FINAL TECHNICAL MEMORANDUM

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ENVIRONMENTAL RESOURCES MANAGEMENT GROUP

Phibro-Tech Incorporated

Technical Memorandum No. 1
RCRA Facility Investigation

July 1997

Project No. 95237

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Environmental Resources Management-North Central, Inc.
540 Lake Cook Road, Suite 300
Deerfield, Illinois 60015

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1.0 INTRODUCTION

This report presents the results of the Phase I Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) conducted at the Phibro-Tech Incorporated (Phibro Tech) facility in Joliet, Illinois. The original Phase I RFI Work Plan was submitted by Montgomery Watson Americas, Inc. (Montgomery Watson) in April 1994 to the Illinois Environmental Protection Agency (IEPA), and was approved with modifications on September 27, 1994. Field investigations were completed by both Environmental Resources Management-North Central, Inc. (ERM-North Central) and Montgomery Watson.

1.1 SITE LOCATION

The Phibro-Tech facility is located at 10 Industry Drive in Joliet, Illinois in the northeast corner of the northeast corner of Section 4 of Township 35 North and Range 10 East. The Chicago Sanitary and Ship Canal is located approximately 750 feet east of the Site. The facility is located within the Joliet Industrial District of northern Joliet. Predominant land use within 1,000 feet of the facility is industrial and the nearest residence is approximately 775 feet southwest of the facility (Montgomery Watson, 1994).

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1.2 SITE BACKGROUND

Phibro-Tech purchased the property in 1970 and manufacturing operations began in 1973. Prior to ownership by Phibro-Tech, several businesses occupied the land, including the Calumet Baking Powder Company. Phibro-Tech is an inorganic chemical processing plant that primarily serves the plating and circuit board industries. Products manufactured at the facility include: alkaline-based etchant and metallic salts. These products are manufactured in batch reactor processes from raw materials such as copper metal, technical grade acids and alkalines, and other virgin metal bearing salts, as well as from waste materials.

Phibro-Tech was issued a RCRA Part B permit in 1993 in order to process certain "D" and "F" code wastes on the condition that they conduct a Phase I RFI. The Part B permit requires that an RFI be conducted at the following nine solid waste management units (SWMUs):

Number	Name
1	Container Storage Area 1
2	Chemical Sewer System
3	Sludge Storage Pad
4	Former Drum Storage Area 1
5	Rail Car Unloading Area
6	Ferric Chloride Filter Press
7	Outside Drum Storage Area 2
8	Process Sewer System
9	Truck Unloading Area

The location of each of the SWMUs are shown in Figure 2. The RFI results are organized in this report by the aforementioned SWMUs.

2.0 *INVESTIGATIVE METHODOLOGIES*

Thirty-one soil borings were advanced within and around nine SWMUs located at Phibro-Tech. Figure 3 depicts the locations of each SWMU and their respective soil borings. Montgomery Watson drilled soil borings and collected soil samples in May and June 1995. ERM-North Central collected and analyzed additional soil samples from adjacent borings in order to obtain additional analytical data not collected by Montgomery Watson.

Drilling operations were performed by Rock and Soil Drilling Corporation of St. Charles, Illinois under the supervision of Montgomery Watson at ERM-North Central. At the soil boring locations where sample recovery was poor, or overhead utility clearance was limited, soil samples were collected directly from the auger flights. Soil sampling indoors beneath the concrete floors was performed utilizing a concrete core barrel to initially core through the floor, followed by sample collection using a stainless-steel hand auger or skid-mounted drilling rig (ERM-North Central samples). The boring logs for each of the soil borings drilled during the investigation are included in Appendix A.

Soil samples were visually inspected and classified using the Unified Soils Classification System. Soil pH readings from each boring were measured by placing a portion of each sample in a laboratory-cleaned glass jar containing approximately 2 to 3 ounces of distilled water of a known pH. The soil and water were stirred, and a pH reading was taken of the mixture. Soil classification and field pH measurements were recorded on the soil boring logs presented in Appendix A. The results of the pH screening are summarized in Table 6.

One soil sample was collected from each boring by Montgomery-Watson and submitted for laboratory analysis to Montgomery Watson Laboratories, of Madison, Wisconsin (Attachment B). The Phase I RFI Work Plan indicated that soil samples were to be analyzed using the Toxicity Characteristic Leaching Procedure (TCLP), as referenced in the United States Environmental Protection Agency's *Test Methods for Evaluating Solid Waste Physical/Chemical Methods* EPA SW-846 (SW-864), for evaluation of the potential of the metals to leach to ground water. The initial TCLP analyses was conducted for the target metals identified to be present in facility processes as specified in the Phase I RFI Work Plan: arsenic, barium, cadmium, chromium, lead, nickel, selenium and silver. In order to conduct a risk-based evaluation, the laboratory was asked to analyze all the soil samples for the eight RCRA metals, as indicated on the

chain-of-custody for the samples. When the laboratory conducted these analyses, they replaced nickel with mercury in the analyses. By the time the results were reported and this mistake had been identified, the sample volume was depleted or the sample was beyond holding time. Two duplicate samples were analyzed as part of quality assurance/quality control (QA/QC) for the laboratory analysis.

In order to complete the date set, ERM-North Central collected additional soil samples as necessary to ensure totals metals date was available at each location. These samples were submitted to IEA laboratories of Schaumburg, Illinois for analysis.

At the time of the investigation, some chromium concentrations appeared to be above TACO standards. Therefore, these samples were also analyzed for TCLP chromium, trivalent chromium, and hexavalent chromium.

Perched water was observed at one location (i.e., SB-08) at a depth of 2 feet below ground surface. This water was encountered in fill material consisting of gravel, sand, and brick. Montgomery Watson collected a water sample using screened augers. The sample was analyzed for filtered and unfiltered metals.

3.0 *HYDROGEOLOGY*

3.1 *REGIONAL GEOLOGY AND HYDROGEOLOGY*

ERM-North Central reviewed the soil boring logs provided by Montgomery Watson and the following documents to determine the hydrogeology of the Site.

- USGS 7.5-minute topographic map of the Property.
- Bedrock Aquifers of Northeastern Illinois, by G.M. Hughes, P. Kraatz, and R.A. Landon (Illinois State Geological Survey [ISGS Circular 406]), 1966).
- Potential for Contamination of Shallow Aquifers in Illinois, by R.C. Berg, J.P. Kempton, and K. Cartwright (ISGS Circular 532, 1984).
- Stack-Unit Mapping of Geologic Materials in Illinois to a Depth of 15 Meters, by R.C. Berg and J.P. Kempton (ISGS Circular 542, 1988).
- Summary of the Geology of the Chicago Area, by H.B. Willman (ISGS Circular 460, 1971).
- Glacial Drift in Illinois: Thickness and Character, by K. Piskin and R.E. Bergstrom (ISGS Circular 490, 1975).

The lowermost sedimentary bedrock underlying the Site is comprised of a complex series of Cambrian and Ordovician sandstones, siltstones, dolomites, and shales (Willman, 1971). The uppermost bedrock in the study area is composed of Silurian dolomite of the Alexandrian and Niagaran Series (Willman, 1971). The stratigraphic sequence of the Silurian deposits (i.e., from bottom to top) consists of the Edgewood and Kankakee Formations of the Alexandrian Series overlain by the Joliet, Waukesha, Racine, and Port Byron Formations of the Niagaran Series (Visocky, et al., 1985). All of these formations generally consist of light gray, pure to silty, sometimes cherty, well-bedded dolomite (Willman, 1971). The dolomite contains extensive fractures and solution cavities that are irregularly distributed throughout the unit, but are more common in its upper portion.

The Silurian bedrock is overlain by less than 5 feet of unconsolidated residuum or loess.

The regional hydrogeological information provided below was obtained from Schicht, et al. (1976), and Visocky, et al. (1985). According to these sources, the primary aquifers in the Chicago area are, from oldest to youngest (i.e., bottom to top):

- Basal Bedrock Aquigroup,
- Midwest Bedrock Aquigroup,
- Upper Bedrock Aquigroup, and
- Prairie Aquigroup.

The stratigraphy and water-yielding properties of all of the foregoing aquigroups are summarized on Figure 4. The Midwest Bedrock Aquigroup is separated from the Upper Bedrock Aquigroup by a regional aquiclude comprised of a thick sequence of shales assigned to the Maquoketa Group. Because these shales are relatively thick (i.e., 110 to 265 feet) and have a low leakage coefficient (i.e., 25×10^{-7} gpd/cubic foot) in the Chicago area, they effectively protect the underlying aquigroups from contamination (Schicht, et al., 1976). Therefore, the lowermost aquifer relevant to this investigation is the Silurian dolomite aquifer of the Upper Bedrock Aquigroup (see Figure 4).

The shallow Silurian dolomite aquifer consists of dolomites of the Alexandrian and Niagaran Series. The approximate thickness of the Silurian dolomite aquifer in the vicinity of the Site is 250 feet, based upon mapping by the ISGS (Hughes et al., 1966).

Ground water yields within the Silurian dolomite aquifer are inconsistent because of the irregular distribution of the fractures and solution cavities within the bedrock (Schicht, et al., 1976). The upper portion of the aquifer is more productive than the lower portion because of the larger number of fractures and solution cavities [Schicht, et al. (1976) and Zeizel, et al. (1962)]. According to Schicht, et al. (1976), well yields in the Silurian dolomite are variable but can exceed 500 gpm in the region. The aquifer is principally recharged from the vertical leakage of precipitation through the overlying glacial drift in areas where the Silurian dolomite aquifer is unconfined (Schicht, et al., 1976).

The Prairie Aquigroup is not a viable water producing unit in the vicinity of the Site because only a thin residuum of weathered bedrock and loess overlie the Silurian dolomite aquifer.

According to the Potential for Contamination of Shallow Aquifers in Illinois (Berg et al., 1984), the Site is within an area rated as:

- "A1" (shallow, permeable bedrock lying at or within 20 feet of the land surface) for the land burial of municipal waste; and

- "A1" (jointed limestone, dolomite or porous sandstone of Ordovician, Silurian, and Mississippian age, within 5 feet of the surface) for the surface and near-surface burial of municipal waste.

The foregoing rates are based on a scale developed to indicate the capacities of earth materials to accept, transmit, restrict, or remove contaminants from waste effluents. The lower the letter (i.e., "A" being the lowest) and the lower the number for each letter rating, the greater the potential for contaminants, if any, to impact the shallow aquifer. The rating scale for the two potential waste disposal scenarios extend from A1 through G for the land burial of municipal waste and A1 through D3 for the surface and near-surface disposal of waste. Based on this rating scale, this area has been rated as having a low potential for the contamination of the shallow aquifer from surficial discharges.

3.2 *SITE-SPECIFIC GEOLOGY AND HYDROGEOLOGY*

Based upon the boring logs compiled by Montgomery Watson, the near-surface geology of the Site is comprised of shallow dolomite bedrock overlain by a thin veneer of loess, bedrock residuum and fill materials. None of the 32 soil borings drilled at the Site penetrated the dolomite bedrock, but auger refusal was obtained in 13 soil borings because of encountering bedrock at depths between 1.5 to 4 feet.

The bedrock residuum consists of dark yellowish-brown silt, sand, and gravel with a trace of clay. Weathered dolomite bedrock was noted in some of the borings. At locations SB-6 and SB-13, black silt was also noted in the residuum.

The fill material is composed of various materials ranging from black silt, sand, and gravel (with and without brick) to orange-brown, fine to medium sand to brick, gravel, and concrete. The origin and distribution of the various fill materials is unknown.

As discussed in Section 2.0, water was encountered in one boring (i.e., SB-8) at a depth of 2 feet below the surface. The soil boring log for SB-8 clearly shows that this water is accumulating in fill material consisting of gravel, sand, and brick. Water was not noted in any other soil boring. Because the lack of water at other locations and the course ground nature of the fill material at SB-8, it appears that this water is perched upon less permeable materials. In that this water is present in fill material and was not observed at other locations, it should not be considered ground water as defined at 35 Illinois Administrative Code 620.

4.0 *ANALYTICAL RESULTS*

A total of 31 soil samples were collected and analyzed for the site-specific target metals. The total inorganic soil results are presented on Table 1 and the laboratory results are included as Appendix B. Table 2 summarizes the maximum concentration of each analyte for each SWMU defined at the site. Because many of these inorganics are naturally occurring in geologic materials and are likely present in the fill materials, the presence of some or all of these inorganics may not be attributable to site operations. The TCLP inorganic analytical results are presented on Table 3 and their maximum concentrations summarized on Table 4. These data qualitatively assess the leachability of the inorganics at a low pH.

The analytical results of the water samples collected by Montgomery-Watson at soil boring SB-8 are presented on Table 5. As discussed in Section 3.2, the site-specific hydrogeologic data demonstrates that this water is perched in fill material and should not be considered ground water. In addition, because this sample was collected from screened augers, the total metals concentration in the sample is not reflective of their concentration in the water. Particulates from the fill material likely entered the well and became part of the sample. In light of the nature of the water bearing unit and the manner in which it was collected, these analytical data have no bearing on the ground water quality beneath the site.

The soil pH data collected by Montgomery-Watson are presented in Table 6. The pH of the soil ranges from 5.97 at SB-12 to 11.39 at SB-20. Excluding the SB-20 location, the highest pH was measured at soil boring SB-11 at 9.88.

TABLES

TABLES

TABLE 1

TOTAL INORGANIC SOIL ANALYTICAL RESULTS
PHIBRO-TECH, INC.
JOLIET, ILLINOIS
(Page 1 of 2)

SMWU No.:	*1*	*1*	*1*	*1*	*1*	*2*	*2*	*2*	*2*	*3*	*3*	*4*	*4*	*4*	*4*	*4*	*5*	*5*	*5*
Soil Boring:	*SB-01*	*SB-02*	*SB-03*	*SB-04*	*SB-05*	*SB-06*	*SB-07*	*SB-08*	*SB-30*	*SB-12*	*SB-13*	*SB-10*	*SB-11*	*SB-14*	*SB-15*	*SB-16*	*SB-17*	*SB-18*	*SB-19*
Units	*mg/kg*	*mg/kg*	*mg/kg*	*mg/kg*	*mg/kg*	*mg/kg*	*mg/kg*	*mg/kg*	*mg/kg*	*mg/kg*	*mg/kg*	*mg/kg*	*mg/kg*	*mg/kg*	*mg/kg*	*mg/kg*	*mg/kg*	*mg/kg*	*mg/kg*
Arsenic	4.66	14	6.1	14.3	6.15	ND	4.3	2.7	14	14	7.3	10.4	6.47	5.11	13.1	13	5.84	4.27	4.25
Barium	106	114	9.2	153	40.4	62	150	64	400	64	89	4.92	96.8	114	85	48	62.8	63.5	66.5
Cadmium	4.04	8.22	ND	16.5	5.91	3.3	7.2	5.4	270	7	84	5.41	6.14	4.85	11	0.65	5.96	4.59	5.6
Chromium	22	9.5	5.9	21.3	19.5	120	36	19	840	4.8	7.5	76.4	11	25.2	13	15	126	3100	99.4
TCLP Chromium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	0.15	ND
Chromium (III)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	12	NA	NA	NA	NA	24	3100	8.3
Chromium (VI)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	ND	ND	ND
Lead	207	148	11	390	80	1700	160	150	2200	250	34	7.85	47.2	25.9	54.1	120	42.6	72.6	35.1
Mercury	0.6	0.41	ND	1.54	0.32	1	1.8	0.48	2.6	ND	0.41	0.05	0.16	0.09	0.64	1.8	0.06	0.1	0.1
Nickel	220	1500	8.3	990	900	340	1200	950	46000	670	13000	1200	460	480	800	4800	16	81	18
Selenium	0.31	1.09	ND	0.79	0.3	ND	0.5	ND	1.3	ND	ND	0.94	0.52	0.46	0.84	ND	0.84	ND	0.31
Silver	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.74	ND	ND

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TABLE 1

TOTAL INORGANIC SOIL ANALYTICAL RESULTS
PHIBRO-TECH, INC.
JOLIET, ILLINOIS
(Page 2 of 2)

SMWU No.:	*6*	*6*	*6*	*6*	*7*	*7*	*7*	*8*	*9*	*9*	*9*	*9*
Soil Boring:	*SB-23*	*SB-24*	*SB-31*	*SB-32*	*SB-20*	*SB-21*	*SB-22*	*SB-26*	*SB-25*	*SB-27*	*SB-28*	*SB-29*
Units	*mg/kg*	*mg/kg*	*mg/kg*	*mg/kg*	*mg/kg*	*mg/kg*	*mg/kg*	*mg/kg*	*mg/kg*	*mg/kg*	*mg/kg*	*mg/kg*
Arsenic	1.8	7.2	2.9	ND	3.94	2	7.65	19	1.5	0.37	3.75	10.8
Barium	6.6	74	ND	18	34.3	221	36.8	400	15	101	42.8	75
Cadmium	ND	4.4	ND	ND	2.6	6.45	5.95	6.1	3.3	4.95	7.63	7.75
Chromium	10	190	120	6.6	957	105	9.67	18	5.3	8.44	36.5	92
TCLP Chromium	NA	0.03	ND	NA	ND	ND	ND	NA	NA	NA	NA	ND
Chromium (III)	NA	NA	NA	NA	956	NA	NA	NA	NA	NA	NA	92
Chromium (VI)	NA	NA	NA	NA	1	ND	NA	NA	NA	NA	NA	ND
Lead	0.14	420	19	7.6	124	141	417	310	6.5	47.7	121	61.3
Mercury	NA	0.68	ND	ND	0.56	0.16	0.16	1.5	ND	ND	0.34	0.08
Nickel	120	170	35	10	10	15	350	390	580	20	NA	390
Selenium	ND	ND	ND	0.47	0.41	2.31	0.47	2.9	ND	0.72	ND	0.39
Silver	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Note:

All results expressed in mg/kg except TCLP Chromium which is expressed in mg/l.

Key:

SWMU = Solid waste management unit
NA = Not analyzed
ND = Not detected

TABLE 2

SUMMARY OF MAXIMUM TOTAL INORGANIC SOIL CONCENTRATIONS
FOR EACH SOLID WASTE MANAGEMENT UNIT
PHIBRO-TECH, INC.
JOLIET, ILLINOIS

SWMU No. *Units:*	*1* *mg/kg*	*2* *mg/kg*	*3* *mg/kg*	*4* *mg/kg*	*5* *mg/kg*	*6* *mg/kg*	*7* *mg/kg*	*8* *mg/kg*	*9* *mg/kg*
Arsenic	14.3	14	14	13.1	5.84	7.2	7.65	19	10.8
Barium	153	400	89	114	66.5	74	221	400	101
Cadmium	16.5	270	84	11	5.96	4.4	6.45	6.1	7.75
Chromium	22	840	7.5	76.4	3100	190	957	18	92
TCLP Chromium	NA	NA	NA	ND	0.15	0.03	ND	NA	NA
Chromium (III)	NA	NA	NA	12	3100	NA	956	NA	92
Chromium (VI)	NA	NA	NA	ND	ND	NA	1	NA	ND
Lead	390	2200	250	120	72.6	420	417	310	121
Mercury	1.54	2.6	0.41	1.8	0.1	0.68	0.56	1.5	0.34
Nickel	1500	46000	13000	4800	81	170	350	390	580
Selenium	1.09	1.3	ND	0.94	0.84	0.47	2.31	2.9	0.72
Silver	ND	ND	ND	ND	0.74	ND	ND	ND	ND

Key:

SWMU = Solid waste management unit
NA = Not analyzed
ND = Not detected

Key:

IEPA =
No RBC =
ND =
NA =

TABLE 3

TCLP INORGANIC SOIL ANALYTICAL RESULTS
PHIBRO-TECH, INC.
JOLIET, ILLINOIS
(Page 1 of 2)

SMWU No.:	*1*	*1*	*1*	*1*	*1*	*2*	*2*	*2*	*2*	*3*	*3*	*4*	*4*	*4*	*4*	*4*	*5*	*5*	*5*	*5*
Soil Boring:	*SB-01*	*SB-02*	*SB-03*	*SB-04*	*SB-05*	*SB-06*	*SB-07*	*SB-08*	*SB-30*	*SB-12*	*SB-13*	*SB-10*	*SB-11*	*SB-14*	*SB-15*	*SB-16*	*SB-17*	*SB-17 DUP*	*SB-18*	*SB-19*
Units	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*
Arsenic	ND	0.002	NA	0.001	ND	ND	0.005	ND	ND	ND	ND	ND	ND	0.002	0.003	NA	0.004	0.007	0.001	0.005
Barium	1.29	0.54	NA	0.24	0.31	0.1	0.32	0.30	0.17	0.78	0.43	0.54	0.84	0.79	0.71	NA	0.60	0.50	0.67	0.68
Cadmium	0.023	0.015	NA	0.029	0.034	0.044	0.041	0.009	0.077	0.022	0.070	0.047	0.016	0.028	0.039	NA	0.011	0.011	0.008	0.007
Chromium	0.01	ND	NA	ND	ND	ND	ND	ND	ND	ND	ND	0.04	ND	ND	ND	NA	ND	ND	0.03	ND
Lead	0.502	0.0780	NA	0.0070	0.0070	0.0070	0.205	1.39	0.0300	0.0250	0.0090	0.0170	0.0120	0.0140	0.0080	NA	0.0130	0.0070	0.0180	0.0060
Mercury	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	3.39	1.42	NA	7.75	1.62	3.55	0.50	0.95	5.82	2.95	7.96	5.92	4.49	17.8	4.58	NA	0.07	0.04	0.05	0.03
Selenium	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND
Silver	0.01	ND	NA	ND	ND	ND	ND	ND	ND	ND	0.01	ND	ND	ND	ND	NA	ND	ND	ND	ND

TABLE 3

TCLP INORGANIC SOIL ANALYTICAL RESULTS
PHIBRO-TECH, INC.
JOLIET, ILLINOIS
(Page 2 of 2)

SMWU No.:	*6*	*6*	*6*	*6*	*7*	*7*	*7*	*8*	*9*	*9*	*9*	*9*	*9*
Soil Boring:	*SB-23*	*SB-24*	*SB-31*	*SB-32*	*SB-20*	*SB-21*	*SB-22*	*SB-26*	*SB-25*	*SB-27*	*SB-27 DUP*	*SB-28*	*SB-29*
Units	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*
Arsenic	NA	NA	NA	NA	0.001	ND	ND	0.002	NA	ND	ND	ND	ND
Barium	NA	NA	NA	NA	0.43	0.61	0.43	0.43	NA	1.54	1.29	0.32	0.22
Cadmium	NA	NA	NA	NA	0.012	0.009	ND	0.078	NA	0.018	0.009	0.019	0.020
Chromium	NA	NA	NA	NA	0.02	ND	ND	ND	NA	ND	ND	ND	ND
Lead	NA	NA	NA	NA	0.0230	0.0510	0.0970	0.0140	NA	0.0080	0.0060	0.0080	0.0040
Mercury	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	NA	NA	NA	NA	1.16	0.16	ND	0.03	NA	0.54	1.12	0.32	0.30
Selenium	NA	NA	NA	NA	ND	ND	ND	ND	NA	ND	ND	ND	ND
Silver	NA	NA	NA	NA	ND	ND	ND	ND	NA	ND	ND	ND	0.01

Key:

SWMU = Solid waste management unit
NA = Not analyzed
ND = Not detected

TABLE 4

SUMMARY OF MAXIMUM TCLP CONCENTRATIONS
FOR EACH SOLID WASTE MANAGEMENT UNIT
PHIBRO-TECH, INC.
JOLIET, ILLINOIS

SMWU No.:	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*
Units:	*mg/kg*	*mg/kg*	*mg/kg*	*mg/kg*	*mg/kg*	*mg/kg*	*mg/kg*	*mg/kg*	*mg/kg*
Arsenic	0.002	0.005	ND	0.003	0.007	NA	0.001	19	ND
Barium	1.29	0.32	0.78	0.84	0.68	NA	0.61	400	1.54
Cadmium	0.034	0.077	0.07	0.047	0.011	NA	0.012	6.1	0.02
Chromium	0.01	ND	ND	0.04	0.03	NA	0.02	ND	ND
Lead	0.502	1.39	0.025	0.017	0.018	NA	0.097	0	0.008
Mercury	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	7.75	5.82	7.96	17.8	0.07	NA	1.16	1.5	1.12
Selenium	ND	ND	ND	ND	ND	NA	ND	ND	ND
Silver	0.01	ND	0.01	ND	ND	NA	ND	ND	0.01

Key:

SWMU = Solid waste management unit
NA = Not analyzed
ND = Not detected

TABLE 5

INORGANIC PERCHED WATER ANALYTICAL RESULTS
PHIBRO-TECH
JOLIET, ILLINOIS

SMWU No.:	2	2
Soil Boring:	*SB-08*	*SB-08*
	Unfiltered	*Filtered*
Units	*mg/L*	*mg/L*
Arsenic	0.148	ND
Barium	3.36	0.05
Cadmium	0.0334	0.0005
Chromium	2.06	0.05
Chromium (III)	NA	NA
Chromium (VI)	NA	NA
Lead	32.8	ND
Mercury	NA	NA
Nickel	88.5	0.11
Selenium	0.018	ND
Silver	0.05	ND

Note:
All results expressed in mg/L.

