



**DEPARTMENT OF THE AIR FORCE**  
**AIR FORCE CIVIL ENGINEER CENTER**

November 6, 2014

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 11<sup>th</sup> Floor  
Albany, NY 12233-7015

Ms. Kristin Kulow  
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Bureau of Environmental Exposure Investigation  
28 Hill Street, Suite 201  
Oneonta, NY 13820

FROM: AFCEC/CIBE – Plattsburgh  
8 Colorado Street, Suite 121  
Plattsburgh NY, 12903

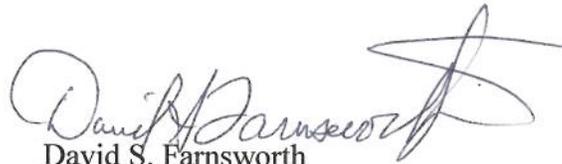
SUBJECT: Revised Final Site Closure Report for Land use control/institutional control site  
SD050 Building 214 Area of Concern  
October 2014  
Former Griffiss Air Force Base (AFB) Rome, New York  
Contract Number FA8903-10-D-8595 / Delivery Order 0014

Accompanying this letter please find the “Revised Final Site Closure Report for Land use control/institutional control site SD050 Building 214 Area of Concern” in relation to work conducted at the Former Griffiss AFB in Rome, New York under the referenced Performance Based Remediation (PBR) contract.

This report has been prepared to present results from the July 2014 soil sampling event which was conducted based on a NYSDEC comment provided on June 9, 2014 for the Final Site Closure Report (April 2014).

We would appreciate review comments by December 10, 2014 so that project schedules and performance milestones can be maintained in accordance with this PBR Contract.

Should you have any questions or concerns please contact me at 518-563-2871.



David S. Farnsworth  
Program Manager/BRAC Environment Coordinator  
BRAC Program Execution Branch

Distribution:

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(1 CD)

**REVISED FINAL**

**SITE CLOSURE REPORT  
LAND USE CONTROL/INSTITUTIONAL CONTROL SITE  
SD050 BUILDING 214 AREA OF CONCERN**

**FORMER GRIFFISS AIR FORCE BASE SITE  
ROME, NEW YORK**

*Prepared for:*



**Air Force Civil Engineer Center  
Building 171  
2261 Hughes Avenue, Suite 155,  
Joint Base San Antonio Lackland, TX**

*Prepared by:*

**FPM**

**FPM Remediations, Inc.  
584 Phoenix Drive  
Rome, NY 13441**

*In association with:*

**CAPE<sup>SM</sup>**

**10901 Lowell Avenue, Suite 271  
Overland Park, Kansas 66210**

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

**October 2014**

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## LIST OF ACRONYMS

AFB	Air Force Base
AFCEC	Air Force Civil Engineer Center
AOC	Area of Concern
ARARs	Applicable or Relevant and Appropriate Requirements
bgs	Below Ground Surface
CQCR	Chemical Quality Control Reports
EPA	United States Environmental Protection Agency
ESD	Explanation of Significant Differences
FPM	FPM Remediations, Inc.
ft	Feet
LTM	Long Term Monitoring
LUC/IC	Land Use Control/Institutional Control
NFA	No Further Action
NYCRR	New York Codes, Rules, and Regulations
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
OWS	Oil/Water Separator
RI	Remedial Investigation
ROD	Record of Decision
SCO	Soil Cleanup Objective
SVOC	Semi-Volatile Organic Compound
UFP QAPP	Uniform Federal Policy Quality Assurance Project Plan
UST	Underground Storage Tank

## EXECUTIVE SUMMARY

This Revised Final Site Closure Report has been prepared to present the May 2014 soil sampling results. This sampling event was conducted based on a New York State Department of Environmental Conservation (NYSDEC) comment provided on June 9, 2014 for the Final Site Closure Report for Land use Control/Institutional Control Site SD050 Building 214 Area of Concern (AOC) (CAPE/FPM, April 2014). The comment is as follows:

- *The New York State Department of Environmental Conservation and the New York State Department of Health have reviewed the DP015-Building 219 and SD050-Building 214 Final Site Closure Report Land Use Control/Institutional Control Sites (Building 211, SD050 and DP015). Based on our review, we find that insufficient sampling data has been provided for both Building 214 and Building 219. Specifically, surface soil samples have not been adequately provided for these sites. This lack of data will prevent the removal of institutional controls. All previous sampling data should be included and resubmitted in the report(s). If insufficient data has been collected to date then additional sampling will be required. If site conditions did not warrant sample collection, a detailed discussion should be provided as well.*

Based on the comment, three additional soil samples were collected from 0-2 feet (ft) below ground surface (bgs) and analyzed for metals only on July 9, 2014. The sample locations are illustrated on the attached Figure 1. Sample analysis results indicated that all metals concentrations were below their respective residential use SCOs (Table 1).

All 2013 and 2014 soil sampling results meet the Title 6 - New York Codes, Rules, and Regulations (6-NYCRR) Part 375 Residential Use Soil Cleanup Objectives (SCOs) (NYSDEC, December 2006) at the SD050 Building 214 AOC. Therefore, it is requested that the site be closed and that New York State and USEPA grant permission to remove the remaining non-residential use deed restriction at the SD050 Building 214 AOC.

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## **1.0 INTRODUCTION**

FPM Remediations, Inc. (FPM), in association with CAPE, Inc., under contract with the Air Force Civil Engineer Center (AFCEC), conducted site closure activities at the Land Use Control/Institutional Control (LUC/IC) Site SD050 Building 214 AOC, at the former Griffiss Air Force Base (AFB) in Rome, New York.

### **1.1 Purpose**

This Site Closure Report has been prepared to present soil sampling results from May 2013 and July 2014. Sampling was conducted at this site as a result of the Air Force's initiative to reduce its long-term environmental liabilities and life cycle costs through site closures. This site is subject to a deed restriction in the form of land use restrictions for non-residential use. An evaluation of the site, including soil sampling, was conducted to determine if residual soil contamination meets the 6-NYCRR Part 375 Residential use SCOs [NYSDEC, December 2006] and to obtain site closure with unrestricted reuse at the site. The site closure activities were conducted in accordance with the Final Site Closure Plan for LUC/IC Sites (CAPE/FPM, March 2013). The Updated 2014 Uniform Federal Policy Quality Assurance Project Plan (UFP QAPP) for Performance Based-Remediation at the Former Griffiss AFB (CAPE/FPM, June 2014) and Health and Safety Plan for Performance Based-Remediation at the Former Griffiss AFB (CAPE/FPM, July 2012) were also adhered to.

## **2.0 RECORD OF DECISION**

The Record of Decision (ROD) for SD050 Building 214 AOC (Air Force, September 1999) was signed by the Air Force and United States Environmental Protection Agency (EPA) in September 1999 and is provided in Appendix A. Based on the previous investigations and environmental conditions at the site, the selected remedy for the SD050 Building 214 AOC site is No Further Action (NFA) for soils with LUC/ICs for industrial land-use and groundwater use restrictions (groundwater use restrictions were removed in spring 2012). The ROD for the SD050 Building 214 AOC states that:

- The property will be industrial use unless permission is obtained from the EPA, NYSDEC, and New York State Department of Health (NYSDOH).

## **3.0 SITE BACKGROUND**

Building 214, a former vehicle maintenance shop is located in the west-central portion of the former Griffiss AFB. An Underground Storage Tank (UST), Oil/Water Separator (OWS), and two drywells were associated with this site. The UST reportedly overflowed due to a mechanical failure. The UST and OWS were removed in 1997. Surface water run-off in this area drains towards the Mohawk River using the base storm drainage system. The building is currently used for storage.

A Remedial Investigation (RI) was conducted at the site in 1994. Results showed the presence of Semi-Volatile Organic Compound (SVOCs), metals, and pesticides in the soil and groundwater at the site. A risk assessment was conducted for the RI. For human health, contaminants in the soil and groundwater were within the lower end of the acceptable EPA target risk range for industrial and commercial users. A risk assessment based on residential or unrestricted reuse was not performed.

Long Term Monitoring (LTM) was conducted at the site from 2001 to 2002. Groundwater was deemed clean and monitoring ceased in 2002 with regulatory approval. Based on the results from previous sampling and the ROD requirements for the SD050 Building 214 AOC, the Air Force submitted an Explanation of Significant Differences (ESD) to the EPA in 2003 (Air Force, September 2003). The document requested the deletion of ROD requirements for the groundwater investigations. The ESD was supported by groundwater monitoring data indicating groundwater Applicable or Relevant and Appropriate Requirements (ARARs) were met. The ESD was signed by the EPA on September 26, 2003. The remaining LTM wells at the site were decommissioned in the Round 3 Well Decommissioning event performed in summer/fall 2005.

A request to remove the groundwater restriction at the site was issued by the Air Force in March 2012. NYSDEC acceptance was provided on April 24, 2012 and EPA acceptance was provided on May 16, 2012. The NYSDEC acceptance email and EPA approval letter are provided in Appendix C.

#### **4.0 SITE CLOSURE ACTIVITIES**

Site closure activities conducted at the SD050 Building 214 AOC included a soil investigation to delineate/confirm the presence of residual soil contamination at the site above 6-NYCRR Part 375 Residential use SCOs.

##### **4.1 Soil Investigation**

###### 2013 Soil Sampling Event:

The initial soil investigation was conducted on May 7, 2013. The investigation included the collection of 12 soil samples from four soil borings (direct push) within the SD050 Building 214 AOC site boundary (Figure 1). Samples were collected from 0 to 4 ft bgs, 4 to 8 ft bgs, and 8 to 12 ft bgs from each boring. In preparation for this sampling, historical soil sampling results were compared to the 6-NYCRR Part 375 Residential use SCOs. Because only metals exceeded the residential use SCOs, soil samples from this site investigation were analyzed for metals only via EPA Method SW6010C. Field screening for visual and olfactory characteristics was conducted before sampling. The results of the soil characterization are provided in the daily chemical quality control reports (CQCRs) in Appendix C. Results from the soil sampling showed that metal concentrations in all samples were below their respective Residential use SCOs.

### 2014 Soil Sampling Event:

The 2014 sampling event was conducted on July 9, 2014 to collect surface soil samples at the site (0 to 2 ft bgs). The samples were collected at three borings (B214SCS-5, -6, and -7) which were positioned within the outdoor portion of the LUC/IC site (Figure 1). No surface soil samples were collected from the indoor portion of the LUC/IC site as the area is covered with several inches of concrete (building slab). The samples were also analyzed for metals using EPA Method SW6010C. Results from the soil sampling showed that metal concentrations in all samples were below their respective Residential use SCOs.

Sampling results for both events are presented in Table 1. All field sampling forms are attached in the daily CQCRs in Appendix C. The raw lab data are provided in Appendix D and the validated data are attached in Appendix E.

## **5.0 RECOMMENDATIONS**

All 2013 and 2014 soil sampling results meet the 6-NYCRR Part 375 Residential use SCOs at the SD050 Building 214 AOC. Therefore, it is requested that the site be closed and that New York State and USEPA grant permission to remove the remaining non-residential use deed restriction at the SD050 Building 214 AOC.

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## 6.0 REFERENCES

Air Force, Final Records of Decision for Areas of Concern at the Former Griffiss Air Force Base, Rome, NY, September 1999.

Air Force, Explanation of Significant Differences for the Tin City AOC at the Former Griffiss Air Force Base, September 2003.

CAPE/FPM, Updated 2014 Final Uniform Federal Policy Quality Assurance Project Plan for Performance Based-Remediation at the former Griffiss AFB, New York, June 2014.

CAPE/FPM, Site Closure Report for LUC/IC Site SD050 Building 214 AOC at the former Griffiss AFB, October 2013.

CAPE/FPM, Final Site Closure Plan for Land use Control/Institutional Control Sites at the former Griffiss AFB, New York, March 2013.

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

NYSDEC, 6-NYCRR Part 375 Environmental Remediation Programs, December 2006.

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## Tables

**Table 1**  
**SD050 Building 214 AOC**  
**Soil Sampling Results**

Sample Location	NYCRR Part 375 Residential use Soil Cleanup Objectives (mg/kg)	B214SCS-1			B214SCS-2		
Sample ID		B214SCS0104AA	B214SCS0108AA	B214SCS0112AA	B214SCS0204AA	B214SCS0208AA	B214SCS0212AA
Date of Collection		5/7/2013	5/7/2013	5/7/2013	5/7/2013	5/7/2013	5/7/2013
Sample Depth (ft bgs)		0-4	4-8	8-12	0-4	4-8	8-12
<b>Metals (mg/kg)</b>							
aluminum	NA	14,000	8,900	8,700 J	1,300	8,300	7,500
antimony	NA	0.58 U	0.58 U	U	U	U	U
arsenic	16	5.1	5.4	4	4.8	5.6	3.6
barium	350	46	36	33	55	34	29
beryllium	14	0.57	0.35 J	0.36 J	0.53 J	0.42 J	0.34 J
boron - total	NA	3.7 J	4.1	2.7 J	2.7 J	2 J	2.9 J
cadmium	2.5	0.62	0.32 J	0.26 J	0.32 J	0.14 J	0.11 J
calcium	NA	1,300	21,000	11,000 J	1,500	1,200	1,200
chromium	22	15	16	12	14	8.9	8.7
cobalt	NA	8.9	5.6	5.7	7	5.7	5.4
copper	270	55	36	33	32	25	29
iron	NA	25,000	16,000	18,000 J	23,000 J	20,000	17,000
lead	400	31	14	11	17	5.4	3.9
magnesium	NA	4,300	3,300	3,400	3,600	2,500	2,900
manganese	2,000	1600	770	790 J	1,200	1,000	750
molybdenum	NA	0.49 U	1.9 J	0.6 J	0.39 J	0.31 J	U
nickel	140	19	14	13	17	12	12
potassium	NA	990	980	990	960 J	790	1,100
selenium	36	1.2 U	1.2 U	1.2 U	U	U	U
silver	36	0.18 J	0.19 U	0.2 U	U	U	U
sodium	NA	94 J	170 J	110 J	U	64 J	U
strontium	NA	U	U	U	U	U	U
thallium	NA	1.2 U	1.2 U	1.2 UJ	U	U	U
vanadium	NA	22	15	15	20	13	13
zinc	2,200	85	74	54	82 J	40	42
mercury	0.81	U	U	U	U	U	U

**Table 1**  
**SD050 Building 214 AOC**  
**Soil Sampling Results**

Sample Location	NYCRR Part 375 Residential use Soil Cleanup Objectives (mg/kg)	B214SCS-3			B214SCS-4		
Sample ID		B214SCS0304AA	B214SCS0308AA	B214SCS0312AA	B214SCS0404AA	B214SCS0408AA	B214SCS0412AA
Date of Collection		5/7/2013	5/7/2013	5/7/2013	5/7/2013	5/7/2013	5/7/2013
Sample Depth (ft bgs)		0-4	4-8	8-12	0-4	4-8	8-12
<b>Metals (mg/kg)</b>							
aluminum	NA	11,000	9,500	7,100	7,000	9,100	7,600
antimony	NA	U	U	U	U	U	U
arsenic	16	4.9	3.3	9.4	3.3	4.4	4.2 ♦
barium	350	48	22	28	31	35	29
beryllium	14	0.49 J	0.35 J	0.28 J	0.27 J	0.39 J	0.34 J
boron - total	NA	3.1 J	2.5 J	2.3 J	3.3 J	2 J	2.3 J ♦
cadmium	2.5	0.48 J	0.14 J	0.091 J	0.56	0.33 J	0.16 J
calcium	NA	1,600	1,000	1,200	5,200	1,700	1,800
chromium	22	15	11	10	10	14	11 ♦
cobalt	NA	7.5	6.2	6	4.2	6.6	5.8 ♦
copper	270	26	27	26	18	33	29 ♦
iron	NA	24,000	17,000	17,000	12,000	19,000	18,000
lead	400	23	4.6	8.6	39	34	7 ♦
magnesium	NA	3,700	4,200	3,200	2,000	3,200	3,500
manganese	2,000	1,200	630	700	390	860	1,100
molybdenum	NA	0.57 J	0.41 J	0.5 J	U	U	0.96 J ♦
nickel	140	18	14	13	10	14	13
potassium	NA	1,200	950	1,000	1,000	860	970 ♦
selenium	36	U	U	U	U	U	U
silver	36	0.22 J	U	U	U	U	U
sodium	NA	U	63 J	U	U	U	U
strontium	NA	U	U	U	U	U	U
thallium	NA	U	U	U	U	U	U
vanadium	NA	20	14	13	13	15	12
zinc	2,200	86	46	48	55	69	47
mercury	0.81	U	U	U	U	U	U

**Table 1**  
**SD050 Building 214 AOC**  
**Soil Sampling Results**

Sample Location	NYCRR Part 375 Residential use Soil Cleanup Objectives (mg/kg)	B214SCS-5	B214SCS-6	B214SCS-7
Sample ID		B214SCS0502AA	B214SCS0602AA	B214SCS0702AA
Date of Collection		7/9/2014	7/9/2014	7/9/2014
Sample Depth (ft bgs)		0-2	0-2	0-2
<b>Metals (mg/kg)</b>				
aluminum	NA	4,600 J	9,200	4,900
antimony	NA	U	U	U
arsenic	16	2.6	6.1	2.8
barium	350	18	45	17
beryllium	14	0.2 J	0.47 J	0.23 J
boron - total	NA	2.5 J	3.6 J	2.4 J
cadmium	2.5	0.14 J	0.53 J	U
calcium	NA	1,900	2,000	1,100
chromium	22	5.5	13.0	5.7
cobalt	NA	3.4	6.6	3.7
copper	270	12	25	11
iron	NA	8700 J	18,000	10,000
lead	400	8.4	52	3.5
magnesium	NA	1,600	3,000	1,900
manganese	2,000	280	640	290
molybdenum	NA	0.55 J	0.37 J	U
nickel	140	7.8	16	8.4
potassium	NA	770 J	1,200	830
selenium	36	U	U	U
silver	36	U	U	U
sodium	NA	U	U	U
strontium	NA	5	7.3	3.5
thallium	NA	U	U	U
vanadium	NA	8.1	20	8.3
zinc	2,200	25	72	26
mercury	0.81	U	U	U

## **Notes and Data Qualifiers**

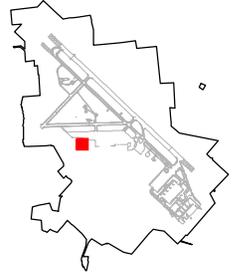
J = The analyte was positively identified above MDL, however the concentration is below the reporting limit (RL).

U = The analyte was analyzed for, but not detected. The associated numerical value is at or below the method detection limit.

NA = Not Available, no NYCRR Part 375 Soil Cleanup Objective.

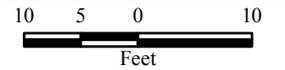
◆ = Duplicate value was used.

## Figures



Site Location

- ▲ Soil Sample Location (2013)
- Soil Sample Location (2014)
- Building 214 AOC Site Boundary



United States Air Force  
Former Griffiss Air Force Base  
Rome, New York

**Figure 1**  
**SD050**  
**Building 214 AOC**  
**Sampling Locations**

Source: Esri, i-cubed, USDA, USGS, AEX, GeoEye, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community

FPM Remediations, Inc.

**Appendix A**  
Final Record of Decision for SD050 Building 214 AOC

1362 0

File: 17-C-10  
M.M.



