

FIELD SAMPLING PLAN ADDENDUM

For

**DELINEATION SAMPLING at the OLD PESTICIDE
SHOP and SCREENING SAMPLING at the
OLD PRECIOUS METALS RECOVERY FACILITY
NAVAL WEAPONS STATION EARLE**

Prepared by

Brown & Root Environmental

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INTRODUCTION

A field sampling plan (FSP), dated January 1998 was prepared for screening sampling for organochlorine and phosphate pesticides at the Old Pesticide Shop. Sampling activities included surface soil, wipe, concrete core, and septic tank water and sediment sampling. This addendum to the January FSP addresses further delineation sampling of surface and subsurface soils for organochlorine pesticides at the Old Pesticide Shop. Also included in the addendum as screening sampling at the Old Precious Metals Recovery Facility of surface soil, stream water, stream sediment, concrete cores, and wipe sampling for TAL metals.

Old Pesticide Shop Recent Sampling

Screening sampling was conducted at the Old Pesticide Shop on January 29, 1998. The objectives of the screening S&A program was to determine if operations at the building had resulted in contamination of the building or surrounding area with pesticides. The following samples were obtained:

- Four wipe samples of interior wall surfaces from the Old Pesticide Shop
- Four core samples of concrete from the concrete pad inside and in front of the Old Pesticide Shop
- Nine composite samples of surface soils surrounding the Old Pesticide Shop
- One sediment sample from the septic tank servicing the Old Pesticide Shop

All samples were analyzed for the full suite of Appendix IX Organochlorine Pesticides by EPA method SW-846 8081A and Appendix IX Organophosphorous pesticides by EPA Method SW-846 8141A.

A summary report was prepared and sent to the Navy on March 11, 1998.

Concrete Core Samples

The analysis showed the presence of organochlorine pesticides 4,4'-DDD, 4,4'-DDE, 4,4'-DDT, chlordane, and heptachlor. Organophosphorous pesticides were not found in the concrete samples.

Septic Tank Sediment

The analysis showed the presence of 4,4'-DDD (1,300,000 ug/kg) and chlordane (16,000,000 ug/kg). Organophosphorous pesticides were not found in the septic tank sample.

Surface soils

The analysis showed the presence of 4,4'-DDD in one sample, 4,4'-DDE in four samples, 4,4'-DDT in nine samples, chlordane in eight samples, and heptachlor in one sample. Chlordane was found as high

as 520,000 ug/kg. Organophosphorous pesticides were found in one of the nine soil samples and one sample had parathion at a concentration of 35 ug/kg.

Wipe samples

The analysis showed the presence of removable Organochlorine pesticides at low concentrations. Organophosphorous pesticides were not found in the wipe samples.

Precious Metals Recovery Facility History

The precious metal recovery facility (PMRF) began operations in 1969. The PMRF was established to consolidate some of DoD's precious metal assets (film and batteries) at one location. The silver recovery equipment was originally designed to incinerate photographic film to concentrate silver in the ash for further processing by outside commercial smelters. Battery burning to recover silver, zinc, cadmium, and mercury was also conducted at the PMRF in addition to other precious metal containing objects such as; buttons, dental fillings, circuit boards, and X-ray sheets. The facility consisted of five front loading incinerators fueled by propane. The incinerators were run daily. Ash was shoveled out the front doors of the incinerators into steel drums. Operations at the PMRF ended in 1993.

Surrounding surface soils may have been exposed to ash from the incinerators. The emissions from the incinerators were not monitored and did not require air permitting. It has been estimated that 1100 pounds of silver particulate may have been emitted from the incinerator roof vents, per year.

Currently there are a total of 5 buildings involved at the site; C-37, C-38, the "Butler Building" (between C-38 and C-39), C-39, and C-46. A drainage ditch runs along the eastern and southern sides of the building complex and drains into a stream south of the building complex. There were 5 furnaces which operated in the Butler Building and were vented out the roof. The Butler Building had a fire in 1989 during recovery operations and the walls and roof had been replaced with sheet metal. Warehousing for the recovery operation took place in C-37 and offices are located in building C-38. Building C-46 was the assay building. It has recently been completely gutted and new drywall was installed throughout the building. The floors have been acid washed as part of the remodeling. Exterior surface soil samples were collected and no contamination was found (no concentrations above residential standards). Vegetation east of the building complex (between buildings and fence) has been observed to be stressed/non-existent for a number of years, following the cessation of recovery operations.

cm X 25cm). The gauze pad will then be placed into a sample container and cooled to 4 degrees C for shipment to the laboratory for TAL metal analysis.

