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**SWMU 11 - BUILDING 38
OLD POWER PLANT
SAMPLING RESULTS
AND
RECHARACTERIZATION WORKPLAN**

**U.S. NAVAL STATION, ROOSEVELT ROADS
CEIBA, PUERTO-RICO**

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1.0 INTRODUCTION

Solid Waste Management Unit (SWMU) 11 at Naval Station Roosevelt Roads (NSRR) is the interior of Building 38 which is the "Old Power Plant." The building was classified as a SWMU based on known releases of PCBs to the soils outside the building (which have been remediated through a soil removal action) and the fact that the front portion of the interior serves as a TSCA regulated PCB storage area where spills and stains were noted. The approved RCRA Facility Investigation (RFI) workplans (Baker, 1995) contained provisions for a wipe sampling program for the building's floor and walls. This resulted in 126 individual samples which were analyzed for PCBs.

In addition to the wipe sampling program, a field screening was performed for the pits/tunnels running under the floor of the building. This was done, although not required in the approved workplans, since the cooling water tunnels outside the building were known to have some sludge containing PCBs.

Prior to preparation of the report for this work, a fire occurred within the building. The fire was largely confined to debris in the building and the planks that cover the floor pits. No structural damage was done to the building and all firefighting water was contained within the pits. Because of the fire, the Navy considered the sampling data gathered to be unusable and, therefore, has not presented the results. It has always been the Navy's intent to recharacterize the building's interior and provide the new data to fulfill the requirements of the RFI. This effort pends funding.

This document provides two key elements for completing characterization of releases within Building 38. The first portion provides the results of the initial sampling work done in the building. This information has been used to develop a recharacterization workplan that comprises the second portion of the document. It should be noted that no schedule for the recharacterization effort is provided in the workplan section. This is because there is no funding presently available for the investigation. The Navy intends to perform the work as soon as funding is received (assuming the workplan is approved and with prior notification to EPA).

2.0 ORIGINAL INVESTIGATION RESULTS

2.1 Wipe Sampling Program

A total of 126 wipe samples were taken in the building during November 1996. The locations of the samples are shown on Figure 2-1. Each of the samples was analyzed for PCBs the results of which are shown on Table 2-1.

Every one of the 126 samples detected PCBs, specifically Aroclor-1260, at concentrations ranging from 0.22 µg/L to 330,000 µg/L. It should be noted that Aroclor-1260 is the PCB most commonly associated with electrical use.

Figure 2-1 is color coded to illustrate the pattern of contamination seen. As would be intuitively expected, the walls are generally much less contaminated than the floors. The northern half of the building shows generally higher concentrations than the southern half which again makes intuitive sense in that the TSCA regulated PCB storage area is in this half of the building. Interestingly, the area showing the highest levels (the easternmost 50 feet of the northern half) is at the opposite end of the building from the TSCA storage area. The PCB contamination seen in this area is likely the result of the long-term storage of electrical equipment in this portion of the building.

2.2 Screening Sampling in Floor Pits

There are a number of interconnected pits and tunnels which are located beneath the floor generally covered with wooden planking. The collected flow from these features is eventually directed to the cooling water discharge tunnel. A schematic of the tunnels is shown on Figure 2-2 as developed from field observation.

A total of 17 grab samples were obtained at the locations shown on Figure 2-2. The samples were analyzed in the field using Ensysis® kits calibrated to yield results of no detect, less than 10 ppm, 10 to 50 ppm, and over 50 ppm. Table 2-2 contains the results of the sampling.

Fifteen of the 17 samples showed detections of PCBs greater than 50 ppm. The other two samples indicated PCBs were present at levels between 10 and 50 ppm.

2.3 Conclusions and Recommendations

The floor and lower portion of the walls in the building show concentrations of Aroclor-1260; however, the results of the screening sampling in the tunnels indicates potentially significant PCB contamination with levels in all but two samples above 50 ppm. Based on this, and the possible effects of the fire in the building's interior, recharacterization of the Building 38 is necessary.

3.0 RECHARACTERIZATION WORK PLAN

This section describes the recharacterization sampling program including sampling locations and constituents for analysis.