**GRIFFISS AFB  
NEW YORK**

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**ADMINISTRATIVE RECORD  
COVER SHEET**

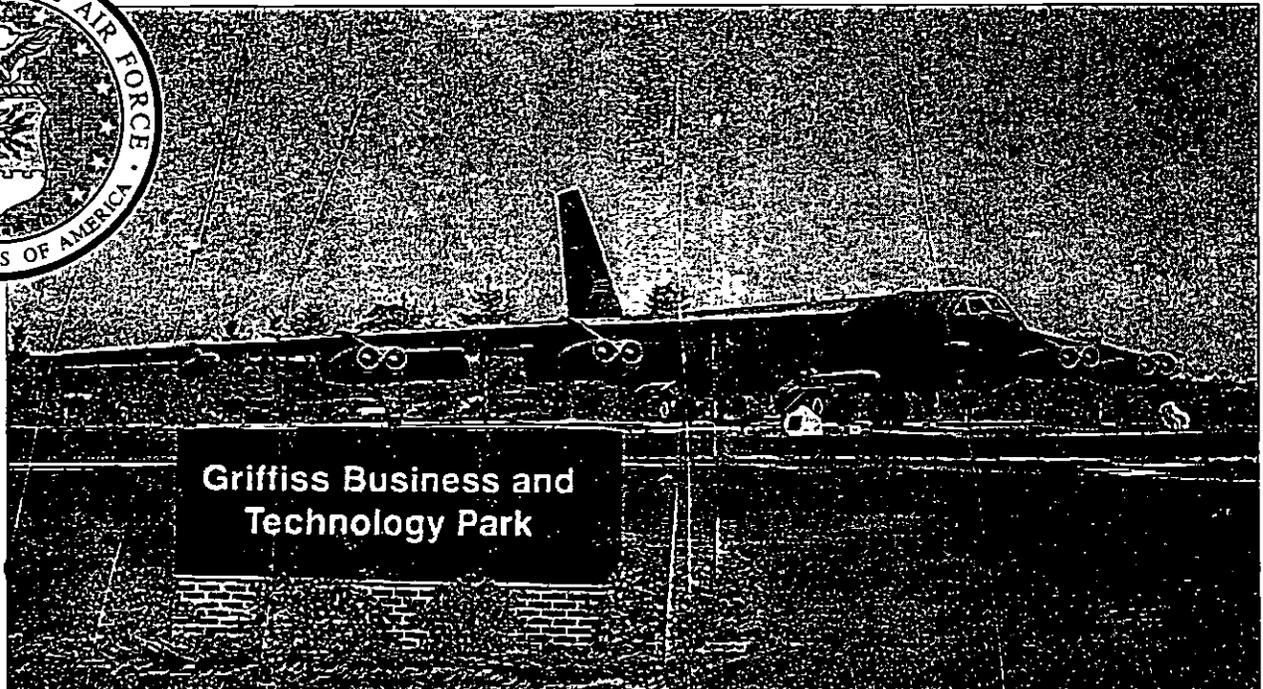
AR File Number 1362

# Final Records of Decision for Areas of Concern (AOCs)

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Former Griffiss Air Force Base  
Rome, New York

September 1999



- Building 301 Drywell AOC
- Building 219 Drywell AOC
- Building 214 AOC
- Fire Demonstration Area AOC
- Suspected Fire Training Area AOC



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 2  
290 BROADWAY  
NEW YORK, NY 10007-1866

1362 2

94-7082

17-A-95

RIFS

MIKE W

SEP 30 1999

Mr. Albert F. Lowas  
Director  
AFBCA/DR  
1700 North Moore Street, Suite 2300  
Arlington, VA 22209-2802

Re: Record of Decision for Five Areas of Concern, Griffiss Air Force Base

Dear Mr. Lowas:

This is to inform you that after considering public comments on the Proposed Plans, Griffiss Air Force Base's responsiveness summary to those comments, the Draft Records of Decision and other supporting documents, the U.S. Environmental Protection Agency (EPA) concurs with the Records of Decision for the Suspected Fire Training Area, the Fire Demonstration Area, Building 301, Building 214 and Building 219. Enclosed is a copy of the signed Records of Decision, which I have co-signed on behalf of EPA.

These Records of Decision address only the above mentioned areas of concern. All other areas of Griffiss Air Force Base are being addressed under separate operable units. Please note that these Records of Decision require certain land use restrictions (e.g., deed restrictions) and are subject to EPA's 5-year review process (excluding the Suspected Fire Training Area which was found acceptable for unrestricted use).

If you have any questions regarding the subject of this letter, please contact me at (212) 637-5000 or have your staff contact Douglas Pocze at (212) 637-4432.

Sincerely,

  
Jeanne M. Fox  
Regional Administrator



cc: M. O'Toole, NYSDEC

**New York State Department of Environmental Conservation**

**Division of Environmental Remediation, Room 260B**

10 Wolf Road, Albany, New York 12233-7010

Phone: (518) 457-5861 • FAX: (518) 385-8404

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John P. Cahill  
Commissioner

SEP 16 1999

94-7082

17-A-95

R1/FS

SD-50 B/214

DP-12 B/301

SS-24 FDA

FT-48 SFTA

Mike W.

Mr. Richard L. Caspe, P.E.  
Director  
Emergency & Remedial Response Division  
USEPA Region II  
290 Broadway, 19th Floor  
New York, NY 10007-1866

Dear Mr. Caspe:

Re: Draft Final Records of Decision for Bldgs. 214, 219, 301, FDA, SFTA;  
Griffiss Air Force Base (ID No. 633006)

The New York State Department of Environmental Conservation (NYSDEC), in conjunction with the New York State Department of Health (NYSDOH), has reviewed the referenced Records of Decision (RODs) and find each to be acceptable.

If you have any questions or comments on this matter, please contact Mr. Sal Ervolina, of my staff, at (518) 457-4349.

Sincerely,

Michael J. O'Toole, Jr.

Director

Division of Environmental Remediation

cc M McDermott  
R. Wing/D Pocze, USEPA-Region II  
H. Hamel, NYSDOH-Syracuse  
D. Swedowski, Reg 6, Watertown  
R. Joyner  
L. Hansak  
S Dimeo



DEPARTMENT OF THE AIR FORCE  
AIR FORCE BASE CONVERSION AGENCY

1362 5

SEP 14 1999

1700 North Moore Street  
Suite 2300  
Arlington, VA 22209-2802

Mr. Richard L. Caspe  
USEPA-Region II  
290 Broadway, 18th Floor  
New York, NY 10007-1866

Dear Mr. Caspe

Enclosed are four (4) copies of five (5) Final Records of Decision (RODs) for Building 301 Drywell Area of Concern (AOC), Building 219 Drywell AOC, Building 214 AOC, Fire Demonstration Area AOC, and Suspected Fire Training Area AOC for your review and concurrence. Once the RODs are signed, please retain one copy for your files, and forward three (3) copies to Air Force Base Conversion Agency (AFBCA) for distribution.

If you have any questions or need additional information, please contact Ms. Lynn Hancsak at (703) 696-5244.

Sincerely

*Albert F. Lowas, Jr.*  
ALBERT F. LOWAS, JR.  
Director

Attachment:  
Final Records of Decision for Areas of Concern

OPTIONAL FORM 99 (7-90)

FAX TRANSMITTAL

# of pages ▶

To <i>Mike McDermott</i>	From <i>Lynn</i>
Dept./Agency	Phone #
Fax #	Fax #

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**Final Records of Decision  
for Areas of Concern (AOCs)  
at the  
Former Griffiss Air Force Base  
Rome, New York**

---

**September 1999**

**Prepared for:**

**U.S. ARMY ENGINEER DISTRICT, KANSAS CITY**  
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# TAB

Bldg 214 AOC

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**Record of Decision for Soils at  
the Building 214 Area of  
Concern at the Former  
Griffiss Air Force Base  
Rome, New York**

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**September 1999**

**Prepared for:**

**U.S. ARMY ENGINEER DISTRICT, KANSAS CITY  
601 East 12th Street  
Kansas City, MO 64106-2896**

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## List of Acronyms

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AFBCA	Air Force Base Conversion Agency
AFB	Air Force Base
AOC	Area of Concern
ATSDR	Agency for Toxic Substances and Disease Registry
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CRP	Community Relations Plan
DoD	Department of Defense
EPA	United States Environmental Protection Agency
FFA	Federal Facility Agreement
FS	feasibility study
IRP	Installation Restoration Program
NCP	National Oil and Hazardous Substance Pollution Contingency Plan
NEADS	North East Air Defense Sector
NYANG	New York Air National Guard
NYSDEC	New York State Department of Environmental Conservation
PQL	Practical Quantitation Limit
QAPjP	Quality Assurance Project Plan
RI	remedial investigation
ROD	Record of Decision
SAC	Strategic Air Command
SAP	Sampling and Analysis Plan
SARA	Superfund Amendment and Reauthorization Act
SVOC	semivolatile organic compound
TBC	to be considered
USAF	United States Air Force
UST	Underground Storage Tank
VOC	volatile organic compound

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**1****Declaration**

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**1.1 Site Name and Location**

The Building 214 (former Vehicle Maintenance Shop) Area of Concern (AOC) is located at the former Griffiss Air Force Base (AFB) in Rome, Oneida County, New York.

**1.2 Statement of Basis and Purpose**

This Record of Decision (ROD) presents the no further remedial action alternative with land use restricted to industrial land use as the selected remedial action for soils at the Building 214 AOC at the former Griffiss AFB. This alternative has been chosen in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, as amended by the Superfund Amendment and Reauthorization Act (SARA), and the National Oil and Hazardous Substance Pollution Contingency Plan (NCP). The Air Force Base Conversion Agency (AFBCA), the United States Environmental Protection Agency (EPA), and the New York State Department of Environmental Conservation (NYSDEC) have adopted this ROD through a joint agreement. This decision is based on the administrative record file for this site.

**1.3 Description of Selected Remedy**

The selected remedy for the Building 214 AOC is no further remedial action, with land use restrictions for industrial land use. The agencies will perform joint five-year reviews to ensure that future land use is in compliance with the transfer documents (deed) and consistent with the baseline risk assessment for industrial land use.

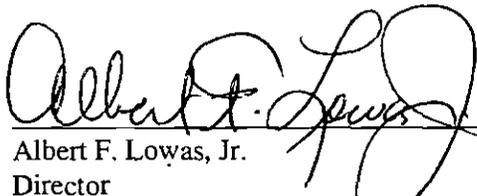
8-2 525.1

### 1.4 Declaration Statement

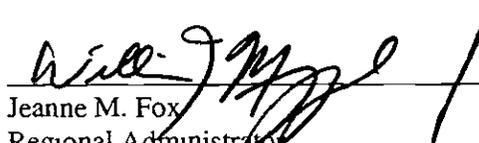
The AFBCA, EPA, and NYSDEC have determined that no further remedial action, with land use restrictions, is warranted for the Building 214 AOC because the baseline risk assessment for industrial land use demonstrates that the site contaminants in the soil and groundwater pose no current or future threat to public health or the environment. Future landowners will be notified, through transfer documents (deed), that the current and future land use is restricted to industrial use.

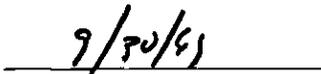
### 1.5 Signature of Adoption of the Remedy

On the basis of the remedial investigations (RIs) performed at the Building 214 AOC and the baseline risk assessment for industrial land use, there is no evidence that previous operations at this site have resulted in environmental contamination that poses a current or future potential threat to human health or the environment if the land is restricted to industrial use. Future landowners will be notified, through transfer documents (deed), that land use is restricted to industrial use. The New York State Department of Environmental Conservation has concurred with the selected remedial action presented in this Record of Decision.

  
Albert F. Lowas, Jr.  
Director  
Air Force Base Conversion Agency

  
Date

  
Jeanne M. Fox  
Regional Administrator  
United States Environmental Protection Agency, Region 2

  
Date

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**2**

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**Decision Summary**

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This section provides an overview of the site-specific factors and analysis that lead to the no further action with land use restrictions decision for soils at the Building 214 AOC.

## **2.1 Site Name, Location, and Description**

### **Regional Site Description**

The former Griffiss AFB covers approximately 3,552 contiguous acres in the lowlands of the Mohawk River Valley in Rome, Oneida County, New York. Topography within the valley is relatively flat, with elevations on the former Griffiss AFB ranging from 435 to 595 feet above mean sea level. Threemile Creek, Sixmile Creek (both of which drain into the New York State Barge Canal), and several state-designated wetlands are located on the former Griffiss AFB, which is bordered by the Mohawk River on the west. Because of its flat topography, sandy soils, and high average precipitation, the former Griffiss AFB is considered a groundwater recharge zone.

### **Building 214 Area of Concern**

The Building 214 AOC, located in the west-central portion of the base (see Figure 2-1), consists of Building 214, an underground storage tank (UST), parking areas, and two suspected drywells (see Figure 2-2). Building 214, a former vehicle maintenance shop, covers approximately 3,000 square feet of the site.

Grass-covered areas line the east and west sides of the building, an asphalt parking area is to the north, and a gravel-covered parking area is to the south. Solvent and petroleum product releases have been reported in the gravel-covered parking area. Two drywells have also been reported to exist at this AOC, one located at the southeast corner and the other at the southwest corner of the building. The historical and operational uses of these reported drywells are unknown.

Building 214 is not located near any natural surface water drainage features. Surface water runoff from this AOC is channeled into the base storm drain system, which discharges to the Mohawk River. Groundwater flow in this area is to the south-southwest.

## **2.2 Site History and Investigation Activities**

### **The Former Griffiss AFB Operational History**

The mission of the former Griffiss AFB varied during its operational history. The former Griffiss AFB was activated on February 1, 1942, as the Rome Air Depot, with the mission of storage, maintenance, and shipment of material for the U.S. Army Air Corps. Upon creation of the U.S. Air Force (USAF) in 1947, the depot was renamed Griffiss AFB. The base became an electronics center in 1950 with the transfer of the Watson Laboratory Complex (later Rome Laboratory). The 49th Fighter Interceptor Squadron was also added during that year. In June 1951, the Rome Air Development Center was established with the mission of accomplishing applied research, development, and testing of electronic air-ground systems. The Headquarters of the Ground Electronics Engineering Installations Agency was added in June 1958 to engineer and install ground communications equipment throughout the world. On July 1, 1970, the 416th Bombardment Wing of the Strategic Air Command (SAC) was activated with the mission of maintenance and implementation of both effective air refueling operations and long-range bombardment capability. The former Griffiss AFB was designated for realignment under the Base Realignment and Closure Acts of 1993 and 1995, resulting in deactivation of the 416th Bombardment Wing in September 1995. Rome Laboratory and the North East Air Defense Sector (NEADS) will continue to operate at their current locations. The New York Air National Guard (NYANG) operated the runway for the 10th Mountain Division deployments until October 1998 when they were relocated to Fort Drum and the Defense Finance and Accounting Services established an operating location at the former Griffiss AFB.

### **Environmental Background**

As a result of the various national defense missions carried out at the former Griffiss AFB since 1942, hazardous substances and hazardous wastes were used, stored, or disposed of at various sites on the installation. The defense missions involved the storage, maintenance, and shipping of war material; research and development; and aircraft operations and maintenance, among others.

Numerous studies and investigations have been carried out under the U.S. Department of Defense (DoD) Installation Restoration Program (IRP) to detect, locate, and quantify areas contaminated by these substances and wastes. These studies and investigations included a records search in 1981 involving interviews with base personnel, a field inspection, compilation of an inventory of wastes, evaluation of disposal practices, and an assessment of the potential for site contamination; problem confirmation and quantification studies in 1982 and 1985; soil and groundwater analyses in 1986; a public health assessment in 1988 conducted by the U.S. Public Health Service, Agency for Toxic Substances and Disease Registry (ATSDR); base-specific hydrology investigations in 1989 and 1990; and a groundwater investigation in 1991. ATSDR issued a Public Health Assessment for Griffiss AFB dated October 23, 1995, and an addendum to the assessment report dated September 9, 1996.

Pursuant to Section 105 of CERCLA, the former Griffiss AFB was included on the National Priorities List (NPL) on July 15, 1987. On August 21, 1990, USAF, EPA, and NYSDEC entered into a Federal Facility Agreement (FFA) under Section 120 of CERCLA. Under the terms of the agreement, USAF is required to prepare and submit numerous reports to NYSDEC and EPA for review and comment. These reports include identification of environmental AOCs on base; a scope of work for an RI; a work plan for the RI, including a sampling and analysis plan (SAP) and a quality assurance project plan (QAPjP); a baseline risk assessment; a community relations plan (CRP); and the RI report. The AFBCA delivered a draft-final RI report covering 31 AOCs to EPA and NYSDEC on December 20, 1996, that incorporated or addressed EPA and NYSDEC comments.

During the RI, a site-specific baseline risk assessment for industrial land was conducted (using appropriate toxicological and exposure assumptions to evaluate cancer risks and non-cancer health hazards) to evaluate the risks posed by site contaminants to the reasonable maximally exposed individual. In addition, the RI report compared detected site contaminants to available standards and guidance values using federal and state environmental and public health laws that were identified as potentially applicable or relevant and appropriate requirements (ARARs) at the site. Chemical-specific ARARs are usually health- or risk-based numerical values or methodologies that result in a numerical value when applied to site-specific conditions. Currently, there are no chemical-specific ARARs for soil (other than for PCBs), sediments, or air. Therefore, other non-promulgated federal and state advisories and guidance values, referred to as to-be-considereds (TBCs), or background levels of the contaminants in the absence of TBCs, were considered. No further action, with land use restrictions, is proposed when the levels of contaminants at the site, in comparison to the baseline risk assessment for industrial use

and the applicable standards or guidance values, indicate the site poses no threat to public health or the environment.

### **Proposed Remedy**

Based on the results of the draft RI, AFBCA has proposed that no further remedial action, with land use restrictions for industrial use, be implemented at the Building 214 AOC. The land use restriction proposal was based on the contaminant levels found at the Building 214 AOC and the site-specific risk assessment for industrial use. The determination for industrial land use was based on the redevelopment plan for Griffiss AFB provided by the Griffiss Local Development Corporation (GLDC).

### **Summary of Site Activities**

The floor drain system in Building 214 is connected to an oil/water separator system located in the southeastern portion of the building. The water discharges to the sanitary sewer system, and the oils are directed to a 275-gallon UST located outside of the southeast corner of the building. This UST has reportedly overflowed in the past due to mechanical failure of the tank gauge. The oil/water separator and associated UST were removed in June 1997. The excavation walls, floor, and excavated soil pile were sampled, and no petroleum constituents were encountered above NYSDEC regulations.

In the RI, the nature and extent of potential environmental contamination associated with historical releases from this AOC were investigated to determine whether any remedial action is necessary to prevent potential threats to human health and the environment that might result from exposure to site conditions. The following summarizes the RI field efforts conducted at the Building 214 site. No previous investigations were conducted at the site prior to the RI.

RI field activities began in 1993. A geophysical survey was performed in an attempt to locate the suspected drywell near the southwest corner of the building, but this drywell was not found. Visual inspections revealed a round, disturbed, revegetated area near the reported drywell location at the southwestern corner of Building 214. A site reconnaissance discovered a corrugated metal pipe that appeared to be associated with the drainage control near the reported drywell location at the southeastern corner of the building and south of the UST. A soil gas survey was conducted in 1994 to characterize the nature and extent of potential contamination in the area of reported solvent and petroleum releases south of the building. Other field activities conducted during the RI included the collection of surface and subsurface soils, on-site soil sample screening, the installation and collection of groundwater samples from two temporary

wells installed near the reported drywell locations, and a topographic land survey. Subsurface soil samples were collected from two temporary well installations and six boreholes in areas indicated by the soil gas survey. These areas were consistent with the potential source areas at the site (i.e., the UST and gravel-covered parking area). All subsurface soils were screened for organic compounds at an on-site laboratory and a total of 40 samples were sent to an off-site laboratory for analysis. Laboratory analysis detected the presence of volatile organic compounds, semivolatile organic compounds, pesticides, and petroleum hydrocarbons. The concentrations of ten of these chemicals exceeded the soil guidance values, most frequently in the borings adjacent to the reported drywell locations (see Table 2-1).

Three surface soil samples and four shallow samples from soil borings were collected in the vicinity of the UST and analyzed by an off-site laboratory. The surface soil samples contained concentrations of four SVOCs, one pesticide, and two metals that slightly exceeded the soil guidance values (see Table 2-2).

Two grab groundwater samples were collected from the temporary wells installed near the suspected drywell locations. Both samples contained VOCs, SVOCs, petroleum hydrocarbons, and pesticides, most concentrations were below the soil guidance values. One SVOC and two pesticides were detected at concentrations above soil guidance values in one of two samples (see Table 2-3). Five metals were detected above the soil guidance values. Petroleum hydrocarbons were detected at a concentration of 3.9 mg/L which exceeds the New York State Groundwater Standard for unspecified organic compounds (0.1 mg/L). Unfiltered grab groundwater samples, however, frequently yield elevated metals results due to the suspended particulate matter that contains naturally occurring metals. Therefore, grab groundwater samples are not necessarily representative of groundwater conditions.

The groundwater is being evaluated for individual sites at the former Griffiss AFB on the basis of location and the direction of groundwater flow. Wells will be considered in groups according to their location within given groundwater drainage areas and their relationship to individual sites or groups of sites. There are eight groundwater drainage areas on the former base; the Building 214 AOC falls within the Mohawk River drainage basin and will be discussed and evaluated in this context. Petroleum hydrocarbon contamination also will be investigated in this area as part of an open spill at adjacent Buildings 215/216 under NYSDEC open spill number 9702165.