Key:
SWMU = Solid waste management unit
NA = Not analyzed
ND = Not detected

TABLE 6

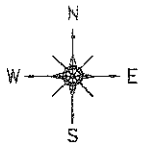
SUMMARY OF PH DATA
PHIBRO-TECH, INC.
JOLIET, ILLINOIS

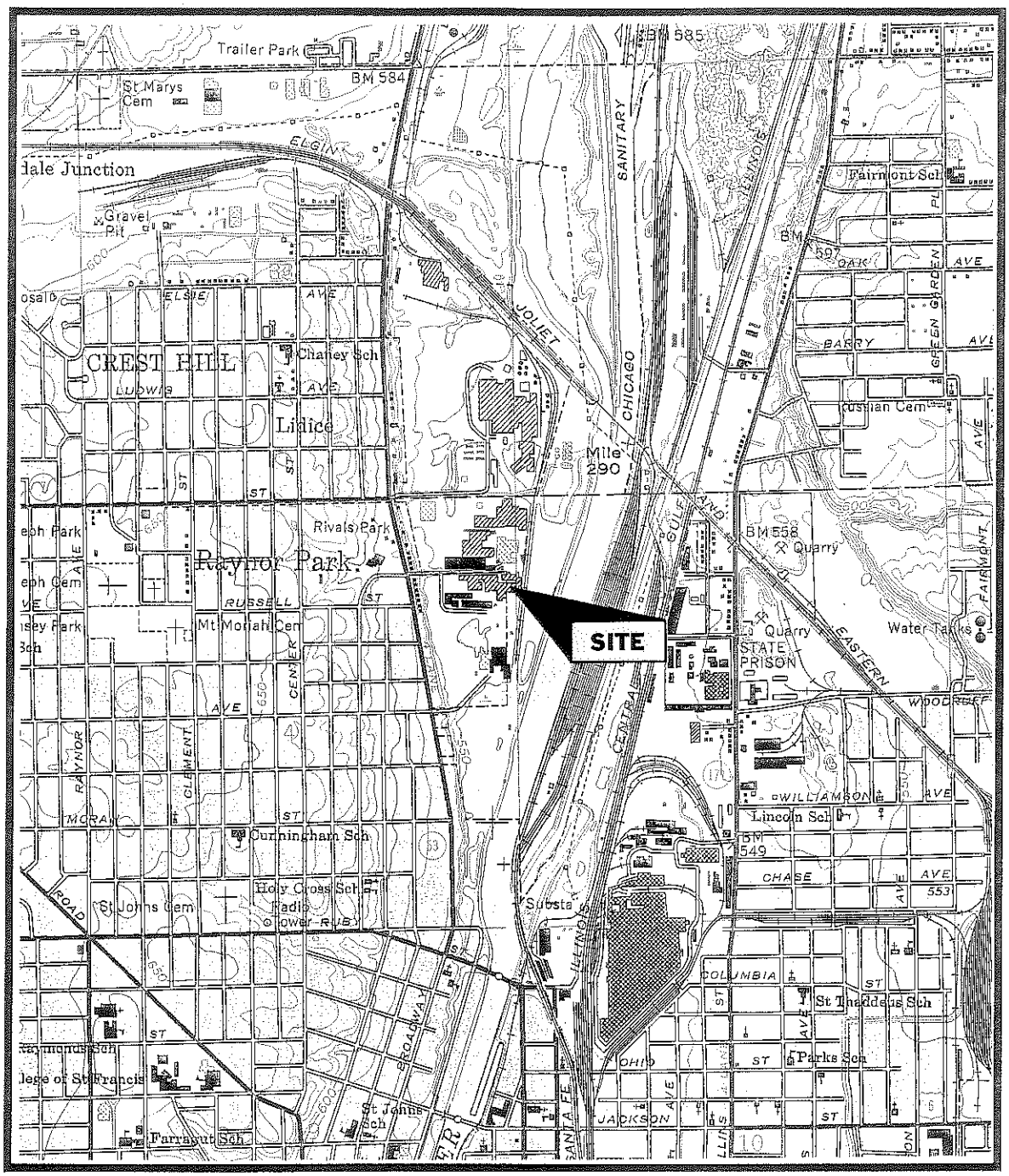
SWMU No.	*Soil Boring*	*pH*
1	SB-01	9.27
1	SB-02	7.10
1	SB-04	6.99
1	SB-05	8.70
2	SB-06	6.24
2	SB-07	8.47
2	SB-08	9.49
2	SB-30	6.45
3	SB-12	5.97
3	SB-13	6.50
4	SB-10	8.01
4	SB-11	9.88
4	SB-14	7.71
4	SB-15	6.90
5	SB-17	7.52
5	SB-18	7.07
5	SB-19	7.27
6	SB-23	NA
6	SB-24	6.95
6	SB-31	NA
6	SB-32	8.88
7	SB-20	11.39
7	SB-21	7.45
7	SB-22	8.23
8	SB-26	7.13
9	SB-27	7.54
9	SB-28	9.10
9	SB-29	6.75

FIGURES

FIGURES

JOLIET QUADRANGLE
ILLINOIS – WILL CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)
1962
PHOTOREVISED 1973





SCALE 1:24000

1 .5 0 1 MILE

CONTOUR INTERVAL 10 FEET

QUADRANGLE LOCATION

TOWNSHIP T35N
RANGE R10E
SECTION 4

FIGURE 1

SITE LOCATION MAP
PHIBRO TECH INC.
JOLIET, ILLINOIS

ERM

S:\CPFILES\ERM\PTI\95237\ACAD\REPORT2\FIG1.DWG JUL 02, 1997 2:20 PM

FILE

ORIGINAL FKSR

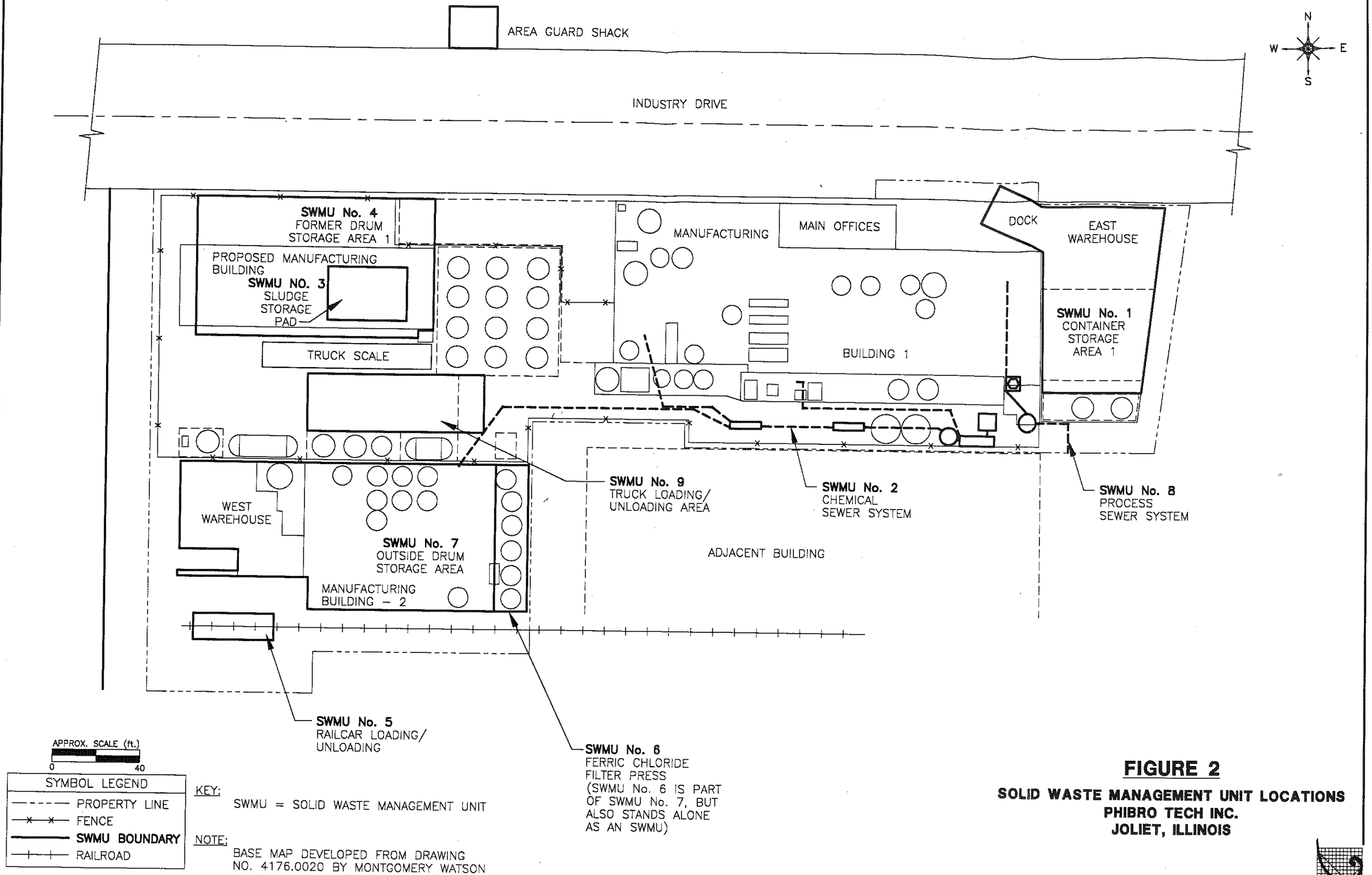
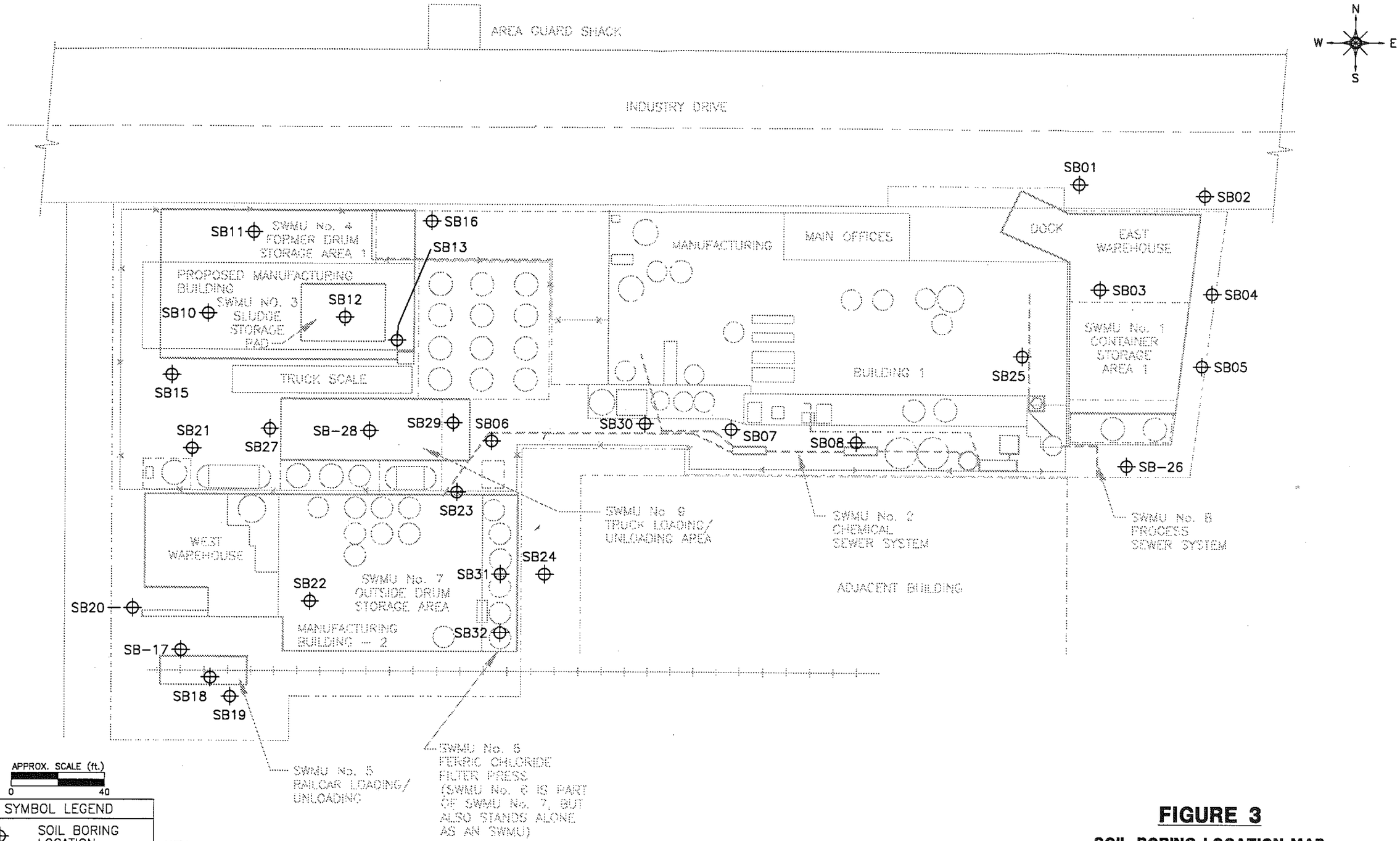


FIGURE 2

SOLID WASTE MANAGEMENT UNIT LOCATIONS
PHIBRO TECH INC.
JOLIET, ILLINOIS

DATE 7/2/97 DWN DMP– FILE S:\CPFILES\ERM\PTI\95237\ACAD\REPORT2\FIG2.DWG JUL 02, 1997 2:13 PM



KEY:
SWMU = SOLID WASTE MANAGEMENT UNIT

NOTE:
BASE MAP DEVELOPED FROM DRAWING NO. 4176.0020 BY MONTGOMERY WATSON

FIGURE 3

SOIL BORING LOCATION MAP
PHIBRO TECH INC.
JOLIET, ILLINOIS

ERM

DATE 7/2/97 DRAWN: DMP— FILE: S:\CPFILES\ERM\PTI\95237\ACAD\REPORT2\FIG3.DWG JUL 02, 1997 2:15 PM

APPENDIX A

APPENDIX A

Soil Boring Logs

MONTGOMERY WATSON

LOG OF TEST BORING

Project: Phibro Tech Inc.
SWMU #1 - Container Storage Area 1
Location: Joliet, Illinois

Boring No. SB01
Surface Elevation
Job No. 4176.0020
Sheet 1 of 1

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

SAMPLE No.	Type	Rec. (in.)	Moisture	N Value	Depth (ft.)	VISUAL CLASSIFICATION and Remarks	qu (qa) (tsf)	PID (ppm)	pH
						Gray Gravel (FILL)			
1		10	M	50/2"		~~Black Silt, The Sand and Gravel (FILL)~~			
2		3	M	20"		Black/Dark Brown Silty Sand and Gravel Bedrock at 4.0 ft		0.0	9
					5	End of Boring at 4.0 ft Backfilled with Bentonite Chips			
					10				

WATER LEVEL OBSERVATIONS

While Drilling ▽ ft. Upon Completion of Drilling ▼ ft.
Time After Drilling
Depth to Water
Depth to Cave in

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start 5/25/95 End 5/25/95
Driller RSDC Chief LW Rig Acker
Logger DAP Editor PMS
Drill Method 2 3/4" I.D. HSA

ID: PS-JKP

MONTGOMERY WATSON

LOG OF TEST BORING

Project: Phibro Tech Inc.
SWMU #1 - Container Storage Area 1
Location: Joliet, Illinois

Boring No. SB02
Surface Elevation
Job No. 4176.0020
Sheet 1 of 1

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

SAMPLE No.	TYPE	Rec. (in.)	Moisture	N Value	Depth (ft.)	VISUAL CLASSIFICATION and Remarks	qu (qa) (tsf)	PID (ppm)	pH
						Gray Gravel (FILL)			
1		18	M			~~Dark Brown Sand, Silt, Brick, Small Gravel~~ (FILL)			
								0.0	7
						Auger Refusal at 3 Feet - Possible Bedrock			
						End of Boring at 3.0 ft Backfilled with Bentonite Chips			
					5				
					10				

WATER LEVEL OBSERVATIONS

While Drilling ▽ ft. Upon Completion of Drilling ▼ ft.
Time After Drilling
Depth to Water
Depth to Cave in

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start 5/24/95 End 5/24/95
Driller RSDC Chief LW Rig Acker
Logger DAP Editor PMS
Drill Method 2 3/4" I.D. HSA

ID: PS-JKP

MONTGOMERY WATSON

LOG OF TEST BORING

Project: Phibro Tech Inc.
SWMU #1 - Container Storage Area 1
Location: Joliet, Illinois

Boring No. SB03
Surface Elevation
Job No. 4176.0020
Sheet 1 of 1

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

SAMPLE No.	Type	Rec. (in.)	Moisture	N Value	Depth (ft.)	VISUAL CLASSIFICATION and Remarks	qu (qa) (tsf)	PID (ppm)	pH
						8" CONCRETE			
						Orange-Brown, Fine to Medium Sand (FILL)		0.0	
						CONCRETE			
						End of Boring at 2.8 ft Backfilled with Bentonite Chips to 10" Concrete to Surface			
					5				
					10				

WATER LEVEL OBSERVATIONS

While Drilling ▽ ft. Upon Completion of Drilling ▼ ft.
Time After Drilling
Depth to Water
Depth to Cave in

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start 6/3/95 End 6/3/95
Driller RSDC Chief LW Rig Acker
Logger DAP Editor PMS
Drill Method 2 3/4" I.D. HSA

ID: PS-JKP

MONTGOMERY WATSON

LOG OF TEST BORING

Project: Phibro Tech Inc.
SWMU #1 - Container Storage Area 1
Location: Joliet, Illinois

Boring No. SB04
Surface Elevation
Job No. 4176.0020
Sheet 1 of 1

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

SAMPLE No.	TYPE	Rec. (in.)	Moisture	N Value	Depth (ft.)	VISUAL CLASSIFICATION and Remarks	qu (qa) (tsf)	PID (ppm)	pH
						Gravel and Brick (FILL)			
1		14	M	12		~~Grayish Brown Silt, Pieces of Brick and~~ Small Gravel (FILL)			
						Yellowish Brown Silt (FILL)			
2			M					16.0	7
						Split Spoon Refusal at 3.5 Feet. Possible Bedrock			
						End of Boring at 3.5 ft Backfilled with Bentonite Chips			
					5				
					10				

WATER LEVEL OBSERVATIONS

While Drilling ▽ ft. Upon Completion of Drilling ▼ ft.
Time After Drilling
Depth to Water
Depth to Cave in

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start 5/24/95 End 5/24/95
Driller RSDC Chief LW Rig Acker
Logger DAP Editor PMS
Drill Method 2 3/4" I.D. HSA

ID: PS-JKP

MONTGOMERY WATSON

LOG OF TEST BORING

Project: Phibro Tech Inc.
SWMU #1 - Container Storage Area 1
Location: Joliet, Illinois

Boring No.: SB05
Surface Elevation:
Job No.: 4176.0020
Sheet 1 of 1

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

SAMPLE No.	Type	Rec. (in.)	Moisture	N Value	Depth (ft.)	VISUAL CLASSIFICATION and Remarks	qu (qa) (tsf)	PID (ppm)	pH
						Brown Silty Foundation, Pieces of Brick (FILL)			
1		8	W	10					
						Dark Brown Silt (FILL)			
2			W	41/0"				0.0	9
						Split Spoon Refusal - Possible Bedrock at 4 Feet			
					5	End of Boring at 4.0 ft Backfilled with Bentonite Chips			
					10				

WATER LEVEL OBSERVATIONS

While Drilling ▽ ft. Upon Completion of Drilling ▼ ft.
Time After Drilling
Depth to Water
Depth to Cave in

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start 5/24/95 End 5/24/95
Driller RSDC Chief LW Rig Acker
Logger DAP Editor PMS
Drill Method 2 3/4" I.D. HSA

ID: PS-JKP

MONTGOMERY WATSON

LOG OF TEST BORING

Project: Phibro Tech Inc.
SWMU #2 - Chemical Sewer System
Location: Joliet, Illinois

Boring No. SB06
Surface Elevation
Job No. 4176.0020
Sheet 1 of 1

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

SAMPLE No.	Type	Rec. (in.)	Moisture	N Value	Depth (ft.)	VISUAL CLASSIFICATION and Remarks	SOIL PROPERTIES qu (qa) (tsf)	PID (ppm)	pH
1						Light Gray Gravel (FILL)			
						Gray Gravel and Sand (FILL)			
						Black SILT, Trace Clay, Pieces of Weathered Bedrock (ML)		0.0	6
						Auger Refusal at 2.5 Feet			
						End of Boring at 2.5 ft Backfilled with Bentonite Chips			
					5				
					10				

WATER LEVEL OBSERVATIONS

While Drilling ▽ ft. Upon Completion of Drilling ▼ ft.
Time After Drilling
Depth to Water
Depth to Cave in

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start 6/5/95 End 6/5/95
Driller RSDC Chief LW Rig Skid
Logger DAP Editor PMS
Drill Method 2 3/4" I.D. HSA

ID: PS-JKP

MONTGOMERY WATSON

LOG OF TEST BORING

Project: Phibro Tech Inc.
SWMU #2 - Chemical Sewer System
Location: Joliet, Illinois

Boring No. SB07
Surface Elevation
Job No. 4176.0020
Sheet 1 of 1

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

SAMPLE No.	Type	Rec. (in.)	Moisture	N Value	Depth (ft.)	VISUAL CLASSIFICATION and Remarks	qu (qa) (tsf)	PID (ppm)	pH		
						Asphalt and Gravel (FILL)					
1			M/W			Gray Sand and Silt, Pieces of Red Brick (FILL)					
					▽	Dark Reddish-Brown Silt, Sand and Gravel, Pieces of Brick (FILL)		0.0	9		
						Auger Refusal at 3.2 Feet					
						End of Boring at 3.2 ft Backfilled with Bentonite Chips					
					5						
					10						

WATER LEVEL OBSERVATIONS

ile Drilling ▽ 2.0 ft. Upon Completion of Drilling ▼ ft.
Time After Drilling
Depth to Water
Depth to Cave in

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start 6/5/95 End 6/5/95
Driller RSDC Chief LW Rig Skid
Logger DAP Editor PMS
Drill Method 2 3/4" I.D. HSA

ID: PS-JKP

MONTGOMERY WATSON

LOG OF TEST BORING

Project: Phibro Tech Inc.
SWMU #2 - Chemical Sewer System
Location: Joliet, Illinois

Boring No. SB08
Surface Elevation
Job No. 4176.0020
Sheet 1 of 1

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

SAMPLE No.	Rec. (in.)	Moisture	N Value	Depth (ft.)	VISUAL CLASSIFICATION and Remarks	qu (qa) (tsf)	PID (ppm)	pH
					Asphalt and Gravel (FILL)			
1	4	M			Gray Gravel, Pieces of Red Brick (FILL)		0.0	0
2		M/W					0.0	10
					Brown Sand and Gravel, Pieces of Brick (FILL)			
					Auger Refusal			
					End of Boring at 3.0 ft Backfilled with Bentonite Chips			
				5				
				10				

WATER LEVEL OBSERVATIONS

While Drilling ▽ ____ ft. Upon Completion of Drilling ▼ ____ ft.
Time After Drilling
Depth to Water
Depth to Cave in

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start 6/5/95 End 6/5/95
Driller RSDC Chief LW Rig Skid
Logger DAP Editor PMS
Drill Method 2 3/4" I.D. HSA

ID: PS-JKP

MONTGOMERY WATSON

LOG OF TEST BORING

Project: Phibro Tech Inc.
SWMU #4 - Former Drum Storage Area 1
Location: Joliet, Illinois

Boring No. SB10
Surface Elevation
Job No. 4176.0020
Sheet 1 of 1

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

SAMPLE No.	Type	Rec. (in.)	Moisture	N Value	Depth (ft.)	VISUAL CLASSIFICATION and Remarks	qu (qa) (tsf)	PID (ppm)	pH
						Gray Gravel (FILL)			
1		14	M	24				0.0	
						Yellow Brown Gravel, Silt and Fine Sand (FILL)			
2		6	M	20"		Black/Yellow Silt, Fine Sand and Gravel		0.0	8
						Bedrock at 4 Feet			
					5	End of Boring at 4.0 ft Backfilled with Bentonite Chips			
					10				

WATER LEVEL OBSERVATIONS

ile Drilling ▽ ft.	Upon Completion of Drilling ▼ ft.			
Time After Drilling				
Depth to Water				
Depth to Cave in				

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start 5/24/95 End 5/24/95
Driller RSDC Chief LW Rig Acker
Logger DAP Editor PMS
Drill Method 2 3/4" I.D. HSA

ID: PS-JKP

MONTGOMERY WATSON

LOG OF TEST BORING

Project: Phibro Tech Inc.
SWMU #4 - Former Drum Storage Area 1
Location: Joliet, Illinois

Boring No. SB11
Surface Elevation
Job No. 4176.0020
Sheet 1 of 1

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

SAMPLE No.	TYPE	Rec. (in.)	Moisture	N Value	Depth (ft.)	VISUAL CLASSIFICATION and Remarks	qu (qa) (tsf)	PID (ppm)	pH
						Gray Gravel (FILL)			
1		10	M	26		Brown to Dark Brown Silt, Sand and Gravel (FILL)			
						Bedrock at 3.0 ft		0.0	10
						End of Boring at 3.0 ft Backfilled with Bentonite Chips			
					5				
					10				

WATER LEVEL OBSERVATIONS

ile Drilling ▽ ft. Upon Completion of Drilling ▼ ft.

Time After Drilling				
Depth to Water				
Depth to Cave in				

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start 5/24/95 End 5/24/95
Driller RSDC Chief LW Rig Acker
Logger DAP Editor PMS
Drill Method 2 3/4" I.D. HSA

ID: PS-JKP

MONTGOMERY WATSON

LOG OF TEST BORING

Project: Phibro Tech Inc.
SWMU #3 - Sludge Storage Pad
Location: Joliet, Illinois

Boring No. SB12
Surface Elevation
Job No. 4176.0020
Sheet 1 of 1

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

SAMPLE No.	TYPE	Rec. (in.)	Moisture	N Value	Depth (ft.)	VISUAL CLASSIFICATION and Remarks	qu (qa) (tsf)	PID (ppm)	pH
						Gray and Brown Gravel, Pieces of Brick (FILL)			
1		14	M	35"					
						Light Tan/Brown Silt and Fine Sand (FILL)			
						Brown, Gray and Blue Stained Sand, Gravel and Silt (FILL)		0.0	6
						End of Boring at 3.0 ft Backfilled with Bentonite Chips			
					5				
					10				

WATER LEVEL OBSERVATIONS

ile Drilling ▽ ____ ft. Upon Completion of Drilling ▼ ____ ft.

Time After Drilling				
Depth to Water				
Depth to Cave in				

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start 5/24/95 End 5/24/95
Driller RSDC Chief LW Rig Acker
Logger DAP Editor PMS
Drill Method 2 3/4" I.D. HSA

ID: PS-JKP

MONTGOMERY WATSON

LOG OF TEST BORING

Project: Phibro Tech Inc.
SWMU #3 - Sludge Storage Pad
Location: Joliet, Illinois

Boring No. SB13
Surface Elevation
Job No. 4176.0020
Sheet 1 of 1

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

SAMPLE No.	Type	Rec. (in.)	Moisture	N Value	Depth (ft.)	VISUAL CLASSIFICATION and Remarks	SOIL PROPERTIES qu (qa) (tsf)	PID (ppm)
						Gray and Brown Gravel (FILL)		
						CONCRETE		
1		10	M/W	62		Gray Sand, Gravel, Silt and Pieces of Brick (FILL)		0.0
						Black SILT with Pieces of Yellow Dolomite (ML)		
						Possible Bedrock at 2.5 ft		
						Auger Refusal and End of Boring at 2.5 ft		
					5			
					10			

WATER LEVEL OBSERVATIONS

ile Drilling ▽ ft. Upon Completion of Drilling ▼ ft.
Time After Drilling
Depth to Water
Depth to Cave in

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start 5/24/95 End 5/24/95
Driller RSDC Chief LW Rig Acker
Logger DAP Editor PMS
Drill Method 2 3/4" I.D. HSA

ID: PS-JKP

MONTGOMERY WATSON

LOG OF TEST BORING

Project: Phibro Tech Inc.