3.1 Floors and Walls

Based on the previous work performed and the possible effects of the fire, a sampling plan for the floors and walls has been developed. The recharacterization efforts will be performed as described in the numbered steps which follow:

- 1) The original sampling grid (20 x 20 feet) will be reestablished within the building.
- 2) Wipe samples will be obtained at each floor location previously sampled in the northern portion of the building. The spacing in this area, which will include 35 locations, has been selected based on the relatively higher levels of PCBs seen during the initial work.
- 3) Wipe samples will be obtained at every other grid node (i.e., 40 foot centers) in the southern half of the building. This will result in approximately 20 samples from this area. The reduced sampling in the southern portion is in response to the generally lower levels of PCBs seen in this area during the initial investigation.
- 4) Three wipe samples will be obtained from each of the long walls and two from each of the short walls in both halves of the building. Wall sampling will be performed at five feet above floor level.

In addition, samples will be taken from the higher portion of the walls in the northern portion of the building to ascertain if contamination was carried vertically by smoke from the fire. Four samples from both long walls and two from each short wall will be obtained at elevations approximately half way up the wall and as near the ceiling as possible.

- 5) All wipe samples will be analyzed for PCBs. Approximately every third sample will be analyzed for dioxins as follows:

- The middle sample from each long wall (four samples)
 - One sample from each short wall (four samples)
 - Three samples from midway on the walls and three from near the ceiling
 - Seven samples from the southern floor area, and
 - Twelve samples from the northern floor area.
- 6) There is extensive piping in the western portion of the building much of which is covered with asbestos insulation. There is concern that the asbestos may have been contaminated with PCBs and/or dioxins by the smoke. Three samples of the asbestos insulation covering will be obtained in each half of the building. The locations will be field selected based on piping configuration and any visual evidence of impact. These six samples will be analyzed for PCBs and dioxins.

3.2 Tunnels

A minimum of 17 sludge samples will be collected from the tunnels/pits shown on Figure 2-2. These samples will be obtained at approximately the same locations that were used during the screening program since it is known that there are sampleable quantities of material at these sites. Up to an additional three samples will be collected from locations selected to provide more complete areal coverage. These will only be obtained if a sufficient quantity of material is available for sampling.

Should any of the pits be found to contain standing water, a grab sample will be obtained. The maximum number of water samples will be four.

All sludge and any water samples will be analyzed for PCBs and dioxins.

3.3 Investigatory Procedures

All sampling, custody control, laboratory analysis, data validation and data evaluation will be performed in accordance with the approved RFI workplans.

3.4 Schedule

The Navy has no funds for recharacterization of Building 38 in FY 98; therefore, the work described in this workplan has not been scheduled. The site Management Plan, to be discussed with EPA in a meeting when the plan is complete in draft, will contain a projected schedule for performing the work based on projected funding. As soon as funding is received, the EPA will be notified and the work will be scheduled.

TABLES

TABLE 2-1

**SUMMARY OF WIPE SAMPLE POSITIVE DETECTIONS - PHASE I
SWMU 11/45 - BUILDING 38 OLD POWER PLANT
NAVAL STATION ROOSEVELT ROADS, PUERTO RICO**

Sample ID	11WS001	11WS002	11WS003	11WS004	11WS005	11WS006	11WS007	11WS008	11WS009	11WS010	11WS011	11WS012	11WS013
Sample Date	11/23/96	11/23/96	11/23/96	11/23/96	11/23/96	11/23/96	11/23/96	11/23/96	11/23/96	11/23/96	11/23/96	11/23/96	11/23/96
PCBs (ug/l)													
Aroclor 1260	1.7	4.3	2	2.1	1.5	63	2.5	42	0.99	34	0.77	51	120
Sample ID	11WS014	11WS015	11WS016	11WS017	11WS018	11WS019	11WS020	11WS021	11WS022	11WS023	11WS024	11WS025	11WS026
Sample Date	11/23/96	11/23/96	11/23/96	11/23/96	11/23/96	11/23/96	11/23/96	11/23/96	11/23/96	11/23/96	11/23/96	11/23/96	11/23/96
PCBs (ug/l)													
Aroclor 1260	9.8	4.7	0.88	20	0.7	36	27	7.1	17	7.9	11	0.66	1.3
Sample ID	11WS027	11WS028	11WS029	11WS030	11WS031	11WS032	11WS033	11WS034	11WS035	11WS036	11WS037	11WS038	11WS039
Sample Date	11/23/96	11/23/96	11/23/96	11/23/96	11/23/96	11/23/96	11/23/96	11/23/96	11/23/96	11/23/96	11/23/96	11/23/96	11/23/96
PCBs (ug/l)													
Aroclor 1260	0.63	0.37	15	12	120	2.4 U	140	7.7	0.31	150	74	0.87	160
Sample ID	11WS040	11WS041	11WS042	11WS043	11WS044	11WS045	11WS046	11WS047	11WS048	11WS049	11WS050	11WS051	11WS052
Sample Date	11/23/96	11/23/96	11/23/96	11/23/96	11/23/96	11/23/96	11/23/96	11/23/96	11/23/96	11/23/96	11/23/96	11/23/96	11/23/96
PCBs (ug/l)													
Aroclor 1260	73	330,000	180	990	550	2	1,200	17	280	360	1,200	59	14
Sample ID	11WS053	11WS054	11WS055	11WS056	11WS057	11WS058	11WS059	11WS060	11WS061	11WS062	11WS063	11WS064	11WS065
Sample Date	11/23/96	11/23/96	11/23/96	11/23/96	11/23/96	11/23/96	11/23/96	11/23/96	11/23/96	11/23/96	11/23/96	11/23/96	11/23/96
PCBs (ug/l)													
Aroclor 1260	4,700	7.7	2,700	3.2	15	1.3	57	2.1	51	3.6	17	1.4	12

