



MEMORANDUM FOR: U.S. Environmental Protection Agency – Region 2 Attn: Robert Morse Federal Facilities Section

290 Broadway, 18 Floor New York, NY 10007-1866

New York State Department of Environmental Conservation Attn: Ms. Heather Bishop Division of Environmental Remediation 625 Broadway 11th Floor Albany, NY 12233-7015

- FROM: AFCEC Griffiss Building 45 706 Brooks Road Rome, New York 13441
- SUBJECT: Final Removal Action Plan Area of Interest 474 Former Griffiss Air Force Base (AFB) Rome, New York Contract Number FA8903-10-D-8595 Delivery Order 0014
- 1. Enclosed is the "Final Removal Action Plan for Area of Interest 474".
- 2. Should you have any questions or concerns please contact me at 315 356 0810 ex 202.

MICHAEL F. MCDERMOTT Air Force Civil Engineer Center AFCEC Griffiss

Enclosures: As noted

OCT 2 3 2013

FINAL

REMOVAL ACTION PLAN AREA OF INTEREST 474

FORMER GRIFFISS AIR FORCE BASE SITE ROME, NEW YORK

Prepared for:



Air Force Civil Engineering Center 706 Brooks Road Rome, New York 13441

Prepared by:



FPM Remediations Inc. 584 Phoenix Drive Rome, New York 13441

In association with:



10901 Lowell Avenue, Suite 271 Overland Park, Kansas 66210

Contract Number FA8903-10-D-8595/ Delivery Order 0014

October 2013

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TABLE OF CONTENTS

SECT	FION I	PAGE
1.0	INTRODUCTION	1
1.1	SITE BACKGROUND	1
2.0	SITE DEBRIS REMOVAL AND SOIL SAMPLING	1
2.1	SITE DEBRIS REMOVAL AND DISPOSAL	1
2.2	SOIL SAMPLING	1
3.0	SITE WORK	2
3.1	IN-SITU SOIL TREATMENT	2
3.2	SOIL REMOVAL ACTION AND COMFIRMATORY SOIL SAMPLING	3
3.3	SOIL DISPOSAL	3
3.4	SITE RESTORATION	3
3.5	FIELD DOCUMENTATION	4
4.0	REPORTING	4
5.0	REFERENCES	5

TABLES

Table 12012 AOI 474 Soil Sampling Results

FIGURES

Figure 1 Debris Pile - AOI 474

APPENDICES

Appendix A	Standard Operating Procedures – Soil Stabilization
Appendix B	Grass and Forb Seed Mix Specification Sheet
Appendix C	Soil Sampling Form and Daily Field Report



LIST OF ACRONYMS AND ABBREVIATIONS

AFCEC	Air Force Civil Engineering Center
AOC	Area of Concern
AOI	Area of Interest
bgs	below ground surface
cy	cubic yard
DQCRs	Daily Quality Control Reports
FPM	FPM Remediations, Inc.
ft	feet
LUC/IC	Land Use Control/Institutional Control
LTM	Long Term Monitoring
NYCRR	New York Codes, Rules, and Regulations
NYSDEC	New York State Department of Environmental Conservation
OHSWA	Oneida-Herkimer Solid Waste Authority
PBR	Performance-Based Remediation
PCBs	Polychlorinated Biphenyls
SCOs	Soil Clean up Objectives
SVOCs	Semi-Volatile Organic Compounds
TCLP	Toxicity Characteristic Leaching Procedure
UFP QAPP	Uniform Federal Policy Quality Assurance Project Plan
USEPA	United States Environmental Protection Agency
VOCs	Volatile Organic Compounds

1.0 INTRODUCTION

FPM Remediations, Inc. (FPM), in association with CAPE, Inc., under contract with the Air Force Civil Engineering Center (AFCEC), is conducting a site remediation at Area of Interest (AOI) 474 which includes soil removal, confirmatory soil sampling, and site restoration. This site is adjacent to the LF002 (Landfill 2/3 Area of Concern [AOC]) as illustrated in Figure 1. The site is located within the LF2/3 AOC Land Use Control/Institutional Control (LUC/IC) Site boundaries. The work at this site was conducted in accordance with provisions of the Basic Contract #FA8903-10-D-8595 and Delivery Order # 0014.

1.1 SITE BACKGROUND

This Removal Action plan has been developed to describe the site remediation proposed for AOI 474. The site was discovered as a debris pile adjacent to Landfill 2/3 during the 2009 Landfill 2/3 Long Term Monitoring (LTM) sampling event. The pile was approximately 25 feet (ft) by 25 ft with a height of approximately 2 feet. The pile was also located adjacent to a wetland. Debris within the pile included rusted empty 55-gallon drums, empty glass bottles, and household refuse. It is believed that the debris pile was a result of unauthorized dumping prior to base closure. This site was not identified in the Basewide Environmental Baseline Survey for the Griffiss Air Force Base performed in 1994 and updated in 2005 (Air Force, September 1994 and November 2005).