Location: Joliet, Illinois

Boring No. SB13
Surface Elevation
Job No. 4176.0020
Sheet 1 of 1

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

SAMPLE No.	Type	Rec. (in.)	Moisture	N Value	Depth (ft.)	VISUAL CLASSIFICATION and Remarks	SOIL PROPERTIES qu (qa) (tsf)	PID (ppm)	pH
						Gray and Brown Gravel (FILL)			
1		10	M/W	62		CONCRETE		0.0	7
						Gray Sand, Gravel, Silt and Pieces of Brick (FILL)			
						Black SILT with Pieces of Yellow Dolomite Possible Bedrock at 2.5 ft			
						Auger Refusal and End of Boring at 2.5 ft			
					5				
					10				
					15				
					20				

WATER LEVEL OBSERVATIONS

While Drilling ▽ ft. Upon Completion of Drilling ▼ ft.
Time After Drilling
Depth to Water
Depth to Cave in

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Begin 5/24/95 End 5/24/95
Driller RSDC Chief LW Rig
Logger DAP Editor
Drill Method 2 3/4" I.D. HSA

K\4176\gint\PHIBR JD: JKP

MONTGOMERY WATSON

LOG OF TEST BORING

Project: Phibro Tech Inc.
SWMU #3 - Sludge Storage Pad
Location: Joliet, Illinois

Boring No. SB14
Surface Elevation
Job No. 4176.0020
Sheet 1 of 1

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

SAMPLE No.	Type	Rec. (in.)	Moisture	N Value	Depth (ft.)	VISUAL CLASSIFICATION and Remarks	qu (qa) (tsf)	PID (ppm)	pH
						Gravel Surface Gray Sand and Gravel (FILL)			
1		12	M	50/0"					
						Brown to Black Sand, Gravel, Pieces of Red Brick (FILL)			
								0.0	8
						Yellowish-Brown Gravel Interbedded with Black Silt, Possible Weathered Bedrock (FILL)			
						End of Boring at 2.5 ft Backfilled with Bentonite Chips			
					5				
					10				

WATER LEVEL OBSERVATIONS

While Drilling ▽ ____ ft. Upon Completion of Drilling ▼ ____ ft.
Time After Drilling
Depth to Water
Depth to Cave in

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start 5/24/95 End 5/24/95
Driller RSDC Chief LW Rig Acker
Logger DAP Editor PMS
Drill Method 2 3/4" I.D. HSA

ID: PS-JKP

MONTGOMERY WATSON

LOG OF TEST BORING

Project: Phibro Tech Inc.
SWMU #4 - Former Drum Storage Area 1
Location: Joliet, Illinois

Boring No. SB15
Surface Elevation
Job No. 4176.0020
Sheet 1 of 1

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

SAMPLE No.	Type	Rec. (in.)	Moisture	N Value	Depth (ft.)	VISUAL CLASSIFICATION and Remarks	qu (qa) (tsf)	PID (ppm)	pH
						Gray Gravel (FILL)			
1		18	M	51		Black Sand, Silt and Gravel, Pieces of Wood and Brick (FILL)			
						Some Yellowish Gravel from 2.4 to 2.5 ft		0.0	7
						End of Boring at 3.0 ft Backfilled with Bentonite Chips			
					5				
					10				

WATER LEVEL OBSERVATIONS

While Drilling ▽ ft. Upon Completion of Drilling ▼ ft.
Time After Drilling
Depth to Water
Depth to Cave in

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start 5/24/95 End 5/24/95
Driller RSDC Chief LW Rig Acker
Logger DAP Editor PMS
Drill Method 2 3/4" I.D. HSA

ID: PS-JKP

MONTGOMERY WATSON

LOG OF TEST BORING

Project: Phibro Tech Inc.
SWMU #4 - Former Drum Storage Area 1
Location: Joliet, Illinois

Boring No. SB16
Surface Elevation
Job No. 4176.0020
Sheet 1 of 1

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

SAMPLE						VISUAL CLASSIFICATION and Remarks	SOIL PROPERTIES				
No.	Type	Rec. (in.)	Mois-ture	N Value	Depth (ft.)		qu (qa) (tsf)	PID (ppm)	pH		
						ASPHALT Surface					
						Concrete					
						End of Boring at 1.0 ft Backfilled with Concrete to Surface					
					5						
					10						

WATER LEVEL OBSERVATIONS

While Drilling ▽ ____ ft. Upon Completion of Drilling ▼ ____ ft.
Time After Drilling
Depth to Water
Depth to Cave in

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start 5/24/95 End 5/24/95
Driller RSDC Chief LW Rig Acker
Logger DAP Editor PMS
Drill Method 2 3/4" I.D. HSA

(0: PS-JKP

MONTGOMERY WATSON

LOG OF TEST BORING

Project: Phibro Tech Inc.
SWMU #5 - Rail Car Unloading Area
Location: Joliet, Illinois

Boring No.: SB17
Surface Elevation:
Job No.: 4176.0020
Sheet 1 of 1

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

SAMPLE No.	Type	Rec. (in.)	Moisture	N Value	Depth (ft.)	VISUAL CLASSIFICATION and Remarks	SOIL PROPERTIES qu (qa) (tsf)	PID (ppm)	pH
						Blackish Blue Stained Brown Silt, Gravel and Sand (FILL)			
						Creosote Odor			
								18.6	8
						End of Boring at 2.5 ft Backfilled with Bentonite Chips			
					5				
					10				

WATER LEVEL OBSERVATIONS

While Drilling ▽ ft. Upon Completion of Drilling ▼ ft.
Time After Drilling
Depth to Water
Depth to Cave in

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start 5/25/95 End 5/25/95
Driller RSDC Chief LW Rig Acker
Logger DAP Editor PMS
Drill Method 2 3/4" I.D. HSA

ID: PS-JKP

MONTGOMERY WATSON

LOG OF TEST BORING

Project: Phibro Tech Inc.
SWMU #5 - Rail Car Unloading Area
Location: Joliet, Illinois

Boring No. SB18
Surface Elevation
Job No. 4176.0020
Sheet 1 of 1

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

SAMPLE No.	Type	Rec. (in.)	Moisture	N Value	Depth (ft.)	VISUAL CLASSIFICATION and Remarks	SOIL PROPERTIES qu (qa) (tsf)	PID (ppm)	pH
1			M			Gray Gravel Surface with Black Stained Brown Silt, Sand and Gravel (FILL), Creosote Odor		170.0	7
					5	End of Boring at 2.5 ft Backfilled with Bentonite Chips			
					10				

WATER LEVEL OBSERVATIONS

While Drilling ▽ ____ ft. Upon Completion of Drilling ▼ ____ ft.
Time After Drilling
Depth to Water
Depth to Cave in

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start 5/25/95 End 5/25/95
Driller RSDC Chief LW Rig Acker
Logger DAP Editor PMS
Drill Method 2 3/4" I.D. HSA

ID: PS-JKP

MONTGOMERY WATSON

LOG OF TEST BORING

Project: Phibro Tech Inc.
SWMU #5 - Rail Car Unloading Area
Location: Joliet, Illinois

Boring No. SB19
Surface Elevation
Job No. 4176.0020
Sheet 1 of 1

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

SAMPLE No.	Type	Rec. (in.)	Moisture	N Value	Depth (ft.)	VISUAL CLASSIFICATION and Remarks	qu (qa) (tsf)	PID (ppm)	pH		
						Dark Brown Silt, Sand and Gravel (FILL), Cresote Odor					
								6.0	7		
						Weathered Bedrock					
						End of Boring at 2.5 ft Backfilled with Bentonite Chips					
					5						
					10						

WATER LEVEL OBSERVATIONS

While Drilling ▽ ft. Upon Completion of Drilling ▼ ft.
Time After Drilling
Depth to Water
Depth to Cave in

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start 5/25/95 End 5/25/95
Driller RSDC Chief LW Rig Acker
Logger DAP Editor PMS
Drill Method 2 3/4" I.D. HSA

ID: PS-JKP

MONTGOMERY WATSON

LOG OF TEST BORING

Project: Phibro Tech Inc.
SWMU #7 - Outside Drum Storage Area 2
Location: Joliet, Illinois

Boring No. SB20
Surface Elevation
Job No. 4176.0020
Sheet 1 of 1

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

SAMPLE No.	Type	Rec. (in.)	Moisture	N Value	Depth (ft.)	VISUAL CLASSIFICATION and Remarks	qu (qa) (tsf)	PID (ppm)	pH
						Gray Gravel (FILL)			
1		10	M	50/6"		~~Gray Gravel and Reddish Brick (FILL)~~		2.0	11
						Bedrock at 2.0 ft			
						End of Boring at 2.0 ft Backfilled with Bentonite Chips			
					5				
					10				

WATER LEVEL OBSERVATIONS

While Drilling ▽ ft. Upon Completion of Drilling ▼ ft.
Time After Drilling
Depth to Water
Depth to Cave in

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start 5/24/95 End 5/24/95
Driller RSDC Chief LW Rig Acker
Logger DAP Editor PMS
Drill Method 2 3/4" I.D. HSA

ID: PS-JKP

MONTGOMERY WATSON

LOG OF TEST BORING

Project: Phibro Tech Inc.
SWMU #7 - Outside Drum Storage Area 2
Location: Joliet, Illinois

Boring No.: SB21
Surface Elevation:
Job No.: 4176.0020
Sheet: 1 of 1

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

SAMPLE No.	Type	Rec. (in.)	Moisture	N Value	Depth (ft.)	VISUAL CLASSIFICATION and Remarks	SOIL PROPERTIES qu (qa) (tsf)	PID (ppm)	pH
						Gray Gravel (FILL)			
1		10	M/W	50/6"		Brown to Black Gravel, Silt and Brick (FILL)		5.0	8
						Yellow-Brown Gravel, Sand and Silt (FILL), Weathered Bedrock			
						End of Boring at 2.5 ft Backfilled with Bentonite Chips			
					5				
					10				

WATER LEVEL OBSERVATIONS

While Drilling ▽ ft. Upon Completion of Drilling ▼ ft.
Time After Drilling
Depth to Water
Depth to Cave in

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start 5/24/95 End 5/24/95
Driller RSDC Chief LW Rig Acker
Logger DAP Editor PMS
Drill Method 2 3/4" I.D. HSA

ID: PS-JKP

MONTGOMERY WATSON

LOG OF TEST BORING

Project: Phibro Tech Inc.
SWMU #7 - Outside Drum Storage Area 2
Location: Joliet, Illinois

Boring No. SB22
Surface Elevation
Job No. 4176.0020
Sheet 1 of 1

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

SAMPLE						VISUAL CLASSIFICATION and Remarks	SOIL PROPERTIES			
No.	Type	Rec. (in.)	Moisture	N Value	Depth (ft.)		qu (qa) (tsf)	PID (ppm)	pH	
						CONCRETE				
						Gravel (fill)				
						CONCRETE				
						Pea Gravel (fill)				
						Dark Brown Silt, Fine Sand and Gravel (FILL)		0.0	8	
						End of Boring at 3.0 ft Backfilled with Bentonite Chips				
					5					
					10					

WATER LEVEL OBSERVATIONS

While Drilling ▽ ____ ft. Upon Completion of Drilling ▼ ____ ft.
Time After Drilling
Depth to Water
Depth to Cave in

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start 5/24/95 End 5/24/95
Driller RSDC Chief LW Rig Acker
Logger DAP Editor PMS
Drill Method 2 3/4" I.D. HSA

ID: PS-JKP

MONTGOMERY WATSON

LOG OF TEST BORING

Project: Phibro Tech Inc.
SWMU #7 - Ferric Chloride Filter Press
Location: Joliet, Illinois

Boring No.: SB23
Surface Elevation:
Job No.: 4176.0020
Sheet 1 of 1

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

SAMPLE						VISUAL CLASSIFICATION and Remarks	SOIL PROPERTIES				
No.	TYPE	Rec. (in.)	Moisture	N Value	Depth (ft.)		qu (qa) (tsf)	PID (ppm)	pH		
						Gravel (fill)					
						Large Pieces of Concrete Rubble (FILL)					
						End of Boring at 1.0 ft Backfilled with Bentonite Chips					
					5						
					10						

WATER LEVEL OBSERVATIONS

While Drilling ▽ ft. Upon Completion of Drilling ▼ ft.
Time After Drilling
Depth to Water
Depth to Cave in

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start 6/6/95 End 6/6/95
Driller RSDC Chief LW Rig Acker
Logger DAP Editor PMS
Drill Method 2 3/4" I.D. HSA

ID: PS-JKP

MONTGOMERY WATSON

LOG OF TEST BORING

Project: Phibro Tech Inc.
SWMU #7 - Ferric Chloride Filter Press
Location: Joliet, Illinois

Boring No. SB24
Surface Elevation
Job No. 4176.0020
Sheet 1 of 1

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

SAMPLE No.	TYPE	Rec. (in.)	Moisture	N Value	Depth (ft.)	VISUAL CLASSIFICATION and Remarks	SOIL PROPERTIES qu (qa) (tsf)	PID (ppm)	pH
						Gray Gravel (FILL)			
						Black, Silty Clay, Gravel and Fine Sand, Pieces of Brick (FILL)		0.0	7
						End of Boring at 1 ft Backfilled with Bentonite Chips			
					5				
					10				

WATER LEVEL OBSERVATIONS

While Drilling ▽ ft. Upon Completion of Drilling ▼ ft.
Time After Drilling
Depth to Water
Depth to Cave in

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start 5/25/95 End 5/25/95
Driller RSDC Chief LW Rig Acker
Logger DAP Editor PMS
Drill Method 2 3/4" I.D. HSA

ID: PS-JKP

MONTGOMERY WATSON

LOG OF TEST BORING

Project: Phibro Tech Inc.
SWMU #8 - Process Sewer System
Location: Joliet, Illinois

Boring No. SB25
Surface Elevation
Job No. 4176.0020
Sheet 1 of 1

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

SAMPLE No.	Type	Rec. (in.)	Moisture	N Value	Depth (ft.)	VISUAL CLASSIFICATION and Remarks	SOIL PROPERTIES qu (qa) (tsf)	PID (ppm)	pH
						CONCRETE		0.0	0
						Gravel FILL to 1.5 ft			
						Bedrock			
						End of Boring at 1.5 ft Backfilled with Bentonite Chips to 1 ft Concrete to Surface			
					5				
					10				

WATER LEVEL OBSERVATIONS

While Drilling ▽ ft.	Upon Completion of Drilling ▼ ft.			
Time After Drilling				
Depth to Water				
Depth to Cave in				

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start 6/5/95 End 6/5/95
Driller RSDC Chief LW Rig Acker
Logger DAP Editor PMS
Drill Method 2 3/4" I.D. HSA

ID: PS-JKP

MONTGOMERY WATSON

LOG OF TEST BORING

Project: Phibro Tech Inc.
SWMU #8 - Process Sewer System
Location: Joliet, Illinois

Boring No.: SB26
Surface Elevation:
Job No.: 4176.0020
Sheet 1 of 1

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

SAMPLE No.	Type	Rec. (in.)	Moisture	N Value	Depth (ft.)	VISUAL CLASSIFICATION and Remarks	qu (qa) (tsf)	PID (ppm)	pH
						Gravel and Brick (FILL)			
1		11	M	13		~~Tan to Brown, Silty Fine Sand, Crushed Brick~~ (FILL)			
						Dark Brown and Yellow Brown, Fine Sand and Silt (FILL)			
2			M	49		Possible Bedrock		8.6	7
						End of Boring at 4.0 ft Backfilled with Bentonite Chips			
					5				
					10				

WATER LEVEL OBSERVATIONS

ile Drilling ▽ ft. Upon Completion of Drilling ▼ ft.

Time After Drilling				
Depth to Water				
Depth to Cave in				

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start 5/24/95 End 5/24/95
Driller RSDC Chief LW Rig Acker
Logger DAP Editor PMS
Drill Method 2 3/4" I.D. HSA

ID: PS-JKP

MONTGOMERY WATSON

LOG OF TEST BORING

Project: Phibro Tech Inc.
SWMU #9 - Truck Unloading Area
Location: Joliet, Illinois

Boring No. SB27
Surface Elevation
Job No. 4176.0020
Sheet 1 of 1

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

SAMPLE No.	Type	Rec. (in.)	Moisture	N Value	Depth (ft.)	VISUAL CLASSIFICATION and Remarks	qu (qa) (tsf)	PID (ppm)	pH
						Gray GRAVEL (FILL)			
1		16	M	19				12.0	8
						Brown Sand, Gravel and Pieces of Brick (FILL) Small Silt Zone at 1.5 ft			
					5	End of Boring at 3.5 ft Backfilled with Bentonite Chips			
					10				

WATER LEVEL OBSERVATIONS

While Drilling ▽ ft. Upon Completion of Drilling ▼ ft.
Time After Drilling
Depth to Water
Depth to Cave in

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start 5/25/95 End 5/25/95
Driller RSDC Chief LW Rig Acker
Logger DAP Editor PMS
Drill Method 2 3/4" I.D. HSA

ID: PS-JKP

MONTGOMERY WATSON

LOG OF TEST BORING

Project: Phibro Tech Inc.
SWMU #9 - Truck Unloading Area
Location: Joliet, Illinois

Boring No. SB28
Surface Elevation
Job No. 4176.0020
Sheet 1 of 1

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

SAMPLE No.	Type	Rec. (in.)	Moisture	N Value	Depth (ft.)	VISUAL CLASSIFICATION and Remarks	SOIL PROPERTIES qu (qa) (tsf)	PID (ppm)	pH
						ASPHALT			
1		14	M	50/6"		Dark Brown Silt, Sand and Gravel, Few Pieces of Brick		0.0	9
						Brown Silt, Fine Sand, Gravel and Black Silt			
						End of Boring at 2.5 ft Backfilled with Bentonite Chips			
					5				
					10				

WATER LEVEL OBSERVATIONS

While Drilling ▽ ft. Upon Completion of Drilling ▼ ft.
Time After Drilling
Depth to Water
Depth to Cave in

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start 5/25/95 End 5/25/95
Driller RSDC Chief LW Rig Acker
Logger DAP Editor PMS
Drill Method 2 3/4" I.D. HSA

ID: PS-JKP

MONTGOMERY WATSON

LOG OF TEST BORING

Project: Phibro Tech Inc.
SWMU #9 - Truck Unloading Area
Location: Joliet, Illinois

Boring No. SB29
Surface Elevation
Job No. 4176.0020
Sheet 1 of 1

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

SAMPLE No.	Type	Rec. (in.)	Moisture	N Value	Depth (ft.)	VISUAL CLASSIFICATION and Remarks	qu (qa) (tsf)	PID (ppm)	pH
						Gravel and ASPHALT			
1		14	M	22		Light Brown Silt, Fine Sand, Stained Silt (FILL)		0.0	7
						Blue Staining, Interbedded Yellow-Brown Gravel and Black Silt			
					5	End of Boring at 2.5 ft Backfilled with Bentonite Chips			
					10				

WATER LEVEL OBSERVATIONS

le Drilling ▽ ft. Upon Completion of Drilling ▼ ft.
Time After Drilling
Depth to Water
Depth to Cave in

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start 5/25/95 End 5/25/95
Driller RSDC Chief LW Rig Acker
Logger DAP Editor PMS
Drill Method 2 3/4" I.D. HSA

ID: PS-JKP

MONTGOMERY WATSON

LOG OF TEST BORING

Project: Phibro Tech Inc.
SWMU #2 - Chemical Sewer System
Location: Joliet, Illinois

Boring No. SB30
Surface Elevation
Job No. 4176.0020
Sheet 1 of 1

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

SAMPLE					VISUAL CLASSIFICATION and Remarks	SOIL PROPERTIES				
No.	Type	Rec. (in.)	Moisture	N Value	Depth (ft.)		qu (qa) (tsf)	PID (ppm)	pH		
						Light Gray Gravel and Sand (FILL)					
						Dark Yellow-Brown SILT, Sand and Gravel, Trace Clay (ML)		0.0	7		
						Auger Refusal at 3 Feet					
						End of Boring at 3.0 ft Backfilled with Bentonite Chips					
					5						
					10						

WATER LEVEL OBSERVATIONS

While Drilling ▽ ____ ft. Upon Completion of Drilling ▼ ____ ft.
Time After Drilling
Depth to Water
Depth to Cave in

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start 6/5/95 End 6/5/95
Driller RSDC Chief LW Rig Skid
Logger DAP Editor PMS
Drill Method 2 3/4" I.D. HSA

ID: PS-JKP

MONTGOMERY WATSON

LOG OF TEST BORING

Project: Phibro Tech Inc.
SWMU #6 - Ferric Chloride Filter Press
Location: Joliet, Illinois

Boring No. SB31
Surface Elevation
Job No. 4176.0020
Sheet 1 of 1

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

SAMPLE No.	TYPE	Rec. (in.)	Moisture	N Value	Depth (ft.)	VISUAL CLASSIFICATION and Remarks	SOIL PROPERTIES qu (qa) (tsf)	PID (ppm)	pH
						CONCRETE			
						Orange Stained Pea Gravel (fill)			
						6 in Concrete			
						Coarse Gravel, Cobbles, Brick (FILL)			
						End of Boring at 3.2 ft Backfilled with Bentonite Chips to 2 ft Concrete to Surface			
					5				
					10				

WATER LEVEL OBSERVATIONS

ile Drilling ▽ ____ ft. Upon Completion of Drilling ▼ ____ ft.

Time After Drilling				
Depth to Water				
Depth to Cave in				

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start 5/24/95 End 5/24/95
Driller RSDC Chief LW Rig Acker
Logger DAP Editor PMS
Drill Method 10" Core Barrel - Hand Auger

ID: PS-JKP

MONTGOMERY WATSON

LOG OF TEST BORING

Project: Phibro Tech Inc.
SWMU #6 - Ferric Chloride Filter Press
Location: Joliet, Illinois

Boring No. SB32
Surface Elevation
Job No. 4176.0020
Sheet 1 of 1

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

SAMPLE No.	Type	Rec. (in.)	Moisture	N Value	Depth (ft.)	VISUAL CLASSIFICATION and Remarks	qu (qa) (tsf)	PID (ppm)	pH
						CONCRETE			
						Orange Stained Pea Gravel (fill)		0.0	
						6 in. of CONCRETE			
						Coarse Gravel, Cobbles, Brick (FILL)		0.0	
						End of Boring at 3.2 ft Borehole Abandoned with Chips to 20" Concrete to Surface			
					5				
					10				

WATER LEVEL OBSERVATIONS

ile Drilling ▽ ft. Upon Completion of Drilling ▼ ft.
Time After Drilling
Depth to Water
Depth to Cave in

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start 5/24/95 End 5/24/95
Driller RSDC Chief LW Rig Acker
Logger DAP Editor PMS
Drill Method 10" Core Barrel - Hand Auger

ID: PS-JKP

APPENDIX B

APPENDIX B

Analytical Results

ERM-North Central

IEA
An Aquarion Company

126 West Center Court
Schaumburg, Illinois 60195

Phone 1-800-933-2580
Fax 847-705-1567

January 06, 1997

ERM-North Central
Dan Petersen
540 Lake Cook Road
Suite 300
Deerfield, IL 60015

Dear Dan Petersen:

Please find enclosed the analytical results of the samples received at our laboratory on December 02, 1996. This report contains sections addressing the following information at a minimum:

- -Definitions
- -Analytical Methodology
- -State certifications
- -Analytical Results
- -Chain-of-custody (if applicable)

IEA Project#:	L72963019	Client Project:	95237JI
		Purchase Order#:	
IEA Quote#:		Site:	PHIBRO-TECH

Copies of this analytical report and supporting data are maintained in our files for three years; samples are retained for two weeks unless special arrangements have been made. Unless specifically indicated, all analytical testing was performed at this laboratory and no portion of the testing was subcontracted.

We appreciate your selection of our services and welcome any questions or suggestions you may have relative to this report. Please contact Cheryl Randle at (800) 933-2580 for any additional information. Thank you for utilizing our services, we hope you will consider us for your future analytical needs.

I have reviewed and approved the enclosed data for final release.

Sincerely

Cheryl Randle for

Larry D. Lewis
Director of Operations
IEA-Illinois Laboratory

25

IEA
An Aquarion Company

Definitions of Data Qualifiers

Organic Analysis

B - This analyte was detected in the method blank associated with this sample. The concentration reported in the method blank is suspected to contribute to the reported concentration of the analyte in the sample.

E - The concentration reported for this compound exceeds the calibration range of the instrument.

H - This sample had one or more surrogate recoveries above the acceptance criteria due to coelution with a nontarget compound.

J - The reported concentration for this compound is an estimated value. When associated with tentatively identified compounds (TICs), the result is quantitated based on a response factor of 1. When the flag is associated with a calibrated target compound, the compound has been positively identified and the reported concentration is above the method detection limit (MDL), but below the practical quantitation limit (PQL).

L - This sample had one or more surrogate recoveries below the acceptance criteria due to matrix effects. This effect was confirmed through a second analysis of the sample.

LI - The recovery of the internal standard corresponding to this compound did not meet the acceptance criteria due to matrix effects. This effect was confirmed through a second analysis of the sample.

T1 - The chromatographic profile of this sample does not match that of a gasoline standard. Another unidentifiable petroleum product is present in this sample. Quantitation is based on a gasoline standard calibration.

T2 - The chromatographic profile of this sample does not match that of a diesel fuel standard. Another petroleum product is present in this sample. Quantitation is based on a diesel fuel standard calibration.

U - This compound was not detected in the sample above the PQL.

UD - This compound was not detected above the elevated PQL in this diluted analysis.

Inorganic Analysis

E - The reported value was estimated due to the presence of interference.

M - Duplicate injection precision was not met.

N - Spiked sample recovery was not within control limits.

S - The reported value was determined by the Method of Standard Additions(MSA).

W - Post digestion spike for Furnace AA analysis is out of control limits (85-115%), while sample absorbance is less than 50% of spike absorbance.

* - Duplicate analysis was not within control limits.

+ - Correlation Coefficient for the MSA is less than 0.995.

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IEA
An Aquarion Company

Sample Summary

IEA-Illinois

Laboratory ID	Client ID
L72963019-001	SB14
L72963019-002	SB06
L72963019-003	SB22
L72963019-004	SB23
L72963019-005	SB30
L72963019-006	SB07
L72963019-007	SB08

IEA
An Aquarion Company

CLIENT:ERM-North Central
CLIENT PROJECT#:95237JI
SITE:-
CLIENT P.O.#:-
IEA PROJECT#:L72963019
MATRIX:SOIL

METALS

AB ID#	CLIENT ID	ANALYTE	RESULT	QUAL	PQL	UNITS	DIL. FACTOR	DATE DIGESTED	DATE ANALYZED	METHOD
72963019-001	SB14									
		Nickel	480	N	3.8	mg/kg	1	12/03/96	12/04/96	6010
	Date Sampled: 12/02/96	87 Percent Solid								
72963019-002	SB06									
		Arsenic	U		0.26	mg/kg	1	12/03/96	12/10/96	7060
		Barium	62	N	6.6	mg/kg	1	12/03/96	12/04/96	6010
		Cadmium	3.3		0.66	mg/kg	1	12/03/96	12/04/96	6010
		Chromium	120	N	1.3	mg/kg	1	12/03/96	12/04/96	6010
		Lead	1700	N	3.3	mg/kg	1	12/03/96	12/04/96	6010
		Mercury	1		0.12	mg/kg	1	12/05/96	12/06/96	7471
		Selenium	U	N*	0.4	mg/kg	1	12/03/96	12/11/96	7740
		Silver	U	N	1.3	mg/kg	1	12/03/96	12/04/96	6010
	Date Sampled: 12/02/96	79 Percent Solid								
L72963019-003	SB22									
		Nickel	350	N	3.7	mg/kg	1	12/03/96	12/04/96	6010
	Date Sampled: 12/02/96	87 Percent Solid								
L72963019-004	SB23									
		Nickel	120	N	3.3	mg/kg	1	12/03/96	12/04/96	6010
	Date Sampled: 12/02/96	93 Percent Solid								

IEA
An Aquarion Company

CLIENT:ERM-North Central
CLIENT PROJECT#:95237JI
SITE:-
CLIENT P.O.#:-
IEA PROJECT#:L72963019
MATRIX:SOIL

METALS

AB ID#	CLIENT ID	ANALYTE	RESULT	QUAL	PQL	UNITS	DIL. FACTOR	DATE DIGESTED	DATE ANALYZED	METHOD
72963019-005	SB30									
		Arsenic	14		0.33	mg/kg	1	12/03/96	12/10/96	7060
		Barium	500	N	8.1	mg/kg	1	12/03/96	12/04/96	6010
		Cadmium	270		8.1	mg/kg	10	12/03/96	12/07/96	6010
		Chromium	840	N	1.6	mg/kg	1	12/03/96	12/04/96	6010
		Lead	2200	N	4.1	mg/kg	1	12/03/96	12/04/96	6010
		Mercury	2.6		0.14	mg/kg	1	12/05/96	12/06/96	7471
		Nickel	46000	N	49	mg/kg	10	12/03/96	12/07/96	6010
		Selenium	1.3	N*	0.49	mg/kg	1	12/03/96	12/11/96	7740
		Silver	U	N	1.6	mg/kg	1	12/03/96	12/04/96	6010
	Date Sampled:	12/02/96	64 Percent Solid							
L72963019-006	SB07									
		Arsenic	4.3		0.25	mg/kg	1	12/03/96	12/10/96	7060
		Barium	150	N	6.2	mg/kg	1	12/03/96	12/04/96	6010
		Cadmium	7.2		0.62	mg/kg	1	12/03/96	12/04/96	6010
		Chromium	36	N	1.2	mg/kg	1	12/03/96	12/04/96	6010
		Lead	160	N	3.1	mg/kg	1	12/03/96	12/04/96	6010
		Mercury	1.8		0.12	mg/kg	1	12/05/96	12/06/96	7471
		Nickel	1200	N	3.7	mg/kg	1	12/03/96	12/04/96	6010
		Selenium	0.5	N*	0.37	mg/kg	1	12/03/96	12/11/96	7740
		Silver	U	NN	1.2	mg/kg	1	12/03/96	12/04/96	6010
	Date Sampled:	12/02/96	86 Percent Solid							

IEA
An Aquarion Company

CLIENT:ERM-North Central
CLIENT PROJECT#:95237JI
SITE:-
CLIENT P.O.#:-
IEA PROJECT#:L72963019
MATRIX:SOIL

METALS

LAB ID#	CLIENT ID	ANALYTE	RESULT	QUAL	PQL	UNITS	DIL. FACTOR	DATE DIGESTED	DATE ANALYZED	METHOD
L72963019-007	SB08									
		Arsenic	2.7		0.22	mg/kg	1	12/03/96	12/10/96	7060
		Barium	64	N	5.5	mg/kg	1	12/03/96	12/04/96	6010
		Cadmium	5.4		0.55	mg/kg	1	12/03/96	12/04/96	6010
		Chromium	19	N	1.1	mg/kg	1	12/03/96	12/04/96	6010
		Lead	150	N	2.7	mg/kg	1	12/03/96	12/04/96	6010
		Mercury	0.48		0.1	mg/kg	1	12/05/96	12/06/96	7471
		Nickel	950	N	3.3	mg/kg	1	12/03/96	12/04/96	6010
		Selenium	U	N*	0.33	mg/kg	1	12/03/96	12/11/96	7740
		Silver	U	N	1.1	mg/kg	1	12/03/96	12/04/96	6010

