967051  
Date Reported 5/21/93  
Date Submitted 5/12/93  
Discard Date 7/21/93  
Collected 5/10/93 by KO  
Time Collected  
P.O.  
Rel.

2AS27PB Grab Soil Sample  
Moss - American

S27PB SDG# MOS01-22  
PAH's in Solids (SW846/8310)

	RESULT		LIMIT OF	LAB CODE
	DRY WT. BASIS		QUANTITATION	
Naphthalene	< 6.	mg/kg	6.	329600000N
Acenaphthylene	< 4.	mg/kg	4.	329700000N
Acenaphthene	< 5.	mg/kg	5.	329800000N
Fluorene	< 3.	mg/kg	3.	329900000N
Phenanthrene	11.	mg/kg	6.	330000000N
Anthracene	< 6.	mg/kg	6.	330100000N
Fluoranthene	14.	mg/kg	3.	330200000N
Pyrene	14.	mg/kg	3.	330300000N
Benzo(a)anthracene	3.1	mg/kg	0.1	330400000N
Chrysene	4.	mg/kg	1.	330500000N
Benzo(b)fluoranthene	5.2	mg/kg	0.3	330600000N
Benzo(k)fluoranthene	2.3	mg/kg	0.3	330700000N
Benzo(a)pyrene	3.2	mg/kg	0.3	330800000N
Dibenzo(a,h)anthracene	< 0.5	mg/kg	0.5	330900000N
Benzo(g,h,i)perylene	1.	mg/kg	1.	331000000N
Indeno(1,2,3-cd)pyrene	4.	mg/kg	1.	331100000N

Due to interfering peaks on the chromatogram, the values reported represent the lowest quantitation limits obtainable.

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Client Services at (717) 656-2301

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Lancaster, PA 17601-5994  
717-656-2301

Jenifer B. Hess, B.S.  
Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations.







10:57:19 378078  
ASR000 D 2 24  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1967051  
Date Reported 5/21/93  
Date Submitted 5/12/93  
Discard Date 7/21/93  
Collected 5/10/93 by K0  
Time Collected  
P.O.  
Rel.

2AS27PB Grab Soil Sample  
Moss - American

S27PB SDG# MOS01-22  
BTEX Scan (8020)

Benzene  
Toluene  
Ethylbenzene  
o-Xylene  
m-Xylene  
p-Xylene

RESULT AS RECEIVED	UNIT	LIMIT OF QUANTITATION	LAB CODE
< 5.	ug/kg	5.	260300000N
40.	ug/kg	5.	260400000N
18.	ug/kg	5.	260600000N
23.	ug/kg	5.	260800000N
40.	ug/kg	5.	260900000N
24.	ug/kg	5.	261000000N

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Client Services at (717) 656-2301

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Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Delwyn K. Schumacher, B.S.  
Group Leader, ExpressLAB

See reverse side for explanation of symbols and abbreviations.





10:57:19 378078  
ASR000 D 2 24  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1967051  
Date Reported 5/21/93  
Date Submitted 5/12/93  
Discard Date 7/21/93  
Collected 5/10/93 by KO  
Time Collected  
P.O.  
Rel.

2AS27PB Grab Soil Sample  
Moss - American

S27PB SDG# MOS01-22  
BTEX Scan (8020)  
Benzene  
Toluene  
Ethylbenzene  
o-Xylene  
m-Xylene  
p-Xylene

RESULT	UNIT	LIMIT OF QUANTITATION	LAB CODE
DRY WT. BASIS			
< 6.	ug/kg	6.	260300000N
51.	ug/kg	6.	260400000N
23.	ug/kg	6.	260600000N
29.	ug/kg	6.	260800000N
50.	ug/kg	6.	260900000N
30.	ug/kg	6.	261000000N

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ATTN: Mr. Ric Traver

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Delwyn K. Schumacher, B.S.  
Group Leader, ExpressLAB

See reverse side for explanation of symbols and abbreviations.





10:57:24 378078  
ASR000 D 2 24  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1967052  
Date Reported 5/21/93  
Date Submitted 5/12/93  
Discard Date 7/21/93  
Collected 5/10/93 by KO  
Time Collected  
P.O.  
Rel.

2BS1PB Grab Soil Sample  
Moss - American

BS1PB SDG# MOS01-23  
ANALYSIS

PAH's in Solids (SW846/8310)

Moisture

"Moisture" represents the loss in weight of the sample after drying with an infrared lamp at 150 degrees Celsius.