2.0 SITE DEBRIS REMOVAL AND SOIL SAMPLING

2.1 SITE DEBRIS REMOVAL AND DISPOSAL

The debris pile was removed on March 26, 2012 by FPM personnel using manual equipment. Use of heavy equipment was limited to the use of a skid steer which was utilized for transporting removed waste to a roll-off container staged at the Landfill 2/3 access road. This approach was taken to minimize any impact to the adjacent wetland area. The site debris was disposed of at the Oneida-Herkimer Solid Waste Authority (OHSWA). Site restoration was minimal since the debris was only found on the surface. Therefore, the extent of site restoration was limited to removal of the debris and final grading of soil sampling locations using hand tools. All field activities were conducted in accordance with the Final Site Debris Removal and Soil Sampling Work Plan for AOI 474 provided to the USEPA and NYSDEC in March 2012 (CAPE/FPM, March 2013).

2.2 SOIL SAMPLING

Subsequent soil sampling at the site was conducted on March 27, 2012. After removal of the surface debris the former debris pile location was divided into four equal sized grid cells for soil sampling (Figure 1). At each grid cell one composite sample comprised of five sample locations (one at the center and four from each corner at a depth interval of 0-2 ft below ground surface (bgs), Figure 1) was collected. In addition, three grab samples were also collected directly below drums removed from the site. One grab sample was collected from 0 to 1 ft bgs and one grab sample was collected from 1 to 2 ft bgs. The collected soil samples were analyzed for volatile

organic compounds (VOCs) (United States Environmental Protection Agency [USEPA] Method SW8260), semi-volatile organic compounds (SVOCs) (USEPA Method SW8270), polychlorinated biphenyls (PCBs) (USEPA Method SW8082), metals (USEPA Method SW6010), and pesticides (USEPA Method SW8081). The soil sampling and sample analysis was conducted in accordance with the approved Griffiss Performance-Based Remediation (PBR) Contract Site Wide Uniform Federal Policy Quality Assurance Project Plan (UFP-QAPP) for Performance Based-Remediation at the former Griffiss AFB, New York, (CAPE/FPM/AECOM, July 2011).

The soil sampling data was compared to the Title 6 of the New York Codes, Rules, and Regulations (6 NYCRR) Part 375 (New York State Department of Environmental Conservation [NYSDEC] 2006) Residential use Soil Cleanup Objectives (SCOs).

VOCs, PCBs, and Pesticides:

Results showed no exceedances of the 6-NYCRR Part 375 Residential Use SCOs.

SVOCs:

Samples from Quadrant 2 and sampling locations 5 and 6 (0-1 ft bgs) showed SVOC concentrations above 6-NYCRR Part 375 Residential Use SCOs. The SVOCs included dibenzo(a,h)anthracene, benzo(a)anthracene, benzo(a)pyrene, and benzo(b)fluoranthene.

Metals:

Samples from Quadrants 1, 2, 3, sampling location 5, 6, and 7 (0 to 1 ft bgs) showed metals concentrations above 6-NYCRR Part 375 Residential Use SCOs and base-wide background metal concentrations (Law, December 1996). The metals included arsenic, barium, cadmium, chromium, copper, lead, manganese, nickel, zinc, and mercury.

3.0 SITE WORK

Site activities proposed in this plan include the excavation of the entire site and disposal of approximately 70 cubic yards of SVOCs and metals contaminated soil. The extent of the site is provided in Figure 1.

The soil sampling and sample analysis will be conducted in accordance with the updated 2013 Griffiss PBR Contract Site Wide UFP-QAPP for Performance Based-Remediation at the former Griffiss AFB, New York, (CAPE/FPM/AECOM, May 2013). In addition, the RA activities will be conducted in accordance with the Final Addenda Griffiss Health and Safety Plan (CAPE/FPM/AECOM, July 2012).

3.1 IN-SITU SOIL TREATMENT

Soil sampling results from the debris removal indicated that total lead concentrations have the potential to result in exceeding the hazardous waste toxicity characteristic for lead once excavated (USEPA, October 2009). Therefore, the entire site will be chemically stabilized insitu prior to excavation. Soil stabilization will consist of chemical reagent (i.e., a blend of monocalcium phosphate and Portland cement) application to the ground surface and mixing with

the lead-contaminated soil to ensure adequate reagent contact and distribution in soil. The standard operating procedure for soil stabilization is provided in Appendix A.

Following soil stabilization, a post-stabilization waste characterization sample will be collected and analyzed for Toxicity Characteristic Leaching Procedure (TCLP) metals. If necessary, additional soil stabilization will be completed until the results are below the maximum concentration of contaminants for the toxicity characteristic. The in-situ soil TCLP samples, in conjunction with the previous samples, will be relied upon for soil characterization.