Concrete Core Sampling

Five concrete core samples will be collected at the PMRF site; inside Building C-46(assay building), the Butler Building, and Building C-37(warehouse). The sample locations will be field determined based on any observed staining. The samples will be collected with a 1.5-inch diameter coring bit in conjunction with an electric concrete coring machine.

During coring, the bit and surrounding area will be kept damp with deionized water applied from a spray bottle. The coring bit will be advanced to a depth of 2 inches and withdrawn from the floor. A chisel will be driven down into the open area, which the coring bit has cut, snapping the core from the surrounding concrete. The concrete core will be placed into a sample container and cooled to 4 degrees C for shipment to the laboratory.

Surface and Subsurface Soil Sampling

Three soil composite samples, each composed of three grab samples, will be obtained from the area east to southeast of the Butler Building between the building and the fence. Three composite soil samples, each composed of three grab samples, will be obtained from outside the fence, at the PMRF. No subsurface soil samples are proposed at the PMRF. The soil samples will be collected according to NJDEP Field Sampling Procedures Manual dated May 1992 and B&R Environmental SOP SA-1.3. Compositing will be accomplished according to B&R Environmental SOP SA-1.3.

The sampling equipment will be stainless steel trowels and the samples will be composited in stainless steel bowls or buckets, which have been decontaminated according to NJDEP Field Sampling Procedures Manual dated May 1992 and B&R Environmental SOP SA-7.1. The trowels and bowls will be wrapped in aluminum foil for transportation to the site.

The soil at each location will be homogenized in-situ before being placed into the sample containers and compositing container. The samples will be collected from a depth of 0-6 inches. Sample locations will be moved to areas of stained soil, stressed vegetation, and/or low area, if any are located outside the perimeter of the buildings. All soil sample locations will be labeled and staked to allow for future identification.

Twenty-four surface soil samples will be obtained from the surrounding area of the Old Pesticide Shop. The locations will be based upon the previous sampling event results and selected in the field. Twenty-

Objectiv

The primary objective of the additional sampling at the Old Pesticide Shop is to further delineate the contamination found during the screening sampling and analysis. In order to accomplish this objective additional sampling and analysis for chlorinated pesticides will be conducted. The additional sampling will consist of collecting surface and subsurface soils, surrounding the building, at 24 different locations and from three depths (surface, one foot below ground surface, and three feet below ground surface). All samples will be analyzed for chlorinated pesticides. The results of the additional sampling and analysis will be used as the basis for determining the potential extent of pesticide contamination.

The primary objective of the sampling at the Precious Metals Recovery Facility is to determine if operations have resulted in contamination of the building interior or exterior structures, of the soil immediately surrounding the building, or of the drainage ditch located east and south of the building complex. In order to accomplish this objective a screening sampling and analysis for Target Analyte List Metals will be conducted. The screening sampling will consist of wipe sampling of the interior steel framing and the painted floor surfaces in the Butler Building and the former warehouse; concrete core sampling of the interior concrete surfaces in Building C-46 (assay building), the Butler Building, and Building C-37 (warehouse); and composite sampling of surface soils from the area east to southeast of the Butler Building, between the building complex and the fence and outside the fence. Surface water and sediment samples will be obtained from the drainage ditch east and south of the Butler Building and Building C-39. Also, a surface water and sediment sample will be collected from the confluence of the drainage ditch with the stream south of Building C-39. All samples will be analyzed for Target Analyte List metals. The results of the screening sampling and analysis will be used as the basis for determining whether releases of metals have occurred and the possibility of any future delineation sampling and analysis.

Surface Wipe Sampling

Brown & Root Environmental (B&R Environmental) will collect 7 wipe samples from interior surfaces. These wipe samples will be collected according to NJDEP Field Sampling Procedures Manual dated May 1992 and the wipe sample SOP in Appendix A. The samples will be collected from the steel framing and the painted floor surfaces in the Butler Building and the former warehouse at the PMRF, with the sample locations chosen at any staining or other indicator of possible contamination.