Date Sampled: 12/02/96 91 Percent Solid

IEA
An Aquarion Company

CLIENT:ERM-North Central
CLIENT PROJECT#:95237JI
SITE:-
CLIENT P.O.#:-
IEA PROJECT#:L72963019
MATRIX:LEACHATE

TCLP METALS

LAB ID#	CLIENT ID	ANALYTE	RESULT	Qual	PQL	REGULATORY LIMIT	UNITS	DIL. FACTOR	DATE DIGESTED	DATE ANALYZED	EXTRACTION BLANK	METHOD
L72963019-001	SB14											
		Chromium	U		0.011	5.0	mg/l	1	12/07/96	12/07/96	<0.011	6010
	Date Sampled: 12/02/96						Date Leached:12/04/96					
L72963019-003	SB22											
		Chromium	U		0.011	5.0	mg/l	1	12/07/96	12/07/96	<0.011	6010
	Date Sampled: 12/02/96						Date Leached:12/04/96					
L72963019-005	SB30											
		Chromium	U		0.011	5.0	mg/l	1	01/15/97	01/15/97	<0.011	6010
	Date Sampled: 12/02/96						Date Leached:01/14/97					
L72963019-006	SB07											
		Chromium	U		0.011	5.0	mg/l	1	01/15/97	01/15/97	<0.011	6010
	Date Sampled: 12/02/96						Date Leached:01/14/97					
L72963019-007	SB08											
		Chromium	U		0.011	5.0	mg/l	1	01/15/97	01/15/97	<0.011	6010
	Date Sampled: 12/02/96						Date Leached:01/14/97					

Quality Control Data Sheet

QC Sample:L72962989-001

Sample Weight:0.48

Sample Volume:50

Prep Batch#:2058

Matrix:SOIL

Date Analyzed:12/04/96

Element	Meth.	Orig.Samp.	Sample Duplicate Result	%RPD	Matrix Spike Spk.Samp.	Amt.Spkd	%Rec.	Matrix Spk Duplicate Spk.Samp.	Amt.Spkd	%Rec	%RPD	Serial Dilution Result	%RPD	Post Spike Result	Amt.Spkd	%Rec
Silver	6010	< 2.264	< 2.264*	<5xPQL	5.3041	10.416	50.92	5.480	10.000	54.8	7.34014	< 11.32	<50xPQL			
Barium	6010	16.950	< 11.322*	NoCalc	348.9625	416.666	79.683	329.336	400.000	78.0965	2.01103	< 56.61	<50xPQL			
Cadmium	6010	< 1.132	< 1.132*	<5xPQL	9.7145	10.416	93.26	9.222	10.000	92.22	1.12141	< 5.66	<50xPQL			
Chromium	6010	10.912	< 2.264*	NoCalc	38.5416	41.666	66.31	37.346	40.000	66.08375	0.34178	15.17	<50xPQL			
Lead	6010	19.570	< 5.661*	NoCalc	95.4062	104.166	72.802	90.674	100.000	71.10317	2.36104	53.99	<50xPQL			
Nickel	6010	15.262	< 6.793*	NoCalc	90.7708	104.166	72.488	87.872	100.000	72.6095	0.16747	< 33.96	<50xPQL			
Acceptable Limits:				<20%			80-120%			80-120%	<20%		<10%			75-125%

* Test not performed

QC Sample:LCS-2058
Sample Weight:50
Sample Volume:50
Prep Batch#:2058
Matrix:SOIL

Quality Control Data Sheet
Laboratory Control Sample

Laboratory I.D.	Date	Time	Element	Meth.	LCS Result	Known	%Rec
LCS-2058	12/04/96	12:08:00	Barium	6010	1.90056	2.0000	95.0
LCS-2058	12/04/96	12:08:00	Cadmium	6010	0.05675	0.0500	113.5
LCS-2058	12/04/96	12:08:00	Chromium	6010	0.18063	0.2000	90.3
LCS-2058	12/04/96	12:08:00	Lead	6010	0.46311	0.5000	92.6
LCS-2058	12/04/96	12:08:00	Nickel	6010	0.46041	0.5000	92.0
LCS-2058	12/04/96	12:08:00	Silver	6010	0.03695	0.0500	73.9
Acceptable Limits:							80-120%

QC Sample:PB-2058
Sample Weight:50
Sample Volume:50
Prep Batch#:2058
Matrix:SOIL

Quality Control Data Sheet
Prep Blank

Laboratory I.D.	Date	Time	Element	Meth.	Prep Blank Result	Acceptable Prep Blank
PB-2058	12/04/96	12:05:00	Barium	6010	-0.00027	+/-0.050
PB-2058	12/04/96	12:05:00	Cadmium	6010	0.00181	+/-0.005
PB-2058	12/04/96	12:05:00	Chromium	6010	-0.00111	+/-0.01
PB-2058	12/04/96	12:05:00	Lead	6010	0.01365	+/-0.025
PB-2058	12/04/96	12:05:00	Nickel	6010	-0.00080	+/-0.03
PB-2058	12/04/96	12:05:00	Silver	6010	0.00165	+/-0.010

Quality Control Data Sheet

QC Sample:L72962989-001

Sample Weight:0.48

Sample Volume:50

Prep Batch#:2058

Matrix:SOIL

Date Analyzed:12/10/96

Element	Meth.	Orig.Samp.	Sample Duplicate Result	%RPD	Matrix Spike Spk.Samp.	Amt.Spkd	%Rec.	Matrix Spk Duplicate Spk.Samp.	Amt.Spkd	%Rec	%RPD	Serial Dilution Result	%RPD	Post Spike Result	Amt.Spkd	%Rec
Selenium	7740	< 0.679	< 0.679*	<5xPQL	271.3458	416.666	65.12299	321.500	400.000	80.375	20.9652	6.92	<50xPQL			
Arsenic	7060	11.237	< 0.452*	NoCalc	359.5792	416.666	83.602	371.446	400.000	90.05213	7.42870	14.56	<50xPQL			
Acceptable Limits:				<20%			80-120%			80-120%	<20%		<10%			75-125%

* Test not performed

QC Sample:LCS-2058
Sample Weight:50
Sample Volume:50
Prep Batch#:2058
Matrix:SOIL

Quality Control Data Sheet
Laboratory Control Sample

Laboratory I.D.	Date	Time	Element	Meth.	LCS Result	Known	%Rec
LCS-2058	12/10/96	18:19:00	Arsenic	7060	1.93336	2.0000	96.6
LCS-2058	12/10/96	18:19:00	Selenium	7740	1.74692	2.0000	87.3
Acceptable Limits:							80-120%

QC Sample:PB-2058
Sample Weight:50
Sample Volume:50
Prep Batch#:2058
Matrix:SOIL

Quality Control Data Sheet
Prep Blank

Laboratory I.D.	Date	Time	Element	Meth.	Prep Blank Result	Acceptable Prep Blank
PB-2058	12/10/96	18:16:00	Arsenic	7060	0.00110	+/-0.002
PB-2058	12/10/96	18:16:00	Selenium	7740	0.00306	+/-0.003

Quality Control Data Sheet

QC Sample:L72962982-002

Sample Weight:0.21

Sample Volume:100

Prep Batch#:HG1052

Matrix:SOIL

Date Analyzed:12/06/96

Element	Meth.	Orig.Samp.	Sample Duplicate Result	%RPD	Matrix Spike Spk.Samp.	Amt.Spkd	%Rec.	Matrix Spk Duplicate Spk.Samp.	Amt.Spkd	%Rec	%RPD	Serial Dilution Result	%RPD	Post Spike Result	Amt.Spkd	%Rec
Mercury	7470	1.147	< 0.123*	NoCalc	2.2714	0.952	118.	2.310	0.999	116.2381	1.50436	< 0.61*	<50xPQL			
Acceptable Limits:				<20%			80-120%			80-120%	<20%		<10%			75-125%

* Test not performed

QC Sample:PB-HG1052
Sample Weight:100
Sample Volume:100
Prep Batch#:HG1052
Matrix:SOIL

Quality Control Data Sheet
Prep Blank

Laboratory I.D.	Date	Time	Element	Meth.	Prep Blank Result	Acceptable Prep Blank
PB-HG1052	12/06/96	23:59:59	Mercury	7470	<0.0002	+/-0.0002

QC Sample:L72962982-002
Sample Weight:100
Sample Volume:100
Prep Batch#:HG1052
Matrix:SOIL

Quality Control Data Sheet
Associated Samples

Laboratory ID
L72963019-002
L72963019-004
L72963019-005
L72963019-006
L72963019-007

Quality Control Data Sheet

QC Sample:L72963019-005
Sample Weight:45
Sample Volume:50
Prep Batch#:2096
Matrix:LEACHATE

Date Analyzed:01/15/97

Element	Meth.	Orig.Samp.	Sample Duplicate Result	%RPD	Matrix Spike Spk.Samp.	Amt.Spkd	%Rec.	Matrix Spk Duplicate Spk.Samp.	Amt.Spkd	%Rec	%RPD	Serial Dilution Result	%RPD	Post Spike Result	Amt.Spkd	%Rec
Chromium	6010	< 0.011	< 0.011*	<5xPQL	5.2263	5.000	104.5276	5.399	5.000	107.9808	3.24994	< 0.05	<50xPQL			
Acceptable Limits:				<20%			80-120%			80-120%	<20%		<10%			75-125%

* Test not performed

QC Sample:LCS-2096
Sample Weight:45
Sample Volume:50
Prep Batch#:2096
Matrix:LEACHATE

Quality Control Data Sheet
Laboratory Control Sample

Laboratory I.D.	Date	Time	Element	Meth.	LCS Result	Known	%Rec
LCS-2096	01/15/97	13:57:00	Chromium	6010	4.17948	5.0000	83.5
Acceptable Limits:							80-120%

QC Sample:PB-2096
Sample Weight:45
Sample Volume:50
Prep Batch#:2096
Matrix:LEACHATE

Quality Control Data Sheet
Prep Blank

Laboratory I.D.	Date	Time	Element	Meth.	Prep Blank Result	Acceptable Prep Blank
PB-2096	01/15/97	16:13:00	Chromium	6010	0.00065	+/-0.01

IEA
An Aquarion Company

126 WEST CENTER COURT
SCHAUMBURG, ILLINOIS 60195
PH # 708-705-0740
FAX # 708-705-1567

CHAIN OF CUSTODY RECORD

NO. .970

Page 1 of 1

REGULATORY CLASSIFICATION - PLEASE SPECIFY

☐ NPDES ☐ DRINKING WATER ☐ RCRA ☐ OTHER

COMPANY	CONTACT PERSON	PROJECT I.D.	PHONE #	FAX #	P.O. #
EXM North Central	Dan Petersen	95237JI	847-940-7200		

ADDRESS	CITY	STATE	ZIP
700 Lake Cook Road	Deerfield	IL	

DELIVERABLES: ☐ Routine ☐ Rush (Specify) ☐ Special Request (attach specifics)

DATE	TIME	SAMPLE I.D.	MATRIX	# OF CONTAINERS	PRESERVED Y/N	Metals	Nickel	TCLP Total Metals	(COMMENTS)
12/2/96	0855	SB14	S	1	N		✓	✓	
	0975	SB06	S	1	N	✓			
	1035	SB22	S	1	N		✓	✓	
	1055	SB23	S	1	N	✓			
	1101	SB30	S	1	N	✓			
	1110	SB07	S	1	N	✓			
↓	1120	SB08	S	1	N	✓			

RELINQUISHED BY (SIGNATURE)	DATE / TIME	RECEIVED BY	DATE / TIME
Anna Moreguet	12:38 12/2/96	A Lopez Jom.	12:38 12/2/96

RELINQUISHED BY (SIGNATURE)	DATE / TIME	RECEIVED FOR LAB BY	DATE / TIME
		[illegible]	12/2/96 1230

REMARKS ON SAMPLE RECEIPT

☐ BOTTLE INTACT ☐ CUSTODY SEALS
☐ PRESERVED ☐ SEALS INTACT
☐ CHILLED ☐ SEE REMARKS

IEA QUOTE NO.

IEA USE ONLY

IEA
An Aquarion Company

126 West Center Court
Schaumburg, Illinois 60195

Phone 1-800-933-2580
Fax 847-705-1567

January 06, 1997

ERM-North Central
Dan Petersen
540 Lake Cook Road
Suite 300
Deerfield, IL 60015

Dear Dan Petersen:

Please find enclosed the analytical results of the samples received at our laboratory on November 27, 1996. This report contains sections addressing the following information at a minimum:

- -Definitions
- -Analytical Methodology
- -State certifications
- -Analytical Results
- -Chain-of-custody (if applicable)

IEA Project#: L72962989 Client Project: PHIBRO-TECH

Purchase Order#:

IEA Quote#: Site:

Copies of this analytical report and supporting data are maintained in our files for three years; samples are retained for two weeks unless special arrangements have been made. Unless specifically indicated, all analytical testing was performed at this laboratory and no portion of the testing was subcontracted.

We appreciate your selection of our services and welcome any questions or suggestions you may have relative to this report. Please contact Cheryl Randle at (800) 933-2580 for any additional information. Thank you for utilizing our services, we hope you will consider us for your future analytical needs.

I have reviewed and approved the enclosed data for final release.

Sincerely

Larry D. Lewis
Director of Operations
IEA-Illinois Laboratory

IEA
An Aquarion Company

Sample Summary

IEA-Illinois

Laboratory ID	Client ID
L72962989-001	SB03
L72962989-002	SB25
L72962989-003	SB31
L72962989-004	SB32
L72962989-005	SB21
L72962989-006	SB27

printed on recycled paper

IEA
An Aquarion Company

CLIENT:ERM-North Central
CLIENT PROJECT#:PHIBRO-TECH
SITE:-
CLIENT P.O.#:-
IEA PROJECT#:L72962989
MATRIX:SOIL

METALS

AB ID#	CLIENT ID	ANALYTE	RESULT	QUAL	PQL	UNITS	DIL. FACTOR	DATE DIGESTED	DATE ANALYZED	METHOD
72962989-001	SB03									
		Nickel	8.3	N	3.4	mg/kg	1	12/03/96	12/04/96	6010
	Date Sampled: 11/26/96	92 Percent Solid								
72962989-002	SB25									
		Nickel	580	N	3.6	mg/kg	1	12/03/96	12/04/96	6010
	Date Sampled: 11/26/96	92 Percent Solid								
72962989-003	SB31									
		Nickel	35	N	3.8	mg/kg	1	12/03/96	12/04/96	6010
	Date Sampled: 11/26/96	84 Percent Solid								
L72962989-004	SB32									
		Nickel	10	N	3.4	mg/kg	1	12/03/96	12/04/96	6010
	Date Sampled: 11/26/96	95 Percent Solid								
L72962989-006	SB27									
		Nickel	20	N	3.4	mg/kg	1	12/03/96	12/04/96	6010
	Date Sampled: 11/26/96	97 Percent Solid								

printed on recycled paper

IEA
An Aquarion Company

CLIENT:ERM-North Central
CLIENT PROJECT#:PHIBRO-TECH
SITE:-
CLIENT P.O.#:-
IEA PROJECT#:L72962989
MATRIX:LEACHATE

TCLP METALS

LAB ID#	CLIENT ID	ANALYTE	RESULT	Qual	PQL	REGULATORY LIMIT	UNITS	DIL. FACTOR	DATE DIGESTED	DATE ANALYZED	EXTRACTION BLANK	METHOD
L72962989-003	SB31											
		Chromium	U		0.011	5.0	mg/l	1	12/28/96	12/28/96	<0.011	6010
	Date Sampled: 11/26/96					Date Leached:12/27/96						
L72962989-005	SB21											
		Chromium	U		0.011	5.0	mg/l	1	12/10/96	12/11/96	<0.011	6010
	Date Sampled: 11/26/96					Date Leached:12/07/96						

printed on recycled paper

IEA
An Aquarion Company

Client: ERM-North Central
IEA Job#: L72962989
Project ID: PHIBRO-TECH
Matrix: Soil

Wet Chemistry Analytes
mg/Kg

	Percent Solid	94%	100%			Date Analyzed	PQL
	Client ID	SB21	---				
	Lab ID	005	Method Blank				
Analyte	Method						
Hexavalent Chromium	7196	<0.11	<0.10			11/27/96	0.10

PQL=Practical Quantitation Limit, varies with sample weight and total solids

QC Sample:L72963075-001
Sample Weight:45
Sample Volume:50
Prep Batch#:2066
Matrix:LEACHATE

Quality Control Data Sheet
Associated Samples

Laboratory ID
L72962989-005

Quality Control Data Sheet

QC Sample:L72962989-001

Sample Weight:0.48

Sample Volume:50

Prep Batch#:2058

Matrix:SOIL

Date Analyzed:12/04/96

Element	Meth.	Orig.Samp.	Sample Duplicate Result	%RPD	Matrix Spike Spk.Samp.	Amt.Spkd	%Rec.	Matrix Spk Duplicate Spk.Samp.	Amt.Spkd	%Rec	%RPD	Serial Dilution Result	%RPD	Post Spike Result	Amt.Spkd	%Rec
Nickel	6010	15.262	< 6.793*	NoCalc	90.7708	104.166	72.488	87.872	100.000	72.6095	0.16747	< 33.96	<50xPQL			
Acceptable Limits:				<20%			80-120%			80-120%	<20%		<10%			75-125%

* Test not performed

QC Sample:LCS-2058
Sample Weight:50
Sample Volume:50
Prep Batch#:2058
Matrix:SOIL

Quality Control Data Sheet
Laboratory Control Sample

Laboratory I.D.	Date	Time	Element	Meth.	LCS Result	Known	%Rec
LCS-2058	12/04/96	12:08:00	Nickel	6010	0.46041	0.5000	92.0
Acceptable Limits:							80-120%

QC Sample:PB-2058
Sample Weight:50
Sample Volume:50
Prep Batch#:2058
Matrix:SOIL

Quality Control Data Sheet
Prep Blank

Laboratory I.D.	Date	Time	Element	Meth.	Prep Blank Result	Acceptable Prep Blank
PB-2058	12/04/96	12:05:00	Nickel	6010	-0.00080	+/-0.03

Quality Control Data Sheet

QC Sample:L72963291-001

Date Analyzed:12/28/96

Sample Weight:45

Sample Volume:50

Prep Batch#:2081

Matrix:LEACHATE

Element	Meth.	Orig.Samp.	Sample Duplicate Result	%RPD	Matrix Spike Spk.Samp.	Amt.Spkd	%Rec.	Matrix Spk Duplicate Spk.Samp.	Amt.Spkd	%Rec	%RPD	Serial Dilution Result	%RPD	Post Spike Result	Amt.Spkd	%Rec
Chromium	6010	< 0.011	< 0.011*	<5xPQL	4.7819	5.000	95.6398	4.969	5.000	99.3992	3.85502	< 0.05	<50xPQL			
Acceptable Limits:				<20%			80-120%			80-120%	<20%		<10%			75-125%

* Test not performed

QC Sample:LCS-2081
Sample Weight:45
Sample Volume:50
Prep Batch#:2081
Matrix:LEACHATE

Quality Control Data Sheet
Laboratory Control Sample

Laboratory I.D.	Date	Time	Element	Meth.	LCS Result	Known	%Rec
LCS-2081	12/28/96	16:17:00	Chromium	6010	4.94488	5.0000	98.8
Acceptable Limits:							80-120%

QC Sample:PB-2081
Sample Weight:45
Sample Volume:50
Prep Batch#:2081
Matrix:LEACHATE

Quality Control Data Sheet
Prep Blank

Laboratory I.D.	Date	Time	Element	Meth.	Prep Blank Result	Acceptable Prep Blank
PB-2081	12/28/96	16:14:00	Chromium	6010	0.00050	+/-0.01

QC Sample:L72963291-001
Sample Weight:45
Sample Volume:50
Prep Batch#:2081
Matrix:LEACHATE

Quality Control Data Sheet
Associated Samples

Laboratory ID
L72962989-003

Quality Control Data Sheet

QC Sample:L72963075-001
Sample Weight:45
Sample Volume:50
Prep Batch#:2066
Matrix:LEACHATE

Date Analyzed:12/12/96

Element	Meth.	Orig.Samp.	Sample Duplicate Result	%RPD	Matrix Spike Spk.Samp.	Amt.Spkd	%Rec.	Matrix Spk Duplicate Spk.Samp.	Amt.Spkd	%Rec	%RPD	Serial Dilution Result	%RPD	Post Spike Result	Amt.Spkd	%Rec
Chromium	6010	0.012	< 0.011*	NoCalc	4.7943	5.000	95.6276	4.897	5.000	97.692	2.13573	< 0.05	<50xPQL			
Acceptable Limits:				<20%			80-120%			80-120%	<20%		<10%			75-125%

* Test not performed

QC Sample:LCS-2066
Sample Weight:45
Sample Volume:50
Prep Batch#:2066
Matrix:LEACHATE

Quality Control Data Sheet
Laboratory Control Sample

Laboratory I.D.	Date	Time	Element	Meth.	LCS Result	Known	%Rec
LCS-2066	12/12/96	19:14:00	Chromium	6010	4.77830	5.0000	95.5
Acceptable Limits:							80-120%

QC Sample:PB-2066
Sample Weight:45
Sample Volume:50
Prep Batch#:2066
Matrix:LEACHATE

Quality Control Data Sheet
Prep Blank

Laboratory I.D.	Date	Time	Element	Meth.	Prep Blank Result	Acceptable Prep Blank
PB-2066	12/12/96	19:03:00	Chromium	6010	0.00026	+/-0.01

IEA
An Aquarion Company

Client: ERM-North Central
IEA Job#: L72962989
Project #: PHIBRO-TECH
Matrix: Soil

Quality Control Summary

Laboratory Control Samples (mg/L)

Analyte	LCS ID	Known Conc. (mg/L)	Measured Conc. (mg/L)	Percent Recovery
Hexavalent Chromium	LCS	0.125	0.118	94.4
Control Limit				85 - 115%

Duplicates (mg/Kg-Dry Weight)

Analyte	Sample ID	Sample Result	Duplicate Result	Percent RPD
Hexavalent Chromium	L72962982-011	< 0.10	< 0.10	Not Calc.
Control Limit				20 %

Matrix Spikes (mg/Kg-Dry Weight)

Analyte	Sample ID	Spike Added	Sample Result	Spike Result	Percent Recovery
Hexavalent Chromium	L72962982-011	2.08	< 0.10	2.53	121.6
Control Limit					75 - 125%

IEA
An Aquarion Company
126 WEST CENTER COURT
SCHAUMBURG, ILLINOIS 60195
PH # 708-705-0740
FAX # 708-705-1567

CHAIN OF CUSTODY RECORD

NO. 971

Page 1 of 1

REGULATORY CLASSIFICATION - PLEASE SPECIFY

☐ NPDES ☐ DRINKING WATER ☐ RCRA ☐ OTHER

COMPANY	CONTACT PERSON	PROJECT I.D.	PHONE #	FAX #	P.O. #
ERM North Central	Dan Petersen	PhiBro Tech	847-940-7200		

ADDRESS: 560 Lake Cook Road

CITY	STATE	ZIP
Deerfield	IL	

DELIVERABLES: ☐ Routine ☐ Rush (Specify) ☐ Special Request (attach specifics)

DATE	TIME	SAMPLE I.D.	MATRIX	# OF CONTAINERS	PRESERVED Y/N	Total Nickel	Metals	TCLP Total Chrome	Hex Chrome	Arsenic					(COMMENTS)
11/26	1215	SB03	S	1	N		✓								20
	1420	SB25	S	1	N		✓								21
	1140	SB31	S	1	N		✓								22
	1143	SB32	S	1	N		✓								23
	1536	SB21	S	1	N	✓		✓	✓						24
	1555	SB27	S	1	N	✓				✓					25

RELINQUISHED BY (SIGNATURE)	DATE / TIME	RECEIVED BY	DATE / TIME
Anna Mdugno	11/26 5:57pm		

RELINQUISHED BY (SIGNATURE)	DATE / TIME	RECEIVED FOR LAB BY	DATE / TIME
		J. Kozemourks	11/27/96 10:25am

REMARKS ON SAMPLE RECEIPT

☐ BOTTLE INTACT ☐ CUSTODY SEALS
☐ PRESERVED ☐ SEALS INTACT
☐ CHILLED ☐ SEE REMARKS

IEA QUOTE NO.

IEA USE ONLY

IEA
An Aquarion Company

126 WEST CENTER COURT
SCHAUMBURG, ILLINOIS 60195
PH # 708-705-0740
FAX # 708-705-1567

CHAIN OF CUSTODY RECORD

NO. 970

Page 1 of 1

REGULATORY CLASSIFICATION - PLEASE SPECIFY

☐ NPDES ☐ DRINKING WATER ☐ RCRA ☐ OTHER

COMPANY	CONTACT PERSON	PROJECT I.D.	PHONE #	FAX #	P.O. #
EXM- North Central	Dan Petersen	95237JI	847-940-7200		

ADDRESS	CITY	STATE	ZIP
560 Lake Cook Road	Deerfield	IL	

DATE	TIME	SAMPLE I.D.	MATRIX	# OF CONTAINERS	PRESERVED Y/N	Metals	Nickel	TCLP Total Chromium						
12/2/96	0855	SB14	S	1	N		✓	✓						
	0915	SB06	S	1	N	✓								
	1035	SB22	S	1	N		✓	✓						
	1055	SB23	S	1	N	✓								
	1101	SB30	S	1	N	✓								
	1110	SB07	S	1	N	✓								
↓	1120	SB08	S	1	N	✓								

REQUESTED PARAMETERS

DELIVERABLES

☐ Routine
☐ Rush (Specify)
☐ Special Request (attach specifics)

(COMMENTS)

RELINQUISHED BY (SIGNATURE)	DATE / TIME	RECEIVED BY	DATE / TIME
Dina Malegus	12:38 12/2/96	[illegible] Jon	12:38 12/2/96

RELINQUISHED BY (SIGNATURE)	DATE / TIME	RECEIVED FOR LAB BY	DATE / TIME
		Vince Vuglar	12/2/96 1330

REMARKS ON SAMPLE RECEIPT

☐ BOTTLE INTACT ☐ CUSTODY SEALS
☐ PRESERVED ☐ SEALS INTACT
☐ CHILLED ☐ SEE REMARKS

IEA QUOTE NO.

IEA USE ONLY

IEA
An Aquarion Company

126 West Center Court
Schaumburg, Illinois 60195

Phone 1-800-933-2580
Fax 847-705-1567

January 06, 1997

ERM-North Central
Dan Petersen
140 Lake Cook Road
Suite 300
Deerfield, IL 60015

Dear Dan Petersen:

Please find enclosed the analytical results of the samples received at our laboratory on November 26, 1996. This report contains sections addressing the following information at a minimum:

- -Definitions
- -Analytical Methodology
- -State certifications
- -Analytical Results
- -Chain-of-custody (if applicable)

IEA Project#: L72962982	Client Project: PHIBRO-TECH
	Purchase Order#:
IEA Quote#:	Site:

Copies of this analytical report and supporting data are maintained in our files for three years; samples are retained for two weeks unless special arrangements have been made. Unless specifically indicated, all analytical testing was performed at this laboratory and no portion of the testing was subcontracted.

We appreciate your selection of our services and welcome any questions or suggestions you may have relative to this report. Please contact Cheryl Randle at (800) 933-2580 for any additional information. Thank you for utilizing our services, we hope you will consider us for your future analytical needs.

I have reviewed and approved the enclosed data for final release.