3.2 SOIL REMOVAL ACTION AND COMFIRMATORY SOIL SAMPLING

The approximate extent of the AOI 474 excavation is 25 ft by 25 ft by 2.5 ft bgs. The proposed extent of the excavation is illustrated on Figure 1. The previous sampling results showed contamination from 0 to 2 ft bgs; however, the excavation will be extended to 2.5 ft bgs to maximize contamination removal. The proposed excavation area is flat and is located within a low point, topographically. Therefore, erosion controls will not be implemented. Since the proposed excavation is also adjacent to a wetland, a tracked bobcat will be used to excavate and transport excavated soils to limit the surface disturbance of the area. During the excavation, soils will be taken to 20 yard roll off containers staged at the entrance of the Landfill 2/3 site.

Following the excavation, five composite soil samples will be collected, one from each wall and one from the bottom of the excavation. The samples will be analyzed for total metals and total SVOCs, which previously exceeded 6-NYCRR Part 375 Residential Use SCOs. The results will be compared to 6-NYCRR Part 375 Residential Use SCOs. If necessary, additional excavation will be conducted until all confirmatory soil sampling results are below the 6-NYCRR Part 375 Residential Use SCOs.

3.3 SOIL DISPOSAL

Upon confirmation that the soil can be characterized as non-hazardous waste, the excavated soil will be disposed of through the OHSWA.

3.4 SITE RESTORATION

Following the completion of soil removal and disposal activities, the site will be restored by placing clean backfill in the excavation. Prior to use, the backfill samples will be collected and analyzed for metals, SVOCs, VOCs, pesticides, and PCBs to demonstrate that the backfill utilized is clean. The backfilled areas will be re-graded to maintain the drainage characteristics for the outfall area. The excavation area is located in a semi-shaded area and is adjacent to a wetland. Therefore, the restoration area will be seeded with semi-shade tolerant grass and forb (herbaceous flowering plant that is not a grass, sedge or rush) seed mix. The seed mix includes wetland and upland vegetation species that are native to New York. The seed-mix specification spreadsheet is located in Appendix B. The seed mix will be applied by hand and then covered with a straw blanket. Given that the location is in a low area and adjacent to a wetland with site conditions that promote moist to wet soils, watering is not anticipated to be necessary.



restored site will be inspected periodically following restoration. If vegetation growth is not observed due to dry conditions, watering and/or additional planting will be conducted.

3.5 FIELD DOCUMENTATION

Handwritten documentation will be completed in permanent, black ink on a daily basis to document removal activities. The daily field reports will provide a summary of all daily field activities, current weather, personnel on-site, and identify any problems and corrective actions taken during that day. The field reports will also include removal action activity photos. In addition, Daily Quality Control Reports (DQCRs) will be completed during soil sampling activities. All information concerning sample collection, identification, and custody is provided in the updated 2013 Griffiss PBR Contract Site Wide Project Plan UFP-QAPP for Performance Based-Remediation at the former Griffiss AFB, New York, (CAPE/FPM/AECOM, May 2013).

Signed disposal manifests will be collected and maintained by the FPM site superintendent during the soil removal action. Additionally, an AFCEC Waste Inventory Tracking Form will be completed by the FPM field geologist during the soil removal activities and will detail waste specific information including date of waste generation, activity generating waste, description of waste, evidence of contamination, estimated volume, type and location of any containerization, and waste characterization description(s).

The soil sampling form and the daily field form are provided in Appendix C.

4.0 **REPORTING**

Following work completion, a Removal Action Report will be prepared. The report will describe the removal action and will clearly depict data collected to demonstrate that contaminant levels in soil remaining at the site are below 6-NYCRR Part 375 Residential Use SCOs. The report will include a compact disc with all field forms, disposal manifests, and photos.



5.0 REFERENCES

Air Force, Basewide Environmental Baseline Survey for the Griffiss Air Force Base, September 1994.

Air Force, Updated Basewide Environmental Baseline Survey for the Griffiss Air Force Base, November 2005.

CAPE/FPM, Final Site Debris Removal and Soil Sampling Work Plan for AOI 474 at the former Griffiss AFB, New York, March 2012.

CAPE/FPM, Final Site Debris Removal and Soil Sampling Report for AOI 474 at the former Griffiss AFB, New York, January 2013.

CAPE/FPM/AECOM, Updated 2013 Final Uniform Federal Policy Quality Assurance Project Plan for Performance Based-Remediation at the former Griffiss AFB, New York, May 2013.

CAPE/FPM/AECOM, Final Addenda Health and Safety Plan for Performance Based-Remediation at the former Griffiss AFB, New York, July 2012.

EPA, Hazardous Waste Characteristics, October 2009.

FPM Group, Ltd., Annual Long Term Monitoring Report (June 2008 through April 2009) for Landfill AOCs at the former Griffiss AFB, November 2010.

Law, Remedial Investigation at the former Griffiss AFB, December 1996.