### **2.3 Highlights of Community Participation**

A proposed plan for soils at the Building 214 AOC indicating no further action as the selected remedial action was released to the public on February 18, 1998. This document was made available to the public in both the administrative record and an information repository maintained at the Jervis Public Library. The notice announcing the availability of the document was published in the *Rome Sentinel* on February 18, 1998. In addition, a public meeting was held on March 10, 1998. At this meeting, representatives from AFBCA, EPA, and NYSDEC answered questions about issues at the AOC and the No Further Action proposal under consideration. A response to the comments received during this period is included in the Responsiveness Summary, which is part of this Record of Decision (see Section 3).

The agencies have determined the land use restrictions that will be placed on the Building 214 AOC. This determination is based on the transfer and future reuse of the site indicated in the redevelopment plan for Griffiss AFB, which was provided by the GLDC.

This decision document presents the selected remedial action for the Building 214 AOC at the former Griffiss AFB, chosen in accordance with CERCLA, as amended by SARA and, to the extent practicable, the NCP. The decision for this AOC is based on the administrative record.

### **2.4 Scope and Role of Site Response Action**

The scope of the no further remedial action with land use restrictions response for the Building 214 AOC addresses soils at the site. Based on the results of the baseline risk assessment for industrial land use, there is no evidence that previous operations conducted at this site have resulted in environmental contamination that poses a current or potential threat to human health or the environment.

### **2.5 Summary of Site Risks**

Site risks were analyzed based on the extent of contamination at the AOC. As part of the RI, a baseline risk assessment for industrial use was conducted to estimate current and future potential risks to human health and the environment associated with the contaminants found in soils at the Building 214 AOC. The results of this assessment for surface and subsurface soils were considered when formulating this no further action proposal for soils.

Risks associated with groundwater at this site will be evaluated in the context of the Mohawk River drainage area as discussed above. A feasibility study will present an evaluation of the contaminants in the groundwater and a discussion of the alternatives available to address any risks posing a current or potential threat to human health or the environment. Therefore,

risks associated with potential groundwater contamination at this AOC are not discussed in this proposed plan.

### **Human Health Risk Assessment**

A baseline human health risk assessment was conducted during the RI to determine whether chemicals detected in soils at the AOC could pose a health risk to individuals under current and future site conditions in the absence of a remedial action being conducted at the site. As part of the baseline risk assessment, the following four-step process was used to assess site-related human health risks for a reasonable maximum exposure scenario:

- **Hazard Identification**--identifies the contaminants of concern at the site based on several factors such as toxicity, frequency of occurrence, and concentration;
- **Exposure Assessment**--estimates the magnitude of actual and/or potential human exposures, the frequency and duration of these exposures, and the pathway (e.g., ingestion of contaminated soils) by which humans are potentially exposed;
- **Toxicity Assessment**--determines the types of adverse health effects associated with chemical exposures and the relationship between magnitude of exposure (dose) and severity of adverse effects (response); and
- **Risk Characterization**--summarizes and combines outputs of the exposure and toxicity assessments to provide a quantitative (e.g., one-in-a-million excess cancer risk and non-cancer hazard index value) assessment of site-related risks.

The risk assessment evaluated chemicals of concern; baseline exposure scenarios, including routes of exposure and current and future land-use scenarios; and current and potential risks.

Chemicals of potential concern were selected for the risk assessment based on the analytical results and data quality evaluation. All contaminants detected in the soil samples collected at the AOC were considered chemicals of potential concern with the exception of inorganics detected at mean concentrations less than twice the mean background and essential human nutrients (i.e., calcium, iron, magnesium, potassium, and sodium). Petroleum hydrocarbons were not included as a chemical of concern; rather the detected constituents (e.g., benzene, toluene, ethylbenzene) were evaluated.

Surface and subsurface soils were evaluated during the Building 214 AOC risk assessment. Routes of exposure were selected based on current and proposed future land use. This AOC is currently designated for industrial use, and future land use is assumed to remain industrial. The most probable sources of chemicals associated with Building 214 derive from suspected solvent releases and historical overflows from the oil/water separator to contaminated

surface soils. In addition, past disposal of wastes into drywells reportedly located at the site may have adversely impacted the soils. Potentially exposed populations at the AOC under current use are landscape workers. If the site undergoes future development, potentially exposed populations include landscape workers, utility workers, and construction workers. Potential routes of exposure to site soils included incidental ingestion, inhalation of fugitive dusts, and dermal contact.

The risk characterization combined the results of the exposure and toxicity assessments into quantitative and qualitative expressions of risk associated with exposures to contaminants of potential concern. Estimates for both carcinogenic and noncarcinogenic risks were calculated for the Building 214 AOC.

Quantitative estimates of carcinogenic and noncarcinogenic risks were calculated for the AOC as part of a risk characterization. The risk characterization evaluates potential health risks based on estimated exposure intakes and toxicity values. For carcinogens, risks are estimated as the incremental probability of an individual developing cancer over a lifetime as a result of exposure to the potential carcinogen. The risks of the individual chemicals are summed for each pathway to develop a total risk estimate. The range of acceptable risk is 1 in 10,000 ( $1 \times 10^{-4}$ ) to 1 in 1,000,000 ( $1 \times 10^{-6}$ ) of an individual developing cancer over a 70-year lifetime from exposure to the contaminant(s) under specific exposure assumptions. A computed risk greater than 1 in 10,000 ( $1 \times 10^{-4}$ ) is considered unacceptable by EPA.

To assess the overall noncarcinogenic effects posed by more than one contaminant, EPA has developed the Hazard Quotient (HQ) and Hazard Index (HI). The HQ is the ratio of the chronic daily intake of a chemical to the reference dose for the chemical. The reference dose is an estimate (with uncertainty spanning perhaps an order of magnitude or greater) of a daily exposure level for the human population, including sensitive subpopulations, that is likely to be without an appreciable risk of deleterious effects during a portion of a lifetime. The HQs are summed for all contaminants within an exposure pathway (e.g., ingestion of soils) and pathways to determine the HI. When the HI exceeds 1, there may be concern for potential noncarcinogenic health effects if the contaminants in question are believed to cause a similar toxic effect.

EPA bases its decision to conduct site remediation on the risk to human health and the environment. Cleanup actions may be taken when EPA determines that risk at a site exceeds the cancer risk level of 1 in 10,000 or if the noncarcinogenic HI exceeds a level of 1. Once either of these thresholds have been exceeded, remedial action alternatives are evaluated to reduce the risk levels to within EPA's acceptable risk range of 1 in 10,000 to 1 in 1,000,000 and an HI of 1 or less.

Results of the risk assessment indicate that chemicals detected in the soil at the Building 214 AOC do not pose a current or potential threat to occupational workers. The cumulative carcinogenic risk for landscape workers exposed to surface soils was calculated as 2 in 1,000,000 ( $2 \times 10^{-6}$ ). The cumulative carcinogenic risks for potential future utility and construction workers exposed to subsurface soils were calculated at 1 in 1,000,000 ( $1 \times 10^{-6}$ ), and 9 in 10,000,000 ( $9 \times 10^{-7}$ ), respectively. These results are well below EPA's target risk range. For chemicals with concentrations greater than the most stringent soil guidance values, the contaminant-specific risk calculations were well below the acceptable EPA risk levels.

The cumulative HI for landscape workers exposed to surface soil at the Building 214 AOC was calculated as 0.008. The HIs for utility and construction workers exposed to subsurface soil at Building 214 were calculated at 0.007 and 0.1, respectively. These results are well below the target hazard index of 1.0. None of the exposure pathways evaluated indicated an unacceptable risk from exposure to chemicals in soils.

Toxicity values were not available for nine compounds (acenaphthylene, benzo(g,h,i)perylene, coumaphos, lead, fensulfothion, guthion, phenanthrene, etridiazole, and methiocarb) detected in the soil; thus a quantitative risk assessment could not be performed. Therefore, a qualitative assessment was performed by comparing the concentrations of these nine compounds to the soil guidance values. Acenaphthylene was detected in two of 40 soil samples at concentrations of 0.043 mg/kg and 0.052 mg/kg, but no standard or guidance value is available. Benzo[g,h,i]perylene was detected in four of 40 samples at concentrations ranging from 0.059 mg/kg to 0.58 mg/kg, which are below the soil guidance value of 50 mg/kg. Coumaphos was detected in two of 18 soil samples at concentrations ranging from 0.08 mg/kg to 0.16 mg/kg, but no standard or guidance value is available. Lead was detected in all soil samples collected from this AOC at concentrations ranging from 2.8 mg/kg to 150 mg/kg, three of which were above the background screening concentration for Griffiss AFB (36 mg/kg) but below the most stringent guidance value of 400 mg/kg. Fensulfothion was detected in one of 18 soil samples at a concentration of 0.04 mg/kg, but no soil guidance value is available. Guthion was detected in one of 18 soil samples at a concentration of 0.07 mg/kg, but no soil guidance value is available. Phenanthrene was detected in eight of 40 samples at concentrations ranging from 0.065 mg/kg to 0.24 mg/kg, which are below the soil guidance value of 50 mg/kg. Based on the results of this qualitative risk assessment, the concentrations of the nine compounds detected at the Building 214 AOC are unlikely to pose health hazards to potential occupational and industrial receptors.

Uncertainties exist in many areas of the human health assessment process. However, use of conservative variables in intake calculations and conservative assumptions throughout the

entire risk assessment process results in an assessment that is protective of human health and the environment. Examples of uncertainties associated with the risk assessment include: (1) In quantifying exposure, it was assumed that the chemicals are uniformly distributed over a defined area. At this AOC, chemical samples were collected from the suspected source of contamination rather than through random sampling which could result in a potential overestimate of risk; (2) The risk assessment was quantified based on analysis of a relatively small number of soil samples, which can contribute to uncertainty in the risk calculations; (3) When assessing the dermal pathway, it was assumed that workers would come into contact with the soil, although the use of protective clothing is more likely. This assumption would result in a potential overestimate of risk, and (4) It was assumed that for the proposed future use scenario, construction would occur over a one-year period, though it will probably require less time to complete due to the small size of this AOC. This assumption would result in a potential overestimate of risk.

The property at the Building 214 AOC contains levels of contamination suitable for industrial/commercial usage but not necessarily suitable for residential or similar use. The transfer documents will contain the following restrictions to ensure that the reuse of the site is consistent with the risk assessment:

- The property will be industrial use unless permission is obtained from EPA, NYSDEC, and the New York State Department of Health; and
- The owner or occupant of the property shall not extract, utilize, consume, or permit to be extracted any water from the aquifer below the ground surface within the boundary of the property unless such owner or occupant obtains prior written approval from the New York State Department of Health.

### **Ecological Risk Assessment**

Both the current and proposed future land uses for this AOC are industrial, which, by its very nature, minimizes the number of ecological receptors. Ecological risks were considered as part of the Building 214 baseline risk assessment. Surface soils were evaluated with exposures to terrestrial wildlife common to the area. Ecological risks were assessed for raccoons and short-tailed shrews. Routes of exposure considered for each receptor included ingestion and bioaccumulation through the food chain. An assessment was performed using methods similar to those used to quantify human risks. Hazard quotients were calculated for the chemicals of concern for each of the species. None of the quotients calculated exceeded the target index of 1.0, with the greatest value being approximately 0.077 for the short-tailed shrew for selenium. For the raccoon, the greatest value is approximately 0.000072 for lead. Therefore, the results of

the ecological risk assessment indicate that the chemicals found in the soils at this AOC do not pose a current or potential threat to terrestrial wildlife.

## **2.6 Description of the No Further Action With Land Use Restrictions Alternative**

No further remedial action, with land use restrictions, is proposed for soils at the Building 214 AOC. The majority of the chemicals detected at the AOC do not exceed standards or guidance values, and there are no known sources of these contaminants at the site. In addition, the baseline risk assessment for industrial use indicates that the levels of contaminants present in the soils are within or below EPA's acceptable carcinogenic risk range and pose no unacceptable noncarcinogenic risk to the occupational workers. Therefore, the concentrations of contaminants in the soil and the baseline risk assessment both demonstrate that contaminants in the soils at the Building 214 AOC pose no current or potential threat to public health or the environment.

## **2.7 Significant Changes**

The proposed plan for soils at the Building 214 AOC was released for public comment on February 18, 1998. The proposed plan identified no further action as the preferred alternative. The agencies have reviewed all written and verbal comments submitted during the public comment period. Following the review of these comments, it was determined that the remedy should be amended to clarify no further remedial action, with land use restrictions, at the Building 214 AOC.

Table 2-1			
COMPOUNDS EXCEEDING GUIDANCE VALUES SUBSURFACE SOIL SAMPLES			
Compound	Range of Detected Concentrations	Frequency of Detection Above Most Stringent Criterion	Most Stringent Criterion
<b>SVOCs (<math>\mu\text{g}/\text{kg}</math>)</b>			
Benzo(a)pyrene	48 J - 150 J	4/36	61 <sup>a</sup>
<b>Metals (mg/kg)</b>			
Arsenic	2.7 - 10	17/36	4.9 <sup>b</sup>
Cadmium	0.3 J - 5.2	3/36	1.0 <sup>a</sup>
Calcium	932 - 26,100	1/36	23,800 <sup>b</sup>
Total chromium	6.5-111	4/36	22.6 <sup>b</sup>
Copper	13.1 - 48.4	2/36	43 <sup>b</sup>
Lead	2.8 - 150	3/36	36.2 <sup>b</sup>
Mercury	0.014 J - 0.4 J	2/36	0.1 <sup>b</sup>
Nickel	10.3 - 55.7	1/36	46.1 <sup>b</sup>
Silver	0.41 J - 19.5	3/36	1.1 <sup>b</sup>

<sup>a</sup> NYS soil cleanup objectives.

<sup>b</sup> Background screening concentration

Key

J = Estimated concentration

Table 2-2			
COMPOUNDS EXCEEDING GUIDANCE VALUES			
SURFACE SOIL SAMPLES			
Compound	Range of Detected Concentrations	Frequency of Detection Above Most Stringent Criterion	Most Stringent Criterion
<b>SVOCs (<math>\mu\text{g}/\text{kg}</math>)</b>			
Benzo(a)anthracene	120 J - 690	2/3	224 <sup>a</sup>
Benzo(a)pyrene	140 J - 660	3/3	61 <sup>a</sup>
Chrysene	160 J - 810	2/3	400 <sup>a</sup>
Dibenzo(a,h)anthracene	98 J - 170 J	2/3	14 <sup>a</sup>
<b>Pesticides/PCBs (<math>\mu\text{g}/\text{kg}</math>)</b>			
Dieldrin	29 - 105	2/3	40 <sup>b</sup>
<b>Metals (mg/kg)</b>			
Cadmium	3	1/3	1.0 <sup>a</sup>
Lead	199 - 92	2/3	36.2 <sup>c</sup>

- <sup>a</sup> NYS soil cleanup objectives  
<sup>b</sup> Proposed RCRA corrective action levels.  
<sup>c</sup> Background screening concentration.

Key:

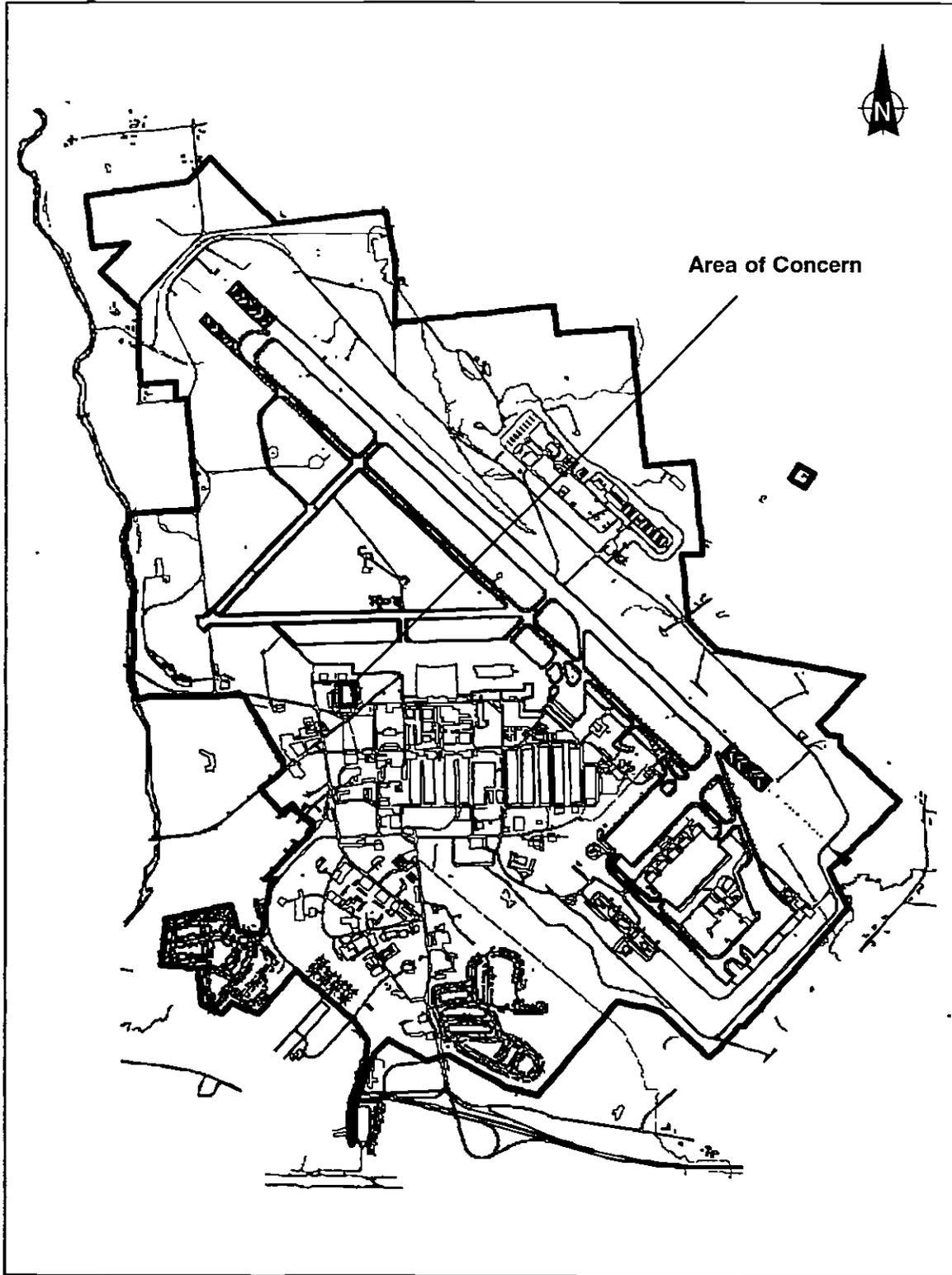
J = Estimated concentration.

Table 2-3			
COMPOUNDS EXCEEDING GROUNDWATER STANDARDS GRAB GROUNDWATER SAMPLES			
Compound	Range of Detected Concentrations	Frequency of Detection Above Most Stringent Criterion	Most Stringent Criterion
<b>SVOCs (<math>\mu\text{g/L}</math>)</b>			
Bis(2-ethylhexyl)phthalate	5 J - 8 J	1/2	6 <sup>a</sup>
<b>Pesticides/PCBs (<math>\mu\text{g/L}</math>)</b>			
3,5-dimethyl-4-(methylthio)	13	1/2	5 <sup>b</sup>
Aldrin	0 002 J - 0 014 J	1/2	ND
<b>Other Compounds (mg/L)</b>			
Petroleum hydrocarbons	3 9	2/2	0 1 <sup>c</sup>

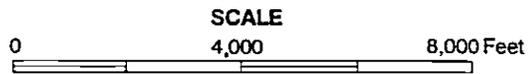
- <sup>a</sup> Federal primary maximum contaminant levels
- <sup>b</sup> NYSDEC Class GA groundwater standard.
- <sup>c</sup> New York primary maximum contaminant level.

Key

- J = Estimated concentration
- ND = Nondetect.