Sincerely

Larry D. Lewis
Director of Operations
IEA-Illinois Laboratory

IEA
An Aquarion Company

Sample Summary

IEA-Illinois

Laboratory ID	Client ID
L72962982-001	SB05
L72962982-002	SB26
L72962982-003	SB04
L72962982-004	SB02
L72962982-005	SB01
L72962982-006	SB16
L72962982-007	SB15
L72962982-008	SB11
L72962982-009	SB13
L72962982-010	SB12
L72962982-011	SB10
L72962982-012	SB29
L72962982-013	SB24
L72962982-014	SB20
L72962982-015	SB17
L72962982-016	SB18
L72962982-017	SB19

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IEA
An Aquarion Company

CLIENT:ERM-North Central
CLIENT PROJECT#:PHIBRO-TECH
SITE:-
CLIENT P.O.#:-
IEA PROJECT#:L72962982
MATRIX:SOIL

METALS

LAB ID#	CLIENT ID	ANALYTE	RESULT	QUAL	PQL	UNITS	DIL. FACTOR	DATE DIGESTED	DATE ANALYZED	METHOD
~~L72962982-001~~	~~SB05~~									
		Nickel	900	N	4.8	mg/kg	1	12/02/96	12/03/96	6010
	Date Sampled: 11/25/96	68 Percent Solid								
72962982-002	SB26									
		Nickel	390	N	4.1	mg/kg	1	12/02/96	12/03/96	6010
	Date Sampled: 11/25/96	77 Percent Solid								
2962982-003	SB04									
		Nickel	990	N	3.9	mg/kg	1	12/02/96	12/03/96	6010
	Date Sampled: 11/25/96	78 Percent Solid								
2962982-004	SB02									
		Nickel	1500	N	3.4	mg/kg	1	12/02/96	12/03/96	6010
	Date Sampled: 11/25/96	88 Percent Solid								
L72962982-005	SB01									
		Nickel	220	N	4	mg/kg	1	12/02/96	12/03/96	6010
	Date Sampled: 11/25/96	82 Percent Solid								

IEA
An Aquarion Company

CLIENT:ERM-North Central
CLIENT PROJECT#:PHIBRO-TECH
SITE:-
CLIENT P.O.#:-
IEA PROJECT#:L72962982
MATRIX:SOIL

METALS

LAB ID#	CLIENT ID	ANALYTE	RESULT	QUAL	PQL	UNITS	DIL. FACTOR	DATE DIGESTED	DATE ANALYZED	METHOD
~~L72962982-006~~	~~SB16~~									
		Arsenic	13	N*	2.6	mg/kg	10	12/02/96	01/03/97	7060
		Barium	48	N*	6.5	mg/kg	1	12/02/96	12/03/96	6010
		Cadmium	32		0.65	mg/kg	1	12/02/96	12/03/96	6010
		Chromium	15		1.3	mg/kg	1	12/02/96	12/03/96	6010
		Lead	120		3.2	mg/kg	1	12/02/96	12/03/96	6010
		Mercury	1.8	N	0.1	mg/kg	1	12/28/96	12/28/96	7471
		Selenium	U	N	0.39	mg/kg	1	12/02/96	01/03/97	7740
		Silver	U	N*	1.3	mg/kg	1	12/02/96	12/03/96	6010
	Date Sampled:	11/25/96	82 Percent Solid							
72962982-007	SB15									
		Chromium	13		1.3	mg/kg	1	12/02/96	12/03/96	6010
		Nickel	800	N	3.8	mg/kg	1	12/02/96	12/03/96	6010
	Date Sampled:	11/25/96	88 Percent Solid							
L72962982-008	SB11									
		Chromium	11		1.2	mg/kg	1	12/02/96	12/03/96	6010
		Nickel	460	N	3.5	mg/kg	1	12/02/96	12/03/96	6010
	Date Sampled:	11/25/96	91 Percent Solid							
2962982-009	SB13									
		Nickel	13000	N	4.3	mg/kg	1	12/02/96	12/03/96	6010
	Date Sampled:	11/25/96	77 Percent Solid							

IEA
An Aquarion Company

CLIENT:ERM-North Central
CLIENT PROJECT#:PHIBRO-TECH
SITE:-
CLIENT P.O.#:-
IEA PROJECT#:L72962982
MATRIX:SOIL

METALS

LAB ID#	CLIENT ID	ANALYTE	RESULT	QUAL	PQL	UNITS	DIL. FACTOR	DATE DIGESTED	DATE ANALYZED	METHOD
~~L72962982-010~~	~~SB12~~									
		Nickel	670	N	4.3	mg/kg	1	12/02/96	12/03/96	6010
	Date Sampled: 11/25/96	72 Percent Solid								
L72962982-011	SB10									
		Chromium	12		1.1	mg/kg	1	12/02/96	12/03/96	6010
		Nickel	1200	N	3.4	mg/kg	1	12/02/96	12/03/96	6010
	Date Sampled: 11/25/96	96 Percent Solid								
L72962982-012	SB29									
		Chromium	92		1.4	mg/kg	1	12/02/96	12/03/96	6010
		Nickel	390	N	4.1	mg/kg	1	12/02/96	12/03/96	6010
	Date Sampled: 11/25/96	77 Percent Solid								
L72962982-013	SB24									
		Nickel	170	N	4.1	mg/kg	1	12/02/96	12/03/96	6010
	Date Sampled: 11/25/96	79 Percent Solid								
L72962982-014	SB20									
		Chromium	56		1.2	mg/kg	1	12/02/96	12/03/96	6010
	Date Sampled: 11/25/96	90 Percent Solid								

IEA
An Aquarion Company

CLIENT:ERM-North Central
CLIENT PROJECT#:PHIBRO-TECH
SITE:-
CLIENT P.O.#:-
IEA PROJECT#:L72962982
MATRIX:SOIL

METALS

LAB ID#	CLIENT ID	ANALYTE	RESULT	QUAL	PQL	UNITS	DIL. FACTOR	DATE DIGESTED	DATE ANALYZED	METHOD
~~L72962982-015~~	~~SB17~~									
		Chromium	24		1.3	mg/kg	1	12/02/96	12/03/96	6010
	Date Sampled: 11/26/96	86 Percent Solid								
72962982-016	SB18									
		Chromium	3100		1.2	mg/kg	1	12/02/96	12/03/96	6010
	Date Sampled: 11/26/96	83 Percent Solid								
2962982-017	SB19									
		Chromium	8.3		1.3	mg/kg	1	12/02/96	12/03/96	6010
	Date Sampled: 11/26/96	80 Percent Solid								

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IEA
An Aquarion Company

CLIENT:ERM-North Central
CLIENT PROJECT#:PHIBRO-TECH
SITE:-
CLIENT P.O.#:-
IEA PROJECT#:L72962982
MATRIX:LEACHATE

TCLP METALS

LAB ID#	CLIENT ID	ANALYTE	RESULT	Qual	PQL	REGULATORY LIMIT	UNITS	DIL. FACTOR	DATE DIGESTED	DATE ANALYZED	EXTRACTION BLANK	METHOD
L72962982-007	SB15											
		Chromium	U		0.011	5.0	mg/l	1	12/07/96	12/07/96	<0.011	6010
	Date Sampled: 11/25/96					Date Leached:12/04/96						
L72962982-008	SB11											
		Chromium	U		0.011	5.0	mg/l	1	12/07/96	12/07/96	<0.011	6010
	Date Sampled: 11/25/96					Date Leached:12/04/96						
72962982-011	SB10											
		Chromium	U		0.011	5.0	mg/l	1	12/07/96	12/07/96	<0.011	6010
	Date Sampled: 11/25/96					Date Leached:12/04/96						
72962982-012	SB29											
		Chromium	U		0.011	5.0	mg/l	1	12/07/96	12/07/96	<0.011	6010
	Date Sampled: 11/25/96					Date Leached:12/04/96						
72962982-013	SB24											
		Chromium	0.03		0.011	5.0	mg/l	1	12/28/96	12/28/96	<0.011	6010
	Date Sampled: 11/25/96					Date Leached:12/27/96						
L72962982-014	SB20											
		Chromium	U		0.011	5.0	mg/l	1	12/07/96	12/07/96	<0.011	6010
	Date Sampled: 11/25/96					Date Leached:12/04/96						
L72962982-015	SB17											
		Chromium	U		0.011	5.0	mg/l	1	12/07/96	12/07/96	<0.011	6010
	Date Sampled: 11/26/96					Date Leached:12/04/96						
2962982-016	SB18											
		Chromium	0.15		0.011	5.0	mg/l	1	12/07/96	12/07/96	<0.011	6010
	Date Sampled: 11/26/96					Date Leached:12/04/96						
2962982-017	SB19											
		Chromium	U		0.011	5.0	mg/l	1	12/07/96	12/07/96	<0.011	6010
	Date Sampled: 11/26/96					Date Leached:12/04/96						

IEA
An Aquarion Company

Client: ERM-North Central
IEA Job#: L72962982
Project ID: PHIBRO-TECH
Matrix: Soil

Wet Chemistry Analytes
mg/Kg

	Percent Solid	96%	77%	90%	86%	Date Analyzed	PQL
	Client ID	SB10	SB29	SB20	SB17		
	Lab ID	011	012	014	015		
Analyte	Method						
Hexavalent Chromium	7196	<0.10	<0.13	1.00	<0.12	11/26/96	0.10

	Percent Solid	83%	80%	100%		Date Analyzed	PQL
	Client ID	SB18	SB19	---			
	Lab ID	016	017	Method Blank			
Analyte	Method						
Hexavalent Chromium	7196	<0.12	<0.12	<0.10		11/26/96	0.10

PQL=Practical Quantitation Limit, varies with sample weight and total solids

Quality Control Data Sheet

QC Sample:L72962970-001

Sample Weight:45

Sample Volume:50

Prep Batch#:2062

Matrix:LEACHATE

Date Analyzed:12/07/96

Element	Meth.	Orig.Samp.	Sample Duplicate Result	%RPD	Matrix Spike Spk.Samp.	Amt.Spkd	%Rec.	Matrix Spk Duplicate Spk.Samp.	Amt.Spkd	%Rec	%RPD	Serial Dilution Result	%RPD	Post Spike Result	Amt.Spkd	%Rec
Chromium	6010	< 0.011	< 0.011*	<5xPQL	4.6567	5.000	93.134	4.619	5.000	92.38	0.81287	< 0.05	<50xPQL			
Acceptable Limits:				<20%			80-120%			80-120%	<20%		<10%			75-125%

* Test not performed

QC Sample:LCS-2062
Sample Weight:45
Sample Volume:50
Prep Batch#:2062
Matrix:LEACHATE

Quality Control Data Sheet
Laboratory Control Sample

Laboratory I.D.	Date	Time	Element	Meth.	LCS Result	Known	%Rec
LCS-2062	12/07/96	16:33:00	Chromium	6010	4.76242	5.0000	95.2
Acceptable Limits:							80-120%

QC Sample:PB-2062
Sample Weight:45
Sample Volume:50
Prep Batch#:2062
Matrix:LEACHATE

Quality Control Data Sheet
Prep Blank

Laboratory I.D.	Date	Time	Element	Meth.	Prep Blank Result	Acceptable Prep Blank
PB-2062	12/07/96	16:30:00	Chromium	6010	0.00035	+/-0.01

QC Sample:L72962970-001
Sample Weight:45
Sample Volume:50
Prep Batch#:2062
Matrix:LEACHATE

Quality Control Data Sheet
Associated Samples

Laboratory ID
L72962982-006
L72962982-007
L72962982-008
L72962982-011
L72962982-012
L72962982-014
L72962982-015
L72962982-016
L72962982-017

Quality Control Data Sheet

QC Sample:L72962995-001

Date Analyzed:12/09/96

Sample Weight:0.45

Sample Volume:50

Prep Batch#:2055

Matrix:SOIL

Element	Meth.	Orig.Samp.	Sample Duplicate Result	%RPD	Matrix Spike Spk.Samp.	Amt.Spkd	%Rec.	Matrix Spk Duplicate Spk.Samp.	Amt.Spkd	%Rec	%RPD	Serial Dilution Result	%RPD	Post Spike Result	Amt.Spkd	%Rec
Selenium	7740	3.051	< 0.888*	NoCalc	301.9565	434.782	68.74825	344.493	434.782	78.53175	13.2855	< 4.44	<50xPQL			
Arsenic	7060	292.908	< 0.592*	NoCalc	597.9348	434.782	70.15594	694.800	434.782	92.43495	27.4049	306.92	4.671701			
Acceptable Limits:				<20%			80-120%			80-120%	<20%		<10%			75-125%

* Test not performed

QC Sample:LCS-2055
Sample Weight:50
Sample Volume:50
Prep Batch#:2055
Matrix:SOIL

Quality Control Data Sheet
Laboratory Control Sample

Laboratory I.D.	Date	Time	Element	Meth.	LCS Result	Known	%Rec
LCS-2055	12/09/96	18:19:00	Arsenic	7060	1.68191	2.0000	84.0
LCS-2055	12/09/96	18:19:00	Selenium	7740	1.76998	2.0000	88.4
Acceptable Limits:							80-120%

QC Sample:PB-2055
Sample Weight:50
Sample Volume:50
Prep Batch#:2055
Matrix:SOIL

Quality Control Data Sheet
Prep Blank

Laboratory I.D.	Date	Time	Element	Meth.	Prep Blank Result	Acceptable Prep Blank
PB-2055	12/09/96	18:16:00	Arsenic	7060	0.00169	+/-0.002
PB-2055	12/09/96	18:16:00	Selenium	7740	-0.00048	+/-0.003

QC Sample:L72962995-001
Sample Weight:50
Sample Volume:50
Prep Batch#:2055
Matrix:SOIL

Quality Control Data Sheet
Associated Samples

Laboratory ID
L72962982-001
L72962982-002
L72962982-003
L72962982-004
L72962982-005
L72962982-006
L72962982-007
L72962982-008
L72962982-009
L72962982-010
L72962982-011
L72962982-012
L72962982-013
L72962982-014
L72962982-015
L72962982-016
L72962982-017

Quality Control Data Sheet

QC Sample:L72962995-001

Sample Weight:0.45

Sample Volume:50

Prep Batch#:2055

Matrix:SOIL

Date Analyzed:12/09/96

Element	Meth.	Orig.Samp.	Sample Duplicate Result	%RPD	Matrix Spike Spk.Samp.	Amt.Spkd	%Rec.	Matrix Spk Duplicate Spk.Samp.	Amt.Spkd	%Rec	%RPD	Serial Dilution Result	%RPD	Post Spike Result	Amt.Spkd	%Rec
Silver	6010	< 2.962	< 2.962*	<5xPQL	1.7586	10.869	16.18	3.873	10.869	35.64	75.1061	< 14.81	<50xPQL			
Barium	6010	1453.851	< 14.814*	NoCalc	1507.6090	434.782	12.36421	2106.230	434.782	150.0472	169.548	1508.29	3.676159			
Cadmium	6010	124.522	< 1.481*	NoCalc	136.7826	10.869	>4xSpike	174.780	10.869	>4xSpike	NoCalc	125.40	0.704216			
Chromium	6010	1343.456	< 2.962*	NoCalc	1079.2850	43.478	>4xSpike	749.821	43.478	>4xSpike	NoCalc	1380.18	2.696725			
Lead	6010	9351.496	< 7.407*	NoCalc	7372.3040	108.695	>4xSpike	6004.435	108.695	>4xSpike	NoCalc	9363.09	0.123921			
Nickel	6010	71.100	< 8.888*	NoCalc	120.3456	108.695	45.306	111.756	108.695	37.404	19.1077	74.67	4.908542			
Acceptable Limits:				<20%			80-120%			80-120%	<20%		<10%			75-125%

* Test not performed

QC Sample:LCS-2055
Sample Weight:50
Sample Volume:50
Prep Batch#:2055
Matrix:SOIL

Quality Control Data Sheet
Laboratory Control Sample

Laboratory I.D.	Date	Time	Element	Meth.	LCS Result	Known	%Rec
LCS-2055	12/09/96	15:38:00	Barium	6010	1.88732	2.0000	94.3
LCS-2055	12/09/96	15:38:00	Cadmium	6010	0.05142	0.0500	102.8
LCS-2055	12/09/96	15:38:00	Chromium	6010	0.18855	0.2000	94.2
LCS-2055	12/09/96	15:38:00	Lead	6010	0.47375	0.5000	94.7
LCS-2055	12/09/96	15:38:00	Nickel	6010	0.47277	0.5000	94.5
LCS-2055	12/09/96	15:38:00	Silver	6010	0.04075	0.0500	81.5
Acceptable Limits:							80-120%

QC Sample:PB-2055
Sample Weight:50
Sample Volume:50
Prep Batch#:2055
Matrix:SOIL

Quality Control Data Sheet
Prep Blank

Laboratory I.D.	Date	Time	Element	Meth.	Prep Blank Result	Acceptable Prep Blank
PB-2055	12/09/96	15:34:00	Barium	6010	0.00008	+/-0.050
PB-2055	12/09/96	15:34:00	Cadmium	6010	-0.00169	+/-0.005
PB-2055	12/09/96	15:34:00	Chromium	6010	-0.00295	+/-0.01
PB-2055	12/09/96	15:34:00	Lead	6010	-0.00772	+/-0.025
PB-2055	12/09/96	15:34:00	Nickel	6010	-0.00036	+/-0.03
PB-2055	12/09/96	15:34:00	Silver	6010	0.00140	+/-0.010

QC Sample:L72962995-001
Sample Weight:50
Sample Volume:50
Prep Batch#:2055
Matrix:SOIL

Quality Control Data Sheet
Associated Samples

Laboratory ID
L72962982-001
L72962982-002
L72962982-003
L72962982-004
L72962982-005
L72962982-006
L72962982-007
L72962982-008
L72962982-009
L72962982-010
L72962982-011
L72962982-012
L72962982-013
L72962982-014
L72962982-015
L72962982-016
L72962982-017

Quality Control Data Sheet

QC Sample:L72962982-002
Sample Weight:0.21
Sample Volume:100
Prep Batch#:HG1052
Matrix:SOIL

Date Analyzed:12/06/96

Element	Meth.	Orig.Samp.	Sample Duplicate Result	%RPD	Matrix Spike Spk.Samp.	Amt.Spkd	%Rec.	Matrix Spk Duplicate Spk.Samp.	Amt.Spkd	%Rec	%RPD	Serial Dilution Result	%RPD	Post Spike Result	Amt.Spkd	%Rec
Mercury	7470	1.147	< 0.123*	NoCalc	2.2714	0.952	118.	2.310	0.999	116.2381	1.50436	< 0.61*	<50xPQL			
Acceptable Limits:				<20%			80-120%			80-120%	<20%		<10%			75-125%

* Test not performed

QC Sample:PB-HG1052
Sample Weight:100
Sample Volume:100
Prep Batch#:HG1052
Matrix:SOIL

Quality Control Data Sheet
Prep Blank

Laboratory I.D.	Date	Time	Element	Meth.	Prep Blank Result	Acceptable Prep Blank
PB-HG1052	12/06/96	23:59:59	Mercury	7470	0	+/-0.0002

QC Sample:L72962982-002
Sample Weight:100
Sample Volume:100
Prep Batch#:HG1052
Matrix:SOIL

Quality Control Data Sheet
Associated Samples

Laboratory ID
L72962982-002
L72962982-009
L72962982-010
L72962982-013

Quality Control Data Sheet

QC Sample:L72963291-001

Date Analyzed:12/28/96

Sample Weight:45

Sample Volume:50

Prep Batch#:2081

Matrix:LEACHATE

Element	Meth.	Orig.Samp.	Sample Duplicate Result	%RPD	Matrix Spike Spk.Samp.	Amt.Spkd	%Rec.	Matrix Spk Duplicate Spk.Samp.	Amt.Spkd	%Rec	%RPD	Serial Dilution Result	%RPD	Post Spike Result	Amt.Spkd	%Rec
Chromium	6010	< 0.011	< 0.011*	<5xPQL	4.7819	5.000	95.6358	4.969	5.000	99.3992	3.85502	< 0.05	<50xPQL			
Acceptable Limits:				<20%			80-120%			80-120%	<20%		<10%			75-125%

* Test not performed

QC Sample:LCS-2081
Sample Weight:45
Sample Volume:50
Prep Batch#:2081
Matrix:LEACHATE

Quality Control Data Sheet
Laboratory Control Sample

Laboratory I.D.	Date	Time	Element	Meth.	LCS Result	Known	%Rec
LCS-2081	12/28/96	16:17:00	Chromium	6010	4.94488	5.0000	98.8
Acceptable Limits:							80-120%

QC Sample:PB-2081
Sample Weight:45
Sample Volume:50
Prep Batch#:2081
Matrix:LEACHATE

Quality Control Data Sheet
Prep Blank

Laboratory I.D.	Date	Time	Element	Meth.	Prep Blank Result	Acceptable Prep Blank
PB-2081	12/28/96	16:14:00	Chromium	6010	0.00050	+/-0.01

QC Sample:L72963291-001
Sample Weight:45
Sample Volume:50
Prep Batch#:2081
Matrix:LEACHATE

Quality Control Data Sheet
Associated Samples

Laboratory ID
L72962982-013

Quality Control Data Sheet

QC Sample:L72962982-006

Date Analyzed:12/28/96

Sample Weight:0.24

Sample Volume:100

Prep Batch#:HG1064

Matrix:SOIL

Element	Meth.	Orig.Samp.	Sample Duplicate Result	%RPD	Matrix Spike Spk.Samp.	Amt.Spkd	%Rec.	Matrix Spk Duplicate Spk.Samp.	Amt.Spkd	%Rec	%RPD	Serial Dilution Result	%RPD	Post Spike Result	Amt.Spkd	%Rec
Mercury	7470	1.500	< 0.101*	NoCalc	2.1380	1.904	33.50001	2.104	1.666	36.25	7.88527	< 0.50*	<50xPQL			
Acceptable Limits:				<20%			80-120%			80-120%	<20%		<10%			75-125%

* Test not performed

QC Sample:PB-HG1064
Sample Weight:100
Sample Volume:100
Prep Batch#:HG1064
Matrix:SOIL

Quality Control Data Sheet
Prep Blank

Laboratory I.D.	Date	Time	Element	Meth.	Prep Blank Result	Acceptable Prep Blank
PB-HG1064	12/28/96	23:59:59	Mercury	7470	<0.0002	+/-0.0002

QC Sample:L72962982-006
Sample Weight:100
Sample Volume:100
Prep Batch#:HG1064
Matrix:SOIL

Quality Control Data Sheet
Associated Samples

Laboratory ID
L72962982-006

IEA
An Aquarion Company

Client: ERM-North Central
IEA Job#: L72962982
Project #: PHIBRO-TECH
Matrix: Soil

Quality Control Summary

Laboratory Control Samples (mg/L)

Analyte	LCS ID	Known Conc. (mg/L)	Measured Conc. (mg/L)	Percent Recovery
Hexavalent Chromium	LCS	0.125	0.118	94.4
Control Limit				85 - 115%

Duplicates (mg/Kg-Dry Weight)

Analyte	Sample ID	Sample Result	Duplicate Result	Percent RPD
Hexavalent Chromium	L72962982-011	< 0.10	< 0.10	Not Calc.
Control Limit				20 %

Matrix Spikes (mg/Kg-Dry Weight)

Analyte	Sample ID	Spike Added	Sample Result	Spike Result	Percent Recovery
Hexavalent Chromium	L72962982-011	2.08	< 0.10	2.53	121.6
Control Limit					75 - 125%

IEA
An Aquarion Company

126 WEST CENTER COURT
SCHAUMBURG, ILLINOIS 60195
PH # 708-705-0740
FAX # 708-705-1567

CHAIN OF CUSTODY RECORD

NO. 068

Page 1 of

REGULATORY CLASSIFICATION - PLEASE SPECIFY

☐ NPDES ☐ DRINKING WATER ☐ RCRA ☐ OTHER

COMPANY	CONTACT PERSON	PROJECT I.D.	PHONE #	FAX #	P.O. #
ERM-North Central	Dan Petersen	PhiBro-Tech	#847-940-7200		

ADDRESS	CITY	STATE	ZIP
540 Lake Cook Road Suite 300	Deerfield	IL	

DELIVERABLES: ☐ Routine ☐ Rush (Specify) ☐ Special Request (attach specifics)

DATE	TIME	SAMPLE I.D.	MATRIX	# OF CONTAINERS	PRESERVED Y/N	Total Nickel	Metals	Hex Chrome	TCLP Total Chrome						(COMMENTS)
11/25	0915	SB05	S	1	N	✓									1
	0940	SB26	S	1	N		✓								2
	0950	SB04	S	1	N	✓									3
	1000	SB02	S	1	N	✓									4
	1035	SB01	S	1	N	✓									5
	1055	SB16	S	1	N	✓			✓						6
	1115	SB15	S	1	N										7
	1140	SB11	S	1	N	✓			✓						8
	1150	SB13	S	1	N		✓								9
	1315	SB12	S	1	N		✓								10

RELINQUISHED BY (SIGNATURE)	DATE / TIME	RECEIVED BY	DATE / TIME
Lisa M Degan	11/26/96 10:55	AM Express Tom	11/26 11:08

RELINQUISHED BY (SIGNATURE)	DATE / TIME	RECEIVED FOR LAB BY	DATE / TIME
		Vince Vuzon	11/26/96 1210

REMARKS ON SAMPLE RECEIPT

☐ BOTTLE INTACT ☐ CUSTODY SEALS
☐ PRESERVED ☐ SEALS INTACT
☐ CHILLED ☐ SEE REMARKS

IEA QUOTE NO.

IEA USE ONLY

IEA
An Aquarion Company
126 WEST CENTER COURT
SCHAUMBURG, ILLINOIS 60195
PH # 708-705-0740
FAX # 708-705-1567

CHAIN OF CUSTODY RECORD

NO. 69

Page 2 of

REGULATORY CLASSIFICATION - PLEASE SPECIFY

☐ NPDES ☐ DRINKING WATER ☐ RCRA ☐ OTHER

COMPANY	CONTACT PERSON	PROJECT I.D.	PHONE #	FAX #	P.O. #
ERM-North Central	Dan Peterson	PhBroTech	847-940-7200		

ADDRESS	CITY	STATE	ZIP
940 Lake Cook Road Suite 300	Deerfield	IL	

DELIVERABLES

☐ Routine
☐ Rush (Specify)
☐ Special Request (attach specifics)

DATE	TIME	SAMPLE I.D.	MATRIX	# OF CONTAINERS	PRESERVED Y/N	Total Nickel	Metals	Hex Chrom	TCLP Total Chrom						(COMMENTS)
11/25	1327	SB10	S	1	N	✓		✓	✓						11
	~~1343~~	~~SB27~~	S	—	—										~~12~~
	1358	SB29	S	1	N	✓		✓	✓						1312
	1417	SB24	S	1	N		✓								1413
	1440	SB20	S	1	N	✓		✓	✓						1514
															~~15~~
11/26	0919	SB17	S	1	N	✓		✓	✓						~~16~~ 15
	0932	SB18	S	1	N	✓		✓	✓						18 16
	0948	SB19	S	1	N	✓		✓	✓						19 17
															~~20~~

RELINQUISHED BY (SIGNATURE)	DATE / TIME	RECEIVED BY	DATE / TIME
Lina M. Sergeant	11/26/96 1055	AAA Express Jon	11:08
RELINQUISHED BY (SIGNATURE)	DATE / TIME	RECEIVED FOR LAB BY	DATE / TIME
		Vince Vuglar	11/26/96 1210

REMARKS ON SAMPLE RECEIPT

☐ BOTTLE INTACT ☐ CUSTODY SEALS
☐ PRESERVED ☐ SEALS INTACT
☐ CHILLED ☐ SEE REMARKS

IEA QUOTE NO.

IEA USE ONLY

Montgomery Watson

STANDARD REPORT FOOTNOTES

MONTGOMERY WATSON LABORATORIES

Madison Division
1 Science Court
Madison, Wisconsin 53711
Tel: 608 231 4747
Fax: 608 231 4777

1 Elevated quantitation limit due to low sample volume.

A2 Elevated quantitation limit necessary to overcome interference.

A4 Result should be considered estimated due to sample-related problems encountered during analysis.

A11 Sample received past recommended hold time.

A12 Analysis requested past recommended hold time.

A13 Initial analysis performed within hold time; confirmation analysis performed past recommended hold time. Results from repeat analysis are reported.