NYSDEC, Title 6 of the New York Codes, Rules, and Regulations Part 375, December 2006.



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Tables

		1	I		2012	AOI 474 Soil Samplin	g Results	1	1		1	[
Sample Location				Quadrant 1	Quadrant 2	Quadrant 3	Quadrant 4	Grab Sample 5	Grab Sample 5	Grab Sample 6	Grab Sample 6	Grab Sample 7	Grab Sample 7
Sample ID	NYCRR Part 375 Residential use Soil	NYCRR Part 375 Commerical use Soil	NYCRR Part 375 Industrial use Soil	UNK10101AA	UNK10201AA	UNK10301AA	UNK10401AA	UNK10501AA	UNK10502AA	UNK10601AA	UNK10602AA	UNK10701AA	UNK10702AA
Date of Collection		Cleanup Objectives		3/27/2012	3/27/2012	3/27/2012	3/27/2012	3/27/2012	3/27/2012	3/27/2012	3/27/2012	3/27/2012	3/27/2012
Sample Depth (ft bgs)				0-2	0-2	0-2	0-2	0-1	1-2	0-1	1-2	0-1	1-2
SVOCs (µg/Kg)													
acenaphthene	100,000	500,000	1,000,000	31 J	40 J	33 J	U	U	U	1,300 J	32 J	U	U
acenaphthylene	100,000	500,000	1,000,000	42 J	130 J	U	U	U	U	U	U	U	U
anthracene	100,000	500,000	1,000,000	86 J	230 J	91 J	U	110 J	U	2,900 J	93 J	44 J	U
atrazine				U	U	U	U	U	U	U	U	U	U
benzaldehyde				U	U	U	U	U	U	U	U	U	U
benzidine				U	U	U	U	U	U	U	U	U	U
benzo(a)anthracene	1,000	5,600	11,000	270 J	740	190 J	U	350 J	U	3,200	210 J	64 J	U
benzo(a)pyrene	1,000	1,000	1,100	370 J	890	250 J	U	660 J	71 J	2,300	200 J	140 J	U
benzo(b)fluoranthene	1,000	5,600	11,000	770 J	2,000 J	460 J	640 J	3,000 J	160 J	3,800 J	340 J	740 J	130 J
benzo(k)fluoranthene	1,000	56,000	110,000	UJ	U	UJ	UJ	UJ	U J	UJ	UJ	U J	UJ
benzo(g,h,i)perylene	100,000	500,000	1,000,000	280 J	860	230 J	U	1,300 J	34 J	1,200 J	89 J	400 J	U
benzyl alcohol				52 J	83 J	130 J	100 J	U	17 J	J	24 J	40 J	26 J
bis(2-chloroethoxy) methane				U	U	U	U	U	U	U	U	U	U
bis(2-chloroethyl) ether				U	U	U	U	U	U	U	U	U	U
bis(2-chloroisopropy) ether				U	U	U	U	U	U	U	U	U	U
benzoic acid				U	1,900 J	4,400	U	U	U	U	U	U	U
bis(2-ethylhexyl) phthalate				U	U	U	U	U	99 J	540 J	100 J	U	110 J
benzyl butyl phthalate				U	U	U	U	U	U	U	U	130 J	U
caprolactam				U	U	U	U	U	U	U	U	U	U
carbazole				U	170 J	U	U	U	U	1,400 J	56 J	U	U
chrysene	1,000	56,000	110,000	370 J	1,100	250 J	U	920 J	U	2,900	200	280 J	U
di-n-butyl phthalate				U	U	100 J	290 J	U	U	U	U	900	U
di-n-octyl phthalate				U	U	U	U	U	U	U	U	U	U
dibenz(a,h)anthracene	330 ^e	560	1,100	230 J	360 J	210 J	U	920 J	U	970 J	140 J	210 J	U
dibenzofuran				40 J	120 J	U	U	U	U	1,600 J	36 J	U	U
diethyl phthalate				U	U	U	U	U	U	U	U	U	U
dimethyl phthalate				U	U	U	U	U	U	U	U	U	U
fluoranthene	100,000	500,000	1,000,000	640	2,100	380 J	U	340 J	U	7,500	380	110 J	U
fluorene	100,000	500,000	1,000,000	46 J	100 J	49 J	U	U	U	1,800 J	38 J	U	U
hexachlorobenzene				U	U	U	U	U	U	U	U	U	U
hexachlorobutadiene				U	U	U	U	U	U	U	U	U	U
hexachlorocyclapentadiene				U	U	U	U	U	U	U	U	U	U