BTEX Scan (8020)

RESULT  
AS RECEIVED

attached  
% by wt.

43.3

LIMIT OF  
QUANTITATION

0.5

LAB CODE

186222500 \*

211101200 \*

attached

221308500 \*

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126 07426 15.00 033700

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Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer E. Hess, B.S.  
Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations.





10:57:24 378078  
ASR000 D 2 24  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1967052  
Date Reported 5/21/93  
Date Submitted 5/12/93  
Discard Date 7/21/93  
Collected 5/10/93 by KO  
Time Collected  
P.O.  
Rel.

2BS1PB Grab Soil Sample  
Moss - American

ANALYSIS	RESULT DRY WT. BASIS	LIMIT OF QUANTITATION	LAB CODE
BS1PB SDG# MOS01-23			
PAH's in Solids (SW846/8310)	attached		186200000 *
Moisture *AS RECEIVED*	43.3 % by wt.	0.5	211100000 *
"Moisture" represents the loss in weight of the sample after drying with an infrared lamp at 150 degrees Celsius.			
BTEX Scan (8020)	attached		221300000 *

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Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1967052  
Date Reported 5/21/93  
Date Submitted 5/12/93  
Discard Date 7/21/93  
Collected 5/10/93 by KO  
Time Collected  
P.O.  
Rel.

2BS1PB Grab Soil Sample  
Moss - American

BS1PB SDG# MOS01-23 PAH's in Solids (SW846/8310)	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
Naphthalene	< 200. mg/kg	200.	329600000N
Acenaphthylene	< 200. mg/kg	200.	329700000N
Acenaphthene	500. mg/kg	200.	329800000N
Fluorene	< 200. mg/kg	200.	329900000N
Phenanthrene	< 50. mg/kg	50.	330000000N
Anthracene	< 50. mg/kg	50.	330100000N
Fluoranthene	200. mg/kg	100.	330200000N
Pyrene	200. mg/kg	200.	330300000N
Benzo(a)anthracene	50. mg/kg	10.	330400000N
Chrysene	100. mg/kg	10.	330500000N
Benzo(b)fluoranthene	320. mg/kg	50.	330600000N
Benzo(k)fluoranthene	110. mg/kg	50.	330700000N
Benzo(a)pyrene	290. mg/kg	50.	330800000N
Dibenzo(a,h)anthracene	< 20. mg/kg	20.	330900000N
Benzo(g,h,i)perylene	170. mg/kg	50.	331000000N
Indeno(1,2,3-cd)pyrene	500. mg/kg	100.	331100000N

Due to interfering peaks on the chromatogram, the values reported represent the lowest quantitation limits obtainable.

Due to insufficient sample size, we were unable to report our usual quantitation limits. The values reported represent the lowest quantitation limits obtainable.

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Group Leader Pesticides/PCBs



Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1967052  
Date Reported 5/21/93  
Date Submitted 5/12/93  
Discard Date 7/21/93  
Collected 5/10/93 by KO  
Time Collected  
P.O.  
Rel.

2BS1PB Grab Soil Sample  
Moss - American

BS1PB SDG# MOS01-23 PAH's in Solids (SW846/8310)	RESULT DRY WT. BASIS	LIMIT OF QUANTITATION	LAB CODE
Naphthalene	< 400. mg/kg	400.	329600000N
Acenaphthylene	< 400. mg/kg	400.	329700000N
Acenaphthene	900. mg/kg	400.	329800000N
Fluorene	< 400. mg/kg	400.	329900000N
Phenanthrene	< 90. mg/kg	90.	330000000N
Anthracene	< 90. mg/kg	90.	330100000N
Fluoranthene	300. mg/kg	200.	330200000N
Pyrene	400. mg/kg	400.	330300000N
Benzo(a)anthracene	80. mg/kg	20.	330400000N
Chrysene	170. mg/kg	20.	330500000N
Benzo(b)fluoranthene	560. mg/kg	90.	330600000N
Benzo(k)fluoranthene	190. mg/kg	90.	330700000N
Benzo(a)pyrene	510. mg/kg	90.	330800000N
Dibenzo(a,h)anthracene	< 40. mg/kg	40.	330900000N
Benzo(g,h,i)perylene	290. mg/kg	90.	331000000N
Indeno(1,2,3-cd)pyrene	900. mg/kg	200.	331100000N

Due to interfering peaks on the chromatogram, the values reported represent the lowest quantitation limits obtainable.

