

**Area of Concern
Building 101 Battery Acid Drainage Pit
Former Griffiss Air Force Base
Rome, New York**

**FINAL
WORK PLAN**



**Contract No. F41624-95-D-8003
Delivery Order: 10**

**Revision 1.0
May 2002**

FPM GROUP

FINAL

WORK PLAN

Prepared for:

**Confirmation Sampling
Building 101 Battery Acid Drainage Pit Area of Concern
Former Griffiss Air Force Base
Rome, New York**

through

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1.0 INTRODUCTION

FPM Group, Ltd. (FPM) has been contracted by the Air Force Center for Environmental Excellence (AFCEE) to perform confirmation sampling of the Building 101 Battery Acid Drainage Pit (BADrP). The site has been incorporated into the Area of Concern (AOC) site ST-06, Yellow Submarine and Battery Acid Disposal Pit. This letter Work Plan (WP) establishes the field investigation tasks necessary to confirm that the soil remaining in the vicinity of the BADrP after the 1997 removal action meets closure requirements.

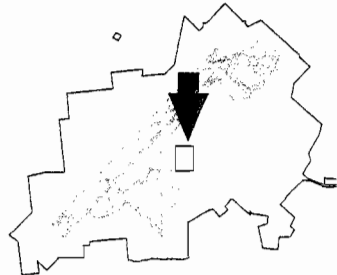
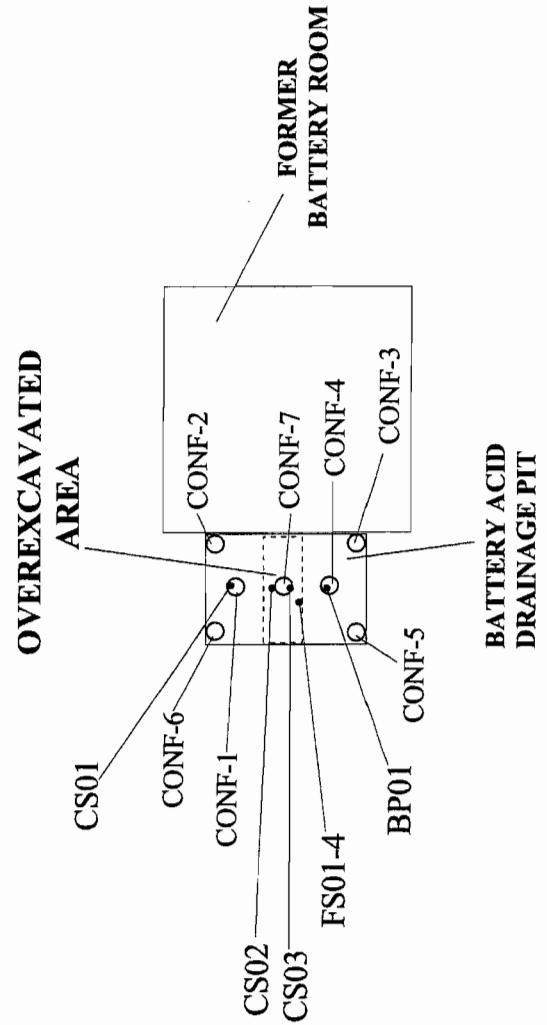
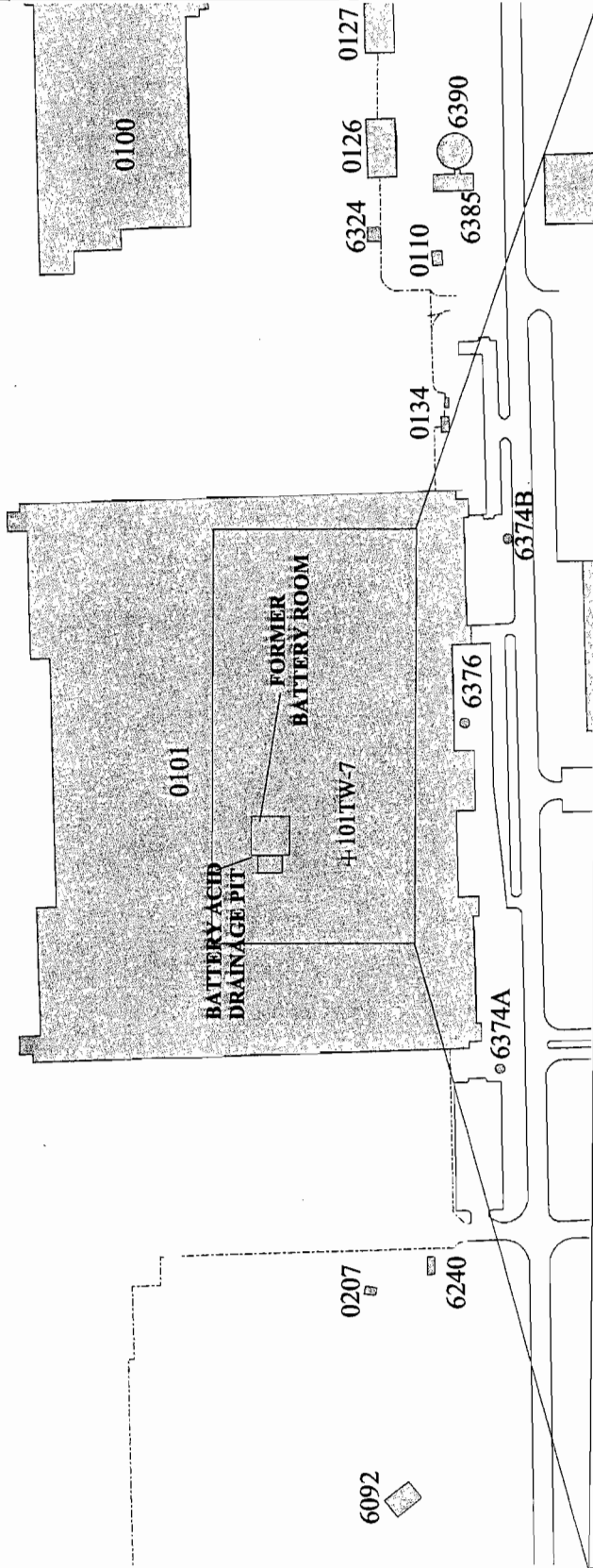
The Building 101 BADrP site is located near the center of Building 101, immediately west of the Battery Room, and occupies an area 17.5 feet long and 5.5 feet wide (Figure 1). Quarterly groundwater sampling has been performed in conjunction with the nearby Building 101 AOC. Two rounds of sampling were completed in the third and fourth quarters of 2001, and one sampling round was conducted in March 2002. Results will be issued under separate cover.