A14 Initial analysis performed within hold time; necessary dilution performed past recommended hold time. Results from repeat analysis are reported.

A15 Result should be considered estimated; analyte detected in method blank._____@_____

A17 Result should be considered estimated as indicated by method QC.

M3 Total analysis performed due to insufficient solid for TCLP extraction.

G1 Result should be considered estimated, concentration exceeds working calibration range.

G2 Elevated quantitation limit due to the concentration of petroleum hydrocarbons in the sample.

G3 Elevated quantitation limit due to the concentration of non-specific hydrocarbons in the sample.

G4 Analyte coelutes with _____; result calculated from calibration standards in a 1:1 ratio of these two compounds.

G5 Sample required extensive cleanup; Endrin Aldehyde is not recovered from these techniques.

G6 Petroleum-type odor detected from this sample.

G7 Elevated quantitation limit due to the concentration of PCBs in the sample.

G8 Result should be considered estimated due to coelution with an additional hydrocarbon product.

G9 Results are influenced by the presence of extraneous peaks which are not representative of petroleum hydrocarbon products.

G10 Presence of one or more unidentified peaks eluting earlier than the retention time window.

G11 Presence of one or more unidentified peaks eluting later than the retention time window.

G12 Result is estimated. The method used is a screening procedure for this compound.

G13 Measurement performed using test strips.

G15 n-Nitrosodiphenylamine decomposes in the GC inlet and cannot be separated from Diphenylamine.

G16 Measurement upon receipt performed using test strips. Adjusted to pH <2.

G17 Results are influenced by the presence of extraneous peaks which are not representative of petroleum hydrocarbon products. Final results pending GC/MS confirmation.

G18 An LCS/LCS duplicate was performed in lieu of an MS/MSD due to insufficient sample volume available for the MS/MSD analysis.

G19 Sample was filtered and preserved in the laboratory upon receipt.

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METHOD REFERENCES

	Soil/Groundwater				Wastewater			
Analytes	ICP	Flame	Furnace	CV	ICP	Flame	Furnace	CV
Aluminium	6010	7020	-	-	200.7	202.1	-	-
Antimony	6010	7040	7041	-	200.7	-	204.2	-
Arsenic	6010	-	7060	-	200.7	-	206.2	-
Barium	6010	7080	7081	-	200.7	208.1	208.2	-
Beryllium	6010	7090	7091	-	200.7	210.1	210.2	-
Boron	6010	-	-	-	200.7	-	-	-
Cadmium	6010	7130	7131	-	200.7	213.1	213.2	-
Calcium	6010	7140		-	200.7	215.1	-	-
Chromium, Total	6010	7190	7191	-	200.7	218.1	218.2	-
Cobalt	6010	7200	-	-	200.7	219.1	-	-
Copper	6010	7210	-	-	200.7	220.1	-	-
Iron	6010	7380	-	-	200.7	236.1	-	-
Lead	6010	7420	7421	-	200.7	239.1	239.2	-
Magnesium	6010	7450	-	-	200.7	242.1	-	-
Manganese	6010	7460	-	-	200.7	243.1	-	-
Mercury	-	-	-	7470/7471				245.1
Molybdenum	6010	7480	-	-	200.7	246.1	-	-
Nickel	6010	7520	-	-	200.7	249.1	-	-
Potassium	-	SM3500D	-	-	-	SM3500D	-	-
Selenium	6010	-	7740	-	200.7	-	270.2	-
Silver	6010	7760	7761	-	200.7	272.1	272.2	-
Sodium	6010	SM3500D	-	-	200.7	SM3500D	-	-
Strontium	6010	-	-	-	200.7	-	-	-
Thallium	6010	7840	7841	-	200.7	279.1	279.2	-
Tin	6010	-	-	-	200.7	-	-	-
Titanium	6010	-	-	-	200.7	-	-	-
Vanadium	6010	7910	7911	-	200.7	286.1	286.2	-
Zinc	6010	7950	-	-	200.7	289.1	-	-

SW846, "Test Methods for Evaluating Solid Waste", 3rd Ed., December 1987.

EPA-600, "Methods for Chemical Analysis of Water and Wastes", March 1984.

Standard Methods for the Examination of Water and Wastewater", 17th Edition, 1989.

MONTGOMERY WATSON LABORATORIES

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INORGANIC REPORT
ERM NORTH CENTRAL/PHIBROTECH
DEERFIELD IL
Project Number: 3014859

ample #	Description	Test	Result	Reporting Limit	Matrix	Units	Sample Date	Analysis Date
L11939-001	PBT-SB14-1-2 1/2	Arsenic	5.11	0.10	Solid	mg/kg	25-MAY-95	14-NOV-95
		Barium	114	0.50	Solid	mg/kg	25-MAY-95	10-NOV-95
		Cadmium	4.85	0.25	Solid	mg/kg	25-MAY-95	10-NOV-95
		Chromium, Total	25.2	0.50	Solid	mg/kg	25-MAY-95	10-NOV-95
		Lead	25.9	5.00	Solid	mg/kg	25-MAY-95	10-NOV-95
		Mercury	0.09	0.04	Solid	mg/kg	25-MAY-95	07-NOV-95
		Selenium	0.46	0.20	Solid	mg/kg	25-MAY-95	16-NOV-95
		Silver	< 0.50	0.50	Solid	mg/kg	25-MAY-95	20-NOV-95
11939-002	PBT-SB13-1-2 1/2	Arsenic	6.91	0.10	Solid	mg/kg	25-MAY-95	14-NOV-95
		Barium	54.2	0.50	Solid	mg/kg	25-MAY-95	10-NOV-95
		Cadmium	9.92	0.25	Solid	mg/kg	25-MAY-95	10-NOV-95
		Chromium, Total	13.6	0.50	Solid	mg/kg	25-MAY-95	10-NOV-95
		Lead	77.8	5.00	Solid	mg/kg	25-MAY-95	10-NOV-95
		Mercury	1.34	0.04	Solid	mg/kg	25-MAY-95	07-NOV-95
		Selenium	0.73	0.20	Solid	mg/kg	25-MAY-95	16-NOV-95
		Silver	< 0.50	0.50	Solid	mg/kg	25-MAY-95	20-NOV-95
11939-003	PBT-SB12-1-2 1/2	Arsenic	21.3	0.10	Solid	mg/kg	25-MAY-95	14-NOV-95
		Barium	130	0.50	Solid	mg/kg	25-MAY-95	10-NOV-95
		Cadmium	6.54	0.25	Solid	mg/kg	25-MAY-95	10-NOV-95
		Chromium, Total	8.18	0.50	Solid	mg/kg	25-MAY-95	10-NOV-95
		Lead	139	5.00	Solid	mg/kg	25-MAY-95	10-NOV-95
		Mercury	0.93	0.04	Solid	mg/kg	25-MAY-95	07-NOV-95
		Selenium	0.44	0.20	Solid	mg/kg	25-MAY-95	16-NOV-95
		Silver	< 0.50	0.50	Solid	mg/kg	25-MAY-95	20-NOV-95
L11939-004	PBT-SB11-1-2 1/2	Arsenic	6.47	0.10	Solid	mg/kg	25-MAY-95	14-NOV-95
		Barium	96.8	0.50	Solid	mg/kg	25-MAY-95	10-NOV-95
		Cadmium	6.14	0.25	Solid	mg/kg	25-MAY-95	10-NOV-95
		Chromium, Total	24.3	0.50	Solid	mg/kg	25-MAY-95	10-NOV-95
		Lead	47.2	5.00	Solid	mg/kg	25-MAY-95	10-NOV-95
		Mercury	0.16	0.04	Solid	mg/kg	25-MAY-95	07-NOV-95
		Selenium	0.52	0.20	Solid	mg/kg	25-MAY-95	16-NOV-95
		Silver	< 0.50	0.50	Solid	mg/kg	25-MAY-95	20-NOV-95

Note: Results in mg/kg are reported on an "as received" or wet weight basis.

Chk'd: RSK App'd: DMT
Date App'd: 11/27/95

WI Lab Certification ID#: 113138300

MONTGOMERY WATSON LABORATORIES

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INORGANIC REPORT
ERM NORTH CENTRAL/PHIBROTECH
DEERFIELD IL
Project Number: 3014859

Sample #	Description	Test	Result	Reporting Limit	Matrix	Units	Sample Date	Analysis Date
L11939-005	PBT-SB10-1-2 1/2	Arsenic	10.4	0.10	Solid	mg/kg	25-MAY-95	14-NOV-95
		Barium	4.92	0.50	Solid	mg/kg	25-MAY-95	10-NOV-95
		Cadmium	5.41	0.25	Solid	mg/kg	25-MAY-95	10-NOV-95
		Chromium, Total	76.4	0.50	Solid	mg/kg	25-MAY-95	10-NOV-95
		Lead	7.85	5.00	Solid	mg/kg	25-MAY-95	10-NOV-95
		Mercury	0.05	0.04	Solid	mg/kg	25-MAY-95	07-NOV-95
		Selenium	0.94	0.20	Solid	mg/kg	25-MAY-95	16-NOV-95
		Silver	< 0.50	0.50	Solid	mg/kg	25-MAY-95	20-NOV-95
L11939-006	PBT-SB5-1-2 1/2	Arsenic	6.15	0.10	Solid	mg/kg	25-MAY-95	14-NOV-95
		Barium	40.4	0.50	Solid	mg/kg	25-MAY-95	10-NOV-95
		Cadmium	5.91	0.25	Solid	mg/kg	25-MAY-95	10-NOV-95
		Chromium, Total	19.5	0.50	Solid	mg/kg	25-MAY-95	10-NOV-95
		Lead	80.0	5.00	Solid	mg/kg	25-MAY-95	10-NOV-95
		Mercury	0.32	0.04	Solid	mg/kg	25-MAY-95	07-NOV-95
		Selenium	0.30	0.20	Solid	mg/kg	25-MAY-95	16-NOV-95
		Silver	< 0.50	0.50	Solid	mg/kg	25-MAY-95	20-NOV-95
L11939-007	PBT-SB4-1-2 1/2	Arsenic	14.3	0.10	Solid	mg/kg	25-MAY-95	14-NOV-95
		Barium	153	0.50	Solid	mg/kg	25-MAY-95	10-NOV-95
		Cadmium	16.5	0.25	Solid	mg/kg	25-MAY-95	10-NOV-95
		Chromium, Total	21.3	0.50	Solid	mg/kg	25-MAY-95	10-NOV-95
		Lead	390	5.00	Solid	mg/kg	25-MAY-95	10-NOV-95
		Mercury	1.54	0.04	Solid	mg/kg	25-MAY-95	07-NOV-95
		Selenium	0.79	0.20	Solid	mg/kg	25-MAY-95	16-NOV-95
		Silver	< 0.50	0.50	Solid	mg/kg	25-MAY-95	20-NOV-95
L11939-008	PBT-SB2-1-2 1/2	Arsenic	14.0	0.10	Solid	mg/kg	25-MAY-95	14-NOV-95
		Barium	114	0.50	Solid	mg/kg	25-MAY-95	10-NOV-95
		Cadmium	8.22	0.25	Solid	mg/kg	25-MAY-95	10-NOV-95
		Chromium, Total	9.50	0.50	Solid	mg/kg	25-MAY-95	10-NOV-95
		Lead	148	5.00	Solid	mg/kg	25-MAY-95	10-NOV-95
		Mercury	0.41	0.04	Solid	mg/kg	25-MAY-95	07-NOV-95
		Selenium	1.09	0.20	Solid	mg/kg	25-MAY-95	16-NOV-95
		Silver	< 0.50	0.50	Solid	mg/kg	25-MAY-95	20-NOV-95

Note: Results in mg/kg are reported on an "as received" or wet weight basis.

Chk'd: App'd: Date App'd: 12/27/95

Lab Certification ID#: 113138300

MONTGOMERY WATSON LABORATORIES

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INORGANIC REPORT
ERM NORTH CENTRAL/PHIBROTECH
DEERFIELD IL
Project Number: 3014859

Sample #	Description	Test	Result	Reporting Limit	Matrix	Units	Sample Date	Analysis Date
L 939-009-	PBT-SB1-1-2 1/2	Arsenic	4.66	0.10	Solid	mg/kg	25-MAY-95	14-NOV-95
		Barium	106	0.50	Solid	mg/kg	25-MAY-95	10-NOV-95
		Cadmium	4.04	0.25	Solid	mg/kg	25-MAY-95	10-NOV-95
		Chromium, Total	22.0	0.50	Solid	mg/kg	25-MAY-95	10-NOV-95
		Lead	207	5.00	Solid	mg/kg	25-MAY-95	10-NOV-95
		Mercury	0.60	0.04	Solid	mg/kg	25-MAY-95	07-NOV-95
		Selenium	0.31	0.20	Solid	mg/kg	25-MAY-95	16-NOV-95
		Silver	< 0.50	0.50	Solid	mg/kg	25-MAY-95	20-NOV-95
L 1939-010	PBT-SB22-1-2 1/2	Arsenic	7.65	0.10	Solid	mg/kg	25-MAY-95	14-NOV-95
		Barium	36.8	0.50	Solid	mg/kg	25-MAY-95	10-NOV-95
		Cadmium	5.95	0.25	Solid	mg/kg	25-MAY-95	10-NOV-95
		Chromium, Total	9.67	0.50	Solid	mg/kg	25-MAY-95	10-NOV-95
		Lead	417	5.00	Solid	mg/kg	25-MAY-95	10-NOV-95
		Mercury	0.16	0.04	Solid	mg/kg	25-MAY-95	07-NOV-95
		Selenium	0.47	0.20	Solid	mg/kg	25-MAY-95	16-NOV-95
		Silver	< 0.50	0.50	Solid	mg/kg	25-MAY-95	20-NOV-95
L11939-011	PBT-SB17-1-2 1/2	Arsenic	5.84	0.10	Solid	mg/kg	25-MAY-95	14-NOV-95
		Barium	62.8	0.50	Solid	mg/kg	25-MAY-95	10-NOV-95
		Cadmium	5.96	0.25	Solid	mg/kg	25-MAY-95	10-NOV-95
		Chromium, Total	126	0.50	Solid	mg/kg	25-MAY-95	10-NOV-95
		Lead	42.6	5.00	Solid	mg/kg	25-MAY-95	10-NOV-95
		Mercury	0.06	0.04	Solid	mg/kg	25-MAY-95	07-NOV-95
		Selenium	0.84	0.20	Solid	mg/kg	25-MAY-95	16-NOV-95
		Silver	0.74	0.50	Solid	mg/kg	25-MAY-95	20-NOV-95
11939-012	PBT-SB27-1-2 1/2	Arsenic	33.0	0.10	Solid	mg/kg	25-MAY-95	14-NOV-95
		Barium	101	0.50	Solid	mg/kg	25-MAY-95	10-NOV-95
		Cadmium	4.95	0.25	Solid	mg/kg	25-MAY-95	10-NOV-95
		Chromium, Total	8.44	0.50	Solid	mg/kg	25-MAY-95	10-NOV-95
		Lead	47.7	5.00	Solid	mg/kg	25-MAY-95	10-NOV-95
		Mercury	< 0.04	0.04	Solid	mg/kg	25-MAY-95	07-NOV-95
		Selenium	0.72	0.20	Solid	mg/kg	25-MAY-95	16-NOV-95
		Silver	< 0.50	0.50	Solid	mg/kg	25-MAY-95	20-NOV-95

Note: Results in mg/kg are reported on an "as received" or wet weight basis.

Chk'd: App'd:
Date App'd: 11/27/95

II Lab Certification ID#: 113138300

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INORGANIC REPORT
ERM NORTH CENTRAL/PHIBROTECH
DEERFIELD IL
Project Number: 3014859

Sample #	Description	Test	Result	Reporting Limit	Matrix	Units	Sample Date	Analysis Date
L..939-013	PBT-SB21-1-2 1/2	Arsenic	2.00	0.10	Solid	mg/kg	25-MAY-95	14-NOV-95
		Barium	221	0.50	Solid	mg/kg	25-MAY-95	15-NOV-95
		Cadmium	6.45	0.25	Solid	mg/kg	25-MAY-95	15-NOV-95
		Chromium, Total	10.5	0.50	Solid	mg/kg	25-MAY-95	15-NOV-95
		Lead	141	5.00	Solid	mg/kg	25-MAY-95	15-NOV-95
		Mercury	0.16	0.04	Solid	mg/kg	25-MAY-95	07-NOV-95
		Selenium	2.31	0.20	Solid	mg/kg	25-MAY-95	16-NOV-95
		Silver	< 0.50	0.50	Solid	mg/kg	25-MAY-95	15-NOV-95
L 939-014	PBT-SB20-1-2 1/2	Arsenic	3.94	0.10	Solid	mg/kg	25-MAY-95	14-NOV-95
		Barium	34.3	0.50	Solid	mg/kg	25-MAY-95	10-NOV-95
		Cadmium	2.60	0.25	Solid	mg/kg	25-MAY-95	10-NOV-95
		Chromium, Total	957	0.50	Solid	mg/kg	25-MAY-95	10-NOV-95
		Lead	124	5.00	Solid	mg/kg	25-MAY-95	10-NOV-95
		Mercury	0.56	0.04	Solid	mg/kg	25-MAY-95	07-NOV-95
		Selenium	0.41	0.20	Solid	mg/kg	25-MAY-95	16-NOV-95
		Silver	< 0.50	0.50	Solid	mg/kg	25-MAY-95	20-NOV-95
L11939-015	PBT-SB19-1-2 1/2	Arsenic	4.25	0.10	Solid	mg/kg	25-MAY-95	14-NOV-95
		Barium	66.5	0.50	Solid	mg/kg	25-MAY-95	10-NOV-95
		Cadmium	5.60	0.25	Solid	mg/kg	25-MAY-95	10-NOV-95
		Chromium, Total	99.4	0.50	Solid	mg/kg	25-MAY-95	10-NOV-95
		Lead	35.1	5.00	Solid	mg/kg	25-MAY-95	10-NOV-95
		Mercury	0.10	0.04	Solid	mg/kg	25-MAY-95	07-NOV-95
		Selenium	0.31	0.20	Solid	mg/kg	25-MAY-95	16-NOV-95
		Silver	< 0.50	0.50	Solid	mg/kg	25-MAY-95	20-NOV-95
..1939-016	PBT-SB18-1-2 1/2	Arsenic	4.27	0.10	Solid	mg/kg	25-MAY-95	14-NOV-95
		Barium	63.5	0.50	Solid	mg/kg	25-MAY-95	10-NOV-95
		Cadmium	4.59	0.25	Solid	mg/kg	25-MAY-95	10-NOV-95
		Chromium, Total	415	0.50	Solid	mg/kg	25-MAY-95	10-NOV-95
		Lead	72.6	5.00	Solid	mg/kg	25-MAY-95	10-NOV-95
		Mercury	0.10	0.04	Solid	mg/kg	25-MAY-95	07-NOV-95
		Selenium	< 0.20	0.20	Solid	mg/kg	25-MAY-95	16-NOV-95
		Silver	< 0.50	0.50	Solid	mg/kg	25-MAY-95	20-NOV-95

ote: Results in mg/kg are reported on an "as received" or wet weight basis.

Chk'd: App'd:
Date App'd: 11/27/95

wI Lab Certification ID#: 113138300

MONTGOMERY WATSON LABORATORIES

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INORGANIC REPORT
ERM NORTH CENTRAL/PHIBROTECH
DEERFIELD IL
Project Number: 3014859

Sample #	Description	Test	Result	Reporting Limit	Matrix	Units	Sample Date	Analysis Date
L..939-017	PBT-SB15-1-2 1/2	Arsenic	13.1	0.10	Solid	mg/kg	25-MAY-95	14-NOV-95
		Barium	85.0	0.50	Solid	mg/kg	25-MAY-95	10-NOV-95
		Cadmium	11.0	0.25	Solid	mg/kg	25-MAY-95	10-NOV-95
		Chromium, Total	21.0	0.50	Solid	mg/kg	25-MAY-95	10-NOV-95
		Lead	54.1	5.00	Solid	mg/kg	25-MAY-95	10-NOV-95
		Mercury	0.64	0.04	Solid	mg/kg	25-MAY-95	07-NOV-95
		Selenium	0.84	0.20	Solid	mg/kg	25-MAY-95	16-NOV-95
		Silver	< 0.50	0.50	Solid	mg/kg	25-MAY-95	20-NOV-95
L 939-018	PBT-SB32-3 1/2	Arsenic	4.98	0.10	Solid	mg/kg	25-MAY-95	14-NOV-95
		Barium	65.5	0.50	Solid	mg/kg	25-MAY-95	10-NOV-95
		Cadmium	3.14	0.25	Solid	mg/kg	25-MAY-95	10-NOV-95
		Chromium, Total	19.7	0.50	Solid	mg/kg	25-MAY-95	10-NOV-95
		Lead	37.7	5.00	Solid	mg/kg	25-MAY-95	10-NOV-95
		Mercury	0.05	0.04	Solid	mg/kg	25-MAY-95	07-NOV-95
		Selenium	< 0.20	0.20	Solid	mg/kg	25-MAY-95	16-NOV-95
		Silver	< 0.50	0.50	Solid	mg/kg	25-MAY-95	20-NOV-95
L11939-019	PBT-SB32-8-29	Arsenic	3.01	0.10	Solid	mg/kg	25-MAY-95	14-NOV-95
		Barium	66.7	0.50	Solid	mg/kg	25-MAY-95	10-NOV-95
		Cadmium	7.28	0.25	Solid	mg/kg	25-MAY-95	10-NOV-95
		Chromium, Total	194	0.50	Solid	mg/kg	25-MAY-95	10-NOV-95
		Lead	36.9	5.00	Solid	mg/kg	25-MAY-95	10-NOV-95
		Mercury	< 0.04	0.04	Solid	mg/kg	25-MAY-95	07-NOV-95
		Selenium	0.28	0.20	Solid	mg/kg	25-MAY-95	16-NOV-95
		Silver	< 0.50	0.50	Solid	mg/kg	25-MAY-95	20-NOV-95
..1939-020	PBT-SB29-1-2 1/2	Arsenic	10.8	0.10	Solid	mg/kg	25-MAY-95	14-NOV-95
		Barium	75.0	0.50	Solid	mg/kg	25-MAY-95	10-NOV-95
		Cadmium	7.75	0.25	Solid	mg/kg	25-MAY-95	10-NOV-95
		Chromium, Total	33.0	0.50	Solid	mg/kg	25-MAY-95	10-NOV-95
		Lead	61.3	5.00	Solid	mg/kg	25-MAY-95	10-NOV-95
		Mercury	0.08	0.04	Solid	mg/kg	25-MAY-95	07-NOV-95
		Selenium	0.39	0.20	Solid	mg/kg	25-MAY-95	16-NOV-95
		Silver	< 0.50	0.50	Solid	mg/kg	25-MAY-95	20-NOV-95

ote: Results in mg/kg are reported on an "as received" or wet weight basis.

Chk'd: App'd:
Date App'd: 11/27/95

WI Lab Certification ID#: 113138300

MONTGOMERY WATSON LABORATORIES

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INORGANIC REPORT
ERM NORTH CENTRAL/PHIBROTECH
DEERFIELD IL
Project Number: 3014859

Sample #	Description	Test	Result	Reporting Limit	Matrix	Units	Sample Date	Analysis Date
1939-021-	PBT-SB28-1-2 1/2	Arsenic	3.75	0.10	Solid	mg/kg	25-MAY-95	14-NOV-95
		Barium	42.8	0.50	Solid	mg/kg	25-MAY-95	10-NOV-95
		Cadmium	7.63	0.25	Solid	mg/kg	25-MAY-95	10-NOV-95
		Chromium, Total	36.5	0.50	Solid	mg/kg	25-MAY-95	10-NOV-95
		Lead	121	5.00	Solid	mg/kg	25-MAY-95	10-NOV-95
		Mercury	0.34	0.04	Solid	mg/kg	25-MAY-95	07-NOV-95
		Selenium	< 0.40	0.20	Solid	mg/kg	25-MAY-95	16-NOV-95
		Silver	< 0.50	0.50	Solid	mg/kg	25-MAY-95	20-NOV-95
1939-022	PBT-SB26-2-3 1/2	Arsenic	8.37	0.10	Solid	mg/kg	25-MAY-95	14-NOV-95
		Barium	29.0	0.50	Solid	mg/kg	25-MAY-95	10-NOV-95
		Cadmium	11.7	0.25	Solid	mg/kg	25-MAY-95	10-NOV-95
		Chromium, Total	10.4	0.50	Solid	mg/kg	25-MAY-95	10-NOV-95
		Lead	288	5.00	Solid	mg/kg	25-MAY-95	10-NOV-95
		Mercury	0.13	0.04	Solid	mg/kg	25-MAY-95	07-NOV-95
		Selenium	0.65	0.20	Solid	mg/kg	25-MAY-95	16-NOV-95
		Silver	< 0.50	0.50	Solid	mg/kg	25-MAY-95	20-NOV-95
L11939-023	PBT-SB24-6-10	Arsenic	4.44	0.10	Solid	mg/kg	25-MAY-95	14-NOV-95
		Barium	106	0.50	Solid	mg/kg	25-MAY-95	10-NOV-95
		Cadmium	10.4	0.25	Solid	mg/kg	25-MAY-95	10-NOV-95
		Chromium, Total	25.4	0.50	Solid	mg/kg	25-MAY-95	10-NOV-95
		Lead	902	5.00	Solid	mg/kg	25-MAY-95	10-NOV-95
		Mercury	0.19	0.04	Solid	mg/kg	25-MAY-95	07-NOV-95
		Selenium	< 0.40	0.20	Solid	mg/kg	25-MAY-95	16-NOV-95
		Silver	< 0.50	0.50	Solid	mg/kg	25-MAY-95	20-NOV-95

Footnotes

Sample #	Test	Footnote
L11939-005	Arsenic	A4
L11939-013	Arsenic	A4
L11939-013	Barium	A4

Note: Results in mg/kg are reported on an "as received" or wet weight basis.

Chk'd: App'd:
Date App'd: 1/27/95

WI Lab Certification ID#: 113138300

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INORGANIC REPORT
ERM NORTH CENTRAL/PHIBROTECH
DEERFIELD IL
Project Number: 3014859

Sample #	Test	Footnote
L11939-021	Selenium	A2
L11939-023	Selenium	A2

Note: Results in mg/kg are reported on an "as received" or wet weight basis.