Due to insufficient sample size, we were unable to report our usual quantitation limits. The values reported represent the lowest quantitation limits obtainable.

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Lancaster, PA 17601-5994  
717-656-2301

Jenifer E. Hess, B.S.  
Group Leader Pesticides/PCBs





10:57:39 378078  
ASR000 D 2 24  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1967052  
Date Reported 5/21/93  
Date Submitted 5/12/93  
Discard Date 7/21/93  
Collected 5/10/93 by KO  
Time Collected  
P.O.  
Rel.

2BS1PB Grab Soil Sample  
Moss - American

BS1PB SDG# MOS01-23  
BTEX Scan (8020)

Benzene  
Toluene  
Ethylbenzene  
o-Xylene  
m-Xylene  
p-Xylene

RESULT		LIMIT OF	
AS RECEIVED		QUANTITATION	LAB CODE
< 5.	ug/kg	5.	260300000N
< 5.	ug/kg	5.	260400000N
< 5.	ug/kg	5.	260600000N
< 5.	ug/kg	5.	260800000N
15.	ug/kg	5.	260900000N
< 5.	ug/kg	5.	261000000N

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Lancaster, PA 17601-5994  
717-656-2301

Delwyn K. Schumacher, B.S.  
Group Leader, ExpressLAB



Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1967052  
Date Reported 5/21/93  
Date Submitted 5/12/93  
Discard Date 7/21/93  
Collected 5/10/93 by KO  
Time Collected  
P.O.  
Rel.

2BS1PB Grab Soil Sample  
Moss - American

BS1PB SDG# MOS01-23  
BTEX Scan (8020)

	RESULT	LIMIT OF	LAB CODE
	DRY WT. BASIS	QUANTITATION	
Benzene	< 9. ug/kg	9.	260300000N
Toluene	< 9. ug/kg	9.	260400000N
Ethylbenzene	< 9. ug/kg	9.	260600000N
o-Xylene	< 9. ug/kg	9.	260800000N
m-Xylene	26. ug/kg	9.	260900000N
p-Xylene	< 9. ug/kg	9.	261000000N

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Lancaster, PA 17601-5994  
717-656-2301

Delwyn K. Schumacher, B.S.  
Group Leader, ExpressLAB







10:52:24 378078  
ASR000 D 2 24  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. WW 1967037  
Date Reported 5/21/93  
Date Submitted 5/12/93  
Discard Date 7/21/93  
Collected 5/10/93 by KO  
Time Collected  
P.O.  
Rel.

2AL22B Grab Water Sample  
Moss - American

AL22B SDG# MOS01-08

BTEX Scan

Benzene  
Toluene  
o-Xylene  
m-Xylene  
p-Xylene  
Ethylbenzene

RESULT AS RECEIVED	UNIT	LIMIT OF QUANTITATION	LAB CODE
< 1.	ug/l	1.	313300000N
2.	ug/l	1.	313400000N
< 1.	ug/l	1.	080800000N
< 1.	ug/l	1.	080900000N
< 1.	ug/l	1.	081000000N
< 1.	ug/l	1.	313500000N

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Lancaster, PA 17601-5994  
717-656-2301

Judy A. Colello, B.S.  
Group Leader

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*Where quality is a science.*

10:52:25 378078  
ASR000 D 2 24  
07426 0

Bergmann USA  
1550 Airport Road  
Gallatin, TN 37066-3739

LLI Sample No. SW 1967038  
Date Reported 5/21/93  
Date Submitted 5/12/93  
Discard Date 7/21/93  
Collected 5/10/93 by KO  
Time Collected  
P.O.  
Rel.

2AS23PB Grab Soil Sample  
Moss - American

S23PB SDG# MOS01-09  
ANALYSIS

PAH's in Solids (SW846/8310)

Moisture

"Moisture" represents the loss in weight of the sample after drying with an infrared lamp at 150 degrees Celsius.

BTEX Scan (8020)

RESULT  
AS RECEIVED

attached

27.7 % by wt.

attached

LIMIT OF  
QUANTITATION

0.5

LAB CODE

186200000 \*

211100000 \*

221300000 \*

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ATTN: Mr. Ric Traver

Questions? Contact Environmental  
Client Services at (717) 656-2301  
126 07426 0.00 000000

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Lancaster Laboratories, Inc.

Jenifer E. Hess, B.S.  
Group Leader Pesticides/PCBs



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

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