

REPORT
FOR
PESTICIDE INVESTIGATION
AT
NAVAL WEAPONS STATION - EARLE
COLTS NECK, NEW JERSEY

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1.0 INTRODUCTION/ PROJECT OBJECTIVES

Foster Wheeler Environmental Corporation (Foster Wheeler Environmental) was contracted by the Northern Division, Naval Facilities Engineering Command (NORDIV) to further delineate pesticide contamination at the former pesticide shop at the Naval Weapons Station (NWS) Earle located in Colts Neck, NJ. This Investigative Report is being submitted to satisfy the pre-construction submittal requirements included in paragraph 1.2.1, Pre- and Post-Construction Documentation of the Statement of Services for Delivery Order No. 0017, under Remedial Action Contract No. N62472-94-D-0398.

The project objectives included utilizing direct-push methods to collect soil samples and groundwater samples for the laboratory analyses of pesticides. The purpose of the sample collection was twofold. Soil samples were collected to further delineate the vertical extent of pesticide contamination in the soils at the previously identified "hotspots". Groundwater samples were collected at the site to determine if the groundwater was impacted by pesticides. This work was performed under Delivery Order No. 0034 to Navy Contract N62472-94-D-0398

2.0 PROJECT LOCATION AND DESCRIPTION

NWS-Earle is located in east-central Monmouth County in the town of Colts Neck, New Jersey. Building S-186 (Old Pesticide Shop) is located on the Mainside portion of the base, north of the intersection of Esperance and Macassar Roads. The building served as the former base pesticide shop, but is no longer in service. Apparently, containers and spraying containers were periodically rinsed out and some of the waste waters were dumped outside the building. Figure 1 depicts the site layout.

2.1 Previous Investigations

Surface and subsurface soil samples were collected during investigation efforts in January and April 1998. The soil samples were analyzed for chlorinated organic pesticides by SW-846 Method 8081A. Chlordane and 4,4'-DDT were the most frequently detected pesticides found in the soil samples. Chlordane was found in 20 out of 23 surface soil samples; 4,4' DDT was found in 13 of 23 surface soil samples. The laboratory analyses of soil samples collected in the area around the pesticide shop revealed chlordane (up to 200 ppm); 4,4' DDD (up to 1.5 ppm); 4,4' DDE (up to 1 ppm); and 4,4' DDT (up to 12 ppm).

The previous soil sample locations are shown on Figure 1 of this report, and the Delineation Sampling and Analysis Report from the Old Pesticide Shop is contained in the Work Plan for Pesticide Investigation at Naval Weapons Station - Earle Colts Neck, New Jersey issued November 30, 1998.

2.2 Site Conditions

The Former Pesticide Shop is located in a grassy wooded area between Building C-54 and Building C-23. The shop consists of a small brick building (25 ft. x 12 ft.) with a 15 ft. x 8 ft. concrete pad on the northwest side of the building. The Former Pesticide Shop sits atop a small knoll, which slopes to the northwest and north. An in-ground former septic leach tank is located to the north of the building. The site is bounded to the east by a paved parking area, to the northwest by Building C-54, to the south by the ROICC Office, and to the north by a fenced storage yard associated with Building C-54

2.2.1 Groundwater/Soil

There are no monitoring wells in the immediate area to determine depth to groundwater and groundwater flow direction. Based on topography, and monitoring wells located approximately 0.25 miles down gradient of the pesticide shop, the shallow groundwater was expected to be encountered at a depth of 10 to 15 feet below grade and flow toward the north. During investigation activities it was determined that groundwater ranged from 18 to 35 based on elevations at the sample locations.

Soils at the site are fine grained sands with some silt and minor pebbles.

3.0 SCOPE OF WORK

The objectives of this investigation were completed by utilizing a Geoprobe rig and the necessary equipment to collect soil samples and groundwater samples. A hydropunch attachment on the geoprobe was used to obtain groundwater samples for the laboratory analysis of pesticides.

3.1 TASK 1 - Project Planning/Management

Project Planning/Management activities included the preparation of pre-construction submittals, coordination of utility requirements, mobilization to the site, and Home Office support functions during the period of performance. The subtasks involved in Project Planning/Management are described below.

3.1.1 Subtask 1A - Pre-Construction Submittals

Foster Wheeler Environmental prepared and submitted the following pre-construction documents to the Navy:

Work Plan

The Work Plan for Pesticide Investigation at Naval Weapons Station - Earle Colts Neck, New Jersey (Work Plan) presented Foster Wheeler Environmental's approach to executing the project, including the site description, statement of work, procurement

approach, field procedures, materials, transportation and disposal data, and sampling and analytical requirements. The Work Plan was issued November 30, 1998.

Health and Safety Plan (HASP)

An existing HASP for previous drilling work at NWS-Earle was used for this effort. Foster Wheeler Environmental prepared an Activity Hazard Analysis (AHA) for this specific task included in the Work Plan.

The Activity Hazard Analysis (AHA) in Appendix B of the Work Plan was used for the specific hazards associated with this sampling task at the pesticide shop.

Sampling and Analysis Plan (SAP)

Foster Wheeler Environmental submitted the SAP for this investigation in the Work Plan for Pesticide Investigation at Naval Weapons Station - Earle Colts Neck, New Jersey.

The SAP presented the procedures for sampling and analysis for the Geoprobe and temporary well installation activities. The SAP specifically addressed the following areas:

- Analytical Requirements/Sample Collection Frequency
- Responsibilities of Site Personnel
- Sample Analytical Program
- Sample Packing and Shipping
- Documentation
- Field Sampling Program
- Quality Assurance/Quality Control
- Procedures for Field Changes and Corrective Actions
- Waste Removal/Regulatory Compliance

Site-specific Standard Operating Procedures were included (Section 5 of the Work Plan) to describe the sampling procedures. Any modifications to these SOPs due to field conditions or other unforeseen situations were recorded in the site logbook, documented on the appropriate Field Change Request (FCR) forms by site personnel, and approved by the Project Manager.

3.1.2 Subtask 1B - Mobilization

Mobilization consisted of contacting appropriate Navy personnel at NWS Earle to arrange for contractor passes, and to coordinate support requirements for the geoprobe work. A utility survey was conducted to determine all utility lines in the area. Any subsurface utilities were located by NWS-Earle Public Works personnel. A dig permit was obtained prior to any geoprobe work.

3.1.3 Subtask 1C - Home Office Support

Foster Wheeler Environmental's Langhorne, Pennsylvania office provided home office support for the project duration. Home office support includes the preparation of the required monthly progress, financial and technical reports.

3.2 TASK 2 - Permit Preparation/Submission

In accordance with the NJDEP, drilling permits were required because some Geoprobe borings were greater than 25 feet in depth. Well permits were not required because the hydropunch casing remained in the ground for less than 48 hours.

3.3 TASK 3 - Collection of Subsurface Soil Samples

The previous investigation at the site collected soil samples to a maximum depth of three feet below grade. Analytical results for two of the soil samples collected at the maximum depth revealed pesticide concentrations exceeding the EPA Region III Soil Clean-Up Standards for pesticides. The analyses of a soil sample from boring SB-18 revealed an exceedance of the EPA Industrial Standard for chlordane (SB-18-03 at 42,000 ug/kg). SB-18 was collected on the western side of the concrete pad adjacent the former pesticide shop. The analyses of a soil sample from boring SB-31 revealed an exceedance of the EPA Residential Standard for chlordane (SB-31-03 at 2,000 ug/kg). SB-31 was collected on the northern edge of the paved area, located east of the former pesticide shop.

Based on these two hot spots found during the previous investigation, additional subsurface soil samples were collected on December 4, 1998 at the former SB-18 and SB-31 locations. Samples were collected to a depth of 24 feet below grade and analyzed for pesticides to determine the maximum depth of contamination. Soil boring PS-SB-01 was adjacent to the original location of SB-18 and PS-SB02 was adjacent to the original location of SB-31 (Figure 1). The Geoprobe was used to advance a macro-core sampler to a starting depth of 4 feet below grade at the PS-SB-01 and 6 feet below grade at PS-SB-02. At each location, continuous subsurface samples were collected from 2' intervals down to 24 feet below grade. The soils were logged by a geologist to record the subsurface soil conditions. See Appendix A for the boring logs.

Groundwater was not found at either location within 24 feet below grade during the initial geoprobe work. Hydropunch samples were obtained at PS-SB01 and PS-SB-02 during the re-mobilization of the geoprobe on January 7, 1999 because a NJDEP permit was necessary to probe greater than 25 feet below grade.

3.4 TASK 4 - Collection of Groundwater Samples Using a Hydropunch

A hydropunch was used install temporary groundwater monitoring wells to collect groundwater samples for the laboratory analyses of pesticides. Nine soil borings surrounding the former Pesticide Shop were completed on December 4, 1998 and January

7, 1999. A groundwater sample was collected from each of the nine temporary well locations (Figure 1). Section 5.0 of the Work Plan details the collection methodology for using the hydropunch for groundwater sampling. No soil samples were obtained from these nine soil borings.

The collection depth of the groundwater samples was determined by water table depth and input from the Site Geologist. The depths of the water table ranged from 18 feet to approximately 35 feet depending on the elevation at the sample locations.

4.0 FIELD SAMPLING ACTIVITIES

Modifications to the existing SAP will be documented herein.

4.1 Sample Tracking System

A QA/QC duplicate sample was collected at PS-GW03 and designated PS-GW02.

4.2 Sample Analytical Requirements/Sample Collection Frequency

Analyses for Chlorinated Organic Pesticides was performed on both soil and aqueous samples collected around the Former Pesticide Shop.. One liter aqueous was collected for each aqueous sample.

Four surface soil samples were collected adjacent to Building C-23 and analyzed for Nitroamines.

Sample collection frequency was modified as described in Section 3.3 - Collection of Subsurface Soil Samples and Section 3.4 - Collection of Groundwater Samples using a Hydropunch.

4.3 Sampling Equipment and Procedures

4.3.1 Surface Soil Sample Collection

Surface soil samples were collected at 0 to 6 inches below grade using a decontaminated stainless steel hand trowel. The soil was placed directly into sample jars for laboratory analysis. Locations for sample collection were selected by Navy personnel and are located on Figure 1.

4.3.2 Subsurface Soil Sample Collection

Subsurface soil samples were collected using a dedicated sampling core on the Geoprobe as indicated in the Work Plan. Sample collection frequency was modified as described in Section 3.3 - Collection of Subsurface Soil Samples.

4.3.3 Groundwater Sample Collection

Groundwater samples were collected utilizing a Hydropunch following the procedures detailed in the Work Plan. Sample collection frequency was modified as described in Section 3.4 - Collection of Groundwater Samples.

4.3.4 Septic Tank Sludge Sample Collection

An underground septic tank exists to the north of the former Pesticide Shop. A stainless steel auger was used to access the sludge at the bottom of the tank. The sample was collected from a six inch interval of sludge near the bottom of the tank. The six inch interval was field composited and placed into the sample jars for laboratory analysis.

4.4 Waste Removal/Regulatory Compliance

As part of the Geoprobe work at the former pesticide shop, several investigation derived waste streams were generated. These included decontamination fluids, PPE, and other miscellaneous debris. These wastes were collected, stored separately, and will be disposed off site at a proper disposal facility. In accordance with NJDEP solid waste and/or Hazardous Waste Regulations, the investigative derived wastes (IDW) were disposed of as hazardous. In accordance to the Code of Federal Regulations, any wastes generated from this pesticide shop investigation was classified, transported, and disposed of as a hazardous waste, U036 (chlordan), U060 (DDD), and U061 (DDT). One drum of solid waste and one drum of decontamination water were disposed off-site.

5.0 ANALYTICAL RESULTS

All samples from the December 1998 and January 1999 investigations were sent to Toxicon Corporation's Bedford, Massachusetts, laboratory. Both the soil and groundwater samples were analyzed for Chlorinated Organic Pesticides, SW846 Method 608/8081A. Some samples were analyzed for Nitroamines, SW846 Method 8332. The laboratory data packages are found in Appendix B. Refer to Figure I for sample locations. Refer to the Pesticide Analytical Results, Table 5-1 - Soil Boring PS-SB01, Table 5-2 - Soil Boring PS-SB02, and Table 5-3 - Groundwater, following this discussion.

5.1 Surface Soil Samples

Four surface soil samples and one QA/QC duplicate sample were collected on December 11, 1998 to evaluate the presence of propellant residuals in the area near the RIOCC building (Building C-23). The sample points were located along the north and west side of the building. Refer to Figure 1 for approximate sample locations. Sample PS-SS01, PS-SS02, PS-SS03, PS-SS03D (duplicate of PS-SS03), and PS-SS04 were analyzed for Nitroamines-Nitroglycerin, Nitroguanidine, and Nitrocellulose. Analytical results indicate that all samples were non-detect (below the quantitation limit) for the parameters of concern. The analytical results are located in Appendix B.

5.2 Subsurface Soil Samples

Twenty one soil samples were collected from soil borings PS-SB01 and PS-SB02 on December 4, 1998. The analytical results were compared to the NJDEP Residential Direct Contact and Impact to Groundwater Soil Cleanup Criterion. Several samples (up to 22 feet below grade) indicated the presence of Chlordane, ranging from 0.026 to 40 mg/Kg. As there are no NJDEP Standards for Chlordane, the results were compared to EPA Region III Soil Cleanup Standards as in the previous investigation. Several samples exceeded both the Residential Standard (1.8 mg/kg) and the Industrial Standard (16 mg/kg).

One sample PS-SB01-06, collected at a depth of 4 to 6 feet below grade from soil boring PS-SB01 indicated a slight exceedance of the NJDEP Residential Direct Contact Soil Cleanup Criteria for Heptachlor. The NJDEP limit for Heptachlor is 0.15 mg/Kg and the sample result was 0.16 mg/Kg. The same sample indicated the presence of Heptachlor Epoxide at the same 4 to 6 foot interval. As there is no regulatory guidance on Heptachlor Epoxide, this result will not be compared to a regulatory limit. However, this depth interval at PS-SB01 will be addressed because of the slight Heptachlor exceedance. No other soil samples indicated concentrations above non-detect, or exceeded either the NJDEP Residential Direct Contact or the Impact to Groundwater Soil Cleanup Criterion.

Note that some laboratory detection limits for certain samples are above the NJDEP Cleanup Criteria for specific compounds. A careful review was made of past data and it was determined that the compounds in question were not detected at the site in the previous investigation. Based on this information, the current results are considered non-detect for those specific compounds.