Table 1

					2012	AOI 474 Soil Samplin	g Results						
Sample Location				Quadrant 1	Quadrant 2	Quadrant 3	Quadrant 4	Grab Sample 5	Grab Sample 5	Grab Sample 6	Grab Sample 6	Grab Sample 7	Grab Sample 7
Sample ID	NYCRR Part 375	NYCRR Part 375	NYCRR Part 375	UNK10101AA	UNK10201AA	UNK10301AA	UNK10401AA	UNK10501AA	UNK10502AA	UNK10601AA	UNK10602AA	UNK10701AA	UNK10702AA
Date of Collection	Residential use Soil Cleanup Objectives	Commerical use Soil Cleanup Objectives		3/27/2012	3/27/2012	3/27/2012	3/27/2012	3/27/2012	3/27/2012	3/27/2012	3/27/2012	3/27/2012	3/27/2012
Sample Depth (ft bgs)				0-2	0-2	0-2	0-2	0-1	1-2	0-1	1-2	0-1	1-2
SVOCs (µg/Kg)													
hexachloroethane				U	U	U	U	U	U	U	U	U	U
indeno(1,2,3-c,d)pyrene	500	5,600	11,000	310 J	760	190 J	U	1,300 J	83 J	1,300 J	120 J	330 J	U
isophorone				U	U	U	U	U	U	U	U	U	U
n-nitrosodimethylamine				U	U	U	U	U	U	U	U	U	U
n-nitrosodiphenylamine				U	U	U	U	U	U	U	U	U	U
n-nitrosopyrrolidine				U	U	U	U	U	U	U	U	U	U
n-nitrosodi-n-propylamine				U	U	U	U	U	U	U	U	U	U
naphthalene	100,000	500,000	1,000,000	U	U	U	U	U	U	U		U	U
nitrobenzene				U	U	U	U	U	U	U	U	U	U
pentachlorophenol	2,400	6,700	55,000	U	U	U	U	U	U	U	U	U	U
phenanthrene	100,000	500,000	1,000,000	470 J	1,400	290 J	U	150 J	U	10,000	320 J	74 J	U
phenol	100,000	500,000	1,000,000	U	U	U	U	U	U	130 J	U	U	U
pyrene	100,000	500,000	1,000,000	550 J	1,600	320 J	88 J	370 J	U	5,900	320 J	95 J	U
4-methylphenol				U	U	U	U	U	U	U	U	U	U

Table 1

Notes: B - Result is a positive value, however, the analyte was detected in an associated blank above the RL.

F - The analyte was positively identified above the MDL, however, the concentration is below the RL.

J - The analyte was positively identified, but the quantitation is an estimation.

M - A matrix effect was present.

U - The analyte was analyzed for, but not detected. The associated numerical value is at or below the MDL.

UJ - The analyte was analyzed for, but not detected. The ausociated induction was bar of below a UJ - The analyte was analyzed for, but not detected. The quantitation is an approximation.

--- No NYCRR Part 375 Soil Cleanup Objective is known for this compound.