Samples will be collected using a sterile, wrapped gauze pad (3 in. X 3 in.). The gauze pad will be soaked with distilled water and excess water will be squeezed out immediately before collection. The gauze pad will then be wiped in both the horizontal and vertical directions over a premeasured area (25

four subsurface soil samples will also be collected from the same locations as the surface soils. The subsurface soils will be obtained from the 1-foot and 3-foot interval, below ground surface. The soil samples will be collected according to NJDEP Field Sampling Procedures Manual dated May 1992 and B&R Environmental SOP SA-1.3. The surface soil samples will be collected using stainless steel trowels and the subsurface soil samples will be collected using a stainless steel hand auger and trowel.

Aliquots of grab samples will be formed into composites in the field. Remaining grab samples will be placed into a drum provided by NWS Earle and left on site for management by NWS Earle. Schematics showing the locations of samples in relation to the significant surface features will be developed.

Surface Water and Sediment Sampling

One surface water sample will be obtained from the drainage ditch adjacent to the building complex at the PMRF, if surface water is present. One surface water sample will be collected from the confluence of the drainage ditch with the stream, south of Building C-39, at the PMRF. Three composite sediment samples, each comprised of two to three grab samples, will be obtained from the drainage ditch east and south of the Butler Building and Building C-39. One grab sediment sample will be collected from the confluence of the drainage ditch with the stream south of Building C-39. These samples will be collected according to NJDEP Field Sampling Procedures Manual dated May 1992 and B&R Environmental SOP SA-1.2.

The surface water sample will be collected by directly dipping the analysis bottle into the water and allowing the surface water to flow into the bottle. The sediment samples will be collected from the center of the drainage ditch and/or stream using either a stainless steel hand auger or trowel.

Sample Nomenclature

The samples will be labeled in accordance with B&R Environmental SOP CT-04. The sample numbering system will be a alpha-numeric coding which is explained in the following table:

Site, Medium, Location
NNN AA NNA

Character Type:

A= Alpha
N= Numeric

Site: 186= Building 186 - Old Pesticide Shop

PMRF= Precious Metals Recovery Facility

Medium:

- SS= Surface Soil
- SB= Subsurface Soil
- WI= Wipe Sample
- CC= Concrete Core Sample
- SD= Sediment Sample
- SW= Surface Water Sample

Sample Location:

Sample Location Number

The subsurface soil samples collected at the Old Pesticide Shop will have an additional qualifier identifying its location. -01 will be added at the end of the sample ID indicating it was collected from 1-foot below ground surface. -03 will be added at the end of the sample ID indicating it was collected from 3-feet below ground surface. In addition to this, the soil sample identifications will begin where the last sampling event ended. For example, the last soil collected was number-08, therefore, the soil samples will continue with number-09

Analytical Methods and Quality Assurance/Quality Control

The selected laboratory will perform all sample analyses. All samples will be shipped, in appropriate containers, by public courier within 24-hours of collection. The original, signed top copy, of the chain-of-custody form shall be placed inside the shipping container. The table below summarizes the analytical methods and QA/QC requirements. Rinsate samples will be collected for all of the following media, except for the wipe samples, which will have a wipe sample blank. The surface water sample will not need a rinsate blank either (no sampling equipment will be used).

ANALYTICAL PARAMETER	ANALYTICAL METHOD	HOLDING TIMES	SAMPLE VOLUME	SAMPLE PRESERVATIVE
Target Analyte List Metals	Wipe: EPA SW-846 6010B (trace)/7000A series with NJDEP data quality/ deliverable level 3	7 days to extraction; 40 days to analysis	3 in. X 3 in. gauze pad wiped over a 25 cm X 25 cm area placed in a laboratory provided glass jar and cap.	Cool to 4° C
	Concrete cores: EPA SW-846 6010B (trace)/7000A series with NJDEP data quality/ deliverable level 3	7 days to extraction; 40 days to analysis	Concrete core will be placed in a laboratory provided 8-oz. Glass jar and cap. Minimum sample 8 grams	Cool to 4° C
	Subsurface and surface soils: EPA	7 days to extraction;	Soils will be placed in a laboratory provided 8-	Cool to 4° C