5.3 Groundwater Samples

Three groundwater samples and one QA/QC duplicate sample (PS-GW03, PS-GW04, PS-GW05, and duplicate PS-GW02) were collected on December 4, 1998. Six groundwater samples (PS-GW1, PS-GW2, PS-GW6, PS-GW7, PS-GW8, and PS-GW09) were collected on January 7, 1999. Comparison of the analytical results to the Groundwater Quality Criteria indicate that two locations, PS-GW03 and PS-GW04, exceed the criteria of 0.4 ug/l for Endosulfan I. The concentration of Endosulfan I in PS-GW03 was 0.41 ug/l. Groundwater sample, PS-GW02, the duplicate of PS-GW03, was just below the criteria at 0.38 ug/l. The concentration of Endosulfan I in PS-GW04 was 0.61 ug/l. All other sample results are below the laboratory detection limits and do not indicate the presence of pesticides. The analytical results are summarized in Table 5-3, and the laboratory data package is located in Appendix B.

Note that the laboratory detection limits for some samples actually exceed the Groundwater Quality Criteria. However, comparison to the Practical Quantitation Limits (PQLs) set forth in Table 1 indicates that the laboratory detection limits are less than the

TABLE 5-1
 NAVAL WEAPONS STATION-EARLE
 DELIVERY ORDER 0034
 PESTICIDE ANALYTICAL RESULTS
 Soil Boring PS-SB01

Sample ID	Residential Direct Contact Soil Cleanup Criteria	Impact to Ground Water Soil Cleanup Criteria	PS-SB01-04	PS-SB01-06	PS-SB01-08	PS-SB01-10	PS-SB01-12	PS-SB01-14
Date Collected			12/4/98	12/4/98	12/4/98	12/4/98	12/4/98	12/4/98
Matrix			SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Depth (feet)			2 to 4	4 to 6	6 to 8	8 to 10	10 to 12	12 to 14
Comment	(NJDEP)	(NJDEP)						
units	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
a-BHC	na	na	<0.10	<0.10	<0.050	<1.0	<0.010	<0.050
g-BHC (Lindane)	0.52	50	<0.10	<0.10	<0.050	<1.0	<0.010	<0.050
b-BHC	na	na	<0.10	<0.10	<0.050	<1.0	<0.010	<0.050
Heptachlor	0.15	50	<0.10	0.16	<0.050	<1.0	<0.010	<0.050
d-BHC	na	na	<0.10	<0.10	<0.050	<1.0	<0.010	<0.050
Aldrin	0.04	50	<0.10	<0.10	<0.050	<1.0	<0.010	<0.050
Heptachlor Epoxide	na	na	<0.10	0.12	<0.050	<1.0	<0.010	<0.050
Endosulfan I	340	50	<0.10	<0.10	<0.050	<1.0	<0.010	<0.050
4,4'-DDE	2	50	<0.10	<0.10	<0.050	<1.0	<0.010	<0.050
Dieldrin	0.042	50	<0.10	<0.10	<0.050	<1.0	<0.010	<0.050
Endrin	17	50	<0.10	<0.10	<0.050	<1.0	<0.010	<0.050
4,4'-DDT	2	500	<0.10	<0.10	<0.050	<1.0	<0.010	<0.050
Endrin Aldehyde	na	na	<0.10	<0.10	<0.050	<1.0	<0.010	<0.050
Endosulfan Sulfate	na	na	<0.10	<0.10	<0.050	<1.0	<0.010	<0.050
Chlordane	na	na	<0.10	3.8	1.1	40	<0.010	1.4
Toxaphene	0.10	50	<0.10	<0.10	<0.050	<1.0	<0.010	<0.050
Methoxychlor	280	50	<0.10	<0.10	<0.050	<1.0	<0.010	<0.050

< Less than detection limit given

na not applicable

Shaded results indicate an exceedance of the Soil Cleanup Criteria.

Bold results indicate that the laboratory detection limit is greater than the Soil Cleanup Criteria

TABLE 5-1
 NAVAL WEAPONS STATION-EARLE
 DELIVERY ORDER 0034
 PESTICIDE ANALYTICAL RESULTS
 Soil Boring PS-SB01

Sample ID	Residential	Impact to	PS-SB01-16	PS-SB01-18	PS-SB01-20	PS-SB01-22	PS-SB01-24
Date Collected	Direct Contact	Ground Water	12/4/98	12/4/98	12/4/98	12/4/98	12/4/98
Matrix	Soil Cleanup	Soil Cleanup	SOIL	SOIL	SOIL	SOIL	SOIL
Depth (feet)	Criteria	Criteria	14 to 16	16 to 18	18 to 20	20 to 22	22 to 24
Comment	(NJDEP)	(NJDEP)					
units	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
a-BHC	na	na	<0.010	<0.010	<0.010	<0.50	<0.010
g-BHC (Lindane)	0.52	50	<0.010	<0.010	<0.010	<0.50	<0.010
b-BHC	na	na	<0.010	<0.010	<0.010	<0.50	<0.010
Heptachlor	0.15	50	<0.010	<0.010	<0.010	<0.50	<0.010
d-BHC	na	na	<0.010	<0.010	<0.010	<0.50	<0.010
Aldrin	0.04	50	<0.010	<0.010	<0.010	<0.50	<0.010
Heptachlor Epoxide	na	na	<0.010	<0.010	<0.010	<0.50	<0.010
Endosulfan I	340	50	<0.010	<0.010	<0.010	<0.50	<0.010
4,4'-DDE	2	50	<0.010	<0.010	<0.010	<0.50	<0.010
Dieldrin	0.042	50	<0.010	<0.010	<0.010	<0.50	<0.010
Endrin	17	50	<0.010	<0.010	<0.010	<0.50	<0.010
4,4'-DDT	2	500	<0.010	<0.010	<0.010	<0.50	<0.010
Endrin Aldehyde	na	na	<0.010	<0.010	<0.010	<0.50	<0.010
Endosulfan Sulfate	na	na	<0.010	<0.010	<0.010	<0.50	<0.010
Chlordane	na	na	<0.010	0.026	<0.010	18	<0.010
Toxaphene	0.10	50	<0.010	<0.010	<0.010	<0.50	<0.010
Methoxychlor	280	50	<0.010	<0.010	<0.010	<0.50	<0.010

< Less than detection limit given

na not applicable

Shaded results indicate an exceedance of the Soil Cleanup Criteria.

Bold results indicate that the laboratory detection limit is greater than the Soil Cleanup Criteria.

TABLE 5-2
 NAVAL WEAPONS STATION-EARLE
 DELIVERY ORDER 0034
 PESTICIDE ANALYTICAL RESULTS
 Soil Boring PS-SB02

Sample ID	Residential Direct Contact Soil Cleanup Criteria (NJDEP)	Impact to Ground Water Soil Cleanup Criteria (NJDEP)	PS-SB02-06	PS-SB02-08	PS-SB02-10	PS-SB02-12	PS-SB02-14
Date Collected			12/4/98	12/4/98	12/4/98	12/4/98	12/4/98
Matrix			SOIL	SOIL	SOIL	SOIL	SOIL
Depth (feet)			4 to 6	6 to 8	8 to 10	10 to 12	12 to 14
Comment							
units	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
a-BHC	na	na	<0.10	<0.010	<0.20	<0.010	<0.10
g-BHC (Lindane)	0.52	50	<0.10	<0.010	<0.20	<0.010	<0.10
b-BHC	na	na	<0.10	<0.010	<0.20	<0.010	<0.10
Heptachlor	0.15	50	<0.10	<0.010	<0.20	<0.010	<0.10
d-BHC	na	na	<0.10	<0.010	<0.20	<0.010	<0.10
Aldrin	0.04	50	<0.10	<0.010	<0.20	<0.010	<0.10
Heptachlor Epoxide	na	na	<0.10	<0.010	<0.20	<0.010	<0.10
Endosulfan I	340	50	<0.10	<0.010	<0.20	<0.010	<0.10
4,4'-DDE	2	50	<0.10	<0.010	<0.20	<0.010	<0.10
Dieldrin	0.042	50	<0.10	<0.010	<0.20	<0.010	<0.10
Endrin	17	50	<0.10	<0.010	<0.20	<0.010	<0.10
4,4'-DDT	2	500	<0.10	<0.010	<0.20	<0.010	<0.10
Endrin Aldehyde	na	na	<0.10	<0.010	<0.20	<0.010	<0.10
Endosulfan Sulfate	na	na	<0.10	<0.010	<0.20	<0.010	<0.10
Chlordane	na	na	2.9	0.032	4.9	0.018	2.2
Toxaphene	0.10	50	<0.10	<0.010	<0.20	<0.010	<0.10
Methoxychlor	280	50	<0.10	<0.010	<0.20	<0.010	<0.10

< Less than detection limit given

na not applicable

Shaded results indicate an exceedance of the Soil Cleanup Criteria

Bold results indicate that the laboratory detection limit is greater than the Soil Cleanup Criteria.

TABLE 5-2
 NAVAL WEAPONS STATION-EARLE
 DELIVERY ORDER 0034
 PESTICIDE ANALYTICAL RESULTS
 Soil Boring PS-SB02

Sample ID	Residential	Impact to	PS-SB02-16	PS-SB02-18	PS-SB02-20	PS-SB02-22	PS-SB02-24
Date Collected	Direct Contact	Ground Water	12/4/98	12/4/98	12/4/98	12/4/98	12/4/98
Matrix	Soil Cleanup	Soil Cleanup	SOIL	SOIL	SOIL	SOIL	SOIL
Depth (feet)	Criteria	Criteria	14 to 16	16 to 18	18 to 20	20 to 22	22 to 24
Comment	(NJDEP)	(NJDEP)					
units	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
a-BHC	na	na	<0.010	<0.20	<0.010	<0.020	<0.010
g-BHC (Lindane)	0.52	50	<0.010	<0.20	<0.010	<0.020	<0.010
b-BHC	na	na	<0.010	<0.20	<0.010	<0.020	<0.010
Heptachlor	0.15	50	<0.010	<0.20	<0.010	<0.020	<0.010
d-BHC	na	na	<0.010	<0.20	<0.010	<0.020	<0.010
Aldrin	0.04	50	<0.010	<0.20	<0.010	<0.020	<0.010
Heptachlor Epoxide	na	na	<0.010	<0.20	<0.010	<0.020	<0.010
Endosulfan I	340	50	<0.010	<0.20	<0.010	<0.020	<0.010
4,4'-DDE	2	50	<0.010	<0.20	<0.010	<0.020	<0.010
Dieldrin	0.042	50	<0.010	<0.20	<0.010	<0.020	<0.010
Endrin	17	50	<0.010	<0.20	<0.010	<0.020	<0.010
4,4'-DDT	2	500	<0.010	<0.20	<0.010	<0.020	<0.010
Endrin Aldehyde	na	na	<0.010	<0.20	<0.010	<0.020	<0.010
Endosulfan Sulfate	na	na	<0.010	<0.20	<0.010	<0.020	<0.010
Chlordane	na	na	<0.010	6.8	<0.010	0.28	<0.010
Toxaphene	0.10	50	<0.010	<0.20	<0.010	<0.020	<0.010
Methoxychlor	280	50	<0.010	<0.20	<0.010	<0.020	<0.010

< Less than detection limit given

na not applicable

Shaded results indicate an exceedance of the Soil Cleanup Criteria.

Bold results indicate that the laboratory detection limit is greater than the Soil Cleanup Criteria.

TABLE 5-3
 NAVAL WEAPONS STATION-EARLE
 DELIVERY ORDER 0034
 PESTICIDE ANALYTICAL RESULTS
 Groundwater

Sample ID	GROUNDWATER	PRACTICAL	PS-GW02	PS-GW03	PS-GW04	PS-GW05	PS-GW1	PS-GW2	PS-GW6	PS-GW7	PS-GW8
Date Collected	QUALITY	QUANTITATION	12/4/98	12/4/98	12/4/98	12/4/98	1/7/99	1/7/99	1/7/99	1/7/99	1/7/99
Matrix	CRITERIA	LIMIT (PQL)	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
Comment	NJAC 7:9-6.11, Table 1	NJAC 7:9-6.11, Table 1	duplicate of PS- GW03								
units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
a-BHC	0.006	0.02	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
g-BHC (Lindane)	0.2	0.2	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
b-BHC	0.2	0.04	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Heptachlor	0.008	0.4	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
d-BHC	NA	NA	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Aldrin	0.002	0.04	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Heptachlor Epoxide	0.004	0.2	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Endosulfan I	0.4	0.02	0.38	0.41	0.61	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
1,4'-DDE	0.1	0.04	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Dieldrin	0.002	0.03	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Endrin	2	0.04	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
4,4'-DDT	0.1	0.06	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Endrin Aldehyde	NA	NA	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Endosulfan Sulfate	0.4	0.08	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Chlordane	0.01	0.5	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Toxaphene	0.03	3	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Methoxychlor	40	10	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010

< Less than lab detection limit

NA not available

Bold results indicate an exceedance

Some results exceed Quality Criteria. Comparison to PQL indicate lab detection is less than PQL. Results less than PQL are considered non-detect.

Pest Shop Data

PQLs. Analytical results that fall below the Table 1 PQLs are considered non-detect. Also, PS-GW09 was not analyzed because the laboratory did not have sufficient volume to perform analysis. Refer to the case narrative in the laboratory data package.

5.4 Septic Tank Sludge Sample

One sample was collected from the sludge within the septic tank on December 4, 1998. Sample PS-SL01 was analyzed for Chlorinated Organic Pesticides. The analytical results indicated elevated concentrations of Chlordane at 9.5 grams/kg.

6.0 CONCLUSIONS/RECOMMENDATIONS

Based on the previous and current analytical findings, Foster Wheeler Environmental recommends detailing an excavation plan to excavate and dispose of the pesticide contaminated soils. As discussed in this report, no soils have been impacted by Nitroamines. During the previous investigation, depth of pesticide contamination did not extend to greater than 3 feet below grade, except in soil borings SS-18 and SS-31. It is believed that during the December 1998 investigation, some of the more contaminated upper soils may have contaminated the samples collected at greater depths by smearing on the sample equipment or by falling into the boring hole. Special attention will be given to excavation activities at PS-SB01 (SS-18) and PS-SB02 (SS-31) to determine vertical and horizontal extent of the contamination. Once the area is excavated to an appropriate depth, confirmatory samples will be collected and analyzed to ensure that the contaminated soils have been removed, and the depth of excavation is sufficient to meet clean-up standards.