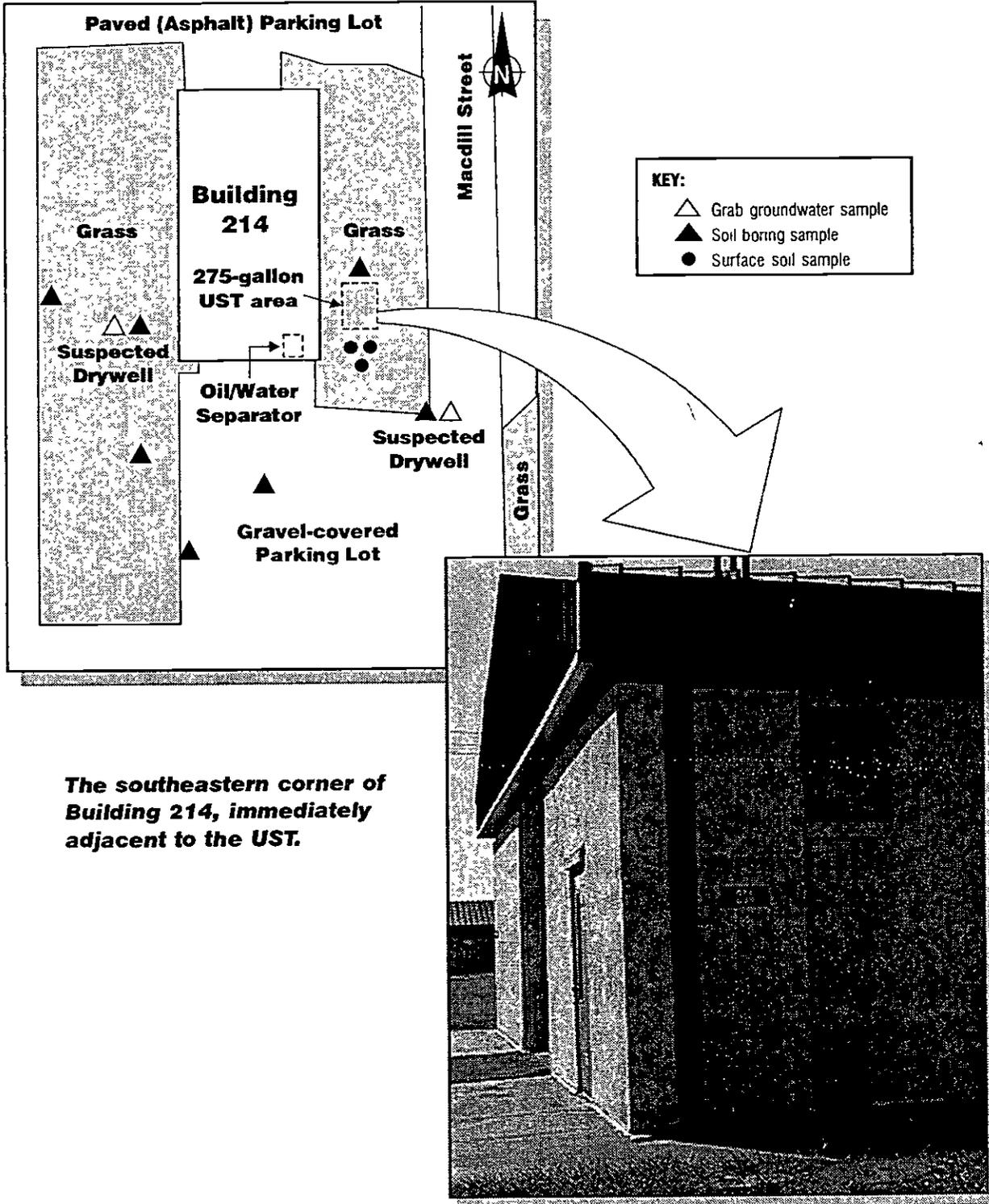
SOURCE AFBCA 1996



**Figure 2-1 BUILDING 214 AOC  
FORMER GRIFFISS AIR FORCE BASE**

BY 8021  
1362 80

02: KE6909\_D4860\NFA\214Sitemap p65 3/4/98



**The southeastern corner of Building 214, immediately adjacent to the UST.**

Figure 2-2 SITE MAP OF THE BUILDING 214 AOC

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**3****Responsiveness Summary**

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On Wednesday February 18, 1998, AFBCA, following consultation with and concurrence of the EPA and NYSDEC, released for public comment the no further action proposed plans at the Building 214, Building 219 Drywell, Building 301 Drywell, T-9 Storage Area, Fire Demonstration Area, and Suspected Fire Training Area Areas of Concern (AOCs) at the former Griffiss Air Force Base. The release of the proposed plans initiated the public comment period, which concluded on March 20, 1998.

During the public comment period, a public meeting was held on Tuesday March 10, 1998, at 5:00 p m. at the former base chapel located at 525 Kirkland Drive. A court reporter recorded the proceedings of the public meeting. A copy of the transcript and attendance list are included in the Administrative Record. The public comment period and the public meeting were intended to elicit public comment on the proposal to take no further action at these sites.

This document summarizes the verbal comments and provides responses to the comments received at the March 10, 1998, public meeting. No written comments were received during the public comment period, which ran from February 18 through March 20, 1998.

**Comment #1**

One commentor referred to an article in the Sentinel that indicated that a certain firm involved in computer chips took the Griffiss Park off its list because it is considered a brownfield area. The same commentor also stated, "Last week a state consultant rejected the Griffiss Park's application to be one of the ten potential manufacturing sites around the state. Quoting from the Sentinel article, Dimeo said, 'The fact the park is considered a brownfield because of wastes dumped by the Air Force may have influenced that decision.' I'm wondering if any of these sites are part of that decision, are part of that brownfield?"

### **Response #1**

No. These sites were not selected for consideration as brownfield sites. There is a brownfield site under consideration in Rome, NY; however, such evaluation is independent from the ongoing work at Griffiss.

### **Comment #2**

Two commentors expressed concern that the contaminant levels shown in the tables of the proposed plans are above the stringent regulatory criteria shown in the tables. They requested an answer as to what rationale was used to justify no further action.

### **Response #2**

It is assumed that this comment was directed at the T-9 Storage Area proposed plan since several compounds exceeded guidance values for surface soils at that site. Upon further review, it was decided to temporarily postpone the issuance of a ROD for the T-9 Storage Area until an interim removal action is completed. A revised proposed plan for the T-9 Storage Area will be issued. It will include the results of the confirmatory samples taken after the interim removal action is completed.

For this site, as explained in the Environmental Background section of the proposed plans:

The no further action proposal is based on an evaluation of two investigation criteria. First, a site-specific baseline risk assessment for industrial land use, using appropriate toxicological and exposure assumptions, was conducted to evaluate the risks posed by detected site contaminants. Second, the levels of contaminants found were compared to available standards and guidance values (e.g., industrial reuse) for each potential contaminant. The standards and guidance values were determined by using federal and state environmental and public health laws that were identified as potentially applicable or relevant and appropriate requirements (ARARs) at the site. Chemical-specific ARARs are usually health- or risk-based numerical values or methodologies which result in a numerical value when applied to site-specific conditions. Currently, there are no chemical-specific ARARs for soil, sediment, or air. In addition, groundwater and drinking water standards have not been promulgated for all potential contaminants. Therefore, other nonpromulgated federal and state advisories and guidance values, referred to as "TBCs," or background values of the contaminants in the absence of TBCs, were considered. Environmental sampling results were compared to the most stringent of these standards or guidance values during the remedial investigation for the AOC.

Although no further remedial action is proposed for this AOC, land use restrictions are required because the baseline risk assessment was limited to industrial/nonresidential reuse. However, the comparison of the levels of contamination to the applicable standards and guidance values (e.g., industrial reuse) indicate that this site poses no significant threat to public health or the environment if use is restricted.

**Appendix B**  
Groundwater Restriction Removal Approval Documentation

## **MCDERMOTT, MICHAEL F GS-13 USAF DoD AFCEE/EXC**

---

**From:** Heather Bishop <hlbishop@gw.dec.state.ny.us>  
**Sent:** Tuesday, April 24, 2012 1:30 PM  
**To:** Pocze.Doug@epamail.epa.gov; MCDERMOTT, MICHAEL F GS-13 USAF DoD AFCEE/EXC  
**Cc:** John Swartwout  
**Subject:** Re: Groundwater Deed Restriction Removal

Mike,

We (NYSDEC and NYSDOH) have reviewed the request for the deed restriction removal for Tin city and SS017 Lot 69. We have no comments or problems with the request and can go forward with it. Please let me know if you need more information.

Thanks -Heather

Heather Bishop  
NYSDEC  
Division of Environmental Remediation  
Remedial Bureau A  
625 Broadway, 11th Floor  
Albany, NY 12233-7015  
Phone: (518) 402-9692

Fax : (518) 402-9022>>> "MCDERMOTT, MICHAEL F GS-13 USAF DoD AFCEE/EXC" <[michael.mcdermott.1@us.af.mil](mailto:michael.mcdermott.1@us.af.mil)>  
3/30/2012 11:11 AM >>> Doug, Heather, Any word on the groundwater deed restriction removal request for Tin city and SS017 Lot 69? I will be in San Antonio next Monday, Tuesday and Wednesday; just like to know where we stand.

"//SIGNED//"

Michael McDermott  
Air Force Center for  
Engineering and the Environment  
Building 770  
428 Phoenix Drive  
Rome, New York 13441  
Phone: 315-356-0810, ext. 202  
FAX: 315-356-0816  
email: [michael.mcdermott.1@us.af.mil](mailto:michael.mcdermott.1@us.af.mil)



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**

REGION 2  
290 BROADWAY  
NEW YORK, NY 10007-1866

**JUN - 7 2012**

Mr. Michael McDermott  
BRAC Environmental Coordinator  
Air Force Real Property Agency  
428 Phoenix Drive  
Rome, NY 13441-4105

Re: Removal of Groundwater Deed Restrictions  
Building 301  
Former Griffiss AFB, Rome NY

Dear Mr. McDermott:

The U.S. Environmental Protection Agency (EPA) has reviewed your request to remove the groundwater restrictions from the deed at Building 301, located at the former Griffiss AFB in Rome, New York.

As you are aware, groundwater restrictions and sampling were required as part of the selected remedy for Area of Concern – Building 301. These restrictions and continued monitoring were required as part of the remedy documented in the CERCLA Record of Decision (ROD), dated Sept. 30, 1999.

Since the selection of the remedy, the restrictions were incorporated into the appropriate deed. In addition, additional monitoring has been performed and the results have been below NYSDEC Groundwater Standards. Furthermore, annual land use and institutional control certifications were performed, as well as CERCLA-mandated Five-Year reviews. The information presented in these documents also indicates that the remedy remained protective of human health and the environment.

Therefore, based upon this information (i.e. the ROD, the Five-Year Reviews, annual land use and institutional control certification reports, and Long-Term Monitoring data), EPA concurs with your request to remove the groundwater restrictions from the applicable deed. Please note, this approval is only for this request and does not applied to any other requirements of the ROD.

Should you have any questions, please contact Douglas Pocze, of my staff, at (212) 637-4432.

Sincerely,



John S. Malleck, Chief  
Federal Facilities Section

**Appendix C**  
Daily Chemical Quality Control Reports

### Daily Chemical Quality Control Report

Project/Delivery Order Number: 1015-11-01

Date: 5/6/2013

Project Name/Site Number: Site Closure Sampling at Building 301 AOC / DP012, Building 255 / DP013, Building 214 / SD050, and DP015 / Building 219

Weather conditions: Temperature: 76 F Barometric reading: 30.22  
Wind speed and direction: 13 mph  
Significant wind changes: none

General description of tasks completed: Soil Sampling with geoprobe.

Explain any departures from the SAP or deviations from approved procedures during the day's field activities: None

Explain any technical problems encountered in the field or field equipment/field analytical instrument malfunction: None

Corrective actions taken or instructions obtained from AFCEE/USACE personnel: No corrective actions necessary.

None

Sampling shipment completed:  Yes  No Airbill #: .... ..

DCQCR Prepared by: Daniel Baldyga Date: 5/6/13

CQCC Signature:  Date: 5/6/13

#### ATTACHMENTS:

Checklist	Daily Chemical Quality Control Report Attachments
	<input checked="" type="checkbox"/> Field sampling forms
	<input checked="" type="checkbox"/> Equipment Calibration Log
	<input checked="" type="checkbox"/> Copies of COCs
	<input checked="" type="checkbox"/> SDG Table (See accompanying COCs).
	<input checked="" type="checkbox"/> Daily Health and Safety Meeting Form

## SOIL / SEDIMENT SAMPLING FORM

Project: 214 SFE CLOSURE      Sampled by: MG / JS

Site and Site Code (SITEID): 1015-11-01

Sampling Location ID. (LOCID): B214SCS0-2

Date (LOGDATE): 5/6/13      Time: 1355

**FIELD OBSERVATIONS:**

Sample Depth or Interval	Material Description/ Color
0 - 4  2' REC	0.0' - 0.4' TURBID: LT BROWN, MOIST, SILT, LITTLE GRAVEL. 0.4' - 2.0' BROWN, MOIST, F-C GRAVEL, LITTLE SILT, LITTLE SAND
4 - 8  1.5' REC	0.0' - 1.5' BROWN, MOIST, F-C GRAVEL, SOME SAND, LITTLE SILT.
8 - 12  2.5' REC	0.0' - 2.5' BROWN, MOIST TO WET, F-C GRAVEL, SOME SAND, TR. SILT

**Comments/Observations:**

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Sample Time: 1406

Sample ID: B214SCS0204AA

Sample Time: 1408

Sample ID: B214SCS0208AA

Sample Time: 1411

Sample ID: B214SCS0212AA

*W*

## SOIL / SEDIMENT SAMPLING FORM

Project: 214 SITE CLOSURE Sampled by: MC/JD

Site and Site Code (SITEID): 1015-11-01

Sampling Location ID. (LOCID): B214SCS-3

Date (LOGDATE): 5/6/13 Time: 1345

**FIELD OBSERVATIONS:**

Sample Depth or Interval	Material Description/ Color
0 - 4	0.0' - 0.8' TOPSOIL: D. BROWN, MOIST, SILT, SOME FINE SAND. 0.8' - 1.4' BROWN, MOIST, F-M SAND, SOME GRAVEL, TR. SILT
2.3' REC	1.4' - <del>2.3'</del> CRUSHED STONE. <del>1.4' - 2.3' SAND, GRAVEL, SILT</del>
4 - 8	0.0' - 0.4' CRUSHED STONE 0.4' - 1.5' D. BROWN, MOIST, F-C GRAVEL, SOME SAND TR. SILT
1.5' REC	
8 - 12	0.0' - 1.1' <del>SAND</del> D. BROWN, MOIST MOIST, F-C SAND, SOME GRAVEL, TR. SILT.
1.1' REC	

**Comments/Observations:**

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Sample Time: 1357 Sample ID: B214SCS0304AA

Sample Time: 1359 Sample ID: B214SCS0308AA

Sample Time: 1403 Sample ID: B214SCS0312AA

*M*

## SOIL / SEDIMENT SAMPLING FORM

Project: 214 SITE CLOSURE      Sampled by: MG / JD

Site and Site Code (SITEID): 1015-11-01

Sampling Location ID. (LOCID): B214SCS-4

Date (LOGDATE): 5/6/03      Time: 1335

**FIELD OBSERVATIONS:**

Sample Depth or Interval	Material Description/ Color
<p>0-7</p> <p>0.8' REC</p>	<p>0.0'-0.6' TOPSOIL: BROWN, DRY, FINE SAND, SOME SILT.</p> <p>0.6'-0.8' LT. BROWN, MOIST, FINE SAND, TR. S</p>
<p>4-8</p> <p>1.2' REC</p>	<p>0.0'-0.3' S.A.A.</p> <p>0.3'-1.2' D-BROWN, MOIST, F-C GRAVEL, SOME SAND, TR. CLAY</p>
<p>8-12</p> <p>2.4' REC</p>	<p>0.0'-1.2' S.A.A.</p> <p>1.2'-2.4' D-BROWN, WET, F-C GRAVEL, SOME SAND, TR. CLAY</p>

**Comments/Observations:**

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Sample Time: 1345

Sample ID: B214SCS04104AA

Sample Time: 1349

Sample ID: B214SC10408AA

Sample Time: 1353

Sample ID: B214SCS0412AA / AC  
(1355)

# CHAIN OF CUSTODY RECORD

COC#: 4 SDG#: 21 (Open/Closed) Cooler ID#: A

Ship to: Elaine Walker Test America Laboratories, Inc. 4955 Yarrow Street Arvada, Colorado Tel: 303-736-0156 Carrier: Test America courier.	Project Name: Griffiss AFB DP013 Building 255 Sampler Name: Justin Damann Sampler Signature: 	Send Results to: Daniel Baldyga FPM Remediations, Inc 584 Phoenix Drive Rome, NY 13441 Phone: (315) 336-7721 Ext. 207
--	---	--

Field Sample ID	LocID	Date	Time	MATRIX	SMCODE	SACODE	SBD/SED	# of Containers	Analyses requested					Comments		
									VOCs: note 3	4 oz. jar	Metals: note 4	4 oz glass jar	VOCs note 3		40mL vials (HCl)	Metals note 4
B255SCS0104AA	B255SCS-1	5/6	1440	SO	G	N	0/0	2	1	1	1	1				
B255SCS0108AA	B255SCS-1	5/6	1455	SO	G	N	0/0	2	1	1	1	1				
B255SCS0112AA	B255SCS-1	5/6	1500	SO	G	N	0/0	2	1	1	1	1				
B255SCS0204AA	B255SCS-2	5/6	1515	SO	G	N	0/0	2	1	1	1	1				
B255SCS0208AA	B255SCS-2	5/6	1519	SO	G	N	0/0	2	1	1	1	1				
B255SCS0212AA	B255SCS-2	5/6	1525	SO	G	N	0/0	2	1	1	1	1				
B255SCS0304AA	B255SCS-3	5/6	1545	SO	G	N	0/0	2	1	1	1	1				
B255SCS0308AA	B255SCS-3	5/6	1552	SO	G	N	0/0	2	1	1	1	1				
B255SCS0312AA	B255SCS-3	5/6	1559	SO	G	N	0/0	2	1	1	1	1				
B255SCS0104AC	B255SCS-1	5/6	1442	SO	G	FD	0/0	2	1	1	1	1				
050613AE	FIELDQC	5/6	1630	WQ	G	EB	0/0	6					3	1	2	
050613AF	FIELDQC	5/6	1530	WQ	NA	AB	0/0	3					3			
050613AR	FIELDQC	5/6	0900	WQ	NA	TB	0/0	3					3			

Sample Condition: Upon Receipt at Laboratory:

Cooler Temperature:

Special Instructions/Comments: Analyses to be conducted in compliance with AFCEE QAPP 4.0

Note 1: Total SVOCs: method SW8270D

Note 2: Total Pesticides: SW8081B

Note 3: Total VOCs: SW8260B

Note 4: Total Metals: SW6010C

#1 Released by: (Sig) Company Name:	Date: Time:	#2 Released by: (Sig) Company Name: FPM	Date: Time:	#3 Released by: (Sig) Company Name:	Date: Time:
#1 Received by: (Sig) Daniel Baldyga Company Name: FPM	Date: Time:	#2 Received by: (Sig) R. Regalado Company Name: TALSAR	Date: 05-07-13 Time: 16:30	#3 Received by: (Sig) Company Name:	Date: Time:

**MATRIX**

WG = Ground water  
WQ = Water Quality Control Matrix  
SO = Soil

**SMCODE**

B = Bailor  
G = Grab  
NA = Not Applicable (only for AB/TB)  
PP = Peristaltic Pump  
BP = Bladder Pump  
SP = Submersible Pump  
SS = Split Spoon

**SACODE**

N = Normal Sample  
AB = Ambient Blank  
TB = Trip Blank  
EB = Equipment Blank  
FD = Field Duplicate  
MS = Matrix Spike  
SD = Matrix Spike Duplicate

# CHAIN OF CUSTODY RECORD

COC#: 1 SDG#: 2 (Open/Closed) Cooler ID#: A

Ship to: Elaine Walker Test America Laboratories, Inc. 4955 Yarrow Street Arvada, Colorado Tel: 303-736-0156 Carrier: Test America courier.	Project Name: Griffiss AFB SD050 Building 214 Sampler Name: Justin Damann Sampler Signature:	Send Results to: Daniel Baldyga FPM Remediations, Inc 584 Phoenix Drive Rome, NY 13441 Phone: (315) 336-7721 Ext. 207
--	--	--