TABLE 2-1

SUMMARY OF WIPE SAMPLE POSITIVE DETECTIONS - PHASE I
 SWMU 11/45 - BUILDING 38 OLD POWER PLANT
 NAVAL STATION ROOSEVELT ROADS, PUERTO RICO

Sample ID	11WS066	11WS067	11WS068	11WS069	11WS070	11WS071	11WS072	11WS073	11WS074	11WS075	11WS076	11WS077	11WS078
Sample Date	11/23/96	11/23/96	11/23/96	11/23/96	11/23/96	11/23/96	11/23/96	11/23/96	11/23/96	11/23/96	11/23/96	11/23/96	11/23/96
PCBs (ug/l)													
Aroclor 1260	0.41	23	1.4	35	0.98	18	10	7	16	0.3	41	0.58	24
Sample ID	11WS079	11WS080	11WS081	11WS082	11WS083	11WS084	11WS085	11WS086	11WS087	11WS088	11WS089	11WS090	11WS091
Sample Date	11/23/96	11/23/96	11/23/96	11/23/96	11/23/96	11/23/96	11/23/96	11/23/96	11/23/96	11/23/96	11/23/96	11/23/96	11/23/96
PCBs (ug/l)													
Aroclor 1260	9.6	4.6	8.6	2.4 U	3.7	2.4 U	2.9	5	6.4	7.9	0.98	16	0.22
Sample ID	11WS092	11WS093	11WS094	11WS095	11WS096	11WS097	11WS098	11WS099	11WS100	11WS101	11WS102	11WS103	11WS104
Sample Date	11/23/96	11/23/96	11/23/96	11/23/96	11/23/96	11/23/96	11/23/96	11/23/96	11/23/96	11/23/96	11/23/96	11/23/96	11/23/96
PCBs (ug/l)													
Aroclor 1260	7.6	5.1	1.5	0.38	15	1.1	44	0.72	9.1	35	2.1	21	3
Sample ID	11WS105	11WS106	11WS107	11WS108	11WS109	11WS110	11WS111	11WS112	11WS113	11WS114	11WS115	11WS116	11WS117
Sample Date	11/23/96	11/23/96	11/23/96	11/23/96	11/23/96	11/23/96	11/23/96	11/23/96	11/23/96	11/23/96	11/23/96	11/23/96	11/23/96
PCBs (ug/l)													
Aroclor 1260	52	3.8	2.5	8.2	6.5	0.92	12	4.9	8.3	4.6	21	0.56	18
Sample ID	11WS118	11WS119	11WS120	11WS121	11WS122	11WS123	11WS124	11WS125	11WS126		Maximum	Minimum	
Sample Date	11/23/96	11/23/96	11/23/96	11/23/96	11/23/96	11/23/96	11/23/96	11/23/96	11/23/96		Detected	Detected	
											11WS041	11WS091	
PCBs (ug/l)													
Aroclor 1260	7.2	96	20	1.4	0.46	1.2	5	2.4 U	4.1		330,000	0.22	