Analysis of groundwater indicates that the ground water at two locations, PS-GW03 and PS-GW04, has been slightly impacted by pesticides. Additional monitoring of the groundwater at these locations is recommended when the excavation of contaminated soil has been completed.

SS-28	DDE	DDT	Chlordane	SS-21	DDT	Chlordane	SS-23	DDT	Chlordane	SS-27	Chlordane	SS-26	DDE	DDT	Chlordane	SS-30	DDE	DDT	Chlordane	SS-32	DDE	Chlordane
SB-20-01	17	29	430	SB-21-01	17	680 (1)	SB-23-01	2	1300(1)	SB-27-01	650	SB-26-01	710	19000	27000(1)	SB-30-01	200	840	210	SB-32-01	59	580
SB-20-03			4			17	SB-23-03	53		SB-27-03	28	SB-26-03	340	6300		SB-30-03	4	9	13	SB-32-03	3	20
								10			5		420	590								

SS-22	Chlordane
SB-22-01	170000(1)
SB-22-03	300

SS-19	DDT	Chlordane
SB-19-01		6600(1)
SB-19-01	3	320
SB-19-01		56

SS-18	Chlordane
SB-18-01	180000(1)
SB-18-03	1200(1)
SB-18-03	42000(1)

SS-16	DDE	DDT
SB-16-01	90	99
SB-16-01	26	28
SB-16-03	2	2

SS-17	DDE	DDT
	160	200

Endosulfan I	PS-GW-04	0.61*
Endosulfan I	PS-GW-03	0.41*

SS-25	Chlordane
SB-25-01	34000(1)
SB-25-03	180
SB-25-03	180

SS-31	DDE	DDT	Chlordane
SB-31-01		12	170
SB-31-03	38	100	7500000(1)
SB-31-03			2000(1)

SS-28	DDT	Chlordane
SB-28-01	52000	140000(1)
SB-28-01	380	1900
SB-28-03	5	9

SS-24	Chlordane
SB-24-01	30000(1)
SB-24-03	180
SB-24-03	28

SS-10	Chlordane
SB-10-01	31000(1)
SB-10-03	450
SB-10-03	4

SS-11	DDD	DDE	DDT	Chlordane
	19	150	850	330

SS-12	Chlordane
SB-12-01	20000(1)
SB-12-03	1200(1)
SB-12-03	250

SS-13	DDD	DDE	DDT	Chlordane
SS-13RE	1500	360	12000	720(1)
SB-13-01			13000	
SB-13-01	50	9	510	23
SB-13-03	3		8	4

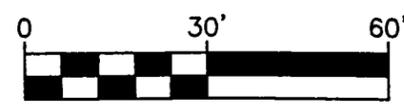
SS-14	DDD	DDE	DDT	Chlordane
SB-14-01	49	320	360	180
SB-14-01		2	2	

SS-15	DDD	DDE	DDT	Chlordane
SB-15-01	290	1000	1700	2600(1)
SB-15-01		32	41	130
SB-15-03			2	

LEGEND

SS SURFACE SOIL
 SB SOIL BORING
 GW GROUNDWATER
 * EXCEEDS NJDEP GROUNDWATER QUALITY STANDARDS (ug/l)
 12000 EXCEEDS REGION III RESIDENTIAL STANDARD
 200000 EXCEEDS REGION III INDUSTRIAL SOIL STANDARD
 1 EXCEEDS 20 X TC LEVEL OF 30 ug/l
 2 EXCEEDS 20 X TC LEVEL OF 8 ug/l
 DDD 4,4' DDD
 DDE 4,4' DDE
 DDT 4,4' DDT

NOTES: 1- REFER TO TABLES 5-1 & 5-2 FOR PS-SB01 & PS-SB02 ANALYTICAL RESULTS
 2- REFER TO TABLE 5-3 FOR PS-GW ANALYTICAL RESULTS



U.S. Navy RAC
 Naval Weapons Station - Earl

Figure 1
 Site Layout Map

FW FOSTER WHEELER ENVIRONMENTAL CORPORATION

earle\pestsite.dwg

Borehole Log

PROJECT: NWS-EARLE BORING NO.: PS-SB01
 PROJECT LOCATION: PESTICIDE SHOP (PS) SURFACE ELEVATION: _____
 SUBCONTRACTOR/DRILLER: GES, MARK BATES DATE STARTED: 12-04-98
 FIELD GEOLOGIST: T. FOWLER DATE COMPLETED: 12-04-98
 DRILLING METHOD: GEOPROBE

REMARKS: N/A - NOT AVAILABLE NAB - NOT ABOVE BACKGROUND
MRAM - MINIRAM (HNU 0-10 PPM), (MINIRAM 0-0.6PPM)

Depth	Blows /6"	% Recovery	Color	Material Description	USCS Classification	Remarks	Profile
0				NO CORE			
2'				NO CORE			
4'		100		4-6' DK GRAY TO LIGHT GRAY (@6') TO YELLOWISH F TO VF SAND, DRY		PS-SB01-06	
6'		95		6-8' LT GRAY SAND @ TOP, THEN BWN SILT W/SOME SAND, DRY		PS-SB01-08 HNU - NAB MRAM - NAB	
8'		N/A		8-10' GRAY TO LT BRN VF TO M SAND, TR GRAVEL, SL MOIST		PS-SB01-10 HNU - NAB MRAM - NAB (IN HOLE: HNU - NAB MRAM - NAB)	
10'							

Borehole Log

PROJECT: NWS-EARLE
 PROJECT LOCATION: PESTICIDE SHOP (PS)
 SUBCONTRACTOR/DRILLER: _____
 FIELD GEOLOGIST: _____
 DRILLING METHOD: _____

BORING NO: PS-SB01 (CONT)
 SURFACE ELEVATION: _____
 DATE STARTED: _____
 DATE COMPLETED: _____

REMARKS: _____

Depth	Blows /6"	% Recovery	Color	Material Description	USCS Classification	Remarks	Profile
10'		95		10-12' GRAY BRN VF TO M SAND, DRY		PS-SB01-12 HNu - NAB MRAM - NAB	
12'		N/A		12-14' YELLOW BRN F TO M SAND, SL MOIST		PS-SB01-14 HNu - NAB MRAM - NAB	
14'		95		14-16' GRAY BRN TO YELLOW BRN F TO M SAND, DRY		PS-SB01-16 HNu - NAB MRAM - NAB	
16'		N/A		16-18' GRAY BRN TO YELLOW BRN F TO M SAND, DRY		PS-SB01-18 HNu - NAB MRAM - NAB	
18'		95		18-20' GRAY BRN TO YELLOW BRN F TO M SAND, DRY		PS-SB01-20 HNu - NAB MRAM - NAB	
20'							

Borehole Log

PROJECT: NWS-EARLE
 PROJECT LOCATION: PESTICIDE SHOP (PS)
 SUBCONTRACTOR/DRILLER: _____
 FIELD GEOLOGIST: _____
 DRILLING METHOD: _____

BORING NO: PS-SB01 (CONT)
 SURFACE ELEVATION: _____
 DATE STARTED: _____
 DATE COMPLETED: _____

REMARKS: _____

Depth	Blows /6"	% Recov-ery	Color	Material Description	USCS Class-ification	Remarks	Profile
20'		95		20-22' BRN SILT AND SAND @ TOP, THEN YELLOW BRN F TO M SAND, DRY		PS-SB01-22	
22'				22-24' LT GRAY F TO M SAND, DRY		PS-SB01-24 HNu - NAB MRAM - NAB	
24'							
26'							
28'							
30'							

Borehole Log

PROJECT: NWS-EARLE

BORING NO: PS-SB02 (CONT)

PROJECT LOCATION: PESTICIDE SHOP (PS)

SURFACE ELEVATION: _____

SUBCONTRACTOR/DRILLER: _____

DATE STARTED: _____

FIELD GEOLOGIST: _____

DATE COMPLETED: _____

DRILLING METHOD: _____

REMARKS: _____

Depth	Blows /6"	% Recovery	Color	Material Description	USCS Classification	Remarks	Profile
10'		N/A		10-12' YELLOW BRN F TO M SAND, TR SILT		PS-SB02-12 HNu - NAB MRAM - NAB	
12'		N/A		12-14' YELLOW BRN F TO M SAND, DRY		PS-SB02-14 HNu - NAB MRAM - NAB	
14'		98		14-16' YELLOW BRN F TO M SAND, SL MOIST		PS-SB02-16 HNu - NAB MRAM - NAB	
16'		N/A		16-18' GRAY TO YELLOW BRN F TO M SAND, TR GRAVEL, DRY		PS-SB02-18 HNu - NAB MRAM - NAB	
18'		N/A		18-20' ORANGEISH F TO M SAND		PS-SB02-20 HNu - NAB MRAM - NAB	
20'							

Borehole Log

PROJECT: NWS-EARLE
 PROJECT LOCATION: PESTICIDE SHOP (PS)
 SUBCONTRACTOR/DRILLER: _____
 FIELD GEOLOGIST: _____
 DRILLING METHOD: _____

BORING NO: PS-SB02 (CONT)
 SURFACE ELEVATION: _____
 DATE STARTED: _____
 DATE COMPLETED: _____

REMARKS: _____

Depth	Blows /6"	% Recovery	Color	Material Description	USCS Classification	Remarks	Profile
20'		N/A		20-22' BRN SILT, SOME SAND @ TOP, TO YELLOW BRN F TO M SAND, DRY		PS-SB02-22 HNu - NAB MRAM - NAB	
22'		N/A		22-24' YELLOW BRN F TO M SAND, SL MOIST		PS-SB02-24 HNu - NAB MRAM - NAB	
24'							
26'							
28'							
30'							

Page 1
Received: 12/05/98

TOXIKON CORP. REPORT
12/10/98 08:35:32

Work Order # 98-12-129

REPORT FOSTER & WHEELER
TO 1 OXFORD VALLEY, SUITE 200
LANGHORNE, PA. 19047
215-702-4007 FAX: 4045

PREPARED TOXIKON CORPORATION
BY 15 WIGGINS AVE
BEDFORD, MA 01730

ATTEN MICHAEL HEFFRON

ATTEN PAUL LEZBERG
PHONE (781)275-3330


CERTIFIED BY
CONTACT JAYSON

CLIENT FOSTER SAMPLES 27
COMPANY FOSTER & WHEELER
FACILITY 1 OXFORD VALLEY, SUITE 200
LANGHORNE, PA. 19047

MA CERT # M-MA064: TRACE METALS, SULFATE, CYANIDE, RES. FREE
CHLORINE, Ca, TOTAL ALK., TDS, pH, THMS, VOC, PEST., NUTRIENTS.
DEMAND. O&G, PHENOLICS, PCBs . CT DHS #PH-0563, NY #10778
FL HRS E87143, NJ DEP 59538, NC DNR286, SC 88002, NH 204091-C.

WORK ID NWS EARLE
TAKEN 12/4/98
TRANS _____
TYPE SOIL/WATER/SLUDGE
P.O. # 34-000491
INVOICE under separate cover

VERIFIED BY: 

SAMPLE IDENTIFICATION

- 01 PS-SB01-06
- 02 PS-SB01-08
- 03 PS-SB01-10
- 04 PS-SB01-12
- 05 PS-SB01-14
- 06 PS-SB01-16
- 07 PS-SB01-18
- 08 PS-SB01-20
- 09 PS-SB01-22
- 10 PS-SB01-24
- 11 PS-SB01-04
- 12 PS-SB02-06
- 13 PS-SB02-08
- 14 PS-SB02-10
- 15 PS-SB02-12
- 16 PS-SB02-14
- 17 PS-SB02-16
- 18 PS-SB02-18
- 19 PS-SB02-20
- 20 PS-SB02-22
- 21 PS-SB02-24
- 22 PS-GW03
- 23 PS-GW04
- 24 PS-GW05
- 25 PS-GW02
- 26 PS-SL01

TEST CODES and NAMES used on this workorder

- PEST S PESTICIDES - SOIL
- PEST W PESTICIDES - WATER

Page 2
Received: 12/05/98

TOXIKON CORP. REPORT
12/10/98 08:35:32

Work Order # 98-12-129

SAMPLE IDENTIFICATION

27 PS-FB01

SAMPLE ID PS-SB01-06 FRACTION 01A TEST CODE PEST S NAME PESTICIDES - SOIL
Date & Time Collected 12/04/98 09:10:00 Category SOIL

PESTICIDES in SOIL

	RESULT	LIMIT
a-BHC	ND	0.10
g-BHC (Lindane)	ND	0.10
b-BHC	ND	0.10
Heptachlor	0.16	0.10
d-BHC	ND	0.10
Aldrin	ND	0.10
Heptachlor Epoxide	0.12	0.10
Endosulfan I	ND	0.10
4,4'-DDE	ND	0.10
Dieldrin	ND	0.10
Endrin	ND	0.10
4,4'-DDD	ND	0.10
Endosulfan II	ND	0.10
4,4'-DDT	ND	0.10
Endrin Aldehyde	ND	0.10
Endosulfan Sulfate	ND	0.10
Chlordane	3.8	0.10
Toxaphene	ND	0.10
Methoxychlor	ND	0.10

Notes and Definitions for this Report:

UNITS: mg/Kg
EXTRACTED: 12/07/98
DATE RUN: 12/09/98
ANALYST: CK
INSTRUMENT: HP2
DIL. FACTOR: 10

ND = not detected at detection limit

SAMPLE ID PS-SB01-08 FRACTION 02A TEST CODE PEST S NAME PESTICIDES - SOIL
Date & Time Collected 12/04/98 09:11:00 Category SOIL

PESTICIDES in SOIL

	RESULT	LIMIT
a-BHC	ND	0.050
g-BHC (Lindane)	ND	0.050
b-BHC	ND	0.050
Heptachlor	ND	0.050
d-BHC	ND	0.050
Aldrin	ND	0.050
Heptachlor Epoxide	ND	0.050
Endosulfan I	ND	0.050
4,4'-DDE	ND	0.050
Dieldrin	ND	0.050
Endrin	ND	0.050
4,4'-DDD	ND	0.050
Endosulfan II	ND	0.050
4,4'-DDT	ND	0.050
Endrin Aldehyde	ND	0.050
Endosulfan Sulfate	ND	0.050
Chlordane	1.1	0.050
Toxaphene	ND	0.050
Methoxychlor	ND	0.050

Notes and Definitions for this Report:

UNITS: mg/Kg
EXTRACTED: 12/07/98
DATE RUN: 12/09/98
ANALYST: CK
INSTRUMENT: HP2
DIL. FACTOR: 5

ND = not detected at detection limit

SAMPLE ID PS-SB01-10 FRACTION 03A TEST CODE PEST S NAME PESTICIDES - SOIL
Date & Time Collected 12/04/98 09:20:00 Category SOIL

PESTICIDES in SOIL

	RESULT	LIMIT
a-BHC	ND	1.0
g-BHC (Lindane)	ND	1.0
b-BHC	ND	1.0
Heptachlor	ND	1.0
d-BHC	ND	1.0
Aldrin	ND	1.0
Heptachlor Epoxide	ND	1.0
Endosulfan I	ND	1.0
4,4'-DDE	ND	1.0
Dieldrin	ND	1.0
Endrin	ND	1.0
4,4'-DDD	ND	1.0
Endosulfan II	ND	1.0
4,4'-DDT	ND	1.0
Endrin Aldehyde	ND	1.0
Endosulfan Sulfate	ND	1.0
Chlordane	40	1.0
Toxaphene	ND	1.0
Methoxychlor	ND	1.0

Notes and Definitions for this Report:

UNITS: mg/Kg
EXTRACTED: 12/07/98
DATE RUN: 12/09/98
ANALYST: CK
INSTRUMENT: HP2
DIL. FACTOR: 100

ND = not detected at detection limit

SAMPLE ID PS-SB01-12 FRACTION 04A TEST CODE PEST S NAME PESTICIDES - SOIL
Date & Time Collected 12/04/98 09:21:00 Category SOIL

PESTICIDES in SOIL

	RESULT	LIMIT
a-BHC	_____	ND 0.010
g-BHC (Lindane)	_____	ND 0.010
b-BHC	_____	ND 0.010
Heptachlor	_____	ND 0.010
d-BHC	_____	ND 0.010
Aldrin	_____	ND 0.010
Heptachlor Epoxide	_____	ND 0.010
Endosulfan I	_____	ND 0.010
4,4'-DDE	_____	ND 0.010
Dieldrin	_____	ND 0.010
Endrin	_____	ND 0.010
4,4'-DDD	_____	ND 0.010
Endosulfan II	_____	ND 0.010
4,4'-DDT	_____	ND 0.010
Endrin Aldehyde	_____	ND 0.010
Endosulfan Sulfate	_____	ND 0.010
Chlordane	_____	ND 0.010
Toxaphene	_____	ND 0.010
Methoxychlor	_____	ND 0.010

Notes and Definitions for this Report:

UNITS: mg/Kg
EXTRACTED: 12/07/98
DATE RUN: 12/08/98
ANALYST: CK
INSTRUMENT: HP2
DIL. FACTOR: 1

ND = not detected at detection limit

SAMPLE ID PS-SB01-14 FRACTION 05A TEST CODE PEST S NAME PESTICIDES - SOIL
Date & Time Collected 12/04/98 09:30:00 Category SOIL

PESTICIDES in SOIL

	RESULT	LIMIT
a-BHC	_____ ND	0.050
g-BHC (Lindane)	_____ ND	0.050
b-BHC	_____ ND	0.050
Heptachlor	_____ ND	0.050
d-BHC	_____ ND	0.050
Aldrin	_____ ND	0.050
Heptachlor Epoxide	_____ ND	0.050
Endosulfan I	_____ ND	0.050
4,4'-DDE	_____ ND	0.050
Dieldrin	_____ ND	0.050
Endrin	_____ ND	0.050
4,4'-DDD	_____ ND	0.050
Endosulfan II	_____ ND	0.050
4,4'-DDT	_____ ND	0.050
Endrin Aldehyde	_____ ND	0.050
Endosulfan Sulfate	_____ ND	0.050
Chlordane	_____ 1.4	0.050
Toxaphene	_____ ND	0.050
Methoxychlor	_____ ND	0.050

Notes and Definitions for this Report:

UNITS: mg/Kg
EXTRACTED: 12/07/98
DATE RUN: 12/09/98
ANALYST: CK
INSTRUMENT: HP2
DIL. FACTOR: 5

ND = not detected at detection limit

SAMPLE ID PS-SB01-16 FRACTION 06A TEST CODE PEST S NAME PESTICIDES - SOIL
Date & Time Collected 12/04/98 09:31:00 Category SOIL

PESTICIDES in SOIL

	RESULT	LIMIT
a-BHC	_____	ND 0.010
g-BHC (Lindane)	_____	ND 0.010
b-BHC	_____	ND 0.010
Heptachlor	_____	ND 0.010
d-BHC	_____	ND 0.010
Aldrin	_____	ND 0.010
Heptachlor Epoxide	_____	ND 0.010
Endosulfan I	_____	ND 0.010
4,4'-DDE	_____	ND 0.010
Dieldrin	_____	ND 0.010
Endrin	_____	ND 0.010
4,4'-DDD	_____	ND 0.010
Endosulfan II	_____	ND 0.010
4,4'-DDT	_____	ND 0.010
Endrin Aldehyde	_____	ND 0.010
Endosulfan Sulfate	_____	ND 0.010
Chlordane	_____	ND 0.010
Toxaphene	_____	ND 0.010
Methoxychlor	_____	ND 0.010

Notes and Definitions for this Report:

UNITS: mg/Kg
EXTRACTED: 12/07/98
DATE RUN: 12/08/98
ANALYST: CK
INSTRUMENT: HP2
DIL. FACTOR: 1

ND = not detected at detection limit

Received: 12/05/98

Results by Sample

SAMPLE ID PS-SB01-18FRACTION 07ATEST CODE PEST SNAME PESTICIDES - SOILDate & Time Collected 12/04/98 09:40:00Category SOILPESTICIDES in SOIL

	RESULT	LIMIT
a-BHC	<u>ND</u>	<u>0.010</u>
g-BHC (Lindane)	<u>ND</u>	<u>0.010</u>
b-BHC	<u>ND</u>	<u>0.010</u>
Heptachlor	<u>ND</u>	<u>0.010</u>
d-BHC	<u>ND</u>	<u>0.010</u>
Aldrin	<u>ND</u>	<u>0.010</u>
Heptachlor Epoxide	<u>ND</u>	<u>0.010</u>
Endosulfan I	<u>ND</u>	<u>0.010</u>
4,4'-DDE	<u>ND</u>	<u>0.010</u>
Dieldrin	<u>ND</u>	<u>0.010</u>
Endrin	<u>ND</u>	<u>0.010</u>
4,4'-DDD	<u>ND</u>	<u>0.010</u>
Endosulfan II	<u>ND</u>	<u>0.010</u>
4,4'-DDT	<u>ND</u>	<u>0.010</u>
Endrin Aldehyde	<u>ND</u>	<u>0.010</u>
Endosulfan Sulfate	<u>ND</u>	<u>0.010</u>
Chlordane	<u>0.026</u>	<u>0.010</u>
Toxaphene	<u>ND</u>	<u>0.010</u>
Methoxychlor	<u>ND</u>	<u>0.010</u>

Notes and Definitions for this Report:

UNITS: mg/Kg
 EXTRACTED: 12/07/98
 DATE RUN: 12/08/98
 ANALYST: CK
 INSTRUMENT: HP2
 DIL. FACTOR: 1

ND = not detected at detection limit

SAMPLE ID PS-S801-20 FRACTION 08A TEST CODE PEST S NAME PESTICIDES - SOIL
Date & Time Collected 12/04/98 09:41:00 Category SOIL

PESTICIDES in SOIL

	RESULT	LIMIT
a-BHC	ND	0.010
g-BHC (Lindane)	ND	0.010
b-BHC	ND	0.010
Heptachlor	ND	0.010
d-BHC	ND	0.010
Aldrin	ND	0.010
Heptachlor Epoxide	ND	0.010
Endosulfan I	ND	0.010
4,4'-DDE	ND	0.010
Dieldrin	ND	0.010
Endrin	ND	0.010
4,4'-DDD	ND	0.010
Endosulfan II	ND	0.010
4,4'-DDT	ND	0.010
Endrin Aldehyde	ND	0.010
Endosulfan Sulfate	ND	0.010
Chlordane	ND	0.010
Toxaphene	ND	0.010
Methoxychlor	ND	0.010

Notes and Definitions for this Report:

UNITS: mg/Kg
EXTRACTED: 12/07/98
DATE RUN: 12/08/98
ANALYST: CK
INSTRUMENT: HP2
DIL. FACTOR: 1

ND = not detected at detection limit

SAMPLE ID PS-SB01-22

FRACTION 09A TEST CODE PEST S NAME PESTICIDES - SOIL

Date & Time Collected 12/04/98 09:49:00 Category SOIL

PESTICIDES in SOIL

	RESULT	LIMIT
a-BHC	ND	0.50
g-BHC (Lindane)	ND	0.50
b-BHC	ND	0.50
Heptachlor	ND	0.50
d-BHC	ND	0.50
Aldrin	ND	0.50
Heptachlor Epoxide	ND	0.50
Endosulfan I	ND	0.50
4,4'-DDE	ND	0.50
Dieldrin	ND	0.50
Endrin	ND	0.50
4,4'-DDD	ND	0.50
Endosulfan II	ND	0.50
4,4'-DDT	ND	0.50
Endrin Aldehyde	ND	0.50
Endosulfan Sulfate	ND	0.50
Chlordane	18	0.50
Toxaphene	ND	0.50
Methoxychlor	ND	0.50

Notes and Definitions for this Report:

UNITS: mg/Kg
EXTRACTED: 12/07/98
DATE RUN: 12/09/98
ANALYST: CK
INSTRUMENT: HP2
DIL. FACTOR: 50

ND = not detected at detection limit

SAMPLE ID PS-S801-24 FRACTION 10A TEST CODE PEST S NAME PESTICIDES - SOIL
Date & Time Collected 12/04/98 09:50:00 Category SOIL

PESTICIDES in SOIL

	RESULT	LIMIT
a-BHC	ND	0.010
g-BHC (Lindane)	ND	0.010
b-BHC	ND	0.010
Heptachlor	ND	0.010
d-BHC	ND	0.010
Aldrin	ND	0.010
Heptachlor Epoxide	ND	0.010
Endosulfan I	ND	0.010
4,4'-DDE	ND	0.010
Dieldrin	ND	0.010
Endrin	ND	0.010
4,4'-DDD	ND	0.010
Endosulfan II	ND	0.010
4,4'-DDT	ND	0.010
Endrin Aldehyde	ND	0.010
Endosulfan Sulfate	ND	0.010
Chlordane	ND	0.010
Toxaphene	ND	0.010
Methoxychlor	ND	0.010

Notes and Definitions for this Report:

UNITS: mg/Kg
EXTRACTED: 12/07/98
DATE RUN: 12/08/98
ANALYST: CK
INSTRUMENT: HP2
DIL. FACTOR: 1

ND = not detected at detection limit

SAMPLE ID PS-S801-04 FRACTION 11A TEST CODE PEST S NAME PESTICIDES - SOIL
Date & Time Collected 12/04/98 09:00:00 Category SOIL

PESTICIDES in SOIL

	RESULT	LIMIT
a-BHC	<u>ND</u>	<u>0.50</u>
g-BHC (Lindane)	<u>ND</u>	<u>0.50</u>
b-BHC	<u>ND</u>	<u>0.50</u>
Heptachlor	<u>ND</u>	<u>0.50</u>
d-BHC	<u>ND</u>	<u>0.50</u>
Aldrin	<u>ND</u>	<u>0.50</u>
Heptachlor Epoxide	<u>ND</u>	<u>0.50</u>
Endosulfan I	<u>ND</u>	<u>0.50</u>
4,4'-DDE	<u>ND</u>	<u>0.50</u>
Dieldrin	<u>ND</u>	<u>0.50</u>
Endrin	<u>ND</u>	<u>0.50</u>
4,4'-DDD	<u>ND</u>	<u>0.50</u>
Endosulfan II	<u>ND</u>	<u>0.50</u>
4,4'-DDT	<u>ND</u>	<u>0.50</u>
Endrin Aldehyde	<u>ND</u>	<u>0.50</u>
Endosulfan Sulfate	<u>ND</u>	<u>0.50</u>
Chlordane	<u>6.4</u>	<u>0.50</u>
Toxaphene	<u>ND</u>	<u>0.50</u>
Methoxychlor	<u>ND</u>	<u>0.50</u>

Notes and Definitions for this Report:

UNITS: mg/Kg
EXTRACTED: 12/07/98
DATE RUN: 12/09/98
ANALYST: CK
INSTRUMENT: HP2
DIL. FACTOR: 50

ND = not detected at detection limit

SAMPLE ID PS-SB02-06 FRACTION 12A TEST CODE PEST S NAME PESTICIDES - SOIL
Date & Time Collected 12/04/98 10:02:00 Category SOIL

PESTICIDES in SOIL

	RESULT	LIMIT
a-BHC	ND	0.10
g-BHC (Lindane)	ND	0.10
b-BHC	ND	0.10
Heptachlor	ND	0.10
d-BHC	ND	0.10
Aldrin	ND	0.10
Heptachlor Epoxide	ND	0.10
Endosulfan I	ND	0.10
4,4'-DDE	ND	0.10
Dieldrin	ND	0.10
Endrin	ND	0.10
4,4'-DDD	ND	0.10
Endosulfan II	ND	0.10
4,4'-DDT	ND	0.10
Endrin Aldehyde	ND	0.10
Endosulfan Sulfate	ND	0.10
Chlordane	2.9	0.10
Toxaphene	ND	0.10
Methoxychlor	ND	0.10

Notes and Definitions for this Report:

UNITS: mg/Kg
EXTRACTED: 12/07/98
DATE RUN: 12/09/98
ANALYST: CK
INSTRUMENT: HP2
DIL. FACTOR: 10

ND = not detected at detection limit

SAMPLE ID PS-SB02-08 FRACTION 13A TEST CODE PEST S NAME PESTICIDES - SOIL
Date & Time Collected 12/04/98 10:03:00 Category SOIL