SW-846 6010B (trace)/7000A series with NJDEP data quality/ deliverable level 3	40 days to analysis	oz. Glass jar with Teflon lined cap.	
Surface water: EPA SW-846 6010B (trace)/7000A series with NJDEP data quality/ deliverable level 3	7 days to extraction; 40 days to analysis	Surface water will be placed in a laboratory provided 1-L plastic bottle with a Teflon lined cap.	Cool to 4° C and Nitric acid
Sediment sample: EPA SW-846 6010B (trace)/7000A series with NJDEP data quality/ deliverable level 3	7 days to extraction; 40 days to analysis	Sediment samples will be placed in a laboratory provided 8-oz. Glass jar with Teflon lined cap.	Cool to 4° C

ANALYTICAL PARAMETER	ANALYTICAL METHOD	HOLDING TIMES	SAMPLE VOLUME	SAMPLE PRESERVATIVE
Clorinated Pesticides	Surface and subsurface soils: EPA SW-846 8081A with NJDEP data quality/ deliverable level 3	7 days to extraction; 40 days to analysis	Soils will be placed in a laboratory provided 8-oz. Glass jar with Teflon lined cap.	Cool to 4° C

Additional Quality Control Assurance Indicators

All field documentation will be completed for the activities of the field effort. The field documentation will be maintained according to B&R Environmental SOP SA-6.3. Field rinsate blanks, field blank, and matrix spike/matrix spike duplicate (MS/MSD) samples will be provided during the field sampling event for TAL Metals and pesticide analyses.

H alth and Safety Concerns

An addendum to the CTO 154 HASP dated July 1996 will be prepared prior to commencing this field work. The addendum will address site, chemical and action specific concerns for this sampling event.

**ANALYTICAL PROGRAM
BUILDING 186 - OLD PESTICIDE SHOP
NWS EARLE, COLTS NECK NEW JERSEY**

Sample ID	Sample Type	Sample Purpose
186-RB-DATE	Surface soil sampling device rinsate blank	Quality Assurance

Sample ID	Sample Typ	Sample Purpose
186-SS-09	Surface soil sample	Field Sample
186-SS-10	Surface soil sample	Field Sample
186-SS-11	Surface soil sample	Field Sample
186-SS-12	Surface soil sample	Field Sample.
186-SS-13	Surface soil sample	Field Sample
186-SS-14	Surface soil sample	Field Sample
186-SS-15	Surface soil sample	Field Sample
186-SS-16	Surface soil sample	Field Sample
186-SS-17	Surface soil sample	Field Sample
186-SS-18	Surface soil sample	Field Sample
186-SS-19	Surface soil sample	Field Sample
186-SS-20	Surface soil sample	Field Sample
186-SS-21	Surface soil sample	Field Sample
186-SS-22	Surface soil sample	Field Sample
186-SS-23	Surface soil sample	Field Sample
186-SS-24	Surface soil sample	Field Sample
186-SS-25	Surface soil sample	Field Sample
186-SS-26	Surface soil sample	Field Sample
186-SS-27	Surface soil sample	Field Sample
186-SS-28	Surface soil sample	Field Sample
186-SS-29	Surface soil sample	Field Sample
186-SS-30	Surface soil sample	Field Sample
186-SS-31	Surface soil sample	Field Sample
186-SS-32	Surface soil sample	Field Sample
186-SB-09-01 and -03	Subsurface soil sample at -01-foot and -03-feet below ground surface	Field Sample
186-SB-10-01 and -03	Subsurface soil sample at -01-foot and -03-feet below ground surface	Field Sample
186-SB-11-01 and -03	Subsurface soil sample at -01-foot and -03-feet below ground surface	Field Sample
186-SB-12-01 and -03	Subsurface soil sample at -01-foot and -03-feet below ground surface	Field Sample
186-SB-13-01 and -03	Subsurface soil sample at -01-foot and -03-feet below ground surface	Field Sample