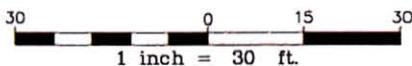
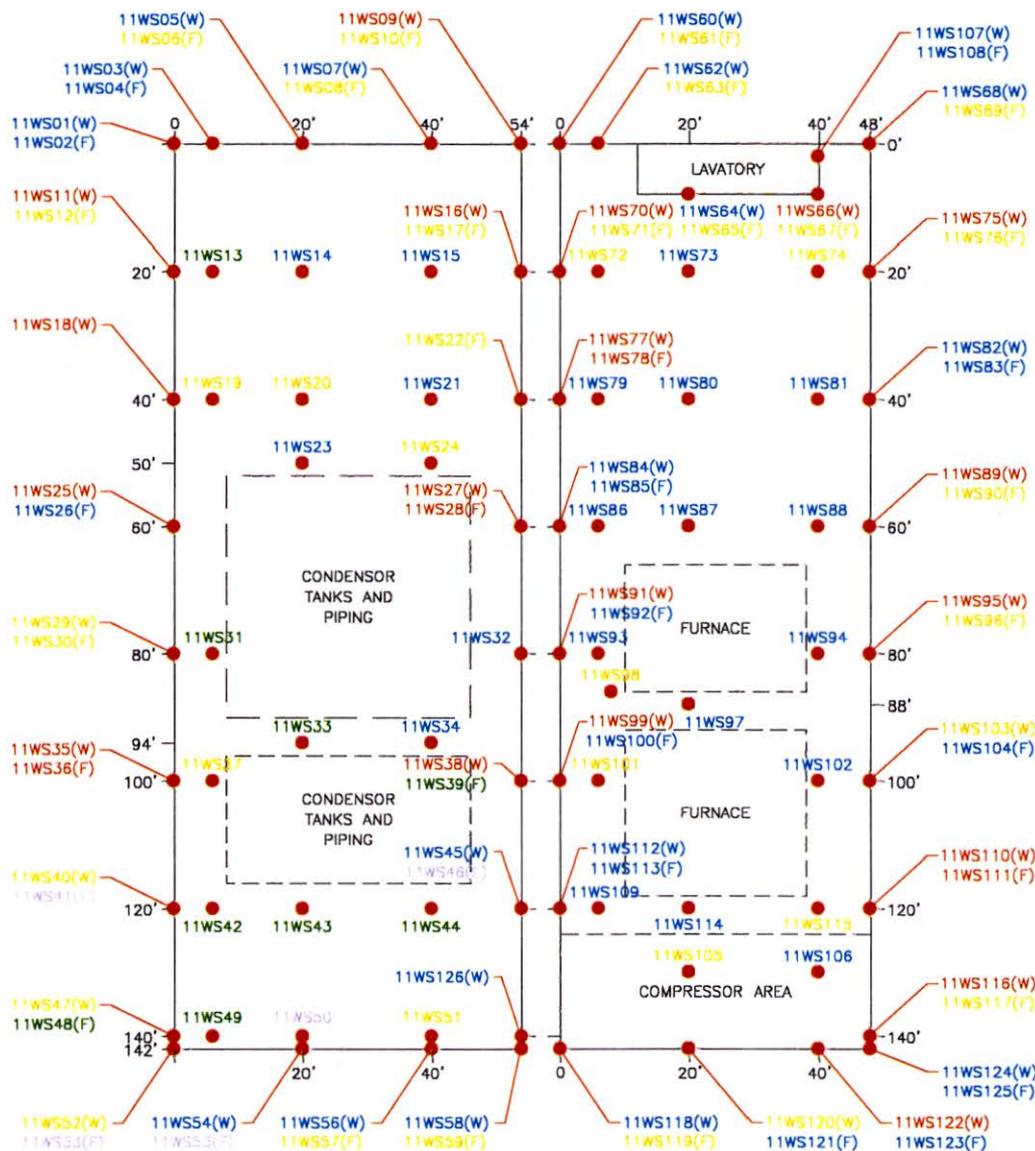
TABLE 2-2

**SWMU-11
 ENSYS® SCREENING SAMPLING RESULTS
 US NAVAL STATION ROOSEVELT ROADS**

Sample ID	Standard	1 ppm	10 ppm	50 ppm	Results
1	-.12	-.77	-.62	+.01	≥1.0; <50
2	-.12	-.76	-.77	-.65	≥50 ppm
3	-.12	-.77	-.77	-.76	≥50
4	-.53	-.77	-.77	-.76	≥50
5	-.16	-.77	-.65	-.23	≥50
6	-.16	-.77	-.62	-.77	≥50
7	-.05	-.76	-.76	-.77	≥50
7D	-.05	-.77	-.76	-.77	≥50
8	-.32	-.77	-.77	-.77	≥50
9	-.16	-.68	-.67	-.63	≥50
10	-.05	-.20	-.76	+.12	≥10; <50
11	-.32	-.76	-.77	-.77	≥50
11D	-.32	-.77	-.76	-.77	≥50
12	-.16	-.34	-.77	-.77	≥50
13	-.16	-.67	-.67	-.59	≥50
14	-.05	-.21	-.75	+.17	≥10; <50
15	-.05	-.17	-.76	-.12	≥50
16	-.16	-.62	-.51	-.42	≥50
17	-.53	-.77	-.76	-.58	≥50