PESTICIDES in SOIL

	RESULT	LIMIT
a-BHC	_____	ND 0.010
g-BHC (Lindane)	_____	ND 0.010
b-BHC	_____	ND 0.010
Heptachlor	_____	ND 0.010
d-BHC	_____	ND 0.010
Aldrin	_____	ND 0.010
Heptachlor Epoxide	_____	ND 0.010
Endosulfan I	_____	ND 0.010
4,4'-DDE	_____	ND 0.010
Dieldrin	_____	ND 0.010
Endrin	_____	ND 0.010
4,4'-DDD	_____	ND 0.010
Endosulfan II	_____	ND 0.010
4,4'-DDT	_____	ND 0.010
Endrin Aldehyde	_____	ND 0.010
Endosulfan Sulfate	_____	ND 0.010
Chlordane	_____	0.032 0.010
Toxaphene	_____	ND 0.010
Methoxychlor	_____	ND 0.010

Notes and Definitions for this Report:

UNITS: mg/Kg
EXTRACTED: 12/07/98
DATE RUN: 12/08/98
ANALYST: CK
INSTRUMENT: HP2
DIL. FACTOR: 1

ND = not detected at detection limit

SAMPLE ID PS-SB02-10 FRACTION 14A TEST CODE PEST S NAME PESTICIDES - SOIL
Date & Time Collected 12/04/98 10:11:00 Category SOIL

PESTICIDES in SOIL

	RESULT	LIMIT
a-BHC	ND	0.20
g-BHC (Lindane)	ND	0.20
b-BHC	ND	0.20
Heptachlor	ND	0.20
d-BHC	ND	0.20
Aldrin	ND	0.20
Heptachlor Epoxide	ND	0.20
Endosulfan I	ND	0.20
4,4'-DDE	ND	0.20
Dieldrin	ND	0.20
Endrin	ND	0.20
4,4'-DDD	ND	0.20
Endosulfan II	ND	0.20
4,4'-DDT	ND	0.20
Endrin Aldehyde	ND	0.20
Endosulfan Sulfate	ND	0.20
Chlordane	4.9	0.20
Toxaphene	ND	0.20
Methoxychlor	ND	0.20

Notes and Definitions for this Report:

UNITS: mg/Kg
EXTRACTED: 12/07/98
DATE RUN: 12/09/98
ANALYST: CK
INSTRUMENT: HP2
DIL. FACTOR: 20

ND = not detected at detection limit

Received: 12/05/98

Results by Sample

SAMPLE ID PS-SB02-12FRACTION 15ATEST CODE PEST SNAME PESTICIDES - SOILDate & Time Collected 12/04/98 10:12:00Category SOILPESTICIDES in SOIL

	RESULT	LIMIT
a-BHC	_____	ND 0.010
g-BHC (Lindane)	_____	ND 0.010
b-BHC	_____	ND 0.010
Heptachlor	_____	ND 0.010
d-BHC	_____	ND 0.010
Aldrin	_____	ND 0.010
Heptachlor Epoxide	_____	ND 0.010
Endosulfan I	_____	ND 0.010
4,4'-DDE	_____	ND 0.010
Dieldrin	_____	ND 0.010
Endrin	_____	ND 0.010
4,4'-DDD	_____	ND 0.010
Endosulfan II	_____	ND 0.010
4,4'-DDT	_____	ND 0.010
Endrin Aldehyde	_____	ND 0.010
Endosulfan Sulfate	_____	ND 0.010
Chlordane	_____	0.018 0.010
Toxaphene	_____	ND 0.010
Methoxychlor	_____	ND 0.010

Notes and Definitions for this Report:

UNITS: mg/Kg
 EXTRACTED: 12/07/98
 DATE RUN: 12/09/98
 ANALYST: CK
 INSTRUMENT: HP2
 DIL. FACTOR: 1

ND = not detected at detection limit

Received: 12/05/98

Results by Sample

SAMPLE ID PS-SB02-14FRACTION 16ATEST CODE PEST S NAME PESTICIDES - SOILDate & Time Collected 12/04/98 10:26:00Category SOIL**PESTICIDES in SOIL**

	RESULT	LIMIT
a-BHC	ND	0.10
g-BHC (Lindane)	ND	0.10
b-BHC	ND	0.10
Heptachlor	ND	0.10
d-BHC	ND	0.10
Aldrin	ND	0.10
Heptachlor Epoxide	ND	0.10
Endosulfan I	ND	0.10
4,4'-DDE	ND	0.10
Dieldrin	ND	0.10
Endrin	ND	0.10
4,4'-DDD	ND	0.10
Endosulfan II	ND	0.10
4,4'-DDT	ND	0.10
Endrin Aldehyde	ND	0.10
Endosulfan Sulfate	ND	0.10
Chlordane	2.2	0.10
Toxaphene	ND	0.10
Methoxychlor	ND	0.10

Notes and Definitions for this Report:

UNITS: mg/Kg
 EXTRACTED: 12/07/98
 DATE RUN: 12/09/98
 ANALYST: CK
 INSTRUMENT: HP2
 DIL. FACTOR: 10

ND = not detected at detection limit

Received: 12/05/98

Results by Sample

SAMPLE ID PS-SB02-16FRACTION 17ATEST CODE PEST SNAME PESTICIDES - SOILDate & Time Collected 12/04/98 10:27:00Category SOIL**PESTICIDES in SOIL**

	RESULT	LIMIT
a-BHC	ND	0.010
g-BHC (Lindane)	ND	0.010
b-BHC	ND	0.010
Heptachlor	ND	0.010
d-BHC	ND	0.010
Aldrin	ND	0.010
Heptachlor Epoxide	ND	0.010
Endosulfan I	ND	0.010
4,4'-DDE	ND	0.010
Dieldrin	ND	0.010
Endrin	ND	0.010
4,4'-DDD	ND	0.010
Endosulfan II	ND	0.010
4,4'-DDT	ND	0.010
Endrin Aldehyde	ND	0.010
Endosulfan Sulfate	ND	0.010
Chlordane	ND	0.010
Toxaphene	ND	0.010
Methoxychlor	ND	0.010

Notes and Definitions for this Report:

UNITS: mg/Kg
 EXTRACTED: 12/07/98
 DATE RUN: 12/09/98
 ANALYST: CK
 INSTRUMENT: HP2
 DIL. FACTOR: 1

ND = not detected at detection limit

Received: 12/05/98

Results by Sample

SAMPLE ID PS-S802-18FRACTION 18ATEST CODE PEST SNAME PESTICIDES - SOILDate & Time Collected 12/04/98 10:38:00Category SOIL**PESTICIDES in SOIL**

	RESULT	LIMIT
a-BHC	ND	0.20
g-BHC (Lindane)	ND	0.20
b-BHC	ND	0.20
Heptachlor	ND	0.20
d-BHC	ND	0.20
Aldrin	ND	0.20
Heptachlor Epoxide	ND	0.20
Endosulfan I	ND	0.20
4,4'-DDE	ND	0.20
Dieldrin	ND	0.20
Endrin	ND	0.20
4,4'-DDD	ND	0.20
Endosulfan II	ND	0.20
4,4'-DDT	ND	0.20
Endrin Aldehyde	ND	0.20
Endosulfan Sulfate	ND	0.20
Chlordane	6.8	0.20
Toxaphene	ND	0.20
Methoxychlor	ND	0.20

Notes and Definitions for this Report:

UNITS: mg/Kg
 EXTRACTED: 12/07/98
 DATE RUN: 12/09/98
 ANALYST: CK
 INSTRUMENT: HP2
 DIL. FACTOR: 20

ND = not detected at detection limit

Received: 12/05/98

Results by Sample

SAMPLE ID PS-SB02-20FRACTION 19ATEST CODE PEST SNAME PESTICIDES - SOILDate & Time Collected 12/04/98 10:39:00Category SOIL**PESTICIDES in SOIL**

	RESULT	LIMIT
a-BHC	ND	0.010
g-BHC (Lindane)	ND	0.010
b-BHC	ND	0.010
Heptachlor	ND	0.010
d-BHC	ND	0.010
Aldrin	ND	0.010
Heptachlor Epoxide	ND	0.010
Endosulfan I	ND	0.010
4,4'-DDE	ND	0.010
Dieldrin	ND	0.010
Endrin	ND	0.010
4,4'-DDD	ND	0.010
Endosulfan II	ND	0.010
4,4'-DDT	ND	0.010
Endrin Aldehyde	ND	0.010
Endosulfan Sulfate	ND	0.010
Chlordane	ND	0.010
Toxaphene	ND	0.010
Methoxychlor	ND	0.010

Notes and Definitions for this Report:

UNITS: mg/Kg
 EXTRACTED: 12/07/98
 DATE RUN: 12/09/98
 ANALYST: CK
 INSTRUMENT: HP2
 DIL. FACTOR: 1

ND = not detected at detection limit

Received: 12/05/98

Results by Sample

SAMPLE ID PS-SB02-22FRACTION 20ATEST CODE PEST SNAME PESTICIDES - SOILDate & Time Collected 12/04/98 10:50:00Category SOIL**PESTICIDES in SOIL**

	RESULT	LIMIT
a-BHC	_____	ND 0.020
g-BHC (Lindane)	_____	ND 0.020
b-BHC	_____	ND 0.020
Heptachlor	_____	ND 0.020
d-BHC	_____	ND 0.020
Aldrin	_____	ND 0.020
Heptachlor Epoxide	_____	ND 0.020
Endosulfan I	_____	ND 0.020
4,4'-DDE	_____	ND 0.020
Dieldrin	_____	ND 0.020
Endrin	_____	ND 0.020
4,4'-DDD	_____	ND 0.020
Endosulfan II	_____	ND 0.020
4,4'-DDT	_____	ND 0.020
Endrin Aldehyde	_____	ND 0.020
Endosulfan Sulfate	_____	ND 0.020
Chlordane	_____	0.28 0.020
Toxaphene	_____	ND 0.020
Methoxychlor	_____	ND 0.020

Notes and Definitions for this Report:

UNITS: mg/Kg
 EXTRACTED: 12/07/98
 DATE RUN: 12/09/98
 ANALYST: CK
 INSTRUMENT: HP2
 DIL. FACTOR: 2

ND = not detected at detection limit

Received: 12/05/98

Results by Sample

SAMPLE ID PS-SB02-24FRACTION 21ATEST CODE PEST SNAME PESTICIDES - SOILDate & Time Collected 12/04/98 10:51:00Category SOIL**PESTICIDES in SOIL**

	RESULT	LIMIT
a-BHC	ND	0.010
g-BHC (Lindane)	ND	0.010
b-BHC	ND	0.010
Heptachlor	ND	0.010
d-BHC	ND	0.010
Aldrin	ND	0.010
Heptachlor Epoxide	ND	0.010
Endosulfan I	ND	0.010
4,4'-DDE	ND	0.010
Dieldrin	ND	0.010
Endrin	ND	0.010
4,4'-DDD	ND	0.010
Endosulfan II	ND	0.010
4,4'-DDT	ND	0.010
Endrin Aldehyde	ND	0.010
Endosulfan Sulfate	ND	0.010
Chlordane	ND	0.010
Toxaphene	ND	0.010
Methoxychlor	ND	0.010

Notes and Definitions for this Report:

UNITS: mg/Kg
 EXTRACTED: 12/07/98
 DATE RUN: 12/09/98
 ANALYST: CK
 INSTRUMENT: HP2
 DIL. FACTOR: 1

ND = not detected at detection limit

SAMPLE ID PS-GW03 FRACTION 22A TEST CODE PEST W NAME PESTICIDES - WATER
Date & Time Collected 12/04/98 12:10:00 Category WATER

PESTICIDES in WATER

RESULT LIMIT

a-BHC	_____	ND	<u>0.010</u>
g-BHC (Lindane)	_____	ND	<u>0.010</u>
b-BHC	_____	ND	<u>0.010</u>
Heptachlor	_____	ND	<u>0.010</u>
d-BHC	_____	ND	<u>0.010</u>
Aldrin	_____	ND	<u>0.010</u>
Heptachlor Epoxide	_____	ND	<u>0.010</u>
Endosulfan I	_____	<u>0.41</u>	<u>0.010</u>
4,4'-DDE	_____	ND	<u>0.010</u>
Dieldrin	_____	ND	<u>0.010</u>
Endrin	_____	ND	<u>0.010</u>
4,4'-DDD	_____	ND	<u>0.010</u>
Endosulfan II	_____	ND	<u>0.010</u>
4,4'-DDT	_____	ND	<u>0.010</u>
Endrin Aldehyde	_____	ND	<u>0.010</u>
Endosulfan Sulfate	_____	ND	<u>0.010</u>
Chlordane	_____	ND	<u>0.010</u>
Toxaphene	_____	ND	<u>0.010</u>
Methoxychlor	_____	ND	<u>0.010</u>

Notes and Definitions for this Report:

EXTRACTED: 12/07/98
DATE RUN: 12/08/98
ANALYST: CK
INSTRUMENT: HP2
DIL. FACTOR: 1
UNITS: ug/L

ND = not detected at detection limit

SAMPLE ID PS-GW04 FRACTION 23A TEST CODE PEST W NAME PESTICIDES - WATER
Date & Time Collected 12/04/98 13:10:00 Category WATER

PESTICIDES in WATER

	RESULT	LIMIT
a-BHC	ND	0.010
g-BHC (Lindane)	ND	0.010
b-BHC	ND	0.010
Heptachlor	ND	0.010
d-BHC	ND	0.010
Aldrin	ND	0.010
Heptachlor Epoxide	ND	0.010
Endosulfan I	0.61	0.010
4,4'-DDE	ND	0.010
Dieldrin	ND	0.010
Endrin	ND	0.010
4,4'-DDD	ND	0.010
Endosulfan II	ND	0.010
4,4'-DDT	ND	0.010
Endrin Aldehyde	ND	0.010
Endosulfan Sulfate	ND	0.010
Chlordane	ND	0.010
Toxaphene	ND	0.010
Methoxychlor	ND	0.010

Notes and Definitions for this Report:

EXTRACTED: 12/07/98
DATE RUN: 12/08/98
ANALYST: CK
INSTRUMENT: HP2
DIL. FACTOR: 1
UNITS: ug/L

ND = not detected at detection limit

SAMPLE ID PS-GJ05 FRACTION 24A TEST CODE PEST W NAME PESTICIDES - WATER
Date & Time Collected 12/04/98 14:40:00 Category WATER

PESTICIDES in WATER

RESULT LIMIT

a-BHC	ND	0.010
g-BHC (Lindane)	ND	0.010
b-BHC	ND	0.010
Heptachlor	ND	0.010
d-BHC	ND	0.010
Aldrin	ND	0.010
Heptachlor Epoxide	ND	0.010
Endosulfan I	ND	0.010
4,4'-DDE	ND	0.010
Dieldrin	ND	0.010
Endrin	ND	0.010
4,4'-DDD	ND	0.010
Endosulfan II	ND	0.010
4,4'-DDT	ND	0.010
Endrin Aldehyde	ND	0.010
Endosulfan Sulfate	ND	0.010
Chlordane	ND	0.010
Toxaphene	ND	0.010
Methoxychlor	ND	0.010