							Fable 1 Soil Sampling Resu	lta.						
Sample Location					Ouadrant 1	Ouadrant 2	Ouadrant 3	Quadrant 4	Grab Sample 5	Grab Sample 5	Grab Sample 6	Grab Sample 6	Grab Sample 7	Grab Sample 7
Sample ID	NYCRR Part 375 Residential	NYCRR Part 375 Commerical	NYCRR Part 375 Industrial	Background	UNK10101AA	UNK10201AA	UNK10301AA	UNK10401AA	UNK10501AA	UNK10502AA	UNK10601AA	UNK10602AA	UNK10701AA	UNK10702AA
Date of Collection	use Soil Cleanup		use Soil Cleanup	8	3/27/2012	3/27/2012	3/27/2012	3/27/2012	3/27/2012	3/27/2012	3/27/2012	3/27/2012	3/27/2012	3/27/2012
Sample Depth (ft bgs)	Objectives	Objectives	Objectives		0-2	0-2	0-2	0-2	0-1	1-2	0-1	1-2	0-1	1-2
Metals (mg/Kg)														
aluminum				18,306	2,300	2,800	2,200	2,500	3,300	4,500	3,100	5,700	2,900	5,100
antimony				3.4 U	6	1.1	3.9	0.22 J	0.74	0.26 J	0.16 J	U	0.98	U
arsenic	16	16	16	4.9	30	11	28	4.4	16	0.86	3.1	0.36	9.2	0.41 J
barium	350	400	10000	71	3,400	200	50	17	490	18	48	13	360	18
berylium	14	590	2,700	0.65	0.069 J	0.098 J	0.078 J	0.070 J	0.1 J	0.150	0.062 J	0.120	0.150	0.200
boron - total					U	U	U	U	U	1.8 J	2.2 J	1.6 J	U	1.9 J
cadmium	3	9.3	60	1.1 U	5	6.7	3	0.76 Q	1	0.28	3.10	0.47	1.8 Q	U
calcium				23,821	990	1,900	620	160	300	150	630	230	320	150
chromium	36	1,500	6,800	22.6	96 J	11	72	15	37	4.8	5.2	4.8	20	8.5
cobalt				19	28 J	9.1	22	2.2	6.0	1.2	1.4	1.6	7.2	1.9
copper	270	270	10,000	43.8	330	56	250	58	74	5.4	28	3.9	270	4.1
iron				47,350	240,000	200,000	250,000	57,000	77,000	6,900	14,000	5,300	58,000	2,100
lead	400	1,000	3,900	36	800	1,800	380	99	5,100	81	96	8.3	1,100	3.3
magnesium				7,175	200	310	230	240	250	910	220	1,400	150	590
manganese	2,000	10000	10000	2,106	1,800	350	1,100	95	360	38	410	250	280	44
molybdenum				6 U	5	1.3	11	2.9	3.4	0.1 J	0.410	0.067 J	3	0.11
nickel	140	310	10000	46	180	18	87	12	22	3.6	5.4	4.6	25	6.7
potassium				1.993	150 J	220 J	150 J	220 J	270 J	680	240	610	180 J	730
selenium	36	1,500	6,800	0.34	0.32 J	0.9	0.28 J	0.7 J	0.75 J	0.37 J	0.68 J	0.27J	0.67	0.64
silver	36	1,500	6,800	1.1U	0.880	0.320	0.240	0.250	0.290	U	0.092 J	U	0.120	0.065
sodium				259	U	U	U	U	U	U	U	U	U	U
thallium				0.5 U	0.099 J	0.110 J	0.092 J	0.086 J	0.120 J	0.040 J	0.062 J	0.038 J	0.078 J	0.043
vanadium				36	5.2 J	5.7	5.5	11	7	4.8	5.5	7.3	15	9
zinc	2,200	10000	10000	120	3,700	1,600	1,400	100	110	21	620	250	320	70
mercury	0.81	3	6	0.1 U	0.82	15	0.19	0.11	0.83	0.023 J	0.57	0.019 J	0.100	0.056
PCBs (µg/Kg)														
Aroclor 1016	1,000	1,000	25,000		U	U	U	U	U	U	U	U	U	U
Aroclor 1221	1,000	1,000	25,000		U	U	U	U	U	U	U	U	U	U
Aroclor 1232	1,000	1,000	25,000		U	U	U	U	U	U	U	U	U	U
Aroclor 1242	1,000	1,000	25,000		U	U	U	U	U	U	U	U	U	U
Aroclor 1248	1,000	1,000	25,000		U	U	U	U	U	U	U	U	U	U
Aroclor 1254	1,000	1,000	25,000		U	U	U	U	U	U	U	U	11 J	U
Aroclor 1260	1,000	1,000	25,000		U	U	U	U	U	U	U	U	U	U

							Fable 1 Soil Sampling Resu	lts						
Sample Location					Quadrant 1	Quadrant 2	Quadrant 3	Quadrant 4	Grab Sample 5	Grab Sample 5	Grab Sample 6	Grab Sample 6	Grab Sample 7	Grab Sample 7
Sample ID	NYCRR Part 375 Residential	NYCRR Part 375 Commerical	NYCRR Part 375 Industrial	Background	UNK10101AA	UNK10201AA	UNK10301AA	UNK10401AA	UNK10501AA	UNK10502AA	UNK10601AA	UNK10602AA	UNK10701AA	UNK10702AA
Date of Collection	use Soil Cleanup	use Soil Cleanup		Screening Level	3/27/2012	3/27/2012	3/27/2012	3/27/2012	3/27/2012	3/27/2012	3/27/2012	3/27/2012	3/27/2012	3/27/2012
Sample Depth (ft bgs)	Objectives	Objectives	Objectives		0-2	0-2	0-2	0-2	0-1	1-2	0-1	1-2	0-1	1-2
Pesticides (µg/Kg)														
alpha BHC (Alpha Hexachlorocyclo		3,400	6,800		U	U	U	U	U	U	U	U	U	U
beta BHC (Beta Hexachlorocyclohex	72	3,000	14,000		U	U	U	U	U	U	U	U	U	U
delta BHC (Delta Hexachlorocycloh	100,000	500,000	1,000,000		U	U	U	U	U	U	U	U	U	U
gamma BHC (Lindane)					U	U	U	U	U	U	U	U	U	U
alpha-Chlordane	910	24,000	47,000		U	U	U	U	U	U	U	U	U	U
gamma-Chlordane					U	U	U	U	U	U	U	U	U	U
p,p'-DDD	2,600	92,000	180,000		2 J	U	U	U	U	U	U	U	U	U
p,p'-DDE	1,800	62,000	120,000		13	0.52 J	1.1 J	1.7 JQ	2 J	U	U	U	5.6	U
p,p'-DDT	1,700	7,900	94,000		56	5 J	U	2.1 JQ	1.5 J	U	2.5 J	U	15	U
aldrin	19	680	1,400		U	U	U	U	U	U	U	U	U	U
dieldrin	39	1,400	2,800		0.74 J	U	U	U	U	U	U	U	0.39 J	U
endosulfan I	4,800	200,000	920,000		U	U	U	U	U	U	U	U	U	U
endosulfan II	4,800	200,000	920,000		U	U	U	U	U	U	U	U	U	U
endosulfan sulfate	4,800	200,000	920,000		U	U	U	U	U	U	U	U	U	U
endrin	2,200	89,000	410,000		U	U	U	U	U	U	U	U	U	U
endrin aldehyde					U	U	U	U	U	U	U	U	U	U
endrin ketone					U	U	U	U	U	U	U	U	U	U
heptachlor					U	U	U	U	U	U	U	U	U	U
heptachlor epoxide					U	U	U	U	U	U	U	U	U	U
methoxychlor					2.6 J	U	U	U	U	U	U	U	U	U
toxaphene					U	U	U	U	U	U	U	U	U	U
Notes:														