Chk'd: App'd:
Date App'd: 11/22/95

WI Lab Certification ID#: 113138300

MONTGOMERY WATSON

CHAIN OF CUSTODY RECORD

SPECIAL INSTRUCTIONS:
- [ ] PECFA
- [ ] WI LUST
- [ ] ACT 307
- [ ] REPORT DRY WT
- [ ] OTHER:

TURNAROUND
- [ ] 2 WEEKS (standard)
- [ ] 1 WEEK
- [ ] 3 DAYS
- [ ] 1 DAY

PROJECT NAME: ERM/Philbrook

PROJECT #: 30148.59

CITY: Deerfield

STATE: IL

SAMPLER(S):

COLLECTION DATE	COLLECTION TIME	GRAB / COMP	SAMPLE ID	NO. OF CONTAINERS	RCRA 8 metals	REMARKS	LAB USE ONLY MATRIX	LAB USE ONLY LAB NO.
			PBT-SB14-1-2½	1	X		Solid	1939-001
			SB13					-002
			SB12					-003
			SB11					-004
			SB10					-005
			SB5					-006
			SB4					-007
			SB2					-008
			SB1					-009
			SB22					-010
			SB17	2				-011

PROJ. MGR.:

SPECIAL INSTRUCTIONS:

Released from Hold

TAMPER EVIDENT SEAL INTACT? ___YES ___NO ___NOT PRESENT

SEAL NO.: _____

SAMPLES RECEIVED ON ICE? ___YES ___NO TEMP: ____°C

P.O. #95237

SIGNATURE	DATE	TIME	SIGNATURE	DATE	TIME
RELINQUISHED BY:			RECEIVED BY:		
RELINQUISHED BY			RECEIVED BY:		
RELINQUISHED BY:			RECEIVED BY:		
RELINQUISHED BY			RECEIVED FOR LABORATORY BY:	10/24	11:15 AM

NAME OF COURIER: _____

AIRBILL NUMBER: _____

C-O-C No. 014065

MONTGOMERY WATSON

CHAIN OF CUSTODY RECORD

SPECIAL INSTRUCTIONS:
- [ ] PECFA
- [ ] WI LUST
- [ ] ACT 307
- [ ] REPORT DRY WT
- [ ] OTHER:

TURNAROUND
- [ ] 2 WEEKS (standard)
- [ ] 1 WEEK
- [ ] 3 DAYS
- [ ] 1 DAY

PROJECT NAME: ERM / Phibrotech
PROJECT #: 30148 59
CITY: Deerfield
STATE: IL
SAMPLER(S):

COLLECTION DATE	COLLECTION TIME	GRAB / COMP	SAMPLE ID	NO. OF CONTAINERS	Dibutylphthalate	REMARKS	LAB USE ONLY MATRIX	LAB USE ONLY LAB NO.
			PBT - SB27 - 1-2½	2	X		Solid	11939-012
			SB21					-013
			SB20					-014
			SB19					-015
			SB18					-016
			~~SB17~~					~~017~~
			SB15					-018 01
			SB 32 - 3					~~019~~ 01
			SB 52 8-29					~~020~~ 01
			SB 29 1-2½					~~021~~ 02
			SB 28					~~022~~ 05

PROJ. MGR.:

SPECIAL INSTRUCTIONS:

TAMPER EVIDENT SEAL INTACT? ____YES ____NO ____NOT PRESENT

SEAL NO.: _____

SAMPLES RECEIVED ON ICE? ____YES ____NO TEMP: _____°C

SIGNATURE	DATE	TIME	SIGNATURE	DATE	TIME
RELINQUISHED BY:			RECEIVED BY:		
RELINQUISHED BY			RECEIVED BY:		
RELINQUISHED BY:			RECEIVED BY:		
RELINQUISHED BY			RECEIVED FOR LABORATORY BY: L. Collins	10/24	11:15

NAME OF COURIER: _____

AIRBILL NUMBER: _____

C-O-C No. 014066

MONTGOMERY WATSON

CHAIN OF CUSTODY RECORD

SPECIAL INSTRUCTIONS:
- [ ] PECFA
- [ ] WI LUST
- [ ] ACT 307
- [ ] REPORT DRY WT
- [ ] OTHER:

TURNAROUND
- [ ] 2 WEEKS (standard)
- [ ] 1 WEEK
- [ ] 3 DAYS
- [ ] 1 DAY

PROJECT NAME: BRM / Phibrotech
PROJECT #: 30148
CITY: Deerfield
STATE: IL
SAMPLER(S):

COLLECTION DATE	COLLECTION TIME	GRAB / COMP	SAMPLE ID	NO. OF CONTAINERS	RCRA 8 metals	REMARKS	LAB USE ONLY MATRIX	LAB NO.
			~~PBT SB 27 1-2½~~	~~1~~	~~X~~		Solid	1939-022
			SB 26 2½-3½	1	X			1939-023
			SB 24 6-10	1	X			1939-023

SPECIAL INSTRUCTIONS:

PROJ. MGR.:

TAMPER EVIDENT SEAL INTACT? ____YES ____NO ____NOT PRESENT
SEAL NO.: _____
SAMPLES RECEIVED ON ICE? ____YES ____NO TEMP: _____°C

SIGNATURE	DATE	TIME	SIGNATURE	DATE	TIME
RELINQUISHED BY:			RECEIVED BY:		
RELINQUISHED BY			RECEIVED BY:		
RELINQUISHED BY:			RECEIVED BY:		
RELINQUISHED BY			RECEIVED FOR LABORATORY BY: L. Colp	10/24	11:15

NAME OF COURIER: _____
AIRBILL NUMBER: _____

C-O-C No. 014067

XXXXXXXXXXXXXXXXXXXXXXXXXXXXX INHOUSE ONLY: MONTGOMERY WATSON ANALYTICAL TESTING SERVICES XXXXXXXXXXXXXXXXXXXXXXXXXXXXX

LABORATORY TRANSMITTAL
4176.0020
PHIBRO-TECH INC.

(# OF SAMPLES): 10922 (7)

DATE: 01-JUL-95

SAMPLE DATE: 05-JUN-95

TO: M- Hamper

ATRIX: GroundH2O Solid TCLP

REPORT: COMPLETE

REISSUE

PARTIAL

OFFICE: MADISON CHICAGO
DETROIT MILWAUKEE
PHILADELPHIA OHIO
CALIFORNIA

OMMENTS:

========== IF YOU HAVE ANY QUESTIONS, PLEASE FEEL FREE TO CALL DENNIS LINLEY AT (608)231-4755. ==========

eceived Date: 09-JUN-95
eport Due Date: 21-JUN-95
Comments: -><-

TEST RESULTS ENCLOSED OR PREVIOUSLY REPORTED
->HOLD<-

ubcontract Work:

oils:

ic:

et Chem: TCLP-4

etals: AG-6 AS-6 BA-6 CD-6 CR-6 NI-6 PB-6 SE-6

OUTSTANDING TEST RESULTS

ubcontract Work:

oils:

Organic:

Wet Chem:

Metals:

MONTGOMERY WATSON
Analytical Testing Services

University Research Park
One Science Court
Madison, Wisconsin 53711
Tel: 608 231 4747 • Fax: 608 231 4777

METHOD REFERENCES

	Soil/Groundwater				Wastewater			
Analytes	ICP	Flame	Furnace	CV	ICP	Flame	Furnace	CV
Aluminium	6010	7020	-	-	200.7	202.1	-	-
Antimony	6010	7040	7041	-	200.7	-	204.2	-
Arsenic	6010	-	7060	-	200.7	-	206.2	-
Barium	6010	7080	7081	-	200.7	208.1	208.2	-
Beryllium	6010	7090	7091	-	200.7	210.1	210.2	-
Boron	6010	-	-	-	200.7	-	-	-
Cadmium	6010	7130	7131	-	200.7	213.1	213.2	-
Calcium	6010	7140		-	200.7	215.1	-	-
Chromium, Total	6010	7190	7191	-	200.7	218.1	218.2	-
Cobalt	6010	7200	-	-	200.7	219.1	-	-
Copper	6010	7210	-	-	200.7	220.1	-	-
Iron	6010	7380	-	-	200.7	236.1	-	-
Lead	6010	7420	7421	-	200.7	239.1	239.2	-
Magnesium	6010	7450	-	-	200.7	242.1	-	-
Manganese	6010	7460	-	-	200.7	243.1	-	-
Mercury	-	-	-	7470/7471				245.1
Molybdenum	6010	7480	-	-	200.7	246.1	-	-
Nickel	6010	7520	-	-	200.7	249.1	-	-
Potassium	-	SM3500D	-	-	-	SM3500D	-	-
Selenium	6010	-	7740	-	200.7	-	270.2	-
Silver	6010	7760	7761	-	200.7	272.1	272.2	-
Sodium	6010	SM3500D	-	-	200.7	SM3500D	-	-
Strontium	6010	-	-	-	200.7	-	-	-
Thallium	6010	7840	7841	-	200.7	279.1	279.2	-
Tin	6010	-	-	-	200.7	-	-	-
Titanium	6010	-	-	-	200.7	-	-	-
Vanadium	6010	7910	7911	-	200.7	286.1	286.2	-
Zinc	6010	7950	-	-	200.7	289.1	-	-

SW846, "Test Methods for Evaluating Solid Waste", 3rd Ed., December 1987.

EPA-600, "Methods for Chemical Analysis of Water and Wastes", March 1984.

Standard Methods for the Examination of Water and Wastewater", 17th Edition, 1989.

MONTGOMERY WATSON
Analytical Testing Services

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Madison, Wisconsin 53711
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STANDARD REPORT FOOTNOTES

A1 Elevated quantitation limit due to low sample volume.

A2 Elevated quantitation limit necessary to overcome interference.

A4 Result should be considered estimated due to sample-related problems encountered during analysis.

A11 Sample received past recommended hold time.

A12 Analysis requested past recommended hold time.

A13 Initial analysis performed within hold time; confirmation analysis performed past recommended hold time. Results from repeat analysis are reported.

A14 Initial analysis performed within hold time; necessary dilution performed past recommended hold time. Results from repeat analysis are reported.

A15 Result should be considered estimated; analyte detected in method blank. Cadmium - @0.006 mg/L

A17 Result should be considered estimated as indicated by method QC.

M3 Total analysis performed due to insufficient solid for TCLP extraction.

G1 Result should be considered estimated, concentration exceeds working calibration range.

G2 Elevated quantitation limit due to the concentration of petroleum hydrocarbons in the sample.

G3 Elevated quantitation limit due to the concentration of non-specific hydrocarbons in the sample.

4 Analyte coelutes with _____; result calculated from calibration standards in a 1:1 ratio of these two compounds.

G5 Sample required extensive cleanup; Endrin Aldehyde is not recovered from these techniques.

G6 Petroleum-type odor detected from this sample.

G7 Elevated quantitation limit due to the concentration of PCBs in the sample.

G8 Result should be considered estimated due to coelution with an additional hydrocarbon product.

G9 Results are influenced by the presence of extraneous peaks which are not representative of petroleum hydrocarbon products.

G10 Presence of one or more unidentified peaks eluting earlier than the retention time window.

G11 Presence of one or more unidentified peaks eluting later than the retention time window.

G12 Result is estimated. The method used is a screening procedure for this compound.

G13 Measurement performed using test strips.

G15 n-Nitrosodiphenylamine decomposes in the GC inlet and cannot be separated from Diphenylamine.

G16 Measurement upon receipt performed using test strips. Adjusted to pH <2.

G17 Results are influenced by the presence of extraneous peaks which are not representative of petroleum hydrocarbon products. Final results pending GC/MS confirmation.

8 An LCS/LCS duplicate was performed in lieu of an MS/MSD due to insufficient sample volume available for the MS/MSD analysis.

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INORGANIC REPORT
PHIBRO-TECH INC.
JOLIET IL
Project Number: 4176.0020

Sample #	Description	Test	Result	Reporting Limit	Matrix	Units	Sample Date	Analysis Date
L10922-005	PBT-SB8-GW-UNFILTERED	Arsenic	0.148	0.001	GroundH2O	mg/L	05-JUN-95	21-JUN-95
		Barium	3.36	0.01	GroundH2O	mg/L	05-JUN-95	22-JUN-95
		Cadmium	0.0334	0.0002	GroundH2O	mg/L	05-JUN-95	26-JUN-95
		Chromium, Total	2.06	0.01	GroundH2O	mg/L	05-JUN-95	22-JUN-95
		Lead	32.8	0.0015	GroundH2O	mg/L	05-JUN-95	26-JUN-95
		Nickel	88.5	0.02	GroundH2O	mg/L	05-JUN-95	30-JUN-95
		Selenium	0.018	0.002	GroundH2O	mg/L	05-JUN-95	23-JUN-95
		Silver	0.05	0.01	GroundH2O	mg/L	05-JUN-95	22-JUN-95
L10922-006	PBT-SB8-GW-FILTERED	Arsenic	< 0.001	0.001	GroundH2O	mg/L	05-JUN-95	21-JUN-95
		Barium	0.05	0.01	GroundH2O	mg/L	05-JUN-95	22-JUN-95
		Cadmium	0.0005	0.0002	GroundH2O	mg/L	05-JUN-95	26-JUN-95
		Chromium, Total	0.05	0.01	GroundH2O	mg/L	05-JUN-95	22-JUN-95
		Lead	< 0.0015	0.0015	GroundH2O	mg/L	05-JUN-95	28-JUN-95
		Nickel	0.11	0.02	GroundH2O	mg/L	05-JUN-95	21-JUN-95
		Selenium	< 0.008	0.002	GroundH2O	mg/L	05-JUN-95	23-JUN-95
		Silver	< 0.01	0.01	GroundH2O	mg/L	05-JUN-95	22-JUN-95

Footnotes

Sample #	Test	Footnote
L10922-005	Barium	A4
L10922-005	Chromium, Total	A4
L10922-006	Selenium	A2

Chk'd: App'd:
Date App'd: 7/3/95

WI Lab Certification ID#: 113138300

MONTGOMERY WATSON
Analytical Testing Services

University Research Park
One Science Court
Madison, Wisconsin 53711
Tel: 608 231 4747 • Fax: 608 231 4777

TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP)
METHOD 1311
INORGANIC REPORT

PHIBRO-TECH INC.
JOLIET IL
Project Number: 4176.0020

Lab Sample # : L10922-001
Description : PBT-SB6-2-2.5'
Sample Date : 05-JUN-95

Test	Regulatory Limit (mg/L)	Analytical Result (mg/L)	Reporting Limit (mg/L)	Matrix Spike Recovery (%)	Analysis Date	Footnote
Arsenic	5	< 0.001	0.001	85.0	26-JUN-95	
Barium	100	0.10	0.01	-	29-JUN-95	(a)
Cadmium	1	0.044	0.005	101.0	21-JUN-95	A15
Chromium, Total	5	< 0.01	0.01	96.0	22-JUN-95	
Lead	5	0.0070	0.0015	80.0	23-JUN-95	
Nickel	-	3.55	0.02	96.0	21-JUN-95	
Selenium	1	< 0.004	0.002	-	23-JUN-95	A2, (a)
Silver	5	< 0.01	0.01	50.0	22-JUN-95	

(a) Result obtained by method of standard addition (MSA).

Chk'd: App'd:
Date App'd: 7/3/95

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TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP)
METHOD 1311
INORGANIC REPORT

PHIBRO-TECH INC.
JOLIET IL
Project Number: 4176.0020

L) Sample # : L10922-002
Description : PBT-SB7-2-3'
S ple Date : 05-JUN-95

Test	Regulatory Limit (mg/L)	Analytical Result (mg/L)	Reporting Limit (mg/L)	Matrix Spike Recovery (%)	Analysis Date	Footnote
A enic	5	0.005	0.001	85.0	26-JUN-95	
B ium	100	0.32	0.01	-	29-JUN-95	(a)
Cadmium	1	0.041	0.005	101.0	21-JUN-95	A15
C omium, Total	5	< 0.01	0.01	96.0	22-JUN-95	
L	5	0.205	0.0015	80.0	23-JUN-95	
Nickel	-	0.50	0.02	96.0	21-JUN-95	
Selenium	1	< 0.004	0.002	-	23-JUN-95	A2, (a)
S ver	5	< 0.01	0.01	50.0	22-JUN-95	

(Result obtained by method of standard addition (MSA).

Chk'd: App'd:
Date App'd: 7/3/95

WI b Certification ID#: 113138300

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TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP)
METHOD 1311
INORGANIC REPORT

PHIBRO-TECH INC.
JOLIET IL
Project Number: 4176.0020

Lab Sample # : L10922-003
Description : PBT-SB8-2-3'
mple Date : 05-JUN-95

Test	Regulatory Limit (mg/L)	Analytical Result (mg/L)	Reporting Limit (mg/L)	Matrix Spike Recovery (%)	Analysis Date	Footnote
senic	5	< 0.001	0.001	85.0	26-JUN-95	
arium	100	0.30	0.01	-	29-JUN-95	(a)
Cadmium	1	0.009	0.005	101.0	21-JUN-95	A15
um, Total	5	< 0.01	0.01	96.0	22-JUN-95	
a	5	1.39	0.0015	80.0	23-JUN-95	
Nickel	-	0.95	0.02	96.0	21-JUN-95	
lenium	1	< 0.004	0.002	-	23-JUN-95	A2, (a)
iver	5	< 0.01	0.01	50.0	22-JUN-95	

) Result obtained by method of standard addition (MSA).

Chk'd: App'd:
Date App'd: 7/3/95

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TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP)
METHOD 1311
INORGANIC REPORT

PHIBRO-TECH INC.
JOLIET IL
Project Number: 4176.0020

ab Sample # : L10922-004
Description : PBT-SB30-2-3'
ample Date : 05-JUN-95

est	Regulatory Limit (mg/L)	Analytical Result (mg/L)	Reporting Limit (mg/L)	Matrix Spike Recovery (%)	Analysis Date	Footnote
senic	5	< 0.001	0.001	85.0	26-JUN-95	
rium	100	0.17	0.01	-	29-JUN-95	(a)
Cadmium	1	0.077	0.005	101.0	21-JUN-95	A15
Chromium, Total	5	< 0.01	0.01	96.0	22-JUN-95	
	5	0.0300	0.0015	80.0	23-JUN-95	
Nickel	-	5.82	0.02	96.0	21-JUN-95	
Selenium	1	< 0.004	0.002	-	23-JUN-95	A2, (a)
ilver	5	< 0.01	0.01	50.0	22-JUN-95	

) Result obtained by method of standard addition (MSA).

Chk'd: App'd:
Date App'd: 7/3/95

WI ab Certification ID#: 113138300

MONTGOMERY WATSON

CHAIN OF CUSTODY RECORD

INSTRUCTIONS:
- ☐ PECFA
- ☐ WI LUST
- ☐ ACT 307
- ☐ REPORT DRY WT
- ☒ OTHER: RCRA

- ☐ WEEKS (standard)
- ☐ 1 WEEK
- ☐ 3 DAYS
- ☐ 1 DAY

PROJECT NAME: PHIBRO TECH, INC.
PROJECT #: 4176-0020
CITY: JOLIET
STATE: ILLINOIS
SAMPLER(S): [signature]

COLLECTION DATE	COLLECTION TIME	GRAB / COMP	SAMPLE ID	NO. OF CONTAINERS	TCLP METALS	TOTAL METALS	DISSOLVED METALS						REMARKS (TAG #S)	LAB USE ONLY MATRIX	LAB USE ONLY LAB NO.
*6-5-95	1415	X	PBT-SB3-2-3'	1	X								8-0958	SOLID	10922-007
	1130	X	PBT-SB6-2-2½'	1	X								8-0959		-001
	1030	X	PBT-SB7-2-3'	1	X								8-0960		-002
	935	X	PBT-SB8-2-3'	1	X								8-0961		-003
6-5-95	1110	X	PBT-SB30-2-3'	1	X								8-0962		-004
6-5-95	935	X	PBT-SB8-GW	1		X							8-0963	GW	-005
6-5-95	935	X	PBT-SB8-GW	1			X						8-0964		-006

SPECIAL INSTRUCTIONS:
*NOTE - Hold analysis - wait for call

RECEIVED: ☒ INTACT ☒ ON ICE TEMP _____ °F

PROJ. MGR.: MARTIN HAMPER

COC seal #'s 92-00533, 34

*SAME 8 METALS for GW ← TCLP METALS - Arsenic, Barium, Cadmium, Chromium, Lead, Nickel, Silver, Selenium

	SIGNATURE	PRINT NAME	COMPANY / TITLE	DATE	TIME
RELINQUISHED BY:	[signature]	DAVID A. PIECZYNSKI	Montgomery Watson / Hydrogeologist	6-8-95	1800
RECEIVED BY:					
RELINQUISHED BY:	[signature]				
RECEIVED BY:	[signature]	D. Linley	MWATS	6/9/95	5:00

C-O-C No. 0004

NAME OF COURIER: FED EX
AIRBILL NUMBER: 111 7989 171
Tracking #

XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX INHOUSE ONLY: MONTGOMERY WATSON ANALYTICAL TESTING SERVICES XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

LABORATORY TRANSMITTAL
4176.0020
PHIBRO-TECH INC.

LOGIN (# OF SAMPLES): 10828 (26)

DATE: 15-JUN-95

AMPLE DATE: 24-MAY-95 TO 25-MAY-95

TO: MARTIN HAMPER

MATRIX: Solid TCLP

EPORT: COMPLETE

REISSUE

PARTIAL

OFFICE: MADISON CHICAGO

DETROIT MILWAUKEE

PHILADELPHIA OHIO

CALIFORNIA

OMMENTS:

========== IF YOU HAVE ANY QUESTIONS, PLEASE FEEL FREE TO CALL DENNIS LINLEY AT (608)231-4755. ==========

Received Date: 31-MAY-95
Report Due Date: 12-JUN-95
Comments: -><-

TEST RESULTS ENCLOSED OR PREVIOUSLY REPORTED

->ON HOLD<-

Subcontract Work:

Soils:

rganic:

et Chem: TCLP-22

etals: AG-22 AS-22 BA-22 CD-22 CR-22 NI-22 PB-22 SE-22

OUTSTANDING TEST RESULTS

ubcontract Work:

Soils:

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STANDARD REPORT FOOTNOTES

A Elevated quantitation limit due to low sample volume.

A2 Elevated quantitation limit necessary to overcome interference.

A4 Result should be considered estimated due to sample-related problems encountered during analysis.

A11 Sample received past recommended hold time.

A12 Analysis requested past recommended hold time.

A13 Initial analysis performed within hold time; confirmation analysis performed past recommended hold time. Results from repeat analysis are reported.

A14 Initial analysis performed within hold time; necessary dilution performed past recommended hold time. Results from repeat analysis are reported.

A15 Result should be considered estimated; analyte detected in method blank.

A17 Result should be considered estimated as indicated by method QC.

A13 Total analysis performed due to insufficient solid for TCLP extraction.

G1 Result should be considered estimated, concentration exceeds working calibration range.

G2 Elevated quantitation limit due to the concentration of petroleum hydrocarbons in the sample.

G3 Elevated quantitation limit due to the concentration of non-specific hydrocarbons in the sample.

G4 Analyte coelutes with _____; result calculated from calibration standards in a 1:1 ratio of these two compounds.

G5 Sample required extensive cleanup; Endrin Aldehyde is not recovered from these techniques.

G6 Petroleum-type odor detected from this sample.

G7 Elevated quantitation limit due to the concentration of PCBs in the sample.

G8 Result should be considered estimated due to coelution with an additional hydrocarbon product

G9 Results are influenced by the presence of extraneous peaks which are not representative of petroleum hydrocarbon products.

G10 Presence of one or more unidentified peaks eluting earlier than the retention time window.

G11 Presence of one or more unidentified peaks eluting later than the retention time window.

G12 Result is estimated. The method used is a screening procedure for this compound.

G13 Measurement performed using test strips.

G15 n-Nitrosodiphenylamine decomposes in the GC inlet and cannot be separated from Diphenylamine.

G16 Measurement upon receipt performed using test strips. Adjusted to pH <2.

G Results are influenced by the presence of extraneous peaks which are not representative of petroleum hydrocarbon products. Final results pending GC/MS confirmation.

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METHOD REFERENCES

	Soil/Groundwater				Wastewater			
Analytes	ICP	Flame	Furnace	CV	ICP	Flame	Furnace	CV
Aluminium	6010	7020	-	-	200.7	202.1	-	-
Antimony	6010	7040	7041	-	200.7	-	204.2	-
Arsenic	6010	-	7060	-	200.7	-	206.2	-
Barium	6010	7080	7081	-	200.7	208.1	208.2	-
Beryllium	6010	7090	7091	-	200.7	210.1	210.2	-
Boron	6010	-	-	-	200.7	-	-	-
Cadmium	6010	7130	7131	-	200.7	213.1	213.2	-
Calcium	6010	7140		-	200.7	215.1	-	-
Chromium, Total	6010	7190	7191	-	200.7	218.1	218.2	-
Cobalt	6010	7200	-	-	200.7	219.1	-	-
Copper	6010	7210	-	-	200.7	220.1	-	-
Iron	6010	7380	-	-	200.7	236.1	-	-
Lead	6010	7420	7421	-	200.7	239.1	239.2	-
Magnesium	6010	7450	-	-	200.7	242.1	-	-
nganese	6010	7460	-	-	200.7	243.1	-	-
Mercury	-	-	-	7470/7471				245.1
Molybdenum	6010	7480	-	-	200.7	246.1	-	-
Nickel	6010	7520	-	-	200.7	249.1	-	-
Potassium	-	SM3500D	-	-	-	SM3500D	-	-
Selenium	6010	-	7740	-	200.7	-	270.2	-
Silver	6010	7760	7761	-	200.7	272.1	272.2	-
Sodium	6010	SM3500D	-	-	200.7	SM3500D	-	-
Strontium	6010	-	-	-	200.7	-	-	-
Thallium	6010	7840	7841	-	200.7	279.1	279.2	-
Tin	6010	-	-	-	200.7	-	-	-
Titanium	6010	-	-	-	200.7	-	-	-
Vanadium	6010	7910	7911	-	200.7	286.1	286.2	-
Zinc	6010	7950	-	-	200.7	289.1	-	-

SW846, "Test Methods for Evaluating Solid Waste", 3rd Ed., December 1987.

EPA-600, "Methods for Chemical Analysis of Water and Wastes", March 1984.

Standard Methods for the Examination of Water and Wastewater", 17th Edition, 1989.