2.0 PREVIOUS SAMPLING AND INVESTIGATIONS

The BADrP was initially investigated on June 2, 1997. The BADrP was found with a sludge layer 8 inches deep and had a musty, solvent-like odor. A small sump was located at the south end of the pit. Photoionization detector (PID) screenings indicated volatile organic compound (VOC) readings ranging from 0 to 127 parts per million (ppm) within the pit. A four-point composite sample of sludge was analyzed for Toxicity Characteristic Leachate Procedure (TCLP) organics, TCLP metals, and polychlorinated biphenyls (PCBs). Several compounds were detected, but only cadmium and lead concentrations were found at levels exceeding the TCLP regulatory limits. PCBs were detected at a concentration of 7.8 ppm. The sludge was removed from the pit and placed into drums for disposal.

The concrete bottom of the BADrP was then pressure-washed and scrubbed after the sludge was removed. Six wipe samples were collected following the surface remediation, and analyzed for PCBs and metals. While no PCBs were detected in any of the samples at concentrations above the wipe action levels (as indicated by 40 Code of Federal Regulations (CFR) 761.125(b)(1) and site-specific derived from corresponding soil actions levels using assumptions from two studies of indoor surface contamination), several metals were detected above the action levels in each of the six wipe samples. (Note: Locations of wipe samples are not shown in Figure 1.)