Notes:

B - Result is a positive value, however, the analyte was detected in an associated blank above the RL.

F - The analyte was positively identified above the MDL, however, the concentration is below the RL.

J - The analyte was positively identified, but the quantitation is an estimation.

M - A matrix effect was present.

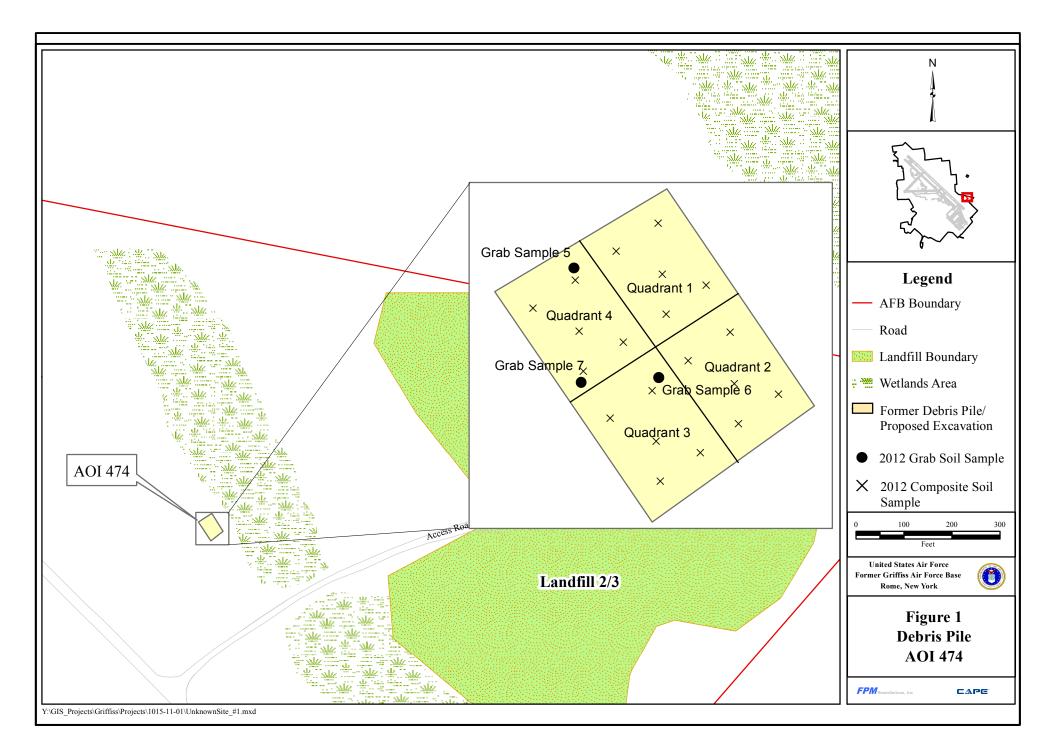
U - The analyte was analyzed for, but not detected. The associated numerical value is at or below the MDL.

UJ - The analyte was analyzed for, but not detected. The quantitation is an approximation.

Indicates an exceedance of the NYCRR Part 375 Residential use Soil Cleanup Objective

--- No NYCRR Part 375 Soil Cleanup Objective or Background Screening Level is known for this compound.

Figures



Appendix A Standard Operating Procedures – Soil Stabilization

Standard Operating Procedure - Soil Stabilization

PURPOSE AND SCOPE

This document defines the standard operating procedure (SOP) for in situ soil stabilization of metals contaminated soil. In stabilization, a reagent is added to transform contaminated material so that the constituents are in a less mobile or less toxic form.

STABILIZATION PROCEDURE

Equipment List

- Mixing equipment
- Chemical reagent
- Camera and film or digital camera
- Field logbook
- Waterproof and permanent marking pens
- Spray paint
- Appropriate health and safety equipment
- Appropriate decontamination supplies

Chemical Reagent Ratios

Many chemical additives can be used effectively in the stabilization process. However, reagent ratios are highly waste-specific and should be determined using bench scale testing.