### Analyses requested

Field Sample ID	LocID	Date	Time	MATRIX	SMCODE	SACODE	SBD/SED	# of Containers	Metals: <small>note 4</small>	Comments
B214SCS0204AA	B214SCS-2	5/6	1406	SO	G	N	0/0	1	1	
B214SCS0208AA	B214SCS-2	5/6	1408	SO	G	N	0/0	1	1	
B214SCS0212AA	B214SCS-2	5/6	1411	SO	G	N	0/0	1	1	
B214SCS0304AA	B214SCS-3	5/6	1357	SO	G	N	0/0	1	1	
B214SCS0308AA	B214SCS-3	5/6	1359	SO	G	N	0/0	1	1	
B214SCS0312AA	B214SCS-3	5/6	1403	SO	G	N	0/0	1	1	
B214SCS0404AA	B214SCS-4	5/6	1345	SO	G	N	0/0	1	1	
B214SCS0408AA	B214SCS-4	5/6	1349	SO	G	N	0/0	1	1	
B214SCS0412AA	B214SCS-4	5/6	1353	SO	G	N	0/0	1	1	
B214SCS0412AC	B214SCS-4	5/6	1355	SO	G	FD	0/0	1	1	

Sample Condition Upon Receipt at Laboratory: \_\_\_\_\_

Special Instructions/Comments: Analyses to be conducted in compliance with AFCEE QAPP 4.0

Note 1: Total SVOCs: method SW8270D

Note 2: Total Pesticides: SW8081B

Note 3: Total VOCs: SW8260B

Note 4: Total Metals: SW6010C

Cooler Temperature: \_\_\_\_\_

#1 Released by: (Sig) Company Name:	Date: Time:	#2 Released by: (Sig) Company Name: FPM	Date: 6/30 Time: 16:30	#3 Released by: (Sig) Company Name:	Date: Time:
#1 Received by: (Sig) Daniel Baldyga Company Name: FPM	Date: Time:	#2 Received by: (Sig) Reagalia Company Name: TA SQA	Date: 05-07-13 Time: 16:30	#3 Received by: (Sig) Company Name:	Date: Time:

651115

**MATRIX**

- WG = Ground water
- WQ = Water Quality Control Matrix
- SO = Soil

**SMCODE**

- B = Bailor
- G = Grab
- NA = Not Applicable (only for AB/TB)
- PP = Peristaltic Pump
- BP = Bladder Pump
- SP = Submersible Pump
- SS = Split Spoon

**SACODE**

- N = Normal Sample
- AB = Ambient Blank
- TB = Trip Blank
- EB = Equipment Blank
- FD = Field Duplicate
- MS = Matrix Spike
- SD = Matrix Spike Duplicate

# CHAIN OF CUSTODY RECORD

COC#: 3\_SDG#: 1 (Open/Closed) Cooler ID#: A

Ship to: Elaine Walker Test America Laboratories, Inc. 4955 Yarrow Street Arvada, Colorado Tel: 303-736-0156 Carrier: Test America courier.	Project Name: Griffiss AFB DP012 Building 301 Sampler Name: Justin Damann Sampler Signature: 
Send Results to: Daniel Baldyga FPM Remediations, Inc 584 Phoenix Drive Rome, NY 13441 Phone: (315) 336-7721 Ext. 207	

**Analyses requested**

Field Sample ID	LocID	Date	Time	MATRIX	SMCODE	SACODE	SBD/SED	# of Containers	Pesticides: note 2 4 oz glass jar	Comments
B301SCS0104AA	B301SCS-1	5/6	0948	SO	G	N	0/0	1	1	
B301SCS0108AA	B301SCS-1	5/6	0955	SO	G	N	0/0	1	1	
B301SCS0112AA	B301SCS-1	5/6	1002	SO	G	N	0/0	1	1	
B301SCS0204AA	B301SCS-2	5/6	1025	SO	G	N	0/0	1	1	
B301SCS0208AA	B301SCS-2	5/6	1027	SO	G	N	0/0	1	1	
B301SCS0212AA	B301SCS-2	5/6	1031	SO	G	N	0/0	1	1	
B301SCS0304AA	B301SCS-3	5/6	1012	SO	G	N	0/0	1	1	
B301SCS0308AA	B301SCS-3	5/6	1016	SO	G	N	0/0	1	1	
B301SCS0312AA	B301SCS-3	5/6	1029	SO	G	N	0/0	1	1	
B301SCS0112AC	B301SCS-1	5/6	1008	SO	G	FD	0/0	1	1	
B301SCS0308AS	B301SCS-1	5/6	1016	SO	G	MS	0/0	1	1	
B301SCS0308AD	B301SCS-1	5/6	1016	SO	G	SD	0/0	1	1	

Sample Condition Upon Receipt at Laboratory:

Special Instructions/Comments: Analyses to be conducted in compliance with AFCEE QAPP 4.0

Note 1: Total SVOCs: method SW8270D

Cooler Temperature:

Note 2: Total Pesticides: SW8081B

Note 3: Total VOCs: SW8260B

Note 4: Total Metals: SW6010C

*[Handwritten Signature]*

12/21/13

#1 Released by: (Sig)	Date:	#2 Released by: (Sig)	Date:	#3 Released by: (Sig)	Date:
Company Name:	Time:	Company Name: FPM	Time:	Company Name:	Time:
#1 Received by: (Sig) Daniel Baldyga	Date:	#2 Received by: (Sig) R. Ensign	Date:	#3 Received by: (Sig)	Date:
Company Name: FPM	Time:	Company Name: TA Syc	Time:	Company Name:	Time:

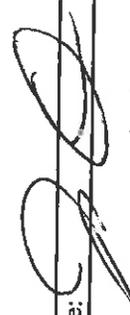
**MATRIX**  
 WG = Ground water  
 WQ = Water Quality Control Matrix  
 SO = Soil

**SMCODE**  
 B = Bailor  
 G = Grab.  
 NA = Not Applicable (only for AB/TB)  
 PP = Peristaltic Pump  
 BP = Bladder Pump  
 SP = Submersible Pump  
 SS = Split Spoon

**SACODE**  
 N = Normal Sample  
 AB = Ambient Blank  
 TB = Trip Blank  
 EB = Equipment Blank  
 FD = Field Duplicate  
 MS = Matrix Spike  
 SD = Matrix Spike Duplicate

# CHAIN OF CUSTODY RECORD

COC#: 2\_SDG#: 12(Open/Closed) Cooler ID#: A

Ship to: Elaine Walker Test America Laboratories, Inc. 4955 Yarrow Street Arvada, Colorado Tel: 303-736-0156 Carrier: Test America courier.	Project Name: Griffiss AFB DP015 Building 219 Sampler Name: Justin Damann Sampler Signature: 	Send Results to: Daniel Baldyga FPM Remediations, Inc 584 Phoenix Drive Rome, NY 13441 Phone: (315) 336-7721 Ext. 207
--	---	--

Analyses requested									
Field Sample ID	LocID	Date	Time	MATRIX	SMCODE	SACODE	SBD/SED	# of Containers	Comments
B219SCS0104AA	B219SCS-1	5/6	1153	SO	G	N	0/0	1	Metals: note 4 4 oz glass jar
B219SCS0108AA	B219SCS-1	5/6	1156	SO	G	N	0/0	1	
B219SCS0112AA	B219SCS-1	5/6	1200	SO	G	N	0/0	1	
B219SCS0204AA	B219SCS-2	5/6	1208	SO	G	N	0/0	1	
B219SCS0208AA	B219SCS-2	5/6	1211	SO	G	N	0/0	1	
B219SCS0212AA	B219SCS-2	5/6	1215	SO	G	N	0/0	1	
B219SCS0304AA	B219SCS-3	5/6	1217	SO	G	N	0/0	1	
B219SCS0308AA	B219SCS-3	5/6	1221	SO	G	N	0/0	1	
B219SCS0312AA	B219SCS-3	5/6	1225	SO	G	N	0/0	1	
B219SCS0404AA	B219SCS-4	5/6	1140	SO	G	N	0/0	1	
B219SCS0408AA	B219SCS-4	5/6	1143	SO	G	N	0/0	1	
B219SCS0412AA	B219SCS-4	5/6	1145	SO	G	N	0/0	1	
B219SCS0504AA	B219SCS-5	5/6	1129	SO	G	N	0/0	1	
B219SCS0508AA	B219SCS-5	5/6	1133	SO	G	N	0/0	1	
B219SCS0512AA	B219SCS-5	5/6	1137	SO	G	N	0/0	1	

B219SCS0604AA	B219SCS-6	5/6	1119	SO	G	N	0/0	1	1
B219SCS0608AA	B219SCS-6	5/6	1124	SO	G	N	0/0	1	1
B219SCS0612AA	B219SCS-6	5/6	1127	SO	G	N	0/0	1	1
B219SCS0412AC	B219SCS-4	5/6	1146	SO	G	FD	0/0	1	1
B219SCS0304AS	B219SCS-3	5/6	1217	SO	G	MS	0/0	1	1
B219SCS0304AD	B219SCS-3	5/6	1217	SO	G	SD	0/0	1	1

Sample Condition Upon Receipt at Laboratory: Cooler Temperature:

Special Instructions/Comments: Analyses to be conducted in compliance with AFCEE QAPP 4.0

Note 1: Total SVOCs: method SW8270D

Note 2: Total Pesticides: SW8081B

Note 3: Total VOCs: SW8260B

Note 4: Total Metals: SW6010C

#1 Released by: (Sig) Company Name:	Date: Time:	#2 Released by: (Sig) Company Name: FPM	Date: Time:	#3 Released by: (Sig) Company Name:	Date: Time:
#1 Received by: (Sig) Daniel Baldyga Company Name: FPM	Date: Time:	#2 Received by: (Sig) R. Engle Company Name: TA SYR	Date: Time:	#3 Received by: (Sig) Company Name:	Date: Time:

**MATRIX**  
WG = Ground water  
WQ = Water Quality Control Matrix  
SO = Soil

**SMCODE**  
B = Bailor  
G = Grab.  
NA = Not Applicable (only for AB/TB)  
PP = Peristaltic Pump  
BP = Bladder Pump  
SP = Submersible Pump  
SS = Split Spoon

**SACODE**  
N = Normal Sample  
AB = Ambient Blank  
TB = Trip Blank  
EB = Equipment Blank  
FD = Field Duplicate  
MS = Matrix Spike  
SD = Matrix Spike Duplicate

Daily Health and Safety Meeting Form

Date: 5/6/13 Time: 830

Location: FPM office (sample room)

Weather Conditions: sunny / 70°s

Meeting Type: Daily Health and Safety

Personnel Present:

Dan Baldyga, Justin Damann, Mike Grifasi,  
Josh Wenzel

Visitors Present: None

Visitor Training: None

PPE Required: Modified D

Possible risks, injuries, concerns:

underground utilities (unmarked), slip/trip/fall,  
car traffic.

Anticipated Releases to Environment (if so, describe and detail response action/control measures implemented):

None

Property Damage:

None

Description (include sequence of events describing step by step how incident happened):

None

Analysis for, and Implementation of Corrective/Preventative Procedure to Prevent Future Occurrences (to be formulated by SSHO + FOM, approved by PM, and SSHO implemented):

None

Report made by (Name): Dan Baldyga

SSHOP Organization Title: Site Safety and Health Officer

### Daily Chemical Quality Control Report

Project/Delivery Order Number: 1015-11-01 Date: 5/9/2013

Project Name/Site Number: Site Closure Sampling at Area of Interest 72 and Building 214

Weather conditions: Temperature: 71.5 F Barometric reading: 29.88  
Wind speed and direction: 0-4 mph, SSE  
Significant wind changes: 19 mph

General description of tasks completed: Soil Sampling with geoprobe.

Explain any departures from the SAP or deviations from approved procedures during the day's field activities: None

Explain any technical problems encountered in the field or field equipment/field analytical instrument malfunction: None

Corrective actions taken or instructions obtained from AFCEE/USACE personnel: No corrective actions necessary.

None

Sampling shipment completed:  Yes  No Airbill #: ....

DCQCR Prepared by: Daniel Baldyga Date: 5/9/13

CQCC Signature:  Date: 5/9/13

#### ATTACHMENTS:

Checklist	Daily Chemical Quality Control Report Attachments
	<input checked="" type="checkbox"/> Field sampling forms
	<input checked="" type="checkbox"/> Equipment Calibration Log
	<input checked="" type="checkbox"/> Copies of COCs
	<input checked="" type="checkbox"/> SDG Table (See accompanying COCs).
	<input checked="" type="checkbox"/> Daily Health and Safety Meeting Form

## SOIL / SEDIMENT SAMPLING FORM

Project: #10 1015-11-01      Sampled by: MG / JW / DB

Site and Site Code (SITEID): B 214

Sampling Location ID. (LOCID): B214SCS-1

Date (LOGDATE): 5/9/13      Time: 1340

**FIELD OBSERVATIONS:**

Sample Depth or Interval	Material Description/ Color
<p>0-4 2.3' REC</p>	<p>0.0' - 0.5' CONCRETE AND SUBBASE 0.5' - 2.3' BROWN, MOIST, F-C SAND, SOME GRNCL, LITTLE <del>CLAY</del> SILT.</p>
<p>4-8 0.9'</p>	<p>0.0 - 0.9' BROWN, MOIST, F-C SAND, SOME GRNCL, LITTLE SILT.</p>
<p>8-12 1.8' REC</p>	<p>0.01 - 1.5' S.A.A. 1.5' - 1.8' BROWN, WET, F-C GRNCL, SOME SAND, TR. SILT</p>

Comments/Observations:

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Sample Time: 1355

Sample ID: B214SCS01 04AA

Sample Time: 1400

Sample ID: B214SCS01 08 AA

Sample Time: 1405

Sample ID: B214SCS0112 AA

# CHAIN OF CUSTODY RECORD

COC#: 2 SDG#: # (Open/Closed) Cooler ID#: A

Ship to: Elaine Walker Test America Laboratories, Inc. 4955 Yarrow Street Arvada, Colorado Tel: 303-736-0156 Carrier: Test America courier.	Project Name: Griffiss AFB AOI 72 Sampler Name: Daniel Baldyga Send Results to: Daniel Baldyga FPM Remediations, Inc 584 Phoenix Drive Rome, NY 13441 Phone: (315) 336-7721 Ext. 207
SMCODE MATRIX Date Time LocID	SBD/SED SACODE # of Containers Pesticides: note 2 8 oz glass jar Metals: note 4 4 oz glass jar Metals note 4 250 mL poly (HNO <sub>3</sub> ), 4 oz. jar VOCs: note 3 40mL vials (HCl) VOCs note 3 Pesticides note 2 1 L amber bottle Comments

**Analyses requested**

Field Sample ID	LocID	Date	Time	MATRIX	SMCODE	SACODE	SBD/SED	# of Containers	Pesticides: note 2 8 oz glass jar	Metals: note 4 4 oz glass jar	Metals note 4 250 mL poly (HNO <sub>3</sub> ), 4 oz. jar	VOCs: note 3 40mL vials (HCl) VOCs note 3	Pesticides note 2 1 L amber bottle	Comments
2SCS01A02AA	72SCS-1A	5/8	1024	SO	G	N	0/0	1	1					
2SCS01A02AC	72SCS-1A	5/8	1025	SO	G	FD	0/0	1	1					
2SCS01A04AA	72SCS-1A	5/8	1026	SO	G	N	0/0	1	1					
2SCS01B02AA	72SCS-1B	5/8	1037	SO	G	N	0/0	1	1					
2SCS01B04AA	72SCS-1B	5/8	1045	SO	G	N	0/0	1	1					
2SCS01B04AS	72SCS-1B	5/8	1045	SO	G	MS	0/0	1	1					
2SCS01B04AD	72SCS-1B	5/8	1045	SO	G	SD	0/0	1	1					
2SCS01C02AA	72SCS-1C	5/8	1033	SO	G	N	0/0	1	1					
2SCS01C04AA	72SCS-1C	5/8	1039	SO	G	N	0/0	1	1					
2SCS01C04AC	72SCS-1C	5/8	1041	SO	G	FD	0/0	1	1					
2SCS01D02AA	72SCS-1D	5/8	1027	SO	G	N	0/0	1	1					
2SCS01D04AA	72SCS-1D	5/8	1031	SO	G	N	0/0	1	1					
2SCS02A02AA	72SCS-2A	5/8	1158	SO	G	N	0/0	1	1					
2SCS02A04AA	72SCS-2A	5/8	1159	SO	G	N	0/0	1	1					
2SCS02B02AA	72SCS-2B	5/8	1143	SO	G	N	0/0	1	1					





Sample Condition Upon Receipt at Laboratory:

Cooler Temperature:

Special Instructions/Comments: Analyses to be conducted in compliance with AFCEE QAPP 4.0

Note 1: Total SVOCs: method SW8270D

Note 2: Total Pesticides: SW8081B

Note 3: Total VOCs: SW8260B

Note 4: Total Metals: SW6010C

#1 Released by: (Sig) Company Name:	Date: Time:	#2 Released by: (Sig) Company Name: FPM	Date: <i>5/2/13</i> Time: <i>1:00</i>	#3 Released by: (Sig) Company Name:	Date: <i>5/2/13</i> Time: <i>12:50</i>
#1 Received by: (Sig) Daniel Baldyga Company Name: FPM	Date: <i>5/2/13</i> Time: <i>1:00</i>	#2 Received by: (Sig) <i>RECEIVED</i> Company Name: <i>TA Syc</i>	Date: <i>5-10-13</i> Time: <i>12:50</i>	#3 Received by: (Sig) Company Name:	Date: Time:

**MATRIX**

- WG = Ground water
- WQ = Water Quality Control Matrix
- SO = Soil

**SMCODE**

- B = Bailor
- G = Grab.
- NA = Not Applicable (only for AB/TB)
- PP = Peristaltic Pump
- BP = Bladder Pump
- SP = Submersible Pump
- SS = Split Spoon

**SACODE**

- N = Normal Sample
- AB = Ambient Blank
- TB = Trip Blank
- EB = Equipment Blank
- FD = Field Duplicate
- MS = Matrix Spike
- SD = Matrix Spike Duplicate

# CHAIN OF CUSTODY RECORD

COC#: 1\_SDG#: #\_ (Open/Closed) Cooler ID#: A\_

Ship to: Elaine Walker Test America Laboratories, Inc. 4955 Yarrow Street Arvada, Colorado Tel: 303-736-0156 Carrier: Test America courier.	Project Name: Griffiss AFB SD050 Building 214 Sampler Name: Justin Damann Sampler Signature: <i>[Signature]</i>
Send Results to: Daniel Baldyga FPM Remediations, Inc 584 Phoenix Drive Rome, NY 13441 Phone: (315) 336-7721 Ext. 207	

Field Sample ID	LocID	Date	Time	MATRIX	SMCODE	SACODE	SBD/SED	# of Containers	Comments
B214SCS0104AA	B214SCS-1	5/8	1355	SO	G	N	0/0	1	Metals: note 4 4 oz glass jar
B214SCS0108AA	B214SCS-1	5/8	1400	SO	G	N	0/0	1	
B214SCS0112AA	B214SCS-1	5/8	1405	SO	G	N	0/0	1	

Sample Condition Upon Receipt at Laboratory: \_\_\_\_\_ Cooler Temperature: \_\_\_\_\_

Special Instructions/Comments: Analyses to be conducted in compliance with AFCEE QAPP 4.0

Note 1: Total SVOCs: method SW8270D

Note 2: Total Pesticides: SW8081B

Note 3: Total VOCs: SW8260B

Note 4: Total Metals: SW6010C

#1 Released by: (Sig)	Date:	#2 Released by: (Sig)	Date:	#3 Released by: (Sig)	Date:
Company Name:	Time:	Company Name: FPM	Time:	Company Name:	Time:
#1 Received by: (Sig) Daniel Baldyga	Date: 5/2/13	#2 Received by: (Sig) R. E. 19/1/13	Date: 5-10-13	#3 Received by: (Sig)	Date:
Company Name: FPM	Time: 1000	Company Name: TA Sva	Time: 12:50	Company Name:	Time:

**MATRIX**  
 WG = Ground water  
 WQ = Water Quality Control Matrix  
 SO = Soil

**SMCODE**  
 B = Bailor  
 G = Grab.  
 NA = Not Applicable (only for AB/TB)  
 PP = Peristaltic Pump

**SACODE**  
 N = Normal Sample  
 AB = Ambient Blank  
 TB = Trip Blank  
 EB = Equipment Blank

**BP = Bladder Pump**  
**SP = Submersible Pump**  
**SS = Split Spoon**

**FD = Field Duplicate**  
**MS = Matrix Spike**  
**SD = Matrix Spike Duplicate**

Daily Health and Safety Meeting Form

Date: 5/9/13 Time: 830

Location: FPM office (sample room)

Weather Conditions: Sunny / 70

Meeting Type: Daily Health and Safety

Personnel Present:  
Dan Baldyga, Josh Wenzel, Mike Britani

Visitors Present: None

Visitor Training: None

PPE Required: Modified D

Possible risks, injuries, concerns:  
traffic, slip - trip - fall

Anticipated Releases to Environment (if so, describe and detail response action/control measures implemented):

None

Property Damage:

None

Description (include sequence of events describing step by step how incident happened):

None

Analysis for, and Implementation of Corrective/Preventative Procedure to Prevent Future Occurrences (to be formulated by SSHO + FOM, approved by PM, and SSHO implemented):

None

Report made by (Name): Dan Baldyga

SSHP Organization Title: Site Safety and Health Officer

**Daily Chemical Quality Control Report**

Project/Delivery Order Number: 1015-11-01 Date: 7/09/14

Project Name/Site Number: Bldg 214

Weather conditions: Temperature: 69 F Barometric reading: 29.82  
Wind speed and direction: SW @ 5mph  
Significant wind changes: none

General description of tasks completed: Soil Sampling at Bldg 214

Explain any departures from the SAP or deviations from approved procedures during the day's field activities: None

Explain any technical problems encountered in the field or field equipment/field analytical instrument malfunction: None

Corrective actions taken or instructions obtained from AFCEC personnel: No corrective actions necessary.  
None

Sampling shipment completed:  Yes  No Airbill #: ....