Notes and Definitions for this Report:

EXTRACTED: 12/07/98
DATE RUN: 12/08/98
ANALYST: CK
INSTRUMENT: HP2
DIL. FACTOR: 1
UNITS: ug/L

ND = not detected at detection limit

SAMPLE ID PS-GW02 FRACTION 25A TEST CODE PEST W NAME PESTICIDES - WATER
Date & Time Collected 12/04/98 11:50:00 Category WATER

PESTICIDES in WATER

	RESULT	LIMIT
a-BHC	ND	0.010
g-BHC (Lindane)	ND	0.010
b-BHC	ND	0.010
Heptachlor	ND	0.010
d-BHC	ND	0.010
Aldrin	ND	0.010
Heptachlor Epoxide	ND	0.010
Endosulfan I	0.38	0.010
4,4'-DDE	ND	0.010
Dieldrin	ND	0.010
Endrin	ND	0.010
4,4'-DDD	ND	0.010
Endosulfan II	ND	0.010
4,4'-DDT	ND	0.010
Endrin Aldehyde	ND	0.010
Endosulfan Sulfate	ND	0.010
Chlordane	ND	0.010
Toxaphene	ND	0.010
Methoxychlor	ND	0.010

Notes and Definitions for this Report:

EXTRACTED: 12/07/98
DATE RUN: 12/08/98
ANALYST: CK
INSTRUMENT: HP2
DIL. FACTOR: 1
UNITS: ug/L

ND = not detected at detection limit

SAMPLE ID PS-SLO1 FRACTION 26A TEST CODE PEST S NAME PESTICIDES - SOIL
Date & Time Collected 12/04/98 15:00:00 Category SLUDGE

PESTICIDES in SOIL

	RESULT	LIMIT
a-BHC	ND	0.10
g-BHC (Lindane)	ND	0.10
b-BHC	ND	0.10
Heptachlor	ND	0.10
d-BHC	ND	0.10
Aldrin	ND	0.10
Heptachlor Epoxide	ND	0.10
Endosulfan I	ND	0.10
4,4'-DDE	ND	0.10
Dieldrin	ND	0.10
Endrin	ND	0.10
4,4'-DDD	ND	0.10
Endosulfan II	ND	0.10
4,4'-DDT	ND	0.10
Endrin Aldehyde	ND	0.10
Endosulfan Sulfate	ND	0.10
Chlordane	9.5	0.10
Toxaphene	ND	0.10
Methoxychlor	ND	0.10

Notes and Definitions for this Report:

UNITS: g/Kg
EXTRACTED: 12/07/98
DATE RUN: 12/09/98
ANALYST: CK
INSTRUMENT: HP2
DIL. FACTOR: 10000

ND = not detected at detection limit

SAMPLE ID PS-FB01 FRACTION 27A TEST CODE PEST W NAME PESTICIDES - WATER
Date & Time Collected 12/04/98 15:00:00 Category WATER

PESTICIDES in WATER

	RESULT	LIMIT
a-BHC	ND	0.010
g-BHC (Lindane)	ND	0.010
b-BHC	ND	0.010
Heptachlor	ND	0.010
d-BHC	ND	0.010
Aldrin	ND	0.010
Heptachlor Epoxide	ND	0.010
Endosulfan I	ND	0.010
4,4'-DDE	ND	0.010
Dieldrin	ND	0.010
Endrin	ND	0.010
4,4'-DDD	ND	0.010
Endosulfan II	ND	0.010
4,4'-DDT	ND	0.010
Endrin Aldehyde	ND	0.010
Endosulfan Sulfate	ND	0.010
Chlordane	ND	0.010
Toxaphene	ND	0.010
Methoxychlor	ND	0.010

Notes and Definitions for this Report:

EXTRACTED: 12/07/98
DATE RUN: 12/08/98
ANALYST: CK
INSTRUMENT: HP2
DIL. FACTOR: 1
UNITS: ug/L

ND = not detected at detection limit

Page 30
Received: 12/05/98

TOXIKON CORP.

REPORT
Test Methodology

Work Order # 98-12-129

TEST CODE PEST S NAME PESTICIDES - SOIL

EPA Method: 8081. Organochlorine Pesticides & Polchlorinated Biphenyls
by Gas Chromatography

Reference: Test Methods for Evaluating Solid Waste: Physical/Chemical
Methods. EPA SW-846 FINAL UPDATE 111, 1996.
Office of Solid Waste, USEPA.

TEST CODE PEST W NAME PESTICIDES - WATER

EPA METHOD: 608 for water sample

Reference: Methods for Organic Chemical Analysis of Municipal and Industrial
Wastewater. Appendix A. 40 CFR Part 136. Federal Register Vol. 49,
No. 209, 1984.

TUXIKON

15 Wiggins Ave., Bedford, MA 01730
 Telephone: (781) 275-3330
 Fax: (781) 275-7478

142

CHAIN OF CUSTODY RECORD

WORK ORDER #: 98-12-129

DUE DATE: 12-09-98

COMPANY: Foster Wheeler Environ
 ADDRESS: one Oxford Valley Suite 200
Langhorne PA 19047
 PHONE #: (215) 702-4015 FAX #: (215) 702-4045
 P.O. #: 34-000491
 PROJECT MANAGER: M. G. Adfr
 PROJECT ID/LOCATION: NWS - Earle

- | SAMPLE TYPE | CONTAINER TYPE |
|---------------------|----------------|
| 1. WASTEWATER | P - PLASTIC |
| 2. SOIL | G - GLASS |
| 3. SLUDGE | V - VOA |
| 4. OIL | |
| 5. DRINKING WATER | |
| 6. WATER (GW/MW/SW) | |
| 7. OTHER (SPECIFY) | |

ANALYSES

TUXIKON #	SAMPLE IDENTIFICATION	SAMPLE TYPE	CONTAINER			SAMPLING		PRESERVATIVE	SPECIAL INSTRUCTIONS/COMMENTS
			SIZE	TYPE	#	DATE	TIME		
1	PS-SB01-06	2	8oz	G	1	12/4/98	0910	cool	chlorinated organic pest.
2	PS-SB01-08					12/4/98	0911		
3	PS-SB01-10						0920		
4	PS-SB01-12						0921		
5	PS-SB01-14						0930		
6	PS-SB01-16						0931		
7	PS-SB01-18						0940		
8	PS-SB01-20						0941		
9	PS-SB01-22						0949		
10	PS-SB01-24						0950		
11	PS-SB01-04						0900		
12	PS-SB02-06	↓	↓	↓	↓	↓	1002	↓	
13	PS-SB02-08	2	8oz	G	1	12/4/98	1003	cool	

SAMPLED BY: Tom Fowler

DATE: 12-4-98
 TIME: 8:30

QUOTATION #:

RELINQUISHED BY: Tom Fowler

DATE: 12-4-98
 TIME: 17:00

RECEIVED BY:

DATE: - - -
 TIME: - - -

RELINQUISHED BY:

DATE: - - -
 TIME: - - -

RECEIVED FOR LAB BY: J. Napolitano

DATE: 12-5-98
 TIME: 12:10

METHOD OF SHIPMENT: air

COOLER TEMPERATURE:

RUSH BUSINESS DAY TURN AROUND
 ROUTINE
 Sample disposal information
 Are there any other known or suspected contaminants in these samples other than those listed above?

CASE NARRATIVE

Work Order: 9812129

All samples were analyzed within the method holding times.

No target compounds were detected in the method blanks.

TOXIKON

GC PESTICIDES/PCB ANALYSIS MS/MSD RECOVERIES (METHOD 608/8080)

PROJECT : 9812129

MATRIX : SOLIDS

LABORATORY CONTROL SPIKE LCS9812013

COMPOUND	SPIKE ADDED (ug)	CONTROL SPIKE (ug)	CONTROL % RECOVERY	QC LIMITS
gamma-BHC (Lindane)	0.2	0.174	87.0	25-111
Heptachlor	0.2	0.208	104.0	28-122
Aldrin	0.2	0.154	77.0	16-124
Dieldrin	0.8	0.872	109.0	28-128
Endrin	0.8	0.778	97.3	17-158
4,4'-DDT	0.8	0.836	104.5	27-132
*** AROCHLOR 1260	5.0	NA	NA	38-144

MATRIX SPIKE SAMPLE : MS9812129.1
DILUTION : 1X

COMPOUND	SPIKE ADDED (ug)	SAMPLE CONC. (ug)	MS CONC. (ug)	MS % RECOVERY
gamma-BHC (Lindane)	0.2	ND	0.151	75.5
Heptachlor	0.2	3.74	7.86	NC
Aldrin	0.2	ND	0.229	114.5
Dieldrin	0.8	ND	1.07	133.8
Endrin	0.8	ND	0.671	83.9
4,4'-DDT	0.8	ND	0.996	124.5
*** AROCHLOR 1260	5.0	NA	NA	NA

MATRIX SPIKE DUPLICATE : MSD9812129.1
DILUTION : 1X

COMPOUND	SPIKE ADDED (ug)	MSD CONC. (ug)	MSD % RECOVERY	% RPD	QC LIMITS	
					%RPD	RECOVERY
gamma-BHC (Lindane)	0.2	0.173	86.5	13.58	< 15	25-111
Heptachlor	0.2	7	NC	11.60	< 15	28-122
Aldrin	0.2	0.241	120.5	5.11	< 15	16-124
Dieldrin	0.8	1.1	137.5	2.76	< 15	28-128
Endrin	0.8	0.621	77.6	7.74	< 15	17-158
4,4'-DDT	0.8	0.887	110.9	11.58	<15	27-132
*** AROCHLOR 1260	5.0	NA	NA	NA	<15	38-144

*** Arochlor units in ppm (mg/L) (for "PCB ONLY" analysis)

NC = Not calculated when native concentration exceeds matrix spike amount.

D - Indicates Diluted Out

INT - Indicates Interference

TOXIKON

**GC PESTICIDES/PCB ANALYSIS SURROGATE RECOVERIES
(METHOD 608/8080)**

PROJECT # : 9812129

MATRIX : SOLIDS

SAMPLE ID	2,4,5,6-Tetrachloro-M-Xylene	Decachlorobiphenyl
METHOD BLANK	69.5	80
LCS	82.8	79
MS9812129.1	70	68
MSD9812129.1	67	79.3
9812129.1	53	59.3
9812129.2	56.5	61
9812129.3	DILUTED OUT	DILUTED OUT
9812129.4	68	101
9812129.5	58	80
9812129.6	40.8	53
9812129.7	50	64.3
9812129.8	66.8	75.3
9812129.9	59	110.5
9812129.10	54.5	80
9812129.11	62.5	86.5
9812129.12	74.8	79.5
9812129.13	56.3	80
9812129.14	94.8	103.3
9812129.15	64.8	76
9812129.16	79.8	88
9812129.17	50	80
9812129.18	77.8	79.5
9812129.19	68	75.5
9812129.20	67	82.5

D - Indicates Diluted Out
INT - Indicates Interference

TOXIKON

**GC PESTICIDES/PCB ANALYSIS MS/MSD RECOVERIES
(METHOD 608/8080)**

PROJECT : 9812129
MATRIX : SOLIDS

LABORATORY CONTROL SPIKE LCS9812014

COMPOUND	SPIKE ADDED (ug)	CONTROL SPIKE (ug)	CONTROL % RECOVERY	QC LIMITS
gamma-BHC (Lindane)	0.2	0.135	67.5	25-111
Heptachlor	0.2	0.154	77.0	28-122
Aldrin	0.2	0.199	99.5	16-124
Dieldrin	0.8	0.629	78.6	28-128
Endrin	0.8	0.683	85.4	17-158
4,4'-DDT	0.8	0.766	95.8	27-132
*** AROCHLOR 1260	5.0	NA	NA	38-144

MATRIX SPIKE SAMPLE : MS9812129.21
DILUTION : 1X

COMPOUND	SPIKE ADDED (ug)	SAMPLE CONC. (ug)	MS CONC. (ug)	MS % RECOVERY
gamma-BHC (Lindane)	0.2	ND	0.14	70.0
Heptachlor	0.2	ND	0.18	90.0
Aldrin	0.2	ND	0.244	122.0
Dieldrin	0.8	ND	0.69	86.3
Endrin	0.8	ND	0.733	91.6
4,4'-DDT	0.8	ND	0.803	100.4
*** AROCHLOR 1260	5.0	NA	NA	NA

MATRIX SPIKE DUPLICATE : MSD9812129.21
DILUTION : 1X

COMPOUND	SPIKE ADDED (ug)	MSD CONC. (ug)	MSD % RECOVERY	% RPD	QC LIMITS	
					%RPD	RECOVERY
gamma-BHC (Lindane)	0.2	0.133	66.5	5.13	< 15	25-111
Heptachlor	0.2	0.165	82.5	8.70	< 15	28-122
Aldrin	0.2	0.23	115.0	5.91	< 15	16-124
Dieldrin	0.8	0.675	84.4	2.20	< 15	28-128
Endrin	0.8	0.726	90.8	0.96	< 15	17-158
4,4'-DDT	0.8	0.791	98.9	1.51	<15	27-132
*** AROCHLOR 1260	5.0	NA	NA	NA	<15	38-144

*** Arochlor units in ppm (mg/L) (for "PCB ONLY" analysis)

D - Indicates Diluted Out
INT - Indicates Interference

TOXIKON

**GC PESTICIDES/PCB ANALYSIS LCS/LCSD RECOVERIES
(METHOD 608/8080)**

PROJECT : 9812129

MATRIX : WATER

LABORATORY CONTROL SPIKE: LCS9811076

COMPOUND	SPIKE ADDED (ug/L)	LCS CONC. (ug/L)	LCS % RECOVERY	QC LIMITS
gamma-BHC (Lindane)	0.2	0.246	123.0	25-111
Heptachlor	0.2	0.185	92.5	28-122
Aldrin	0.2	0.201	100.5	16-124
Dieldrin	0.8	1.05	131.3	28-128
Endrin	0.8	1.25	156.3	17-158
4,4'-DDT	0.8	0.981	122.6	27-132
*** AROCHLOR 1260	5.0	NA	NA	38-144

LABORATORY CONTROL SPIKE DUPLICATE: LCSD9811076

COMPOUND	SPIKE ADDED (ug/L)	LCSD CONC. (ug/L)	LCSD % RECOVERY	% RPD	QC LIMITS	
					%RPD	RECOVERY
gamma-BHC (Lindane)	0.2	0.235	117.5	4.6	< 15	25-111
Heptachlor	0.2	0.165	82.5	11.4	< 15	28-122
Aldrin	0.2	0.174	87.0	14.4	< 15	16-124
Dieldrin	0.8	0.948	118.5	10.2	< 15	28-128
Endrin	0.8	1.12	140.0	11.0	< 15	17-158
4,4'-DDT	0.8	0.925	115.6	5.9	<15	27-132
*** AROCHLOR 1260	5.0	NA	NA	NA	<15	38-144

*** Arochlor units in ppm (mg/L) (for "PCB ONLY" analysis)

D - Indicates Diluted Out

INT - Indicates Interference

CASE NARRATIVE

Work Order: 9812129

All samples were analyzed within the method holding times.