Sampl ID	Sampl Type	Sample Purpose
186-SB-14-01 and -03	Subsurface soil sample at -01-foot and -03-feet below ground surface	Field Sample
186-SB-15-01 and -03	Subsurface soil sample at -01-foot and -03-feet below ground surface	Field Sample
186-SB-16-01 and -03	Subsurface soil sample at -01-foot and -03-feet below ground surface	Field Sample
186-SB-17-01 and -03	Subsurface soil sample at -01-foot and -03-feet below ground surface	Field Sample
186-SB-18-01 and -03	Subsurface soil sample at -01-foot and -03-feet below ground surface	Field Sample
186-SB-19-01 and -03	Subsurface soil sample at -01-foot and -03-feet below ground surface	Field Sample
186-SB-20-01 and -03	Subsurface soil sample at -01-foot and -03-feet below ground surface	Field Sample
186-SB-21-01 and -03	Subsurface soil sample at -01-foot and -03-feet below ground surface	Field Sample
186-SB-22-01 and -03	Subsurface soil sample at -01-foot and -03-feet below ground surface	Field Sample
186-SB-23-01 and -03	Subsurface soil sample at -01-foot and -03-feet below ground surface	Field Sample
186-SB-24-01 and -03	Subsurface soil sample at -01-foot and -03-feet below ground surface	Field Sample
186-SB-25-01 and -03	Subsurface soil sample at -01-foot and -03-feet below ground surface	Field Sample
186-SB-26-01 and -03	Subsurface soil sample at -01-foot and -03-feet below ground surface	Field Sample
186-SB-27-01 and -03	Subsurface soil sample at -01-foot and -03-feet below ground surface	Field Sample
186-SB-28-01 and -03	Subsurface soil sample at -01-foot and -03-feet below ground surface	Field Sample
186-SB-29-01 and -03	Subsurface soil sample at -01-foot and -03-feet below ground surface	Field Sample
186-SB-30-01 and -03	Subsurface soil sample at -01-foot and -03-feet below ground surface	Field Sample

Sampl ID	Sample Typ	Sampl Purpose
186-SB-31-01 and -03	Subsurface soil sample at -01-foot and -03-feet below ground surface	Field Sample
186-SB-32-01 and -03	Subsurface soil sample at -01-foot and -03-feet below ground surface	Field Sample

ANALYTICAL PROGRAM
PRECIOUS METALS RECOVERY FACILITY
NWS EARLE, COLTS NECK NEW JERSEY

Sample ID	Sample Type	Sample Purpose
PMRF-WI-01	Wipe Field Blank	Quality Assurance
PMRF-WI-02	Interior Surface Wipe	Field Sample
PMRF-WI-03	Interior Surface Wipe	Field Sample
PMRF-WI-04	Interior Surface Wipe	Field Sample
PMRF-WI-05	Interior Surface Wipe	Field Sample
PMRF-WI-06	Interior Surface Wipe	Field Sample
PMRF-WI-07	Interior Surface Wipe	Field Sample
PMRF-WI-08	Interior Surface Wipe	Field Sample
PMRF-RB-DATEA	Coring bit rinsate blank	Quality Assurance
PMRF-CC-01	Concrete Core	Field Sample
PMRF-CC-02	Concrete Core	Field Sample
PMRF-CC-03	Concrete Core	Field Sample
PMRF-CC-04	Concrete Core	Field Sample
PMRF-CC-05	Concrete Core	Field Sample
PMRF-RB-DATEB	Sediment sampling device rinsate blank	Quality Assurance
PMRF-SD-01	Composite Sediment sample	Field Sample
PMRF-SD-02	Composite Sediment sample	Field Sample
PMRF-SD-03	Grab Sediment sample	Field Sample
PMRF-SW-01	Surface Water sample	Field Sample
PMRF-SW-02	Surface Water sample	Field Sample
PMRF-RB-DATEC	Surface soil sampling device rinsate blank	Quality Assurance
PMRF-SS-01	Surface soil composite sample	Field Sample
PMRF-SS-02	Surface soil composite sample	Field Sample
PMRF-SS-03	Surface soil composite sample	Field Sample
PMRF-SS-04	Surface soil composite sample	Field Sample
PMRF-SS-05	Surface soil composite sample	Field Sample
PMRF-SS-06	Surface soil composite sample	Field Sample