DCQCR Prepared by: Josh Wenzel Date: 7/9/2014

CQCC Signature: *Conradia Rantjesel* Date: 7/11/14

**ATTACHMENTS:**

Checklist	Daily Chemical Quality Control Report Attachments
	<input checked="" type="checkbox"/> Field sampling forms
	<input checked="" type="checkbox"/> Copies of COCs
	<input checked="" type="checkbox"/> SDG Table (See accompanying COCs).
	<input checked="" type="checkbox"/> Daily Health and Safety Meeting Form

### SOIL / SEDIMENT SAMPLING FORM

Project: 1015-11-01 Sampled by: JW/MB

Site and Site Code (SITEID): Bldg. 214

Sampling Location ID. (LOCID): B214SCS-5

Date (LOGDATE): 7/9/14 Time: 1055

#### FIELD OBSERVATIONS:

Sample Depth or Interval	Material Description/ Color
0-6 inches	Sed + dark brown soil w/ small angular + subangular rocks mixed in.
6 inches → 2 ft.	Dark brown coarse sands.

#### Comments/Observations:

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Sample Time: 1100

Sample ID: B214SCS0502AA

### SOIL / SEDIMENT SAMPLING FORM

Project: 1015-11-01 Sampled by: JW/MG

Site and Site Code (SITEID): Bldg 214

Sampling Location ID. (LOCID): B214SCS-6

Date (LOGDATE): 7/9/14 Time: ~~1105~~ 1105

#### FIELD OBSERVATIONS:

Sample Depth or Interval	Material Description/ Color
0-2ft.	Sed @ very top. Rest was dark brown soil w/ small angular + subangular rocks mixed in.

#### Comments/Observations:

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Sample Time: 1110

Sample ID: B214SCS060ZAA

### SOIL / SEDIMENT SAMPLING FORM

Project: 1015-11-01 Sampled by: JW/mg

Site and Site Code (SITEID): Bldg. 214

Sampling Location ID. (LOCID): B214SCS-17

Date (LOGDATE): 7/9/14 Time: 1115

#### FIELD OBSERVATIONS:

Sample Depth or Interval	Material Description/ Color
0-6 inches	Sod + dark brown soil w/ small subangular + angular rocks mixed in.
6 inches → 2 ft	Dark brown coarse sands.

#### Comments/Observations:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Sample Time: 1120

Sample ID: B214SCS0702AA

**Daily Health and Safety Meeting Form**

Date: 7/9/14 Time: 0845

Location: FPM office (sample room)

Weather Conditions: Overcast 69°F

Meeting Type: Daily Health and Safety

Personnel Present:

Josh Wenzel, Mark Grifasi

Visitors Present: NONE

Visitor Training: N/A

PPE Required: Modified D steel toe boots, latex gloves, safety glasses

Possible risks, injuries, concerns:

slip/trip/fall, biological (ticks, bees, wasps), traffic on roads and parking lots near Bldg 214 & Bldg 219.

Anticipated Releases to Environment (if so, describe and detail response action/control measures implemented):

NONE

Property Damage:

NONE

Description (include sequence of events describing step by step how incident happened):

N/A

Analysis for, and Implementation of Corrective/Preventative Procedure to Prevent Future Occurrences (to be formulated by SSHO + FOM, approved by PM, and SSHO implemented):

N/A

Report made by (Name): Josh Wenzel 

SSHHP Organization Title: Site Safety and Health Officer

# CHAIN OF CUSTODY RECORD

COC#: 1\_SDG#: 304 (Open/Closed) Cooler ID#: A

Ship to: Elaine Walker Test America Laboratories, Inc. 4955 Yarrow Street Arvada, Colorado Tel: 303-736-0156 Carrier: Test America courier.	Project Name: Griffiss AFB SD050 Building 214 Sampler Name: Joshua Wenzel Sampler Signature: <i>[Signature]</i>
Send Results to: Daniel Baldyga FPM Remediations, Inc 584 Phoenix Drive Rome, NY 13441 Phone: (315) 336-7721 Ext. 207	

**Analyses requested**

Field Sample ID	LocID	Date	Time	MATRIX	SMCODE	SACODE	SBD/SED	# of Containers	Comments
B214SCS0502AA	B214SCS-5	7/9	1100	SO	G	N	0/0	1	Metals: note 4 4 oz glass jar
B214SCS0602AA	B214SCS-6	7/9	1110	SO	G	N	0/0	1	
B214SCS0702AA	B214SCS-7	7/9	1120	SO	G	N	0/0	1	

Sample Condition Upon Receipt at Laboratory:

Special Instructions/Comments: Analyses to be conducted in compliance with AFCEE QAPP 4.0

Note 1: Total SVOCs: method SW8270D

Note 2: Total Pesticides: SW8081B

Note 3: Total VOCs: SW8260B

Note 4: Total Metals: SW6010C

Cooler Temperature:

#1 Released by: (Sig)	Date:	#2 Released by: (Sig)	Date: <u>7/9/11</u>	#3 Released by: (Sig)	Date:
Company Name:	Time:	Company Name: FPM	Time: <u>1400</u>	Company Name:	Time:
#1 Received by: (Sig) Daniel Baldyga	Date:	#2 Received by: (Sig)	Date:	#3 Received by: (Sig)	Date:
Company Name: FPM	Time:	Company Name:	Time:	Company Name:	Time:

**MATRIX**

WG = Ground water  
 WQ = Water Quality Control Matrix  
 SO = Soil

**SMCODE**

B = Bailor  
 G = Grab  
 NA = Not Applicable (only for AB/TB)  
 PP = Peristaltic Pump

**SACODE**

N = Normal Sample  
 AB = Ambient Blank  
 TB = Trip Blank  
 EB = Equipment Blank

BP = Bladder Pump  
SP = Submersible Pump  
SS = Split Spoon

FD = Field Duplicate  
MS = Matrix Spike  
SD = Matrix Spike Duplicate

**Appendix D**  
**Raw Laboratory Results**  
**(provided as a separate file on CD)**

**Appendix E**  
Validated Laboratory Results

**FPM Remediations, Inc.**  
**Data Verification and Usability Report**  
**Former Griffiss AFB**  
**Building SD50 214**  
**Contract No. FA8903-10-D-8595, Delivery Order No. 0014**

**FPM Project No. 1015-11-01**

**TestAmerica Job # 280-42046-1**

Laboratory: TestAmerica Laboratories, Inc.  
Sample Matrix: Soil  
Number of Samples: 10  
Analytical Protocol: DOD QSM version 4.2, as per project-specific UFP QAPP  
Data Reviewer: Connie van Hoesel  
Sample Date: May 6, 2013

**LIST OF DATA VERIFICATION SAMPLES**

This verification report pertains to the following environmental samples and corresponding QC samples:

Sample ID	Date	QC Samples	Date
B214SCS0204AA	5/6/13		
B214SCS0208AA	5/6/13		
B214SCS0212AA	5/6/13		
B214SCS0304AA	5/6/13		
B214SCS0308AA	5/6/13		
B214SCS0312AA	5/6/13		
B214SCS0404AA	5/6/13		
B214SCS0408AA	5/6/13		
B214SCS0412AA	5/6/13	B214SCS0412AC	5/6/13

Notes:

- Refer to attached chain-of-custody for detailed sampling information and sample specific analyses requested.
- AA – Primary environmental samples
- AC – Field duplicate sample

## **DELIVERABLES**

The data deliverable report was per requirements of the DOD QSM, version 4.2, as specified in the project-specific QAPP. The report consisted of the following major sections: lab attachment letter, case narrative, chain-of-custody, lab qualifier definitions, analytical results (sheet 2) based on analytical batch, calibration summaries, method blank summaries, laboratory control sample summaries, matrix spike/matrix spike duplicate summaries, holding time forms, performance checks, surrogate and internal standard recoveries, as applicable.

## **ANALYTICAL METHODS**

The analytical test methods and QA/QC requirements used for the sample analyses were per methods as specified in the DOD QSM, version 4.2, with project-specific modifications as listed in the project-specific QAPP. The analytical methods employed included SW-846 6010C, Metals.

## **VERIFICATION GUIDANCE**

The analytical work was performed by TestAmerica Denver in accordance with the DOD QSM, version 4.2, and QC requirements of the respective analytical methods and of the project-specific QAPP. The data usability analysis was based on the reviewer's professional judgment and on an assessment of how this data would fare with respect to the DOD QSM, and the criteria as listed in the project-specific QAPP.

## **QA/QC CRITERIA**

The following QA/QC criteria were reviewed for the metals analyses, as applicable:

- Method detection limits and limits of quantitation (DL, LOQ)
- Holding times
- Initial and Continuing calibration summaries
- Method blanks
- Field duplicate results
- Serial dilution results
- Matrix spike/matrix spike duplicate (MS/MSD) analysis
- Laboratory control samples (LCS)
- Results reported between DL and LOQ (J-flag)
- Sample storage and preservation
- Data system printouts
- Qualitative and quantitative compound identification
- Chain-of-custody (COC)
- Case narrative and deliverables compliance

The items listed above were in compliance with DOD QSM, version 4.2, and project-specific QAPP criteria and protocols with exceptions discussed in the text below. The data have been verified according to the procedures outlined above and qualified accordingly.

***GENERAL NOTES:***

**SAMPLE LABELING/CHAIN-OF-CUSTODY**

No errors in the chain-of-custody were noted. There were no discrepancies noted between the sample labels and the chain-of-custody, or the cooler contents and the chain-of-custody.

## METALS

- According to the case narrative, the solution used as the interference check standard showed the result for copper at a level greater than the LOD for the analytical batch associated with the field samples. The solution is believed to contain trace impurities of these elements, consistent with those found by the manufacturer of the solution. Using professional judgment, the “Q” qualifiers assigned by the laboratory were removed since the sample results are not due to matrix interference; (the levels in the soil samples were also well above those levels observed in the ICS solution).

Metal	Level in the ISCA solution 175407/14 (µg/L)	LOD (µg/L)
Chromium	2.00	1.5
Copper	3.80	3.5
Manganese	3.82	0.50
Vanadium	2.93	2.5

- The following table summarizes QC exceedances of the matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and/or RPDs for parent sample B214SCS0204AA. The spike analytes, MS recoveries, MSD recoveries, spike recovery QC limits, and RPDs and their QC limit between the MS and MSD are listed.

### Parent Sample: B214SCS0204AA

Spike Compounds	MS %Rec	MSD %Rec	QC Limits	RPD % (QC limit 20%)	Flag Applied	Rationale
Aluminum	2,034	2,000	80-120	1	None	Parent conc. > 4x spike conc.
Antimony	42	40	80-120	5	J	%Rec outside QC limits
Copper	68	67	80-120	0	J	%Rec outside QC limits
Iron	-649	-1,940	80-120	6	None	Parent conc. > 4x spike conc.
Manganese	-343	-498	80-120	8	None	Parent conc. > 4x spike conc.
Potassium	124	126	80-120	0	J	%Rec outside QC limits
Zinc	59	61	80-120	1	J	%Rec outside QC limits

Data for matrix spike/matrix spike duplicates (MS/MSD) are generated to determine long-term precision and accuracy of the analytical method on various matrices. Generally, these data alone cannot be used to evaluate the precision and accuracy of individual samples. A matrix spike and matrix spike duplicate analysis is an aliquot of sample spiked with known concentrations of all the analytes in the method. According to the QAPP, the MS/MSD result is used to assess whether the sample matrix may bias the results. The QAPP-recommended frequency of analysis is one MS/MSD per 20 samples. Exceedances of either percent recovery (%Rec) control limits of spike concentrations or relative percent difference (RPD) control limits between the MS and MSD results, according to the QAPP require a “J” (estimated) qualifier for the specific analyte in all samples collected from the same site matrix as the parent. However, due to the varied nature of environmental samples, such as locations, depths, physical characteristics (dissolved and suspended solids, turbidity, pH, organic content, etc.), it is difficult to assign one set of MS/MSD sample analysis as truly

representative of an entire site matrix. Therefore, based on the definition of this type of QA/QC sample, using professional judgment it is deemed inappropriate to qualify more than the actual parent sample due to a percent recovery or RPD exceedance. This approach is in accordance with the EPA National Functional guidelines, which states that the MS/MSD results are not used alone to qualify the entire data package, however, can be used in conjunction with other QC criteria to determine the need for some qualification of the data. Using professional judgment, no corrective action and/or flagging is deemed required for minimal exceedances (i.e., within 1% of the control limits).

**Corrective Action:** As discussed above, “J” flags were applied to the associated results in parent samples B214SCS0204AA only. Note that no flags were applied to aluminum, iron, and manganese, since the parent sample concentrations were greater than 4x the spike concentrations.

- Field duplicate samples, which are collected at the same location and at the same time using identical collection, handling, and analytical procedures, are used to assess precision of the sample collection process. The UFP QAPP requires qualification of data for field duplicates criterion if the duplicate samples contain detected compounds with concentrations above 5x the reporting limits (RL’s) and the relative percent differences (RPD’s) between the duplicate sample results exceed RPD control limits (20% for water samples, 30% for soil samples). If either the parent or the duplicate sample is less than 5x the RL, then the difference between the parent and duplicate sample must be less than 2x the RL. “J” flags for detects and “UJ” flags for non-detects are required per the QAPP for any exceedances. For these purposes the RL is considered equal to the LOQ.

The following table summarizes the relative percent differences (RPD’s) of field duplicate sample set B214SCS0412AA/AC.

Sample ID, Normal	Sample ID, Field Duplicate	Analyte	Normal Result (mg/kg)	Field Dup Result (mg/kg)	LOQ (mg/kg)	RPD/ Total Difference	Flag Applied	Rationale
B214SCS0412AA	B214SCS0412AC	Aluminum	7600	7100	46, 51	6.8	None	RPD < 30%
B214SCS0412AA	B214SCS0412AC	Arsenic	3.5	4.2	2.3, 2.6	0.7	None	Total difference < 2xRL
B214SCS0412AA	B214SCS0412AC	Barium	29	29	1.8, 2.1	0	None	RPD < 30%
B214SCS0412AA	B214SCS0412AC	Beryllium	0.34 J	0.32 J	0.46, 0.51	0.02	None	Total difference < 2xRL
B214SCS0412AA	B214SCS0412AC	Boron	1.9 J	2.3 J	9.2, 10	0.4	None	Total difference < 2xRL
B214SCS0412AA	B214SCS0412AC	Cadmium	0.16 J	0.14 J	0.46, 0.51	0.02	None	Total difference < 2xRL
B214SCS0412AA	B214SCS0412AC	Calcium	1800	1400	92, 100	25	None	RPD < 30%
B214SCS0412AA	B214SCS0412AC	Chromium	9.0	11	3.2, 3.6	2.0	None	Total difference < 2xRL
B214SCS0412AA	B214SCS0412AC	Cobalt	5.5	5.8	0.92, 1.0	5.3	None	RPD < 30%
B214SCS0412AA	B214SCS0412AC	Copper	28	29	4.6, 5.1	3.5	None	RPD < 30%
B214SCS0412AA	B214SCS0412AC	Iron	18000	17000	74, 82	5.7	None	RPD < 30%
B214SCS0412AA	B214SCS0412AC	Lead	5.2	7.0	0.83, 0.93	30	None	RPD < 30%

Sample ID, Normal	Sample ID, Field Duplicate	Analyte	Normal Result (mg/kg)	Field Dup Result (mg/kg)	LOQ (mg/kg)	RPD/ Total Differ ence	Flag Applied	Rationale
B214SCS0412AA	B214SCS0412AC	Magnesium	3500	2900	28, 31	19	None	RPD < 30%
B214SCS0412AA	B214SCS0412AC	Manganese	1100	890	4.2, 4.6	21	None	RPD < 30%
B214SCS0412AA	B214SCS0412AC	Molybdenum	0.24 J	0.96 J	2.3, 2.6	0.72	None	Total difference < 2xRL
B214SCS0412AA	B214SCS0412AC	Nickel	13	13	3.7, 4.1	0	None	RPD < 30%
B214SCS0412AA	B214SCS0412AC	Potassium	840	970	280, 310	130	None	Total difference < 2xRL
B214SCS0412AA	B214SCS0412AC	Vanadium	12	12	1.8, 2.1	0	None	RPD < 30%
B214SCS0412AA	B214SCS0412AC	Zinc	47	44	7.4, 8.2	6.6	None	RPD < 30%

**Corrective Action:** No “J” qualifiers were applied to the results, since the RPD’s and/or total differences among the sample duplicate set B214SCS0412AA/AC were within QAPP limits.

## **DATA USABILITY RESULTS**

### **METALS**

Based on the evaluation of all information in the analytical data groups, the results for metals are usable with the data qualifiers as noted. Using the verification approach as presented above, the results for all above samples are 100% usable.

## **DATA USABILITY SUMMARY**

All data in Job # 280-42046-1 are valid and usable with qualifications as noted in the data review.

Signed: Concordia van Hoesel Date: 7/2/13

### ***ATTACHMENTS***

- Chain-of-custody
- Laboratory case narrative
- Qualified final data verification results on annotated Lab Sheet 2s

## SAMPLE SUMMARY

Client: FPM Remediations Inc

Job Number: 280-42046-1

<b>Lab Sample ID</b>	<b>Client Sample ID</b>	<b>Client Matrix</b>	<b>Date/Time Sampled</b>	<b>Date/Time Received</b>
280-42046-1	B214SCS0204AA	Solid	05/06/2013 1406	05/08/2013 0915
280-42046-2	B214SCS0208AA	Solid	05/06/2013 1408	05/08/2013 0915
280-42046-3	B214SCS0212AA	Solid	05/06/2013 1411	05/08/2013 0915
280-42046-4	B214SCS0304AA	Solid	05/06/2013 1357	05/08/2013 0915
280-42046-5	B214SCS0308AA	Solid	05/06/2013 1359	05/08/2013 0915
280-42046-6	B214SCS0312AA	Solid	05/06/2013 1403	05/08/2013 0915
280-42046-7	B214SCS0404AA	Solid	05/06/2013 1345	05/08/2013 0915
280-42046-8	B214SCS0408AA	Solid	05/06/2013 1349	05/08/2013 0915
280-42046-9	B214SCS0412AA	Solid	05/06/2013 1353	05/08/2013 0915
280-42046-10FD	B214SCS0412AC	Solid	05/06/2013 1355	05/08/2013 0915

## EXECUTIVE SUMMARY - Detections

Client: FPM Remediations Inc

Job Number: 280-42046-1

Lab Sample ID	Client Sample ID	Result	Qualifier	Reporting Limit	Units	Method
<b>280-42046-1</b>	<b>B214SCS0204AA</b>					
Aluminum		13000	J	55	mg/Kg	6010C
Arsenic		4.8		2.7	mg/Kg	6010C
Barium		55		2.2	mg/Kg	6010C
Beryllium		0.53	J	0.55	mg/Kg	6010C
Boron		2.7	J	11	mg/Kg	6010C
Cadmium		0.32	J	0.55	mg/Kg	6010C
Calcium		1500		110	mg/Kg	6010C
Chromium		14	Q	3.8	mg/Kg	6010C
Cobalt		7.0		1.1	mg/Kg	6010C
Copper		32	Q J	5.5	mg/Kg	6010C
Iron		23000	J	88	mg/Kg	6010C
Lead		17		0.98	mg/Kg	6010C
Magnesium		3600		33	mg/Kg	6010C
Manganese		1200	Q J	4.9	mg/Kg	6010C
Molybdenum		0.39	J	2.7	mg/Kg	6010C
Nickel		17		4.4	mg/Kg	6010C
Potassium		960	J	330	mg/Kg	6010C
Vanadium		20	Q	2.2	mg/Kg	6010C
Zinc		82	J	8.8	mg/Kg	6010C
Percent Moisture		12		0.10	%	Moisture
Percent Solids		88		0.10	%	Moisture

**CASE NARRATIVE**  
**Client: FPM Remediations Inc**  
**Project: Griffiss AFB SD50 Bldg 214**  
**Report Number: 280-42046-1**

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

**RECEIPT**

Ten samples were received on 05/08/2013; the samples arrived in good condition, properly preserved and on ice. The temperatures of the coolers at receipt were 0.1°C and 0.4°C.