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TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP)
METHOD 1311
INORGANIC REPORT

PHIBRO-TECH INC.
JOLIET IL
Project Number: 4176.0020

Lab Sample # : L10828-001
Description : PBT-SB1-1-2 1/2
Sample Date : 25-MAY-95

Test	Regulatory Limit (mg/L)	Analytical Result (mg/L)	Reporting Limit (mg/L)	Matrix Spike Recovery (%)	Analysis Date	Footnote
Arsenic	5	< 0.001	0.001	96.0	09-JUN-95	
Barium	100	1.29	0.01	96.0	08-JUN-95	
Cadmium	1	0.023	0.005	92.0	08-JUN-95	
Chromium, Total	5	0.01	0.01	94.0	09-JUN-95	
Lead	5	0.502	0.0015	94.0	09-JUN-95	A15
Nickel	-	3.39	0.02	96.0	09-JUN-95	
Selenium	1	< 0.002	0.002	87.0	13-JUN-95	
Silver	5	0.01	0.01	94.0	08-JUN-95	

Chk'd: DSK App'd: CAW
Date App'd: 6-15-95

W. Lab Certification ID#: 113138300

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TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP)
METHOD 1311
INORGANIC REPORT

PHIBRO-TECH INC.
JOLIET IL
Project Number: 4176.0020

Lab Sample # : L10828-002
Description : PBT-SB2-1-2 1/2
S ple Date : 24-MAY-95

Test	Regulatory Limit (mg/L)	Analytical Result (mg/L)	Reporting Limit (mg/L)	Matrix Spike Recovery (%)	Analysis Date	Footnote
A enic	5	0.002	0.001	85.0	09-JUN-95	
Barium	100	0.54	0.01	94.0	08-JUN-95	
Cadmium	1	0.015	0.005	93.0	08-JUN-95	
C m, Total	5	< 0.01	0.01	90.0	09-JUN-95	
L a	5	0.0780	0.0015	109.0	09-JUN-95	A15
Nickel	-	1.42	0.02	100.0	09-JUN-95	
S enium	1	< 0.002	0.002	95.0	13-JUN-95	
S ver	5	< 0.01	0.01	84.0	08-JUN-95	

Chk'd: App'd:
Date App'd: 6-15-95

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TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP)
METHOD 1311
INORGANIC REPORT

PHIBRO-TECH INC.
JOLIET IL
Project Number: 4176.0020

Lab Sample # : L10828-003
Description : PBT-SB4-1-2 1/2
Sample Date : 24-MAY-95

Test	Regulatory Limit (mg/L)	Analytical Result (mg/L)	Reporting Limit (mg/L)	Matrix Spike Recovery (%)	Analysis Date	Footnote
Arsenic	5	0.001	0.001	85.0	09-JUN-95	
Barium	100	0.24	0.01	94.0	08-JUN-95	
Cadmium	1	0.029	0.005	93.0	08-JUN-95	
Chromium, Total	5	< 0.01	0.01	90.0	09-JUN-95	
Lead	5	0.0070	0.0015	109.0	09-JUN-95	A15
Nickel	-	7.75	0.02	100.0	09-JUN-95	
Selenium	1	< 0.002	0.002	95.0	13-JUN-95	
Silver	5	< 0.01	0.01	84.0	08-JUN-95	

Chk'd: RSK App'd: GAW
Date App'd: 6-15-95

Lab Certification ID#: 113138300

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TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP)
METHOD 1311
INORGANIC REPORT

PHIBRO-TECH INC.
JOLIET IL
Project Number: 4176.0020

Lab Sample # : L10828-004
Description : PBT-SB5-1-2 1/2
Sample Date : 24-MAY-95

Test	Regulatory Limit (mg/L)	Analytical Result (mg/L)	Reporting Limit (mg/L)	Matrix Spike Recovery (%)	Analysis Date	Footnote
Arsenic	5	< 0.001	0.001	85.0	09-JUN-95	
Barium	100	0.31	0.01	94.0	08-JUN-95	
Cadmium	1	0.034	0.005	93.0	08-JUN-95	
Chromium, Total	5	< 0.01	0.01	90.0	09-JUN-95	
Lead	5	0.0070	0.0015	109.0	09-JUN-95	A15
Nickel	-	1.62	0.02	100.0	09-JUN-95	
Selenium	1	< 0.002	0.002	95.0	13-JUN-95	
Silver	5	< 0.01	0.01	84.0	08-JUN-95	

Chk'd: RSK App'd: CRW
Date App'd: 6/15/95

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TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP)
METHOD 1311
INORGANIC REPORT

PHIBRO-TECH INC.
JOLIET IL
Project Number: 4176.0020

Lab Sample # : L10828-005
Description : PBT-SB10-1-2 1/2
ample Date : 24-MAY-95

Test	Regulatory Limit (mg/L)	Analytical Result (mg/L)	Reporting Limit (mg/L)	Matrix Spike Recovery (%)	Analysis Date	Footnote
rsenic	5	< 0.001	0.001	96.0	09-JUN-95	
arium	100	0.54	0.01	96.0	08-JUN-95	
Cadmium	1	0.047	0.005	92.0	08-JUN-95	
ium, Total	5	0.04	0.01	94.0	09-JUN-95	
ead	5	0.0170	0.0015	94.0	09-JUN-95	A15
Nickel	-	5.92	0.02	96.0	09-JUN-95	
elenium	1	< 0.002	0.002	87.0	13-JUN-95	
ilver	5	< 0.01	0.01	94.0	08-JUN-95	

Chk'd: App'd:
Date App'd: 6.15.95

W Lab Certification ID#: 113138300

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TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP)
METHOD 1311
INORGANIC REPORT

PHIBRO-TECH INC.
JOLIET IL
Project Number: 4176.0020

Lab Sample # : L10828-006
Description : PBT-SB11-1-2 1/2
Sample Date : 24-MAY-95

Test	Regulatory Limit (mg/L)	Analytical Result (mg/L)	Reporting Limit (mg/L)	Matrix Spike Recovery (%)	Analysis Date	Footnote
Arsenic	5	< 0.001	0.001	85.0	09-JUN-95	
Barium	100	0.84	0.01	94.0	08-JUN-95	
Cadmium	1	0.016	0.005	93.0	08-JUN-95	
Chromium, Total	5	< 0.01	0.01	90.0	09-JUN-95	
Lead	5	0.0120	0.0015	109.0	09-JUN-95	A15
Nickel	-	4.49	0.02	100.0	09-JUN-95	
Selenium	1	< 0.002	0.002	95.0	13-JUN-95	
Silver	5	< 0.01	0.01	84.0	08-JUN-95	

Chk'd: App'd:
Date App'd: 6-15-95

WI Lab Certification ID#: 113138300

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TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP)
METHOD 1311
INORGANIC REPORT

PHIBRO-TECH INC.
JOLIET IL
Project Number: 4176.0020

Lab Sample # : L10828-007
Description : PBT-SB12-1-2 1/2
Sample Date : 24-MAY-95

Test	Regulatory Limit (mg/L)	Analytical Result (mg/L)	Reporting Limit (mg/L)	Matrix Spike Recovery (%)	Analysis Date	Footnote
Arsenic	5	< 0.001	0.001	85.0	09-JUN-95	
Barium	100	0.78	0.01	94.0	08-JUN-95	
Cadmium	1	0.022	0.005	93.0	08-JUN-95	
Chromium, Total	5	< 0.01	0.01	90.0	09-JUN-95	
Lead	5	0.0250	0.0015	109.0	09-JUN-95	A15
Nickel	-	2.95	0.02	100.0	09-JUN-95	
Selenium	1	< 0.002	0.002	95.0	13-JUN-95	
Silver	5	< 0.01	0.01	84.0	08-JUN-95	

Chk'd: RSC App'd: CAW
Date App'd: 6.15.95

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TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP)
METHOD 1311
INORGANIC REPORT

PHIBRO-TECH INC.
JOLIET IL
Project Number: 4176.0020

Lab Sample # : L10828-008
Description : PBT-SB13-1-2 1/2
Sample Date : 24-MAY-95

Test	Regulatory Limit (mg/L)	Analytical Result (mg/L)	Reporting Limit (mg/L)	Matrix Spike Recovery (%)	Analysis Date	Footnote
Arsenic	5	< 0.001	0.001	85.0	09-JUN-95	
Barium	100	0.43	0.01	94.0	08-JUN-95	
Cadmium	1	0.070	0.005	93.0	08-JUN-95	
Chromium, Total	5	< 0.01	0.01	90.0	09-JUN-95	
Lead	5	0.0090	0.0015	109.0	09-JUN-95	A15
Nickel	-	7.96	0.02	100.0	09-JUN-95	
Selenium	1	< 0.002	0.002	95.0	13-JUN-95	
Silver	5	0.01	0.01	84.0	08-JUN-95	

Chk'd: RSK App'd: CAW
Date App'd: 6.15.95

W Lab Certification ID#: 113138300

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TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP)
METHOD 1311
INORGANIC REPORT

PHIBRO-TECH INC.
JOLIET IL
Project Number: 4176.0020

Lab Sample # : L10828-009
Description : PBT-SB14-1-2 1/2
Sample Date : 24-MAY-95

Test	Regulatory Limit (mg/L)	Analytical Result (mg/L)	Reporting Limit (mg/L)	Matrix Spike Recovery (%)	Analysis Date	Footnote
Arsenic	5	0.002	0.001	85.0	09-JUN-95	
Barium	100	0.79	0.01	94.0	08-JUN-95	
Cadmium	1	0.028	0.005	93.0	08-JUN-95	
Chromium, Total	5	< 0.01	0.01	90.0	09-JUN-95	
Lead	5	0.0140	0.0015	109.0	09-JUN-95	A15
Nickel	-	17.8	0.02	100.0	09-JUN-95	
Selenium	1	< 0.002	0.002	95.0	13-JUN-95	
Silver	5	< 0.01	0.01	84.0	08-JUN-95	

Chk'd: BSK App'd: CAW
Date App'd: 6.15.95

MONTGOMERY WATSON
Analytical Testing Services

University Research Park
One Science Court
Madison, Wisconsin 53711
Tel: 608 231 4747 • Fax: 608 231 4777

TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP)
METHOD 1311
INORGANIC REPORT

PHIBRO-TECH INC.
JOLIET IL
Project Number: 4176.0020

Lab Sample # : L10828-010
Description : PBT-SB15-1-2 1/2
Sample Date : 24-MAY-95

Test	Regulatory Limit (mg/L)	Analytical Result (mg/L)	Reporting Limit (mg/L)	Matrix Spike Recovery (%)	Analysis Date	Footnote
Arsenic	5	0.003	0.001	85.0	09-JUN-95	
Barium	100	0.71	0.01	94.0	08-JUN-95	
Cadmium	1	0.039	0.005	93.0	08-JUN-95	
Chromium, Total	5	< 0.01	0.01	90.0	09-JUN-95	
Lead	5	0.0080	0.0015	109.0	09-JUN-95	A15
Nickel	-	4.58	0.02	100.0	09-JUN-95	
Selenium	1	< 0.002	0.002	95.0	13-JUN-95	
Silver	5	< 0.01	0.01	84.0	08-JUN-95	

Chk'd: RSK App'd: CAW
Date App'd: 6-15-95

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TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP)
METHOD 1311
INORGANIC REPORT

PHIBRO-TECH INC.
JOLIET IL
Project Number: 4176.0020

Lab Sample # : L10828-011
Description : PBT-SB17-1-2 1/2
Sample Date : 24-MAY-95

Test	Regulatory Limit (mg/L)	Analytical Result (mg/L)	Reporting Limit (mg/L)	Matrix Spike Recovery (%)	Analysis Date	Footnote
rsenic	5	0.004	0.001	85.0	09-JUN-95	
Barium	100	0.60	0.01	94.0	08-JUN-95	
Cadmium	1	0.011	0.005	93.0	08-JUN-95	
ium, Total	5	< 0.01	0.01	90.0	09-JUN-95	
Lead	5	0.0130	0.0015	109.0	09-JUN-95	A15
Nickel	-	0.07	0.02	100.0	09-JUN-95	
elenium	1	< 0.002	0.002	95.0	13-JUN-95	
ilver	5	< 0.01	0.01	84.0	08-JUN-95	

Chk'd: App'd:
Date App'd: 6.15.95

Lab Certification ID#: 113138300

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TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP)
METHOD 1311
INORGANIC REPORT

PHIBRO-TECH INC.
JOLIET IL
Project Number: 4176.0020

Lab Sample # : L10828-012
Description : PBT-SB18-1-2 1/2
Sample Date : 25-MAY-95

Test	Regulatory Limit (mg/L)	Analytical Result (mg/L)	Reporting Limit (mg/L)	Matrix Spike Recovery (%)	Analysis Date	Footnote
Arsenic	5	0.001	0.001	84.0	09-JUN-95	
Barium	100	0.67	0.01	97.0	08-JUN-95	
Cadmium	1	0.008	0.005	94.0	08-JUN-95	
Chromium, Total	5	0.03	0.01	94.0	09-JUN-95	
Lead	5	0.0180	0.0015	105.0	09-JUN-95	A15
Nickel	-	0.05	0.02	100.0	09-JUN-95	
Selenium	1	< 0.002	0.002	86.0	13-JUN-95	
Silver	5	< 0.01	0.01	88.0	08-JUN-95	

Chk'd: BSK App'd: CAW
Date App'd: 6.15.95

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TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP)
METHOD 1311
INORGANIC REPORT

PHIBRO-TECH INC.
JOLIET IL
Project Number: 4176.0020

Lab Sample # : L10828-013
Description : PBT-SB19-1-2 1/2
Sample Date : 25-MAY-95

Test	Regulatory Limit (mg/L)	Analytical Result (mg/L)	Reporting Limit (mg/L)	Matrix Spike Recovery (%)	Analysis Date	Footnote
Arsenic	5	0.005	0.001	84.0	09-JUN-95	
Barium	100	0.68	0.01	97.0	08-JUN-95	
Cadmium	1	0.007	0.005	94.0	08-JUN-95	
Chromium, Total	5	< 0.01	0.01	94.0	09-JUN-95	
Lead	5	0.0060	0.0015	105.0	09-JUN-95	A15
Nickel	-	0.03	0.02	100.0	09-JUN-95	
Selenium	1	< 0.002	0.002	86.0	13-JUN-95	
Silver	5	< 0.01	0.01	88.0	08-JUN-95	

Chk'd: App'd:
Date App'd: 6-15-95

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TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP)
METHOD 1311
INORGANIC REPORT

PHIBRO-TECH INC.
JOLIET IL
Project Number: 4176.0020

Lab Sample # : L10828-014
Description : PBT-SB20-1-2 1/2
ample Date : 24-MAY-95

Test	Regulatory Limit (mg/L)	Analytical Result (mg/L)	Reporting Limit (mg/L)	Matrix Spike Recovery (%)	Analysis Date	Footnote
rsenic	5	0.001	0.001	84.0	09-JUN-95	
Barium	100	0.43	0.01	97.0	08-JUN-95	
Cadmium	1	0.012	0.005	94.0	08-JUN-95	
ium, Total	5	0.02	0.01	94.0	09-JUN-95	
ead	5	0.0230	0.0015	105.0	09-JUN-95	A15
Nickel	-	1.16	0.02	100.0	09-JUN-95	
elenium	1	< 0.002	0.002	86.0	13-JUN-95	
ilver	5	< 0.01	0.01	88.0	08-JUN-95	

Chk'd: App'd:
Date App'd: 6-15-95

W Lab Certification ID#: 113138300

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TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP)
METHOD 1311
INORGANIC REPORT

PHIBRO-TECH INC.
JOLIET IL
Project Number: 4176.0020

Lab Sample # : L10828-015
Description : PBT-SB21-1-2 1/2
Sample Date : 24-MAY-95

Test	Regulatory Limit (mg/L)	Analytical Result (mg/L)	Reporting Limit (mg/L)	Matrix Spike Recovery (%)	Analysis Date	Footnote
rsenic	5	< 0.001	0.001	84.0	09-JUN-95	
arium	100	0.61	0.01	97.0	08-JUN-95	
Cadmium	1	0.009	0.005	94.0	08-JUN-95	
ium, Total	5	< 0.01	0.01	94.0	09-JUN-95	
[illegible]	5	0.0510	0.0015	105.0	09-JUN-95	A15
Nickel	-	0.16	0.02	100.0	09-JUN-95	
elenium	1	< 0.002	0.002	86.0	13-JUN-95	
ilver	5	< 0.01	0.01	88.0	08-JUN-95	

Chk'd: DSK App'd: CAW
Date App'd: 6-15-95

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TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP)
METHOD 1311
INORGANIC REPORT

PHIBRO-TECH INC.
JOLIET, IL
Project Number: 4176.0020

Lab Sample # : L10828-016
Description : PBT-SB22-30" (2.5')
Sample Date : 24-MAY-95

Test	Regulatory Limit (mg/L)	Analytical Result (mg/L)	Reporting Limit (mg/L)	Matrix Spike Recovery (%)	Analysis Date	Footnote
Arsenic	5	< 0.001	0.001	84.0	09-JUN-95	
Barium	100	0.43	0.01	97.0	08-JUN-95	
Cadmium	1	< 0.005	0.005	94.0	08-JUN-95	
Chromium, Total	5	< 0.01	0.01	94.0	09-JUN-95	
Lead	5	0.0970	0.0015	105.0	09-JUN-95	A15
Nickel	-	< 0.02	0.02	100.0	09-JUN-95	
Selenium	1	< 0.002	0.002	86.0	13-JUN-95	
Silver	5	< 0.01	0.01	88.0	08-JUN-95	

Chk'd: App'd:
Date App'd: 6-15-95

W Lab Certification ID#: 113138300

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TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP)
METHOD 1311
INORGANIC REPORT

PHIBRO-TECH INC.
JOLIET IL
Project Number: 4176.0020

Lab Sample # : L10828-017
Description : PBT-SB26-2-3 1/2
Sample Date : 24-MAY-95

Test	Regulatory Limit (mg/L)	Analytical Result (mg/L)	Reporting Limit (mg/L)	Matrix Spike Recovery (%)	Analysis Date	Footnote
Arsenic	5	0.002	0.001	84.0	09-JUN-95	
Barium	100	0.43	0.01	97.0	08-JUN-95	
Cadmium	1	0.078	0.005	94.0	08-JUN-95	
Chromium, Total	5	< 0.01	0.01	94.0	09-JUN-95	
Lead	5	0.0140	0.0015	105.0	09-JUN-95	A15
Nickel	-	0.03	0.02	100.0	09-JUN-95	
Selenium	1	< 0.002	0.002	86.0	13-JUN-95	
Silver	5	< 0.01	0.01	88.0	08-JUN-95	

Chk'd: RSK App'd: CMW
Date App'd: 6-15-95

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TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP)
METHOD 1311
INORGANIC REPORT

PHIBRO-TECH INC.
JOLIET IL
Project Number: 4176.0020

Lab Sample # : L10828-018
Description : PBT-SB27-1-2 1/2
S ple Date : 25-MAY-95

Test	Regulatory Limit (mg/L)	Analytical Result (mg/L)	Reporting Limit (mg/L)	Matrix Spike Recovery (%)	Analysis Date	Footnote
A enic	5	< 0.001	0.001	84.0	09-JUN-95	
Barium	100	1.54	0.01	97.0	08-JUN-95	
Cadmium	1	0.018	0.005	94.0	08-JUN-95	
C m, Total	5	< 0.01	0.01	94.0	09-JUN-95	
L a	5	0.0080	0.0015	105.0	09-JUN-95	A15
Nickel	-	0.54	0.02	100.0	09-JUN-95	
S enium	1	< 0.002	0.002	86.0	13-JUN-95	
S ver	5	< 0.01	0.01	88.0	08-JUN-95	

Chk'd: App'd:
Date App'd: 6.15.95

WI b Certification ID#: 113138300

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TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP)
METHOD 1311
INORGANIC REPORT

PHIBRO-TECH INC.
JOLIET IL
Project Number: 4176.0020

Lab Sample # : L10828-019
Description : PBT-SB28-1-2 1/2
Sample Date : 25-MAY-95

Test	Regulatory Limit (mg/L)	Analytical Result (mg/L)	Reporting Limit (mg/L)	Matrix Spike Recovery (%)	Analysis Date	Footnote
Arsenic	5	< 0.001	0.001	84.0	09-JUN-95	
Barium	100	0.32	0.01	97.0	08-JUN-95	
Cadmium	1	0.019	0.005	94.0	08-JUN-95	
Chromium, Total	5	< 0.01	0.01	94.0	09-JUN-95	
Lead	5	0.0080	0.0015	105.0	09-JUN-95	A15
Nickel	-	0.32	0.02	100.0	09-JUN-95	
Selenium	1	< 0.002	0.002	86.0	13-JUN-95	
Silver	5	< 0.01	0.01	88.0	08-JUN-95	

Chk'd: App'd: CAW
Date App'd: 6-15-95

WI Lab Certification ID#: 113138300

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TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP)
METHOD 1311
INORGANIC REPORT

PHIBRO-TECH INC.
JOLIET IL
Project Number: 4176.0020

Lab Sample # : L10828-020
Description : PBT-SB29-1-2 1/2
ample Date : 25-MAY-95

Test	Regulatory Limit (mg/L)	Analytical Result (mg/L)	Reporting Limit (mg/L)	Matrix Spike Recovery (%)	Analysis Date	Footnote
rsenic	5	< 0.001	0.001	84.0	09-JUN-95	
arium	100	0.22	0.01	97.0	08-JUN-95	
Cadmium	1	0.020	0.005	94.0	08-JUN-95	
ium, Total	5	< 0.01	0.01	94.0	09-JUN-95	
[illegible]	5	0.0040	0.0015	105.0	09-JUN-95	A15
Nickel	-	0.30	0.02	100.0	09-JUN-95	
elenium	1	< 0.002	0.002	86.0	13-JUN-95	
ilver	5	0.01	0.01	88.0	08-JUN-95	

Chk'd: RBK App'd: CAW
Date App'd: 6-15-95

WI ab Certification ID#: 113138300

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TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP)
METHOD 1311
INORGANIC REPORT

PHIBRO-TECH INC.
JOLIET IL
Project Number: 4176.0020

Lab Sample # : L10828-021
Description : PBT-SB17-1-2 1/2 DUP
Sample Date : 25-MAY-95

Test	Regulatory Limit (mg/L)	Analytical Result (mg/L)	Reporting Limit (mg/L)	Matrix Spike Recovery (%)	Analysis Date	Footnote
Arsenic	5	0.007	0.001	84.0	09-JUN-95	
Barium	100	0.50	0.01	97.0	08-JUN-95	
Cadmium	1	0.011	0.005	94.0	08-JUN-95	
Chromium, Total	5	< 0.01	0.01	94.0	09-JUN-95	
[illegible]	5	0.0070	0.0015	105.0	09-JUN-95	A15
Nickel	-	0.04	0.02	100.0	09-JUN-95	
Selenium	1	< 0.002	0.002	86.0	13-JUN-95	
Silver	5	< 0.01	0.01	88.0	08-JUN-95	

Chk'd: [illegible] App'd: [illegible]
Date App'd: 6-15-95

WI Lab Certification ID#: 113138300

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TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP)
METHOD 1311
INORGANIC REPORT

PHIBRO-TECH INC.
JOLIET IL
Project Number: 4176.0020

Lab Sample # : L10828-022
Description : PBT-SB27-1-2 1/2 DUP
Sample Date : 25-MAY-95

Test	Regulatory Limit (mg/L)	Analytical Result (mg/L)	Reporting Limit (mg/L)	Matrix Spike Recovery (%)	Analysis Date	Footnote
Arsenic	5	< 0.001	0.001	84.0	09-JUN-95	
Barium	100	1.29	0.01	97.0	08-JUN-95	
Cadmium	1	0.009	0.005	94.0	08-JUN-95	
Chromium, Total	5	< 0.01	0.01	94.0	09-JUN-95	
Lead	5	0.0060	0.0015	105.0	09-JUN-95	A15
Nickel	-	1.12	0.02	100.0	09-JUN-95	
Selenium	1	< 0.002	0.002	86.0	13-JUN-95	
Silver	5	< 0.01	0.01	88.0	08-JUN-95	

Chk'd: App'd: CAW
Date App'd: 6-15-95

WI Lab Certification ID#: 113138300

MONTGOMERY WATSON

CHAIN OF CUSTODY RECORD

SPECIAL INSTRUCTIONS:
- [ ] PECFA
- [ ] WI LUST
- [ ] ACT 307
- [ ] REPORT DRY WT
- [x] OTHER: RCRA

TURNAROUND
- [ ] 2 WEEKS (standard)
- [ ] 1 WEEK
- [ ] 3 DAYS
- [ ] 1 DAY

PROJECT NAME: PHIBRO-TECH Inc.
PROJECT #: 4176.0020
CITY: JOLIET
STATE: ILLINOIS
SAMPLER(S): David A. Piezynski

8 METALS: Arsenic, Barium, Cadmium, Chromium, Lead, Nickel, Selenium, Silver

COLLECTION DATE	COLLECTION TIME	GRAB / COMP	SAMPLE ID	NO. OF CONTAINERS	TCLP METALS	REMARKS	LAB USE ONLY MATRIX	LAB USE ONLY LAB NO.
5/25/95	1645	X	PBT-SB1 – 1-2½	1	X	TAG #'s 9-30148	SOLID	10828001
5/24/95	1040		PBT-SB2 – 1-2½	1	X	9-30147		-002
	1025		PBT-SB4 – 1-2½	1	X	9-30149		-003
	1000		PBT-SB5 – 1-2½	1	X	9-30172		-004
	1120		PBT-SB10 – 1-2½	1	X	9-30150		-005
	1140		PBT-SB11 – 1-2½	1	X	9-30151		-006
	1200		PBT-SB12 – 1-2½	1	X	9-30152		-007
	1320		PBT-SB13 – 1-2½	1	X	9-30153		-008
	1340		PBT-SB14 – 1-2½	1	X	9-30154		-009
5/24/95	1100		PBT-SB15 – 1-2½	1	X	9-30155		-010
5/25/95	930		PBT-SB17 – 1-2½	1	X	9-30156		-011

SPECIAL INSTRUCTIONS:
See Enclosed Instructions for METALS Analysis

RECEIVED: [x] INTACT [x] ON ICE TEMP _____ °F

COC seal #'s 92-00561, 62

PROJ. MGR.: MARTIN HAMPER

	SIGNATURE	PRINT NAME	COMPANY / TITLE	DATE	TIME
RELINQUISHED BY:	David A. Piezynski	DAVID A. PIEZYNSKI	Montgomery WATSON / Hydrogeologist	5/29/95	1600
RECEIVED BY:					
RELINQUISHED BY:					
RECEIVED BY:		D. Cunley	MWATS	5/30/95	1:00 pm

C-O-C No. 010417

NAME OF COURIER: Fed Ex
AIRBILL NUMBER: 111 7988 934

MONTGOMERY WATSON

CHAIN OF CUSTODY RECORD

SPECIAL INSTRUCTIONS:
- [ ] PECFA
- [ ] WI LUST
- [ ] ACT 307
- [ ] REPORT DRY WT
- [x] OTHER RCRA

TURNAROUND
- [ ] 2 WEEKS (standard)
- [ ] 1 WEEK
- [ ] 3 DAYS
- [ ] 1 DAY

PROJECT NAME: PHIBRO-Tech-Inc. PROJECT #: 4176-0020

CITY: JOLIET STATE: ILLINOIS

SAMPLER(S): David A. Pierzynski

8 METALS: Arsenic Cadmium Chromium, Barium, Lead Nickel, Selenium, + Silver

COLLECTION DATE	COLLECTION TIME	GRAB / COMP	SAMPLE ID	NO. OF CONTAINERS	TCLP metals		HOLD						REMARKS (Tag #'s)	LAB USE ONLY MATRIX	LAB NO.
5/25/95	950	X	PBT-SB18-1-2½	1	X								9-30158	SOLID	10828-012
5/25/95	1015	X	PBT-SB19-1-2½	1	X								9-30157		-013
5/24/95	1425	X	PBT-SB20-1-2½	1	X								9-30159		-014
5/24/95	1400	X	PBT-SB21-1-2½	1	X								9-30160		-015
5/24/95	1630	X	PBT-SB22-30" (2.5')	1	X								9-30161		-016
* 5/25/95	1100	X	PBT-SB24-6-10"	1	X		X						9-30162		-023
5/24/95	945	X	PBT-SB26-2-3½	1	X								9-30163		-017
5/25/95	920	X	PBT-SB27-1-2½	1	X								9-30164		-018
5/25/95	900	X	PBT-SB28-1-2½	1	X								9-30165		-019
5/25/95	830	X	PBT-SB29-1-2½	1	X								9-30166		-020
* 5/25/95	1215	X	PBT-SB32-8-14"	1	X		X						9-30167		-024

SPECIAL INSTRUCTIONS:

See Enclosed Instructions For metals Analysis

RECEIVED: [✓] INTACT [✓] ON ICE TEMP _____ °F

PROJ. MGR.: MARTIN HAMPER

Cocseal #'s 92-00561, 62

* = Hold samples - DO NOT ANALYZE yet

	SIGNATURE	PRINT NAME	COMPANY / TITLE	DATE	TIME
RELINQUISHED BY:	David A. Pierzynski	DAVID A. PIERZYNSKI	Montgomery WATSON / Hydrogeol.	5/29/95	1600
RECEIVED BY:					
RELINQUISHED BY:	D. Linley				
RECEIVED BY:		D. Linley	MWATS	5/31/95	11:00

C-O-C No. 010418

NAME OF COURIER: FED EX

AIRBILL NUMBER: 111 7988 934

MONTGOMERY WATSON

CHAIN OF CUSTODY RECORD

SPECIAL INSTRUCTIONS:
- ☐ PECFA
- ☐ WI LUST
- ☐ ACT 307
- ☐ REPORT DRY WT
- ☒ OTHER: RCRA

TURNAROUND
- ☐ 2 WEEKS (standard)
- ☐ 1 WEEK
- ☐ 3 DAYS
- ☐ 1 DAY

PROJECT NAME: PHIBRO TECH - Inc.
PROJECT #: 4176.0020
CITY: Joliet
STATE: ILLINOIS
SAMPLER(S): [signature]

8 METALS: Arsenic, Barium, Cadmium, Chromium, Lead, Nickel, Selenium, Silver

	COLLECTION DATE	COLLECTION TIME	GRAB / COMP	SAMPLE ID	NO. OF CONTAINERS	TCLP metals		HOLD						TAG #'s REMARKS	LAB USE ONLY MATRIX	LAB NO.
*	5/25/95	1230	X	PBT-SB32-3'	1	X		X						9-30168	SOLID	10828-026
	5/25/95	930	X	PBT-SB17-1-2½ Dup	1	X								9-30169	↓	-021
	5/25/95	920	X	PBT-SB27-1-2½ Dup	1	X								9-30170		-022
*	5/25/95	1225	X	PBT-SB32-30"	1	X		X						9-30171	↓	-026

SPECIAL INSTRUCTIONS:
See Enclosed Instructions for metals Analysis

RECEIVED: ☑ INTACT ☑ ON ICE TEMP _____ °F
COC seal #: 92-00561,62

PROJ. MGR.: MARTIN HAMPER

*=HOLD Samples - Do Not Analyze Yet

	SIGNATURE	PRINT NAME	COMPANY / TITLE	DATE	TIME
RELINQUISHED BY:	[signature]	David A. Pieczynski	Montgomery Watson / Hydrogeol.	5/29/95	1600
RECEIVED BY:					
RELINQUISHED BY:	[signature]				
RECEIVED BY:	[signature]	D. Linley	MWATS	5/31/95	11:00

C-O-C No. 01019

NAME OF COURIER: Fedex
AIRBILL NUMBER: 1117988934