No target compounds were detected in the method blanks.

TOXIKON

GC PESTICIDES/PCB ANALYSIS LCS/LCSD RECOVERIES (METHOD 608/8080)

PROJECT : 9812129
MATRIX : WATER

LABORATORY CONTROL SPIKE: LCS9811076

COMPOUND	SPIKE ADDED (ug/L)	LCS CONC. (ug/L)	LCS % RECOVERY	QC LIMITS
gamma-BHC (Lindane)	0.2	0.246	123.0	25-111
Heptachlor	0.2	0.185	92.5	28-122
Aldrin	0.2	0.201	100.5	16-124
Dieldrin	0.8	1.05	131.3	28-128
Endrin	0.8	1.25	156.3	17-158
4,4'-DDT	0.8	0.981	122.6	27-132
*** AROCHLOR 1260	5.0	NA	NA	38-144

LABORATORY CONTROL SPIKE DUPLICATE: LCSD9811076

COMPOUND	SPIKE ADDED (ug/L)	LCSD CONC. (ug/L)	LCSD % RECOVERY	% RPD	QC LIMITS	
					%RPD	RECOVERY
gamma-BHC (Lindane)	0.2	0.235	117.5	4.6	< 15	25-111
Heptachlor	0.2	0.165	82.5	11.4	< 15	28-122
Aldrin	0.2	0.174	87.0	14.4	< 15	16-124
Dieldrin	0.8	0.948	118.5	10.2	< 15	28-128
Endrin	0.8	1.12	140.0	11.0	< 15	17-158
4,4'-DDT	0.8	0.925	115.6	5.9	<15	27-132
*** AROCHLOR 1260	5.0	NA	NA	NA	<15	38-144

*** Arochlor units in ppm (mg/L) (for "PCB ONLY" analysis)

D - Indicates Diluted Out

INT - Indicates Interference

TOXIKON

**GC PESTICIDES/PCB ANALYSIS MS/MSD RECOVERIES
(METHOD 608/8080)**

PROJECT : 9812129

MATRIX : SOLIDS

LABORATORY CONTROL SPIKE

LCS9812014

COMPOUND	SPIKE ADDED (ug)	CONTROL SPIKE (ug)	CONTROL % RECOVERY	QC LIMITS
gamma-BHC (Lindane)	0.2	0.135	67.5	25-111
Heptachlor	0.2	0.154	77.0	28-122
Aldrin	0.2	0.199	99.5	16-124
Dieldrin	0.8	0.629	78.6	28-128
Endrin	0.8	0.683	85.4	17-158
4,4'-DDT	0.8	0.766	95.8	27-132
*** AROCHLOR 1260	5.0	NA	NA	38-144

MATRIX SPIKE SAMPLE : MS9812129.21

DILUTION : 1X

COMPOUND	SPIKE ADDED (ug)	SAMPLE CONC. (ug)	MS CONC. (ug)	MS % RECOVERY
gamma-BHC (Lindane)	0.2	ND	0.14	70.0
Heptachlor	0.2	ND	0.18	90.0
Aldrin	0.2	ND	0.244	122.0
Dieldrin	0.8	ND	0.69	86.3
Endrin	0.8	ND	0.733	91.6
4,4'-DDT	0.8	ND	0.803	100.4
*** AROCHLOR 1260	5.0	NA	NA	NA

MATRIX SPIKE DUPLICATE : MSD9812129.21

DILUTION : 1X

COMPOUND	SPIKE ADDED (ug)	MSD CONC. (ug)	MSD % RECOVERY	% RPD	QC LIMITS	
					%RPD	RECOVERY
gamma-BHC (Lindane)	0.2	0.133	66.5	5.13	< 15	25-111
Heptachlor	0.2	0.165	82.5	8.70	< 15	28-122
Aldrin	0.2	0.23	115.0	5.91	< 15	16-124
Dieldrin	0.8	0.675	84.4	2.20	< 15	28-128
Endrin	0.8	0.726	90.8	0.96	< 15	17-158
4,4'-DDT	0.8	0.791	98.9	1.51	<15	27-132
*** AROCHLOR 1260	5.0	NA	NA	NA	<15	38-144

*** Arochlor units in ppm (mg/L) (for "PCB ONLY" analysis)

D - Indicates Diluted Out

INT - Indicates Interference

TOXIKON

GC PESTICIDES/PCB ANALYSIS SURROGATE RECOVERIES (METHOD 608/8080)

PROJECT # : 9812129

MATRIX : SOLIDS

SAMPLE ID	2,4,5,6-Tetrachloro-M-Xylene	Decachlorobiphenyl
METHOD BLANK	69.5	80
LCS	82.8	79
MS9812129.1	70	68
MSD9812129.1	67	79.3
9812129.1	53	59.3
9812129.2	56.5	61
9812129.3	DILUTED OUT	DILUTED OUT
9812129.4	68	101
9812129.5	58	80
9812129.6	40.8	53
9812129.7	50	64.3
9812129.8	66.8	75.3
9812129.9	59	110.5
9812129.10	54.5	80
9812129.11	62.5	86.5
9812129.12	74.8	79.5
9812129.13	56.3	80
9812129.14	94.8	103.3
9812129.15	64.8	76
9812129.16	79.8	88
9812129.17	50	80
9812129.18	77.8	79.5
9812129.19	68	75.5
9812129.20	67	82.5

D - Indicates Diluted Out
INT - Indicates Interference

TOXIKON

**GC PESTICIDES/PCB ANALYSIS MS/MSD RECOVERIES
(METHOD 608/8080)**

PROJECT : 9812129
MATRIX : SOLIDS

LABORATORY CONTROL SPIKE LCS9812013

COMPOUND	SPIKE ADDED (ug)	CONTROL SPIKE (ug)	CONTROL % RECOVERY	QC LIMITS
gamma-BHC (Lindane)	0.2	0.174	87.0	25-111
Heptachlor	0.2	0.208	104.0	28-122
Aldrin	0.2	0.154	77.0	16-124
Dieldrin	0.8	0.872	109.0	28-128
Endrin	0.8	0.778	97.3	17-158
4,4'-DDT	0.8	0.836	104.5	27-132
*** AROCHLOR 1260	5.0	NA	NA	38-144

MATRIX SPIKE SAMPLE : MS9812129.1
DILUTION : 1X

COMPOUND	SPIKE ADDED (ug)	SAMPLE CONC. (ug)	MS CONC. (ug)	MS % RECOVERY
gamma-BHC (Lindane)	0.2	ND	0.151	75.5
Heptachlor	0.2	3.74	7.86	NC
Aldrin	0.2	ND	0.229	114.5
Dieldrin	0.8	ND	1.07	133.8
Endrin	0.8	ND	0.671	83.9
4,4'-DDT	0.8	ND	0.996	124.5
*** AROCHLOR 1260	5.0	NA	NA	NA

MATRIX SPIKE DUPLICATE : MSD9812129.1
DILUTION : 1X

COMPOUND	SPIKE ADDED (ug)	MSD CONC. (ug)	MSD % RECOVERY	% RPD	QC LIMITS	
					%RPD	RECOVERY
gamma-BHC (Lindane)	0.2	0.173	86.5	13.58	< 15	25-111
Heptachlor	0.2	7	NC	11.60	< 15	28-122
Aldrin	0.2	0.241	120.5	5.11	< 15	16-124
Dieldrin	0.8	1.1	137.5	2.76	< 15	28-128
Endrin	0.8	0.621	77.6	7.74	< 15	17-158
4,4'-DDT	0.8	0.887	110.9	11.58	<15	27-132
*** AROCHLOR 1260	5.0	NA	NA	NA	<15	38-144

*** Arochlor units in ppm (mg/L) (for "PCB ONLY" analysis)

NC = Not calculated when native concentration exceeds matrix spike amount.

D - Indicates Diluted Out

INT - Indicates Interference

Page 1

TOXIKON CORP.

REPORT

Work Order # 99-01-119

Received: 01/08/99

01/14/99 14:51:17

REPORT FOSTER & WHEELER
TO 1 OXFORD VALLEY, SUITE 200
LANGHORNE, PA. 19047
215-702-4007 FAX: 4045

PREPARED TOXIKON CORPORATION
BY 15 WIGGINS AVE
BEDFORD, MA 01730


CERTIFIED BY

ATTEN MICHAEL HEFFRON

ATTEN PAUL LEZBERG
PHONE (781)275-3330

CONTACT JAYSON

CLIENT FOSTER SAMPLES 7

COMPANY FOSTER & WHEELER
FACILITY 1 OXFORD VALLEY, SUITE 200
LANGHORNE, PA. 19047

MA CERT # M-MA064: TRACE METALS, SULFATE, CYANIDE, RES. FREE
CHLORINE, Ca, TOTAL ALK., TDS, pH, THMS, VOC, PEST., NUTRIENTS,
DEMAND, O&G, PHENOLICS, PCBs, CT DHS #PH-0563, NY #1077B
FL HRS E67143, NJ DEP 59538, NC DNR236, SC 89002, NH 204091-C.

WORK ID NWS EARLE PESTICIDES

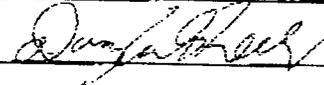
TAKEN 1/7/99

TRANS _____

TYPE WATER

P.O. # _____

INVOICE Under separate cover

VERIFIED BY: 

SAMPLE IDENTIFICATION

TEST CODES and NAMES used on this workorder

- 01 PS-GW1
- 02 PS-GW2
- 03 PS-GW6
- 04 PS-GW7
- 05 PS-GW8
- 06 PS-GW-09
- 07 PS-TB01

PEST W PESTICIDES - WATER

- NOT ENOUGH VOLUME TO RUN SAMPLE. CJ 1-29-99

Page 2

TOXIKON CORP.

REPORT

Work Order # 99-01-119

Received: 01/08/99

Results by Sample

SAMPLE ID PS-GW1FRACTION 01ATEST CODE PEST WNAME PESTICIDES - WATERDate & Time Collected 01/07/99 15:30:00Category WATER**PESTICIDES in WATER**

RESULT LIMIT

a-BHC	ND	0.010
g-BHC (Lindane)	ND	0.010
b-BHC	ND	0.010
Heptachlor	ND	0.010
d-BHC	ND	0.010
Aldrin	ND	0.010
Heptachlor Epoxide	ND	0.010
Endosulfan I	ND	0.010
4,4'-DDE	ND	0.010
Dieldrin	ND	0.010
Endrin	ND	0.010
4,4'-DDD	ND	0.010
Endosulfan II	ND	0.010
4,4'-DDT	ND	0.010
Endrin Aldehyde	ND	0.010
Endosulfan Sulfate	ND	0.010
Chlordane	ND	0.010
Toxaphene	ND	0.010
Methoxychlor	ND	0.010

Notes and Definitions for this Report:

EXTRACTED: 01/09/99
 DATE RUN: 01/13/99
 ANALYST: CK
 INSTRUMENT: HP2
 DIL. FACTOR: 1
 UNITS: ug/L

ND = not detected at detection limit

Page 3

TOXIKON CORP.

REPORT

Work Order # 99-01-119

Received: 01/08/99

Results by Sample

SAMPLE ID PS-GN2FRACTION 02ATEST CODE PEST WNAME PESTICIDES - WATERDate & Time Collected 01/07/99 14:45:00Category WATER**PESTICIDES in WATER**

RESULT LIMIT

a-BHC	ND	0.010
g-BHC (Lindane)	ND	0.010
b-BHC	ND	0.010
Heptachlor	ND	0.010
d-BHC	ND	0.010
Aldrin	ND	0.010
Heptachlor Epoxide	ND	0.010
Endosulfan I	ND	0.010
4,4'-DDE	ND	0.010
Dieldrin	ND	0.010
Endrin	ND	0.010
4,4'-DDD	ND	0.010
Endosulfan II	ND	0.010
4,4'-DDT	ND	0.010
Endrin Aldehyde	ND	0.010
Endosulfan Sulfate	ND	0.010
Chlordane	ND	0.010
Toxaphene	ND	0.010
Methoxychlor	ND	0.010

Notes and Definitions for this Report:

EXTRACTED: 01/09/99
 DATE RUN: 01/13/99
 ANALYST: CK
 INSTRUMENT: HP2
 DIL. FACTOR: 1
 UNITS: ug/L

ND = not detected at detection limit

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TOXIKOM CORP.

REPORT

Work Order # 99-01-119

Received: 01/08/99

Results by Sample

SAMPLE ID PS-GW6FRACTION 03ATEST CODE PEST WNAME PESTICIDES - WATERDate & Time Collected 01/07/99 10:05:00Category WATER**PESTICIDES in WATER**

	RESULT	LIMIT
a-BHC	ND	0.010
g-BHC (Lindane)	ND	0.010
b-BHC	ND	0.010
Heptachlor	ND	0.010
d-BHC	ND	0.010
Aldrin	ND	0.010
Heptachlor Epoxide	ND	0.010
Endosulfan I	ND	0.010
4,4'-DDE	ND	0.010
Dieldrin	ND	0.010
Endrin	ND	0.010
4,4'-DDD	ND	0.010
Endosulfan II	ND	0.010
4,4'-DDT	ND	0.010
Endrin Aldehyde	ND	0.010
Endosulfan Sulfate	ND	0.010
Chlordane	ND	0.010
Toxaphene	ND	0.010
Methoxychlor	ND	0.010

Notes and Definitions for this Report:

EXTRACTED: 01/09/99
 DATE RUN: 01/13/99
 ANALYST: CK
 INSTRUMENT: HP2
 DIL. FACTOR: 1
 UNITS: ug/L

ND = not detected at detection limit

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TOXIKON CORP.