In September 1997, the sump and concrete bottom of the pit were partially removed to assess soil contamination underneath the pit. One bucket auger sample (BP01) was collected from where the sump had been removed and was submitted for analysis of VOCs, semivolatile organic compounds (SVOCs), PCBs, and metals. Results indicated that the SVOCs phenol and 4-methylphenol and the metals cadmium, chromium, lead, mercury, and silver were detected at concentrations above their respective TAGM 4046 action levels. However, at the time, the results were compared to TAGM 3028 action levels, and this comparison indicated no exceedances. Another round of soil and wipe sampling was recommended at the time to confirm



Building 101

- + Proposed Groundwater Grab Sample
- Proposed Soil Sampling Locations
- Post-Remediation Soil Sampling Locations
- ▭ Building and Building No.
- ≡ Roads
- ≡ Airfield

Note: Post-Remediation wipe samples are not shown.
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 ROME, NEW YORK

Figure 1
Building 101
Site Location Map

the results of the initial soil sample and to assess the possibility for remaining contamination on the concrete surface.

In October 1997, three soil samples (CS01-CS03) and two wipe samples were collected from the bottom and concrete walls of the pit, respectively. The soil samples were analyzed for VOCs, SVOCs, PCBs, and metals; the wipe samples were analyzed for metals only. Several SVOCs, including phenol, 4-methylphenol, 1,2-dichlorobenzene, 1,3-dichlorobenzene, and 1,4-dichlorobenzene and one metal, cadmium, were detected at concentrations above their respective TAGM 4046 action levels in the soil sample collected from the central portion of the pit bottom (CS02), and 4-methylphenol was found slightly above the TAGM 4046 action level in sample CS01. However, at the time of the investigation the soil sample results were compared to TAGM 3028 action levels, which indicated only 1,4-dichlorobenzene in sample CS02 at levels above the action level. The central portion of the pit was recommended for excavation and a decision was made to limit confirmation sampling to 1,4-dichlorobenzene only.

The wipe samples indicated site-specific action level exceedances for cadmium, chromium, lead, mercury, and silver. Due to the Air Force's decision to backfill the pit and place a concrete layer at the surface, the concrete walls were not recommended for removal.

In November 1997, the remaining sections of the concrete pit floor were removed, and the underlying soil in the central section of the pit was excavated to a depth of 3 feet. Three soil samples (FS01-FS03, not shown on Figure 1) were collected and analyzed for 1,4-dichlorobenzene only. 1,4-dichlorobenzene was not found above TAGM 3028 action levels in any of the three soil samples collected.

A sample of crushed concrete floor was also collected and analyzed for PCBs and TCLP metals, and a sample from the pile of excavated soil was collected and analyzed for TCLP VOCs, TCLP SVOCs, TCLP metals, and PCBs. None of the TCLP constituents were detected at levels above regulatory limits in either the concrete waste sample or the soil waste sample.

In December 1997, one final confirmation soil sample was collected from the overexcavated area of the disposal pit (FS04) and analyzed for VOCs, SVOCs, PCBs, and metals. No compounds were detected above either the TAGM 3028 or 4046 action levels. Thus, the BADrP was backfilled and covered with a 6-inch concrete pad in January 1998.

During most of these sampling events, the results of the soil and wipe sampling were compared to TAGM 3028 action levels, and few exceedances were encountered. However, the Air Force later determined that this site falls under CERCLA regulatory guidance, and the action levels were replaced by the recommended soil cleanup objectives in TAGM 4046. When the above results were compared to TAGM 4046 action levels, exceedances were indicated in several cases. Therefore, one additional sampling event to compare the existing soil concentrations

beneath the former BADrP to TAGM 4046 levels is necessary to determine whether closure is appropriate for the site.