FIGURES

SEWAGE TREATMENT PLANT



LEGEND

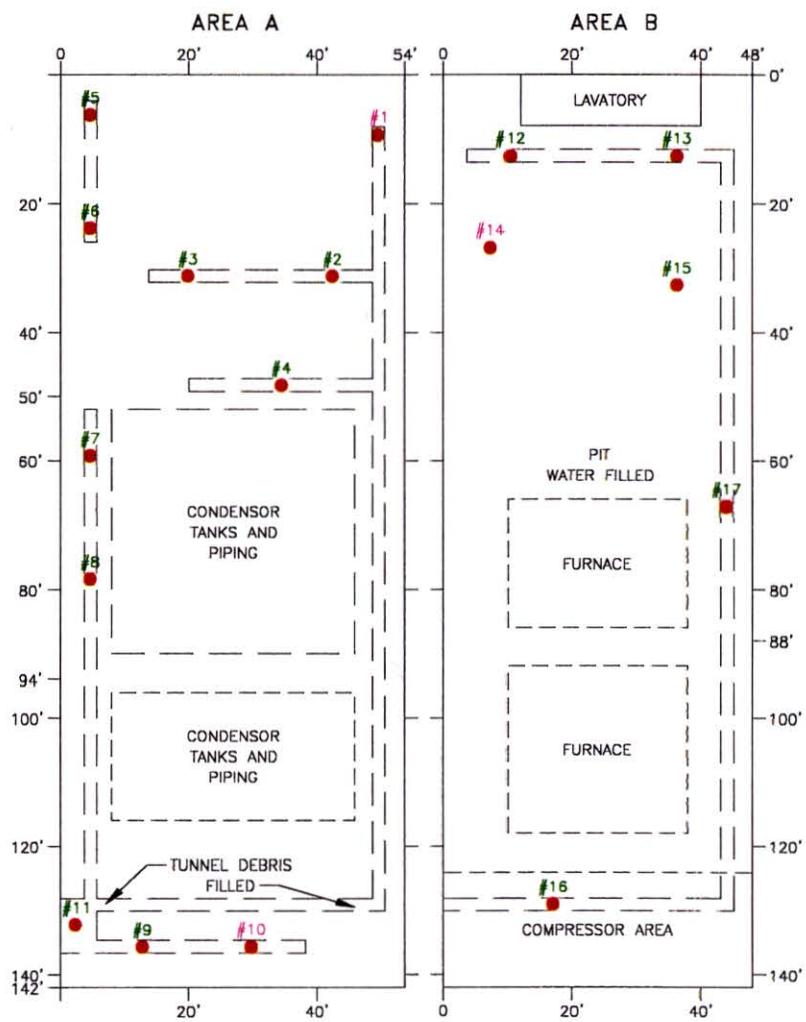
- - WIPE SAMPLE
- (W) - SAMPLE COLLECTED FROM WALL
- (F) - SAMPLE COLLECTED FROM FLOOR
- 11WS25(W) - LESS THAN 1 ppb
- 11WS14 - 1-10 ppb
- 11WS29(W) - 10-100 ppb
- 11WS33 - 100-1,000 ppb
- 11WS04 - OVER 1,000 ppb

FIGURE 2-1
WIPE SAMPLING LOCATIONS
OU#5 - SWMU 11
BUILDING 38 INTERIOR

NAVAL STATION ROOSEVELT ROADS
 PUERTO RICO

00531KBIY

SEWAGE TREATMENT PLANT



LEGEND

- - SCREENING SAMPLE LOCATION
- #10 - 10-50 ppm
- #6 - OVER 50 ppm

FIGURE 2-2
 PIT SCREENING SAMPLING LOCATIONS
 OU#5 - SWMU 11
 BUILDING 38 INTERIOR

NAVAL STATION ROOSEVELT ROADS
 PUERTO RICO