REPORT

Work Order # 99-01-119

Received: 01/08/99

Results by Sample

SAMPLE ID PS-GW7FRACTION 06ATEST CODE PEST WNAME PESTICIDES - WATERDate & Time Collected 01/07/99 11:30:00Category WATER**PESTICIDES in WATER**

	RESULT	LIMIT
a-BHC	ND	0.010
g-BHC (Lindane)	ND	0.010
b-BHC	ND	0.010
Heptachlor	ND	0.010
d-BHC	ND	0.010
Aldrin	ND	0.010
Heptachlor Epoxide	ND	0.010
Endosulfan I	ND	0.010
4,4'-DDE	ND	0.010
Dieldrin	ND	0.010
Endrin	ND	0.010
4,4'-DDD	ND	0.010
Endosulfan II	ND	0.010
4,4'-DDT	ND	0.010
Endrin Aldehyde	ND	0.010
Endosulfan Sulfate	ND	0.010
Chlordane	ND	0.010
Toxaphene	ND	0.010
Methoxychlor	ND	0.010

Notes and Definitions for this Report:

EXTRACTED: 01/09/99
 DATE RUN: 01/13/99
 ANALYST: CK
 INSTRUMENT: HP2
 DIL. FACTOR: 1
 UNITS: ug/L

ND = not detected at detection limit

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TOXIKON CORP.

REPORT

Work Order # 99-01-119

Received: 01/08/99

Results by Sample

SAMPLE ID PS-GWBFRACTION 05ATEST CODE PEST WNAME PESTICIDES - WATERDate & Time Collected 01/07/99 12:35:00Category WATERPESTICIDES in WATER

RESULT LIMIT

a-BHC	ND	0.010
γ-BHC (Lindane)	ND	0.010
b-BHC	ND	0.010
Heptachlor	ND	0.010
d-BHC	ND	0.010
Aldrin	ND	0.010
Heptachlor Epoxide	ND	0.010
Endosulfan I	ND	0.010
4,4'-DDE	ND	0.010
Dieldrin	ND	0.010
Endrin	ND	0.010
4,4'-DDD	ND	0.010
Endosulfan II	ND	0.010
4,4'-DDT	ND	0.010
Endrin Aldehyde	ND	0.010
Endosulfan Sulfate	ND	0.010
Chloroane	ND	0.010
Toxaphene	ND	0.010
Methoxychlor	ND	0.010

Notes and Definitions for this Report:

EXTRACTED: 01/09/99
 DATE RUN: 01/13/99
 ANALYST: CK
 INSTRUMENT: HP2
 DIL. FACTOR: 1
 UNITS: ug/L

ND = not detected at detection limit

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TOXTECH CORP.

REPORT

Work Order # 99-01-119

Received: 01/08/99

Results by Sample

SAMPLE ID PS-T801FRACTION 07ATEST CODE PEST WNAME PESTICIDES - WATERDate & Time Collected 01/07/99Category WATER**PESTICIDES in WATER**

RESULT LIMIT

a-BHC	ND	0.010
g-BHC (Lindane)	ND	0.010
b-BHC	ND	0.010
Heptachlor	ND	0.010
d-BHC	ND	0.010
Aldrin	ND	0.010
Heptachlor Epoxide	ND	0.010
Endosulfan I	ND	0.010
4,4'-DDE	ND	0.010
Dieldrin	ND	0.010
Endrin	ND	0.010
4,4'-DDD	ND	0.010
Endosulfan II	ND	0.010
4,4'-DDT	ND	0.010
Endrin Aldehyde	ND	0.010
Endosulfan Sulfate	ND	0.010
Chlordane	ND	0.010
Toxaphene	ND	0.010
Methoxychlor	ND	0.010

Notes and Definitions for this Report:

EXTRACTED: 01/11/99
 DATE RUN: 01/13/99
 ANALYST: CK
 INSTRUMENT: HPZ
 DIL. FACTOR: 1
 UNITS: ug/L

ND = not detected at detection limit

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TOXIKON CORP.

REPORT

Work Order # 99-01-119

Received: 01/08/99

Test Methodology

TEST CODE PEST W NAME PESTICIDES - WATER

EPA METHOD: 608 for water sample

Reference: Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater. Appendix A. 40 CFR Part 136. Federal Register Vol. 49, No. 209, 1984.



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FACSIMILE INSTRUCTION SHEET

Date: 1/14
Name: Michael HEFFRON
Company: Foster & Wheeler
Fax #: 215-702-4045
From: Michael HEFFRON

Total No. of Pages Including Cover Sheet: _____

If you do not receive all of the pages, please call (781) 275-3330.
Thank you. Notes:

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Project#9901119

Case Narrative

Fraction 6, sample ID PS-GW-09, was not run due to insufficient quantity of sample. Two 1-L jars were provided. One was labeled MS by the client and the other labeled MSD by the client. The two jars were spiked by the lab and extracted. No third jar was provided for a sample run.

GP Work Order # 9812122
SAMPLE ANALYSIS REPORT

Prepared For:

FOSTER WHEELER ENVIRONMENTAL
2300 LINCOLN HWY EAST
LANGHORNE, PA 19047

NAVAL WEAPONS STATION-EARLE

Prepared By:

GPL Laboratories, LLLP
202 Perry Parkway
Gaithersburg, MD 20877

January 6, 1999

Cathy Blase for
Yemane Yohannes, Laboratory Director

Project: NAVAL WEAPONS STATION-EARLE

GPL LABORATORIES, LLLP
ANALYTICAL RESULTS

Page 1

Project: NAVAL WEAPONS STATION-EARLE

FOSTER WHEELER ENVIRONMENTAL
2300 LINCOLN HWY EAST
LANGHORNE, PA 19047
Atten: MIKE HEFFRON

GPL LABORATORIES, LLLP
202 Perry Parkway
Gaithersburg, MD 20877

Atten: Client Services
Phone: (301) 926-6802

Certified by: CS

SAMPLE IDENTIFICATION

<u>GP ID</u>	<u>Client ID</u>
9812122-01A	PS-SS01
9812122-02A	PS-SS02
9812122-03A	PS-SS03
9812122-04A	PS-SS03D
9812122-05A	PS-SS04
9812122-05B	

Project: NAVAL WEAPONS STATION-EARLE

GPL LABORATORIES, LLLP
ORGANIC ANALYSIS RESULTS

Page 2

GP ID: 9812122-01
Client ID: PS-SS01

Matrix: SOIL
Collected: 12/11/98

Parameter	Method	Result	Rep.Lim.	Units	Dil.	Prepared	Analyzed By
Nitroglycerin	8330M	BQL	5000.0	ug/Kg	1	12/19/98	12/27/98 LF
Nitroguanidine	HPLC	BQL	510.0	ug/Kg	1	12/19/98	12/28/98 LF

GP ID: 9812122-02
Client ID: PS-SS02

Matrix: SOIL
Collected: 12/11/98

Parameter	Method	Result	Rep.Lim.	Units	Dil.	Prepared	Analyzed By
Nitroglycerin	8330M	BQL	5000.0	ug/Kg	1	12/19/98	12/28/98 LF
Nitroguanidine	HPLC	BQL	510.0	ug/Kg	1	12/19/98	12/28/98 LF

GP ID: 9812122-03
Client ID: PS-SS03

Matrix: SOIL
Collected: 12/11/98

Parameter	Method	Result	Rep.Lim.	Units	Dil.	Prepared	Analyzed By
Nitroglycerin	8330M	BQL	5000.0	ug/Kg	1	12/19/98	12/28/98 LF
Nitroguanidine	HPLC	BQL	510.0	ug/Kg	1	12/19/98	12/28/98 LF

GP ID: 9812122-04
Client ID: PS-SS03D

Matrix: SOIL
Collected: 12/11/98

Parameter	Method	Result	Rep.Lim.	Units	Dil.	Prepared	Analyzed By
Nitroglycerin	8330M	BQL	5000.0	ug/Kg	1	12/19/98	12/28/98 LF
Nitroguanidine	HPLC	BQL	510.0	ug/Kg	1	12/19/98	12/28/98 LF

GP ID: 9812122-05
Client ID: PS-SS04

Matrix: SOIL
Collected: 12/11/98

Parameter	Method	Result	Rep.Lim.	Units	Dil.	Prepared	Analyzed By
Nitroglycerin	8330M	BQL	5000.0	ug/Kg	1	12/19/98	12/28/98 LF
Nitroguanidine	HPLC	BQL	510.0	ug/Kg	1	12/19/98	12/28/98 LF

Project: NAVAL WEAPONS STATION-EARLE

GPL LABORATORIES, LLLP
WET CHEMISTRY ANALYSIS RESULTS

Page 3

GP ID: 9812122-01
Client ID: PS-SS01

Matrix: SOIL
Collected: 12/11/98

Parameter	Method	Result	Rep.Lim.	Units	Dil.	Prepared	Analyzed By
Nitrocellulose	IAAP	BQL	37.6	mg/Kg	1	12/30/98	12/31/98 DCB
Percent Solids	MCAWW 160.3	91.1		%			01/06/99 DCB

GP ID: 9812122-02
Client ID: PS-SS02

Matrix: SOIL
Collected: 12/11/98

Parameter	Method	Result	Rep.Lim.	Units	Dil.	Prepared	Analyzed By
Nitrocellulose	IAAP	BQL	32.9	mg/Kg	1	12/30/98	12/31/98 DCB
Percent Solids	MCAWW 160.3	94.4		%			01/06/99 DCB

GP ID: 9812122-03
Client ID: PS-SS03

Matrix: SOIL
Collected: 12/11/98

Parameter	Method	Result	Rep.Lim.	Units	Dil.	Prepared	Analyzed By
Nitrocellulose	IAAP	BQL	32.2	mg/Kg	1	12/30/98	12/31/98 DCB
Percent Solids	MCAWW 160.3	93.1		%			01/06/99 DCB

GP ID: 9812122-04
Client ID: PS-SS03D

Matrix: SOIL
Collected: 12/11/98

Parameter	Method	Result	Rep.Lim.	Units	Dil.	Prepared	Analyzed By
Nitrocellulose	IAAP	BQL	30.7	mg/Kg	1	12/30/98	12/31/98 DCB
Percent Solids	MCAWW 160.3	92.3		%			01/06/99 DCB

GP ID: 9812122-05
Client ID: PS-SS04

Matrix: SOIL
Collected: 12/11/98

Parameter	Method	Result	Rep.Lim.	Units	Dil.	Prepared	Analyzed By
Nitrocellulose	IAAP	BQL	28.7	mg/Kg	1	12/30/98	12/31/98 DCB
Percent Solids	MCAWW 160.3	94.3		%			01/06/99 DCB

GPL LABORATORIES, LLLP

Possible notes and definitions for this report:

- BQL = Below Quantitation Limit
- J = Value is less than the reporting limits but greater than zero
- P = Indicates that there is greater than 25% difference for detected pesticide/Aroclor results between the two GC columns
- B = Indicates that the compound was found in the associated blank
- E = Indicates that the concentration exceeded the calibration range of the instrument
- U = Indicates that the compound was analyzed for but not detected. number indicates the detection limit
- D = Indicates that the compound was found in an analysis at a secondary dilution factor
- * = Value obtained from a 1:5 dilution
- + = Value obtained from a 1:10 dilution
- # = Value obtained from a 1:20 dilution
- = = Value obtained from a 1:25 dilution
- ^ = Value obtained from a 1:50 dilution
- ~ = Value obtained from a 1:100 dilution
- ! = Value obtained from a 1:250 dilution
- @ = Value obtained from a 1:125 dilution (medium level)
- \$ = Value obtained from a 1:500 dilution
- & = Value obtained from a 1:1000 dilution
- N = Flashpoint not observed; heated to specified limit
- R = Flammable at room temperature
- TNTC = Too numerous to count
- B.P. = Detection limit taken from boiling point
- F.F. = Sample gave off flammable fumes

ENVIRONMENTAL SERVICES

SAMPLE RECEIPT CHECKLIST

W.O. No. 44 09-12422 Carrier Name FEDEx
 Client Name FOSTER WALKER Prepared (Logged In) By [Signature] 1/11/89
Initials Date
 Date Received 1/11/89 Project WYOMING UNIVERSITY STATION
 Time Received 1:05 A Site EA02
 Received By [Signature] VOA Holding Blank I.D. No. _____

Airbill/Manifest Present? No. <u>08183675334</u>	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>	Trip Blanks Received? No. of Sets _____	YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>
Shipping Container in Good Condition?	<input checked="" type="checkbox"/> <input type="checkbox"/>	VOA Vials Have Zero Headspace?	<input type="checkbox"/> <input checked="" type="checkbox"/>
Custody Seals Present on Shipping Container? Condition: Good _____ Broken _____	<input type="checkbox"/> <input checked="" type="checkbox"/>	Preservatives Added to Sample?	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Chain-of-Custody Present?	<input checked="" type="checkbox"/> <input type="checkbox"/>	pH Check Required? Performed By? _____	<input type="checkbox"/> <input checked="" type="checkbox"/>
Chain-of-Custody Agrees with Sample Labels?	<input checked="" type="checkbox"/> <input type="checkbox"/>	Ice Present in Shipping Container?	<input checked="" type="checkbox"/> (None)
Chain-of-Custody Signed?	<input checked="" type="checkbox"/> <input type="checkbox"/>	Containers# _____ Temperature _____	
Packing Present in Shipping Container? Type of Packing <u>Bubble wrap</u>	<input checked="" type="checkbox"/> <input type="checkbox"/>	<u>4</u> <u>4.6</u>	
Custody Seals on Sample Bottles? Condition: Good _____ Broken _____	<input type="checkbox"/> <input checked="" type="checkbox"/>	<u>[Signature]</u>	
Total Number of Sample Bottles <u>6</u>			
Total Number of Samples <u>5</u>			
Samples Intact?	<input checked="" type="checkbox"/> <input type="checkbox"/>	Project Manager Contacted? Name: <u>[Signature]</u> Date Contacted: <u>12/15/88</u>	
Sufficient Sample Volume for Indicated Test?	<input checked="" type="checkbox"/> <input type="checkbox"/>		

Any NO response must be detailed in the comments section below. If items are not applicable to particular samples or contracts, they should be marked N/A.

COMMENTS: _____

Checklist Completed by [Signature]
 Date 1/11/89