3.0 DESCRIPTION OF ADDITIONAL PROPOSED SAMPLING ACTIVITY

To confirm that the soil beneath the former BADrP meets TAGM 4046 action levels, soil borings are proposed for collection within the perimeter of the former BADrP. A total of seven borings are proposed for installation: four shall be installed at each corner within the perimeter of the former BADrP, and three shall be installed in the center of the former BADrP. Two soil samples shall be collected from each boring as follows: one shall be collected in the native soils directly beneath the fill area, and a second sample shall be collected 2 ft below the top of the native soil (i.e., if native soil is encountered at 4 ft bgs, one soil boring shall be collected from 4 to 6 ft bgs, and a second from 6 to 8 ft bgs). During the boring installations, a field geologist will observe the changes in soil type with depth to confirm that the samples collected are native soils. In addition, to confirm that previous soil contamination did not affect the groundwater quality in the vicinity of the former BADrP, a grab groundwater sample will be collected from the top of the groundwater table within 100 feet downgradient of the former BaDrP. Each of the samples shall be submitted for analysis of total VOCs, SVOCs, PCBs, and metals.

**Table 1
 Building 101 BADrP AOC Site
 Sample Analysis Summary**

Analyte/ EPA Method Numbers	Matrix	No. of Samples	No. of Equip. Blanks	No. of Ambient Blanks	No. of Trip Blanks	No. of Field Dups./ Reps.	No. of MS and MSD	Total No. of Samples
VOCs – SW8260B SVOCs – SW8270 PCBs – SW8082 Metals – SW6010/7471	Soil	14	-- ¹	-- ¹	-- ¹	-- ¹	-- ¹	14
VOCs – SW8260B SVOCs – SW8270 PCBs – SW8082 Metals – SW6010/7471	Water	1	-- ¹	-- ¹	-- ¹	-- ¹	-- ¹	1

At least one MS/MSD and two field duplicates will be collected per SDG (20 field samples); one equipment blank per day and one ambient blank per day; one trip blank per cooler containing VOCs. All quality assurance/quality control blanks will be coordinated with other long-term monitoring sites.

Table 2
Building 101 BADrP AOC Site Field Activity Summary

Activity	Rationale	Analytical Parameters
Installation of seven soil borings (CONF-1 through CONF-7) within the perimeter of the former BADrP.	Four soil borings shall be installed at each corner within the perimeter of the former BADrP, and three shall be installed in the center of the former BADrP, as shown in Figure 1. Two soil samples shall be collected from each boring: one from the top of the native soil beneath the fill, and one from 2 feet below the top of the native soil. The results of the confirmation sampling will determine whether site closure is appropriate.	VOCs - SW8260B SVOCs - SW8270 PCBs - SW8082 Metals - SW6010/7471
Installation of one temporary well (101TW-7) within 100 ft downgradient of the former BADrP	One grab groundwater sample shall be collected from the top of the groundwater table to confirm that the former BADrP was not a source area for residual groundwater contamination.	VOCs - SW8260B SVOCs - SW8270 PCBs - SW8082 Metals - SW6010/7471

The field work will be conducted in accordance with the methods and protocols as specified in the Field Sampling Plan associated with the AOC Long Term Monitoring Baseline Study Work Plan (FPM, 1998) and analyzed by the laboratory in accordance with the AFCEE Quality Assurance Project Plan 3.0 (including associated project-specific variances). The data will then be reviewed and validated based on an evaluation of the results in relation to the AFCEE QAPP in conjunction with the EPA National Functional Guidelines.

Subsurface utilities will be identified through the acquisition of "Work Clearance Requests" (dig permits) that will be coordinated through the AFBCA.

4.0 REPORTING REQUIREMENTS

The results of the soil and grab groundwater sampling shall be summarized in a letter report. If the results indicate that the soil concentrations are below TAGM 4046 action levels, the report will recommend clean closure of the BADrP removal actions that were performed in 1997.