Stabilization

The chemical reagent (i.e., a blend of moncalcium phosphate and portland cement) will be distributed across the top of waste characterization area and mixed into the soil using conventional earth moving/earth-handling equipment (e.g, rotary tiller, cultivator). If more than one reagent is used, the first reagent should be spread evenly across the area, followed by the second in order to ensure an even distribution of both reagents. The area may need multiple passes with the mixing equipment to help distribute the reagents. Following soil stabilization, additional waste characterization samples will be collected in the stabilized areas and analyzed. If areas remain above regulatory limits for waste disposal, additional rounds of stabilization may be completed.

Appendix B Semi Shade Grass and Forb Mix Specification Sheet



NEW ENGLAND WETLAND PLANTS, INC

(00225)

820 WEST STREET, AMHERST, MA 01002 PHONE: 413.548.8000 Fax: 413.549.4000 EMAIL: INFO@NEWP.COM WEB ADDRESS: WWW.NEWP.COM

New England Semi Shade Grass & Forb Mix

		0325)
BOTANICAL NAME	COMMON NAME	IND.
ELYMUS VIRGINICUS	VIRGINIA WILD RYE	FACW-
Festuca rubra	CREEPING RED FESCUE	FACU
Elymus canadensis	Canada Wild Rye	FACU+
PANICUM CLANDESTINUM	Deer Tongue	FAC+
ASCLEPIAS SYRIACA	Common Milkweed	FACU-
PENSTEMON DIGITALIS	Beard Tongue	FAC
DESMODIUM CANADENSE	SHOWY TICK TREFOIL	FAC
ZIZIA AUREA	GOLDEN ALEXANDERS	FAC
GEUM CANADENSE	White Avens	FACU
HELIOPSIS HELIANTHOIDES	Ox Eye Sunflower	UPL
EUPATORIUM PURPUREUM	Purple Joe Pye Weed	FAC
Monarda fistulosa	WILD BERGAMOT	UPL
SOLIDAGO CAESIA	BLUE STEM/WOODLAND GOLDENROD	FACU
SOLIDAGO SPECIOSA	SHOWY GOLDENROD	NI
AGROSTIS PERENNANS	Upland Bentgrass	FACU

 PRICE PER LB.
 \$69.00

 MIN. QUANTITY:
 1 LBS.

 TOTAL
 \$69.00

 APPLY: 30 LBS/ACRE
 MINIMUM QUANTITY: 1 LBS

The <u>New England Semi Shade Grass & Forb Mix</u> contains a broad spectrum of native grasses and forbs that will tolerate semi-shade and edge conditions. Always apply on clean bare soil. The mix may be applied by hydro-seeding, by mechanical spreader, or on small sites it can be spread by hand. Lightly rake, or roll to ensure proper seed to soil contact. Best results are obtained with a Spring seeding. Late Spring and

early Summer seeding will benefit with a <u>light</u> mulching of weed-free straw to conserve moisture. If conditions are drier than usual, watering will be required. Late Fall and Winter dormant seeding require an increase in the seeding rate. Fertilization is not required unless the soils are particularly infertile. Preparation of a clean weed free seed bed is necessary for optimal results.

New England Wetland Plants, Inc. may modify seed mixes at any time depending upon seed availability. The design criteria and ecological function of the mix will remain unchanged.

Price is \$/bulk pound, FOB warehouse, plus S&H and applicable taxes.

Appendix C Soil Sampling Form and Daily Field Report

SOIL / SEDIMENT SAMPLING FORM

Project:	Sampled by:
Site and Site Code (SITEID):	
Sampling Location ID. (LOCID):	
Date (LOGDATE):	Time:

FIELD OBSERVATIONS:

Sample Depth or Interval	Material Description/ Color

Comments/Observations:

Sample Time: _____ Sample ID: _____

Daily Field Re Former Griffis	eport ss AFB, Rome, NY	,		FPM	
Date:		Time On-Site:	Off-Site:		
FPM Personnel:					
Contractors:	COMPANY		NAMES		
Visitors:	ORG		NAMES		
			Volume (Current		
Weather Temperature	AM / PM	Material Shipped: Soil (tons)	Day)	Volume (total-to-date)	Disposal Facility Location
Humidity		C&D (tons) PPE/Waste (drum)			
Wind direction/speed Rain guage		PPE/waste (drum)			
Conditions (i.e. Sunny, cloudy)		* Waste shipment details	presented on shipping log		
Deliveries	Quantity	Samples Collected for A	Analysis		
Deliveries	Quantity	Type	Quantity	Analysis	
		Soils			
Equipment On-Site:					
		Safety Issues:			
WORK ACTIVITIES CO					
WORK ACTIVITIES CC	SNDOCTED.				
WORK ACTIVITIES CO	OMPLETED TODAY:				
CONTRACTOR QUEST	TIONS:				
Report Completed By:	:				