**TOTAL METALS (ICP)**

Samples B214SCS0204AA (280-42046-1), B214SCS0208AA (280-42046-2), B214SCS0212AA (280-42046-3), B214SCS0304AA (280-42046-4), B214SCS0308AA (280-42046-5), B214SCS0312AA (280-42046-6), B214SCS0404AA (280-42046-7), B214SCS0408AA (280-42046-8), B214SCS0412AA (280-42046-9), and B214SCS0412AC (280-42046-10) were analyzed for Total Metals (ICP) in accordance with EPA SW-846 Method 6010C. The samples were prepared on 05/10/2013 and analyzed on 05/21/2013.

Aluminum, Boron, and Manganese were detected in method blank MB 280-173668/1-A at levels that were above the method detection limits but below the reporting limits. The values should be considered estimates, and have been flagged "J". However, because the result concentrations were less than ½ the respective reporting limits, no corrective action was necessary.

Antimony, Copper, Iron, Manganese, and Zinc failed the recovery criteria low for the matrix spike (MS) and matrix spike duplicate (MSD) of sample B214SCS0204AA (280-42046-1) in batch 280-175407. Aluminum and Potassium failed the recovery criteria high. The presence of the '4' qualifier in the report indicates where the analyte concentration in the unspiked sample exceeded four times the spiking amount. The associated laboratory control sample (LCS) recoveries met acceptance criteria, and the sample results have been flagged accordingly.

The interference check standard solution (ICSA) associated with batch 280-175407 showed results for one or more elements at a level greater than the limit of detection (LOD). The initial ICSA results were greater than the LOD for Chromium, Copper, Manganese, and Vanadium. It is believed that the solution contains trace impurities of these elements and that the results are not due to matrix interference. These results are consistent with those found by the manufacturer of the ICSA solution. The associated sample results have been flagged "Q" for these elements.

No other difficulties were encountered during the metals analyses.

All other quality control parameters were within the acceptance limits.

**PERCENT SOLIDS**

Samples B214SCS0204AA (280-42046-1), B214SCS0208AA (280-42046-2), B214SCS0212AA (280-42046-3), B214SCS0304AA (280-42046-4), B214SCS0308AA (280-42046-5), B214SCS0312AA (280-42046-6), B214SCS0404AA (280-42046-7), B214SCS0408AA (280-42046-8), B214SCS0412AA (280-42046-9), and B214SCS0412AC (280-42046-10) were analyzed for percent solids in accordance with EPA SW846 3550C. The samples were analyzed on 05/28/2013.

No difficulties were encountered during the % solids analyses.

All quality control parameters were within the acceptance limits.

## Analytical Data

Client: FPM Remediations Inc

Job Number: 280-42046-1

**Client Sample ID: B214SCS0204AA**

Lab Sample ID: 280-42046-1

Date Sampled: 05/06/2013 1406

Client Matrix: Solid

% Moisture: 12.1

Date Received: 05/08/2013 0915

### 6010C Metals (ICP)

Analysis Method: 6010C	Analysis Batch: 280-175407	Instrument ID: MT_026
Prep Method: 3050B	Prep Batch: 280-173668	Lab File ID: 26A052113.asc
Dilution: 1.0		Initial Weight/Volume: 1.04 g
Analysis Date: 05/21/2013 1532		Final Weight/Volume: 100 mL
Prep Date: 05/10/2013 1300		

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	DL	LOQ
Aluminum		13000	J	1.7	55
Antimony		0.66	U J	0.42	2.2
Arsenic		4.8		0.72	2.7
Barium		55		0.083	2.2
Beryllium		0.53	J	0.036	0.55
Boron		2.7	J	1.1	11
Cadmium		0.32	J	0.045	0.55
Calcium		1500		15	110
Chromium		14	J	0.063	3.8
Cobalt		7.0		0.11	1.1
Copper		32	J	0.24	5.5
Iron		23000	J	4.2	88
Lead		17		0.30	0.98
Magnesium		3600		4.0	33
Manganese		1200	J	0.11	4.9
Molybdenum		0.39	J	0.28	2.7
Nickel		17		0.13	4.4
Potassium		960	J	45	330
Selenium		1.3	U	0.94	3.3
Silver		0.22	U	0.18	1.6
Sodium		110	U	65	550
Thallium		1.3	U	0.71	3.3
Vanadium		20	J	0.10	2.2
Zinc		82	J	0.44	8.8

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Analytical Data

Client: FPM Remediations Inc

Job Number: 280-42046-1

Client Sample ID: B214SCS0208AA

Lab Sample ID: 280-42046-2

Date Sampled: 05/06/2013 1408

Client Matrix: Solid

% Moisture: 8.2

Date Received: 05/08/2013 0915

6010C Metals (ICP)

Analysis Method:	6010C	Analysis Batch:	280-175407	Instrument ID:	MT_026
Prep Method:	3050B	Prep Batch:	280-173668	Lab File ID:	26A052113.asc
Dilution:	1.0			Initial Weight/Volume:	1.06 g
Analysis Date:	05/21/2013 1544			Final Weight/Volume:	100 mL
Prep Date:	05/10/2013 1300				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	DL	LOQ
Aluminum		8300		1.6	51
Antimony		0.62	U	0.39	2.1
Arsenic		5.6		0.68	2.6
Barium		34		0.078	2.1
Beryllium		0.42	J	0.034	0.51
Boron		2.0	J	1.0	10
Cadmium		0.14	J	0.042	0.51
Calcium		1200		14	100
Chromium		8.9	<del>Q</del>	0.060	3.6
Cobalt		5.7		0.10	1.0
Copper		25	<del>Q</del>	0.22	5.1
Iron		20000		3.9	82
Lead		5.4		0.28	0.93
Magnesium		2500		3.8	31
Manganese		1000	<del>Q</del>	0.10	4.6
Molybdenum		0.31	J	0.27	2.6
Nickel		12		0.13	4.1
Potassium		790		42	310
Selenium		1.2	U	0.88	3.1
Silver		0.21	U	0.16	1.5
Sodium		64	J	61	510
Thallium		1.2	U	0.67	3.1
Vanadium		13	<del>Q</del>	0.097	2.1
Zinc		40		0.41	8.2

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Analytical Data

Client: FPM Remediations Inc

Job Number: 280-42046-1

Client Sample ID: B214SCS0212AA

Lab Sample ID: 280-42046-3

Date Sampled: 05/06/2013 1411

Client Matrix: Solid

% Moisture: 10.6

Date Received: 05/08/2013 0915

6010C Metals (ICP)

Analysis Method:	6010C	Analysis Batch:	280-175407	Instrument ID:	MT_026
Prep Method:	3050B	Prep Batch:	280-173668	Lab File ID:	26A052113.asc
Dilution:	1.0			Initial Weight/Volume:	1.15 g
Analysis Date:	05/21/2013 1556			Final Weight/Volume:	100 mL
Prep Date:	05/10/2013 1300				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	DL	LOQ
Aluminum		7500		1.5	49
Antimony		0.58	U	0.37	1.9
Arsenic		3.6		0.64	2.4
Barium		29		0.074	1.9
Beryllium		0.34	J	0.032	0.49
Boron		2.9	J	0.95	9.7
Cadmium		0.11	J	0.040	0.49
Calcium		1200		14	97
Chromium		8.7	<del>Q</del>	0.056	3.4
Cobalt		5.4		0.097	0.97
Copper		29	<del>Q</del>	0.21	4.9
Iron		17000		3.7	78
Lead		3.9		0.26	0.88
Magnesium		2900		3.6	29
Manganese		750	<del>Q</del>	0.097	4.4
Molybdenum		0.49	U	0.25	2.4
Nickel		12		0.12	3.9
Potassium		1100		40	290
Selenium		1.2	U	0.84	2.9
Silver		0.19	U	0.16	1.5
Sodium		97	U	57	490
Thallium		1.2	U	0.63	2.9
Vanadium		13	<del>Q</del>	0.091	1.9
Zinc		42		0.39	7.8

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## Analytical Data

Client: FPM Remediations Inc

Job Number: 280-42046-1

Client Sample ID: **B214SCS0304AA**

Lab Sample ID: 280-42046-4

Date Sampled: 05/06/2013 1357

Client Matrix: Solid

% Moisture: 9.0

Date Received: 05/08/2013 0915

### 6010C Metals (ICP)

Analysis Method: 6010C

Analysis Batch: 280-175407

Instrument ID: MT\_026

Prep Method: 3050B

Prep Batch: 280-173668

Lab File ID: 26A052113.asc

Dilution: 1.0

Initial Weight/Volume: 1.02 g

Analysis Date: 05/21/2013 1558

Final Weight/Volume: 100 mL

Prep Date: 05/10/2013 1300

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	DL	LOQ
Aluminum		11000		1.7	54
Antimony		0.65	U	0.41	2.2
Arsenic		4.9		0.71	2.7
Barium		48		0.082	2.2
Beryllium		0.49	J	0.036	0.54
Boron		3.1	J	1.1	11
Cadmium		0.48	J	0.044	0.54
Calcium		1600		15	110
Chromium		15	<del>Q</del>	0.062	3.8
Cobalt		7.5		0.11	1.1
Copper		26	<del>Q</del>	0.23	5.4
Iron		24000		4.1	86
Lead		23		0.29	0.97
Magnesium		3700		4.0	32
Manganese		1200	<del>Q</del>	0.11	4.8
Molybdenum		0.57	J	0.28	2.7
Nickel		18		0.13	4.3
Potassium		1200		44	320
Selenium		1.3	U	0.93	3.2
Silver		0.22	J	0.17	1.6
Sodium		110	U	64	540
Thallium		1.3	U	0.70	3.2
Vanadium		20	<del>Q</del>	0.10	2.2
Zinc		86		0.43	8.6

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## Analytical Data

Client: FPM Remediations Inc

Job Number: 280-42046-1

Client Sample ID: **B214SCS0308AA**

Lab Sample ID: 280-42046-5

Date Sampled: 05/06/2013 1359

Client Matrix: Solid

% Moisture: 8.4

Date Received: 05/08/2013 0915

### 6010C Metals (ICP)

Analysis Method: 6010C	Analysis Batch: 280-175407	Instrument ID: MT_026	
Prep Method: 3050B	Prep Batch: 280-173668	Lab File ID: 26A052113.asc	
Dilution: 1.0		Initial Weight/Volume: 1.08 g	
Analysis Date: 05/21/2013 1601		Final Weight/Volume: 100 mL	
Prep Date: 05/10/2013 1300			

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	DL	LOQ
Aluminum		9500		1.6	51
Antimony		0.61	U	0.38	2.0
Arsenic		3.3		0.67	2.5
Barium		22		0.077	2.0
Beryllium		0.35	J	0.033	0.51
Boron		2.5	J	0.99	10
Cadmium		0.14	J	0.041	0.51
Calcium		1000		14	100
Chromium		11	<del>Q</del>	0.059	3.5
Cobalt		6.2		0.10	1.0
Copper		27	<del>Q</del>	0.22	5.1
Iron		17000		3.8	81
Lead		4.6		0.27	0.91
Magnesium		4200		3.7	30
Manganese		630	<del>Q</del>	0.10	4.5
Molybdenum		0.41	J	0.26	2.5
Nickel		14		0.12	4.0
Potassium		950		41	300
Selenium		1.2	U	0.87	3.0
Silver		0.20	U	0.16	1.5
Sodium		63	J	60	510
Thallium		1.2	U	0.66	3.0
Vanadium		14	<del>Q</del>	0.095	2.0
Zinc		46		0.40	8.1

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## Analytical Data

Client: FPM Remediations Inc

Job Number: 280-42046-1

**Client Sample ID: B214SCS0312AA**

Lab Sample ID: 280-42046-6

Date Sampled: 05/06/2013 1403

Client Matrix: Solid

% Moisture: 7.5

Date Received: 05/08/2013 0915

### 6010C Metals (ICP)

Analysis Method: 6010C	Analysis Batch: 280-175407	Instrument ID: MT_026
Prep Method: 3050B	Prep Batch: 280-173668	Lab File ID: 26A052113.asc
Dilution: 1.0		Initial Weight/Volume: 1.08 g
Analysis Date: 05/21/2013 1603		Final Weight/Volume: 100 mL
Prep Date: 05/10/2013 1300		

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	DL	LOQ
Aluminum		7100		1.6	50
Antimony		0.60	U	0.38	2.0
Arsenic		9.4		0.66	2.5
Barium		28		0.076	2.0
Beryllium		0.28	J	0.033	0.50
Boron		2.3	J	0.98	10
Cadmium		0.091	J	0.041	0.50
Calcium		1200		14	100
Chromium		10	Ⓟ	0.058	3.5
Cobalt		6.0		0.10	1.0
Copper		26	Ⓟ	0.22	5.0
Iron		17000		3.8	80
Lead		8.6		0.27	0.90
Magnesium		3200		3.7	30
Manganese		700	Ⓟ	0.10	4.5
Molybdenum		0.50	J	0.26	2.5
Nickel		13		0.12	4.0
Potassium		1000		41	300
Selenium		1.2	U	0.86	3.0
Silver		0.20	U	0.16	1.5
Sodium		100	U	59	500
Thallium		1.2	U	0.65	3.0
Vanadium		13	Ⓟ	0.094	2.0
Zinc		48		0.40	8.0

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**Analytical Data**

Client: FPM Remediations Inc

Job Number: 280-42046-1

Client Sample ID: B214SCS0404AA

Lab Sample ID: 280-42046-7

Date Sampled: 05/06/2013 1345

Client Matrix: Solid

% Moisture: 10.3

Date Received: 05/08/2013 0915

**6010C Metals (ICP)**

Analysis Method: 6010C	Analysis Batch: 280-175407	Instrument ID: MT_026
Prep Method: 3050B	Prep Batch: 280-173668	Lab File ID: 26A052113.asc
Dilution: 1.0		Initial Weight/Volume: 1.06 g
Analysis Date: 05/21/2013 1606		Final Weight/Volume: 100 mL
Prep Date: 05/10/2013 1300		

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	DL	LOQ
Aluminum		7000		1.6	53
Antimony		0.63	U	0.40	2.1
Arsenic		3.3		0.69	2.6
Barium		31		0.080	2.1
Beryllium		0.27	J	0.035	0.53
Boron		3.3	J	1.0	11
Cadmium		0.56		0.043	0.53
Calcium		5200		15	110
Chromium		10	<del>Q</del>	0.061	3.7
Cobalt		4.2		0.11	1.1
Copper		18	<del>Q</del>	0.23	5.3
Iron		12000		4.0	84
Lead		39		0.28	0.95
Magnesium		2000		3.9	32
Manganese		390	<del>Q</del>	0.11	4.7
Molybdenum		0.53	U	0.27	2.6
Nickel		10		0.13	4.2
Potassium		1000		43	320
Selenium		1.3	U	0.90	3.2
Silver		0.21	U	0.17	1.6
Sodium		110	U	62	530
Thallium		1.3	U	0.68	3.2
Vanadium		13	<del>Q</del>	0.099	2.1
Zinc		55		0.42	8.4

*cut*  
*7/2/13*

## Analytical Data

Client: FPM Remediations Inc

Job Number: 280-42046-1

Client Sample ID: **B214SCS0408AA**

Lab Sample ID: 280-42046-8

Date Sampled: 05/06/2013 1349

Client Matrix: Solid

% Moisture: 8.6

Date Received: 05/08/2013 0915

### 6010C Metals (ICP)

Analysis Method: 6010C	Analysis Batch: 280-175407	Instrument ID: MT_026	
Prep Method: 3050B	Prep Batch: 280-173668	Lab File ID: 26A052113.asc	
Dilution: 1.0		Initial Weight/Volume: 1.18 g	
Analysis Date: 05/21/2013 1608		Final Weight/Volume: 100 mL	
Prep Date: 05/10/2013 1300			

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	DL	LOQ
Aluminum		9100		1.4	46
Antimony		0.56	U	0.35	1.9
Arsenic		4.4		0.61	2.3
Barium		35		0.070	1.9
Beryllium		0.39	J	0.031	0.46
Boron		2.0	J	0.91	9.3
Cadmium		0.33	J	0.038	0.46
Calcium		1700		13	93
Chromium		14	<del>U</del>	0.054	3.2
Cobalt		6.6		0.093	0.93
Copper		33	<del>U</del>	0.20	4.6
Iron		19000		3.5	74
Lead		34		0.25	0.83
Magnesium		3200		3.4	28
Manganese		860	<del>U</del>	0.093	4.2
Molybdenum		0.46	U	0.24	2.3
Nickel		14		0.11	3.7
Potassium		860		38	280
Selenium		1.1	U	0.80	2.8
Silver		0.19	U	0.15	1.4
Sodium		93	U	55	460
Thallium		1.1	U	0.60	2.8
Vanadium		15	<del>U</del>	0.087	1.9
Zinc		69		0.37	7.4

*CHK*  
*7/2/13*

**Analytical Data**

Client: FPM Remediations Inc

Job Number: 280-42046-1

Client Sample ID: **B214SCS0412AA**

Lab Sample ID: 280-42046-9

Date Sampled: 05/06/2013 1353

Client Matrix: Solid

% Moisture: 8.2

Date Received: 05/08/2013 0915

**6010C Metals (ICP)**

Analysis Method: 6010C	Analysis Batch: 280-175407	Instrument ID: MT_026
Prep Method: 3050B	Prep Batch: 280-173668	Lab File ID: 26A052113.asc
Dilution: 1.0		Initial Weight/Volume: 1.18 g
Analysis Date: 05/21/2013 1610		Final Weight/Volume: 100 mL
Prep Date: 05/10/2013 1300		

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	DL	LOQ
Aluminum		7600		1.4	46
Antimony		0.55	U	0.35	1.8
Arsenic		3.5		0.61	2.3
Barium		29		0.070	1.8
Beryllium		0.34	J	0.030	0.46
Boron		1.9	J	0.90	9.2
Cadmium		0.16	J	0.038	0.46
Calcium		1800		13	92
Chromium		9.0	Ⓢ	0.054	3.2
Cobalt		5.5	Ⓢ	0.092	0.92
Copper		28	Ⓢ	0.20	4.6
Iron		18000		3.5	74
Lead		5.2		0.25	0.83
Magnesium		3500		3.4	28
Manganese		1100	Ⓢ	0.092	4.2
Molybdenum		0.24	J	0.24	2.3
Nickel		13		0.11	3.7
Potassium		840		38	280
Selenium		1.1	U	0.79	2.8
Silver		0.18	U	0.15	1.4
Sodium		92	U	54	460
Thallium		1.1	U	0.60	2.8
Vanadium		12	Ⓢ	0.087	1.8
Zinc		47		0.37	7.4

*cut*  
*7/2/13*

**Analytical Data**

Client: FPM Remediations Inc

Job Number: 280-42046-1

Client Sample ID: B214SCS0412AC

Lab Sample ID: 280-42046-10FD

Date Sampled: 05/06/2013 1355

Client Matrix: Solid

% Moisture: 8.4

Date Received: 05/08/2013 0915

**6010C Metals (ICP)**

Analysis Method: 6010C

Analysis Batch: 280-175407

Instrument ID: MT\_026

Prep Method: 3050B

Prep Batch: 280-173668

Lab File ID: 26A052113.asc

Dilution: 1.0

Initial Weight/Volume: 1.06 g

Analysis Date: 05/21/2013 1613

Final Weight/Volume: 100 mL

Prep Date: 05/10/2013 1300

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	DL	LOQ
Aluminum		7100		1.6	51
Antimony		0.62	U	0.39	2.1
Arsenic		4.2		0.68	2.6
Barium		29		0.078	2.1
Beryllium		0.32	J	0.034	0.51
Boron		2.3	J	1.0	10
Cadmium		0.14	J	0.042	0.51
Calcium		1400		15	100
Chromium		11	Ⓟ	0.060	3.6
Cobalt		5.8		0.10	1.0
Copper		29	Ⓟ	0.22	5.1
Iron		17000		3.9	82
Lead		7.0		0.28	0.93
Magnesium		2900		3.8	31
Manganese		890	Ⓟ	0.10	4.6
Molybdenum		0.96	J	0.27	2.6
Nickel		13		0.13	4.1
Potassium		970		42	310
Selenium		1.2	U	0.89	3.1
Silver		0.21	U	0.16	1.5
Sodium		100	U	61	510
Thallium		1.2	U	0.67	3.1
Vanadium		12	Ⓟ	0.097	2.1
Zinc		44		0.41	8.2

*CUA*  
*7/2/13*

**FPM Remediations, Inc.**  
**Data Verification and Usability Report**  
**Former Griffiss AFB**  
**Building SD50 214**  
**Contract No. FA8903-10-D-8595, Delivery Order No. 0014**

**FPM Project No. 1015-11-01**

**TestAmerica Job # 280-42162-1**

Laboratory: TestAmerica Laboratories, Inc.  
Sample Matrix: Soil  
Number of Samples: 3  
Analytical Protocol: DOD QSM version 4.2, as per project-specific UFP QAPP  
Data Reviewer: Connie van Hoesel  
Sample Date: May 8, 2013

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**LIST OF DATA VERIFICATION SAMPLES**

This verification report pertains to the following environmental samples and corresponding QC samples:

<b>Sample ID</b>	<b>Date</b>	<b>QC Samples</b>	<b>Date</b>
B214SCS0104AA	5/8/13		
B214SCS0108AA	5/8/13		
B214SCS0112AA	5/8/13		

Notes:

Refer to attached chain-of-custody for detailed sampling information and sample specific analyses requested.  
AA – Primary environmental samples

## **DELIVERABLES**

The data deliverable report was per requirements of the DOD QSM, version 4.2, as specified in the project-specific QAPP. The report consisted of the following major sections: lab attachment letter, case narrative, chain-of-custody, lab qualifier definitions, analytical results (sheet 2) based on analytical batch, calibration summaries, method blank summaries, laboratory control sample summaries, matrix spike/matrix spike duplicate summaries, holding time forms, performance checks, surrogate and internal standard recoveries, as applicable.

## **ANALYTICAL METHODS**

The analytical test methods and QA/QC requirements used for the sample analyses were per methods as specified in the DOD QSM, version 4.2, with project-specific modifications as listed in the project-specific QAPP. The analytical methods employed included SW-846 6010C, Metals.

## **VERIFICATION GUIDANCE**

The analytical work was performed by TestAmerica Denver in accordance with the DOD QSM, version 4.2, and QC requirements of the respective analytical methods and of the project-specific QAPP. The data usability analysis was based on the reviewer's professional judgment and on an assessment of how this data would fare with respect to the DOD QSM, and the criteria as listed in the project-specific QAPP.

## **QA/QC CRITERIA**

The following QA/QC criteria were reviewed for the metals analyses, as applicable:

- Method detection limits and limits of quantitation (DL, LOQ)
- Holding times
- Initial and Continuing calibration summaries
- Method blanks
- Field duplicate results
- Serial dilution results
- Matrix spike/matrix spike duplicate (MS/MSD) analysis
- Laboratory control samples (LCS)
- Results reported between DL and LOQ (J-flag)
- Sample storage and preservation
- Data system printouts
- Qualitative and quantitative compound identification
- Chain-of-custody (COC)
- Case narrative and deliverables compliance

The items listed above were in compliance with DOD QSM, version 4.2, and project-specific QAPP criteria and protocols with exceptions discussed in the text below. The data have been verified according to the procedures outlined above and qualified accordingly.

***GENERAL NOTES:***

**SAMPLE LABELING/CHAIN-OF-CUSTODY**

No errors in the chain-of-custody were noted. There were no discrepancies noted between the sample labels and the chain-of-custody, or the cooler contents and the chain-of-custody.

**MS/MSD**

For metals, the lab performed matrix spike and matrix spike duplicate samples for a sample B214SCS0112AA. Since these samples were not requested by the client in the chain-of-custody, no action was taken for the MS/MSD criterion.

## METALS

- According to the case narrative, the following sample was analyzed at an initial dilution for the listed analyte:

Sample	Analyte	Dilution
B214SCS0104AA	Manganese	1:10

The dilution results only are reported and are used in data verification as representing original results.

- According to the case narrative, the solution used as the interference check standard showed the result for copper at a level greater than the LOD for the analytical batch associated with the field samples. The solution is believed to contain trace impurities of these elements, consistent with those found by the manufacturer of the solution. Using professional judgment, the “Q” qualifiers assigned by the laboratory were removed since the sample results are not due to matrix interference; (the levels in the soil samples were also well above those levels observed in the ICS solution).

Metal	Level in the ISCA solution 175050/16 (µg/L)	LOD (µg/L)
Chromium	2.15	1.5
Copper	4.47	3.5
Vanadium	4.72	2.5
Metal	Level in the ISCA solution 175199/14 (µg/L)	LOD (µg/L)
Chromium	2.14	1.5
Manganese	3.83	0.5
Vanadium	3.76	2.5
Metal	Level in the ISCA solution 175204/14 (µg/L)	LOD (µg/L)
Chromium	2.14	1.5
Manganese	3.83	0.5
Vanadium	3.76	2.5
Metal	Level in the ISCA solution 175604/14 (µg/L)	LOD (µg/L)
Copper	4.03	3.5
Manganese	3.84	0.5

- An Inductively Coupled Plasma (ICP) Serial Dilution Test (1:5 dilution) is required to be run for each sample matrix that is analyzed for metals, and is applicable only for those analytes with concentrations greater than 50 times the limit of quantitation (LOQ). The dilution test was performed on sample B214SCS0112AA and indicated the percent difference (%D) between the original result and the five-times (5x) serial dilution result was greater than the QAPP limit of  $\pm 10\%$ :

Analyte	Initial Sample Result (mg/kg)	Serial Dilution Result (mg/kg)	% Difference	LOQ (mg/kg)	50 x LOQ	Post-Digestion Spike %Rec
Manganese	790	884	<i>12</i>	4.6	230	<i>-197</i>
Nickel	13	15.0	<i>11</i>	4.1	205	82
Zinc	54	60.8	<i>12</i>	8.1	405	91

The QAPP also requires that a post-digestion spike addition be performed when at least one sample within the batch had a concentration of analyte less than 50x the LOD, and the recovery must be within 75-125% of the expected result. The QAPP requires that for all sample results for the specific analytes for all samples associated with the post-digestion spike addition that do not meet the acceptance criteria (i.e., 75-125%), that a “J” be applied to the results, and that they be considered estimated.

**Corrective Action:** Applying the data qualification approach for the serial dilution result exceedances per the QAPP, the dilution test results are only applicable if the analytes in the original, undiluted sample are reported greater than 50 times the LOQ. Hence, only the dilution test results for manganese were applicable. A “J” qualifier was applied to the associated result. Although the post-digestion spike result were outside the control limits of 75-125% for manganese, the results did not affect data quality since spike levels were insignificant relative to the native soil concentrations: (manganese spike: 5.08 mg/kg).

## **DATA USABILITY RESULTS**

### **METALS**

Based on the evaluation of all information in the analytical data groups, the results for metals are usable with the data qualifiers as noted. Using the verification approach as presented above, the results for all above samples are 100% usable.

## **DATA USABILITY SUMMARY**

All data in Job # 280-42162-1 are valid and usable with qualifications as noted in the data review.

Signed: Concordia van Hoesel Date: 7/3/13

### ***ATTACHMENTS***

- Chain-of-custody
- Laboratory case narrative
- Qualified final data verification results on annotated Lab Sheet 2s

## SAMPLE SUMMARY

Client: FPM Remediations Inc

Job Number: 280-42162-1

<b>Lab Sample ID</b>	<b>Client Sample ID</b>	<b>Client Matrix</b>	<b>Date/Time Sampled</b>	<b>Date/Time Received</b>
280-42162-1	B214SCS0104AA	Solid	05/08/2013 1355	05/11/2013 0945
280-42162-2	B214SCS0108AA	Solid	05/08/2013 1400	05/11/2013 0945
280-42162-3	B214SCS0112AA	Solid	05/08/2013 1405	05/11/2013 0945

All other quality control parameters were within the acceptance limits.

**PERCENT SOLIDS**

Samples B214SCS0104AA (280-42162-1), B214SCS0108AA (280-42162-2), and B214SCS0112AA (280-42162-3) were analyzed for percent solids in accordance with EPA SW846 3550C. The samples were analyzed on 05/24/2013.

No difficulties were encountered during the % solids analyses.

All quality control parameters were within the acceptance limits.

**CASE NARRATIVE**  
**Client: FPM Remediations Inc**  
**Project: Griffiss AFB SD050 BLDG 214**  
**Report Number: 280-42162-1**

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

**RECEIPT**

Three samples were received on 05/11/2013; the samples arrived in good condition, properly preserved and on ice. The temperature of the cooler at receipt was 3.8°C.

**TOTAL METALS (ICP)**

Samples B214SCS0104AA (280-42162-1), B214SCS0108AA (280-42162-2), and B214SCS0112AA (280-42162-3) were analyzed for Total Metals (ICP) in accordance with EPA SW-846 Method 6010C. The samples were prepared on 05/17/2013 and 05/29/2013 and analyzed on 05/20/2013, 05/21/2013, 05/22/2013 and 05/29/2013.

Aluminum, Barium, and Boron were detected in method blank MB 280-174366/1-A at levels that were above the method detection limits but below the reporting limits. The values should be considered estimates, and have been flagged "J". However, because the result concentrations were less than ½ the respective reporting limits, no corrective action was necessary.

Aluminum, Iron, and Manganese failed the recovery criteria high for the matrix spike (MS) and matrix spike duplicate (MSD) of sample B214SCS0112AA (280-42162-3) in batch 280-175604. Antimony, Calcium, and Thallium failed the recovery criteria low. The presence of the '4' qualifier in the report indicates where the analyte concentration in the unspiked sample exceeded four times the spiking amount. The associated laboratory control sample (LCS) recoveries met acceptance criteria, and the sample results have been flagged accordingly.

Sample B214SCS0104AA (280-42162-1) required a dilution prior to analysis to bring the concentration of Manganese within the daily calibration range. The reporting limits have been adjusted accordingly.

The Serial Dilution (SD) and the Post Digestion Spike (PDS) recovered outside of acceptance limits for Manganese in analytical batch 280-175199, and the appropriate flags were applied.

The interference check standard solution (ICSA) associated with batch 280-175199 showed results for one or more elements at a level greater than the limit of detection (LOD). The initial ICSA results were greater than the LOD for Chromium, Manganese, and Vanadium. It is believed that the solution contains trace impurities of these elements and that the results are not due to matrix interference. These results are consistent with those found by the manufacturer of the ICSA solution. The associated sample results have been flagged "Q" for these elements.

The interference check standard solution (ICSA) associated with batch 280-175204 showed results for one or more elements at a level greater than the limit of detection (LOD). The initial ICSA results were greater than the LOD for Chromium, Manganese, and Vanadium. It is believed that the solution contains trace impurities of these elements and that the results are not due to matrix interference. These results are consistent with those found by the manufacturer of the ICSA solution. The associated sample results have been flagged "Q" for these elements.

The interference check standard solution (ICSA) associated with batch 280-175604 showed results for one or more elements at a level greater than the limit of detection (LOD). The initial ICSA results were greater than the LOD for Copper and Manganese. It is believed that the solution contains trace impurities of these elements and that the results are not due to matrix interference. These results are consistent with those found by the manufacturer of the ICSA solution. The associated sample results have been flagged "Q" for these elements.

The interference check standard solution (ICSA) associated with batch 280-175050 showed results for one or more elements at a level greater than the limit of detection (LOD). The initial ICSA results were greater than the LOD for Chromium, Copper, and Vanadium. It is believed that the solution contains trace impurities of these elements and that the results are not due to matrix interference. These results are consistent with those found by the manufacturer of the ICSA solution. The associated sample results have been flagged "Q" for these elements.

No other difficulties were encountered during the metals analyses.

**Analytical Data**

Client: FPM Remediations Inc

Job Number: 280-42162-1

Client Sample ID: B214SCS0104AA

Lab Sample ID: 280-42162-1

Date Sampled: 05/08/2013 1355

Client Matrix: Solid

% Moisture: 10.4

Date Received: 05/11/2013 0945

**6010C Metals (ICP)**

Analysis Method:	6010C	Analysis Batch:	280-175204	Instrument ID:	MT_026
Prep Method:	3050B	Prep Batch:	280-174366	Lab File ID:	26d052013.asc
Dilution:	1.0			Initial Weight/Volume:	1.15 g
Analysis Date:	05/21/2013 0254			Final Weight/Volume:	100 mL
Prep Date:	05/17/2013 0730				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	DL	LOQ
Aluminum		14000		1.5	49
Antimony		0.58	U	0.37	1.9
Arsenic		5.1		0.64	2.4
Barium		46		0.074	1.9
Beryllium		0.57		0.032	0.49
Boron		3.7	J	0.95	9.7
Cadmium		0.62		0.040	0.49
Calcium		1300		14	97
Chromium		15	<del>U</del>	0.056	3.4
Cobalt		8.9		0.097	0.97
Iron		25000		3.7	78
Lead		31		0.26	0.87
Magnesium		4300		3.6	29
Molybdenum		0.49	U	0.25	2.4
Nickel		19		0.12	3.9
Potassium		990		40	290
Selenium		1.2	U	0.83	2.9
Silver		0.18	J	0.16	1.5
Sodium		94	J	57	490
Thallium		1.2	U	0.63	2.9
Vanadium		22	<del>U</del>	0.091	1.9

Analysis Method:	6010C	Analysis Batch:	280-175604	Instrument ID:	MT_026
Prep Method:	3050B	Prep Batch:	280-174366	Lab File ID:	26a052213.asc
Dilution:	1.0			Initial Weight/Volume:	1.15 g
Analysis Date:	05/22/2013 1335			Final Weight/Volume:	100 mL
Prep Date:	05/17/2013 0730				

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*1/3/13*

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	DL	LOQ
Copper		55	<del>U</del>	0.21	4.9
Zinc		85		0.39	7.8

Analysis Method:	6010C	Analysis Batch:	280-175604	Instrument ID:	MT_026
Prep Method:	3050B	Prep Batch:	280-174366	Lab File ID:	26a052213.asc
Dilution:	5.0			Initial Weight/Volume:	1.15 g
Analysis Date:	05/22/2013 1337			Final Weight/Volume:	100 mL
Prep Date:	05/17/2013 0730				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	DL	LOQ
Manganese		1600	<del>U</del>	0.49	22

## METHOD / ANALYST SUMMARY

Client: FPM Remediations Inc

Job Number: 280-42162-1

<b>Method</b>	<b>Analyst</b>	<b>Analyst ID</b>
SW846 6010C	Bowen, Heidi E	HEB
SW846 6010C	Harre, John K	JKH
EPA Moisture	Sullivan, Josh	JS

**Analytical Data**

Client: FPM Remediations Inc

Job Number: 280-42162-1

Client Sample ID: B214SCS0108AA

Lab Sample ID: 280-42162-2

Date Sampled: 05/08/2013 1400

Client Matrix: Solid

% Moisture: 6.6

Date Received: 05/11/2013 0945

**6010C Metals (ICP)**

Analysis Method: 6010C	Analysis Batch: 280-175204	Instrument ID: MT_026
Prep Method: 3050B	Prep Batch: 280-174366	Lab File ID: 26d052013.asc
Dilution: 1.0		Initial Weight/Volume: 1.10 g
Analysis Date: 05/21/2013 0256		Final Weight/Volume: 100 mL
Prep Date: 05/17/2013 0730		

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	DL	LOQ
Aluminum		8900		1.5	49
Antimony		0.58	U	0.37	1.9
Arsenic		5.4		0.64	2.4
Barium		36		0.074	1.9
Beryllium		0.35	J	0.032	0.49
Boron		4.1	J	0.95	9.7
Cadmium		0.32	J	0.040	0.49
Calcium		21000		14	97
Chromium		16		0.056	3.4
Cobalt		5.6		0.097	0.97
Iron		16000		3.7	78
Lead		14		0.26	0.88
Magnesium		3300		3.6	29
Manganese		770		0.097	4.4
Molybdenum		1.9	J	0.25	2.4
Nickel		14		0.12	3.9
Potassium		980		40	290
Selenium		1.2	U	0.84	2.9
Silver		0.19	U	0.16	1.5
Sodium		170	J	57	490
Thallium		1.2	U	0.63	2.9
Vanadium		15		0.091	1.9

Analysis Method: 6010C	Analysis Batch: 280-175604	Instrument ID: MT_026
Prep Method: 3050B	Prep Batch: 280-174366	Lab File ID: 26a052213.asc
Dilution: 1.0		Initial Weight/Volume: 1.10 g
Analysis Date: 05/22/2013 1339		Final Weight/Volume: 100 mL
Prep Date: 05/17/2013 0730		

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	DL	LOQ
Copper		36		0.21	4.9
Zinc		74		0.39	7.8

*CAH*  
*7/3/13*

**Analytical Data**

Client: FPM Remediations Inc

Job Number: 280-42162-1

Client Sample ID: B214SCS0112AA

Lab Sample ID: 280-42162-3

Date Sampled: 05/08/2013 1405

Client Matrix: Solid

% Moisture: 5.3

Date Received: 05/11/2013 0945

**6010C Metals (ICP)**

Analysis Method: 6010C	Analysis Batch: 280-175199	Instrument ID: MT_026
Prep Method: 3050B	Prep Batch: 280-174418	Lab File ID: 26a052013.asc
Dilution: 1.0		Initial Weight/Volume: 1.04 g
Analysis Date: 05/20/2013 1331		Final Weight/Volume: 100 mL
Prep Date: 05/17/2013 0730		

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	DL	LOQ
Aluminum		8700	J	1.6	51
Antimony		0.61	U	0.39	2.0
Arsenic		4.0		0.67	2.5
Barium		33		0.077	2.0
Beryllium		0.36	J	0.033	0.51
Cadmium		0.26	J	0.042	0.51
Calcium		11000	J	14	100
Chromium		12	J	0.059	3.6
Cobalt		5.7		0.10	1.0
Iron		18000	J	3.9	81
Lead		11		0.27	0.91
Magnesium		3400		3.8	30
Manganese		790	J	0.10	4.6
Molybdenum		0.60	J	0.26	2.5
Nickel		13		0.12	4.1
Potassium		990		42	300
Selenium		1.2	U	0.87	3.0
Silver		0.20	U	0.16	1.5
Sodium		110	J	60	510
Thallium		1.2	U	0.66	3.0
Vanadium		15	J	0.095	2.0
Zinc		54		0.40	8.1

Analysis Method: 6010C	Analysis Batch: 280-175604	Instrument ID: MT_026
Prep Method: 3050B	Prep Batch: 280-174418	Lab File ID: 26a052213.asc
Dilution: 1.0		Initial Weight/Volume: 1.04 g
Analysis Date: 05/22/2013 1223		Final Weight/Volume: 100 mL
Prep Date: 05/17/2013 0730		

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	DL	LOQ
Copper		33	J	0.22	5.1

Analysis Method: 6010C	Analysis Batch: 280-176458	Instrument ID: MT_025
Prep Method: 3050B	Prep Batch: 280-176262	Lab File ID: 25b052913.asc
Dilution: 1.0		Initial Weight/Volume: 1.05 g
Analysis Date: 05/29/2013 2232		Final Weight/Volume: 100 mL
Prep Date: 05/29/2013 1300		

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	DL	LOQ
Boron		2.7	J	0.99	10

*cut  
7/3/13*